



## Questions and Answers: Chiricahua Leopard Frog Recovery Plan

Arizona Ecological Services Field Office

<http://www.fws.gov/southwest/es/arizona>

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### **Q: What is the Chiricahua leopard frog?**

**A:** The Chiricahua leopard frog is a medium-to-large sized frog from 2.1 to 5.4 inches in length. It is spotted and often greenish with a raised fold of skin running down each side of the back. The Chiricahua leopard frog was listed as a threatened species in 2002 – it is at risk of becoming an endangered species in the foreseeable future throughout all or a significant portion of its range.

### **Q: Where do Chiricahua leopard frogs occur?**

**A:** The Chiricahua leopard frog is known from montane and river valley cienegas, springs, pools, cattle tanks, lakes, reservoirs, streams, and rivers. It is a habitat generalist that historically was found in a variety of aquatic habitat types, but is now limited to the comparatively few aquatic systems that support few or no non-native predators (e.g. American bullfrogs, fish, and crayfish). The species requires permanent or semi-permanent pools for breeding, water characterized by low levels of contaminants and moderate pH, and may be excluded or exhibit periodic die-offs where a pathogenic chytridiomycete fungus is present. The Chiricahua leopard frog occurs at elevations of 3,281 to 8,890 feet in central and southeastern Arizona, west-central and southwestern New Mexico, and the sky islands and Sierra Madre Occidental of northeastern Sonora and western Chihuahua, Mexico. The range of the species is split into two disjunct parts - the northern populations along the Mogollon Rim in Arizona east into the mountains of west-central New Mexico, and the southern populations in southeastern Arizona, southwestern New Mexico, and Mexico. Genetic analysis suggests the northern populations may be an undescribed, distinct species.

### **Q: What is threatening the Chiricahua leopard frog?**

**A:** Threats to this species include predation by non-native organisms, especially American bullfrogs, fish, and crayfish; the fungal disease chytridiomycosis; drought; floods; degradation and loss of habitat as a result of water diversions and groundwater pumping, livestock management that has or continues to degrade frog habitats, fire-prone upland habitats resulting from a long history of fire suppression, mining, development, and other human activities; disruption of localized population (metapopulation) dynamics; increased chance of extirpation or extinction resulting from small numbers of populations and individuals existing in dynamic environments; and probably environmental contamination (such as runoff from mining operations and airborne contaminants from copper smelters). Loss of Chiricahua leopard frog populations fits a pattern of global amphibian decline, suggesting other regional or global causes of decline may be important as well, such as elevated ultra-violet radiation, pesticides or other contaminants, and climate change.

**Q: What are recovery plans and how are they enforced?**

**A:** The Endangered Species Act mandates that recovery plans be completed and implemented for listed species unless such a plan will not promote the conservation of the species. The ESA authorizes the Secretary of the Interior to appoint recovery teams for development of recovery plans. Recovery Plans are to include – (i) a description of site-specific management necessary to achieve the plan’s goal for the conservation and survival of the species; (ii) objective, measurable criteria which, when met, would ultimately recover the species so it can be removed from the list; and (iii) estimates of the time and cost required to carry out those measures needed to achieve the plan’s goals and to achieve intermediate steps toward those goals. A recovery plan is not a legally binding document, but a blueprint for actions needed to improve the status of a listed species to the point where it no longer needs the protection of the ESA. Recovery is a process by which the decline of an endangered or threatened species is arrested or reversed, and threats to its survival are neutralized, so that the long-term survival in nature can be ensured.

**Q: How was the Chiricahua leopard frog recovery plan assembled?**

**A:** To develop a scientifically based, yet attainable recovery plan, the U.S. Fish and Wildlife Service (Service) assembled a team of technical specialists and three regional stakeholder groups. The Technical Subgroup provided expertise in amphibian biology, hydrology, forest management, captive care and amphibian diseases, and conservation biology. The Stakeholders kept the process grounded in the logistical realities of on-the-ground implementation. All subgroup members had the opportunity to contribute to this recovery plan, and many took advantage of that opportunity over the 36 months of meetings and workshops that resulted in this plan.

**Q: What recovery goals does the recovery plan prescribe?**

**A:** The ultimate goal is to recover and delist the Chiricahua leopard frog. To do so, the recovery plan proposes that the frog must reach a population level and have sufficient habitat to provide for the long-term persistence of localized populations (metapopulations) in each of eight recovery units (RUs). The Chiricahua leopard frog will be considered for delisting when the following quantitative criteria are met in each RU:

1. At least two metapopulations located in different drainages plus at least one isolated and robust population in each RU exhibit long-term persistence and stability as demonstrated by a scientifically acceptable population monitoring program. Interpretation of monitoring results will take into account precipitation cycles of drought or wet periods and the effects of such cycles on population persistence.
2. Aquatic breeding habitats, including suitable, restored, and created habitats necessary for persistence of metapopulations and isolated populations identified in criterion 1, are protected and managed in accordance with the recommendations in the plan.
3. The additional habitat needed for population connectivity, recolonization, and dispersal is protected and managed for Chiricahua leopard frogs, in accordance with the recommendations in the plan.
4. Threats and causes of decline have been reduced or eliminated, and commitments of long-term management are in place in each RU such that the Chiricahua leopard frog is unlikely to need protection under the ESA in the foreseeable future.

**Q: How does the recovery plan propose to achieve the recovery goals?**

**A:** The recovery strategy involves reducing threats to existing populations; maintaining, restoring, and creating habitat that will be managed in the long term; translocating frogs to establish, reestablish, or augment populations; building support for the recovery effort through outreach and education; monitoring; research needed to provide effective conservation and recovery; and application of research and monitoring through adaptive management.

Establishment and maintenance of at least two metapopulations in different drainages within each Recovery Unit (RU) are integral to the recovery strategy. These metapopulations must exhibit long-term persistence and be protected from non-native predators, disease, habitat alteration, and other threats. As a buffer against disease, at least one additional robust, but isolated population should be established and maintained in each RU. A captive or actively-managed, genetically diverse refugium population will also be desirable for RUs in which extirpation of Chiricahua leopard frogs is likely in the near future. These refugia can serve as a source of animals for establishment and augmentation projects, for contingency planning in case of environmental or other disasters that reduce or eliminate populations, and to supply animals needed for research related to conservation.

Implementation of the recovery strategy will be a collaborative effort among technical experts, zoos and museums, agencies, and other participants and stakeholders. Recovery and the status of the species will be tracked via monitoring and annual reporting through the working groups. Research will provide the information needed to ensure the recovery strategy is as effective as possible.

Specific activities and schedules to implement the recovery plan are described in the recovery plan, as are proposals as to who would best conduct the activities.

**Q: How long will it take and how much will it cost to recover the Chiricahua leopard frog?**

**A:** If recovery actions are promptly and successfully implemented, the recovery goal of securing three frog-populated drainages in each of eight recovery units in Arizona and New Mexico could be reached by 2025-2030. At that point the species could be considered for removal from the federal list of threatened species. The initial five years of recovery costs are estimated at \$3.26 million.

**Q: Who will be involved in Chiricahua leopard frog recovery activities? How can I help?**

**A:** The recovery program will need the help of landowners, land managers, ranchers, volunteers, and others with an interest in conservation. If you would like to help, we suggest you contact your local or state office of the U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, or Arizona Game and Fish Department. Contacts in these agencies can be found in Part IV of the recovery plan “List of Contacts”. On the White Mountain Apache Reservation, contact Cynthia Dale (928/338-4385). On the San Carlos Apache Reservation, contact Stephanie White (928/475-4758).

**Q: Are there funding sources for recovery projects?**

**A:** Funding opportunities exist through Partners for Fish and Wildlife Program Coordinator, U.S. Fish and Wildlife Service, Tucson, AZ (520/670-6150) and U.S. Fish and Wildlife Service, Albuquerque, NM (505/346-2525); Conservation Grants Coordinator, Natural Resource Conservation Service, Tucson, AZ (520/670-6602) and Albuquerque, NM (505/761-4425); and, Habitat Programs with the Arizona Game and Fish Department (Flagstaff – 928/774-5045; Mesa – 480/981-9400; Pinetop – 928/367-4281; Tucson –

520/628-5376). See other contacts and resources in “State and Federal Programs to Assist Landowners and Managers in Recovery Plan Implementation” in Appendix A of the recovery plan.

**Q: How would frogs on or near my property affect my property rights or grazing allotment?**

**A:** For the legal implications of having a listed frog on or near your property, we suggest you contact the U.S. Fish and Wildlife Service Offices in New Mexico (505/346-2525) or Arizona (602/242-0210). Programs such as Safe Harbor Agreements on non-Federal lands can be developed to protect landowners from liabilities associated with having a listed species on your property, while still providing conservation benefit to the frog. A state-wide Safe Harbor Agreement for Arizona has been completed and interested landowners can be considered for inclusion in this agreement. U.S. Fish and Wildlife Service or State Game and Fish contacts can help you with these programs. For questions concerning effects on State or Federal grazing allotments, we recommend you contact the Range Conservation Specialist with your local State (e.g. Arizona State Land Department) or Federal (Forest Service or Bureau of Land Management) land manager for the grazing allotment in question. Some of the Stakeholders on the recovery team are dealing with this situation and can provide first hand knowledge and advice (see “List of Contacts” in the recovery plan).

**Q: What do I do if I find frogs on my property?**

**A:** Chiricahua leopard frogs are similar to several other leopard frog species. To determine if you have Chiricahua leopard frogs, contact one of the Technical Subgroup members of the Recovery Team, the U.S. Fish and Wildlife Service contacts in the above paragraph, your local State Game and Fish Office, or a qualified biologist who is permitted by the State and U.S. Fish and Wildlife Service to survey for Chiricahua leopard frogs. If the frogs are identified as Chiricahua leopard frogs, we suggest you contact a Recovery Team member, who will be able to answer your questions (see “List of Contacts” in the recovery plan).

**Q: What do I do if I find a frog population in a pond that is drying up?**

**A:** Many frog populations, particularly during drought, are eliminated when stock ponds or other small aquatic habitats dry up. Small populations can also be eliminated due to ash or sediment flow after a fire, flooding, or other events. This recovery plan recommends salvage and temporary holding of frogs in such circumstances. The frogs can then be repatriated after the pond refills. If you encounter a Chiricahua leopard frog population in danger of being eliminated by drought or some other natural disaster, please contact the land manager (e.g. Forest Service or Bureau of Land Management) or the landowner, a State Game and Fish or Fish and Wildlife Service representative, or a member of the recovery team (see “List of Contacts” in the recovery plan).

**Q: How can I get a copy of the recovery plan?**

**A:** The recovery plan is available online at <http://www.fws.gov/southwest/es/arizona> or by contacting the Field Supervisor, U.S. Fish and Wildlife Service, 2321 W. Royal Palm Road, Ste. 103, Phoenix, AZ 85021 (602/242-0210).