

**Programmatic aquatic special status species
reintroductions at
Las Cienegas National Conservation Area**

EA#: DOI-BLM-AZ-G020-2011-0028

**BLM Tucson Field Office,
Las Cienegas National Conservation Area**

May 2012

EA #: DOI-BLM-AZ-G020-2011-0028 (EA)

Project Name: Programmatic aquatic special status species reintroductions at stock pond locations on the Las Cienegas National Conservation Area

Contact Person(s): Jeff Simms

Legal Description: See Figure 1

Topographic Map Names: Spring Water Canyon, Empire Ranch, Narrows, Elgin, Apache Peak, Mustang Mountains, O'Donnell Canyon, Mescal

Project Area Flagged: Yes No

Section I. Purpose and Need for Action

Introduction

Background: The Bureau is working to conserve federally listed species and riparian-wetland health in Arizona (USDI-BLM 1991, USDI-BLM 1990). When opportunities arise to improve habitat conditions and translocate special status species to aquatic habitats with characteristics suitable to support a robust, self-sustaining population, where practicable, the Bureau will make an effort to identify these opportunities and take actions that help recover federally listed species and conserve other special status species as to lessen their need for federal listing. In some cases, semi-natural habitats will be created or existing ones (e.g. stock ponds) will be used to provide release sites to create additional populations that bolster efforts in the wild.

Opportunities for conservation of listed aquatic species in dirt livestock watering holes exist in the Las Cienegas National Conservation Area (LCNCA), Empire-Cienega ACEC and Sonoita Valley Acquisition Planning District (SVAPD), which surrounds LCNCA. This is an opportunity for dual use of these developed sites.

The Need for the Proposal:

The goal of the project is to replicate self-sustaining populations of Chiricahua leopard frog (*Lithobates [Rana] chiricahuensis*), Gila topminnow (*Poeciliopsis occidentalis*), desert pupfish (*Cyprinodon macularius*), Gila chub (*Gila intermedia*), and Huachuca water umbel (*Lilaeopsis schaffneriana* var *recurva*) in order to improve the prospects for recovery of these federally listed species as mandated under the Endangered Species Act (ESA Sec. 7(a)1). Such efforts are necessary as the result of cumulative impacts of past human activities that have degraded habitat and increased the number of invasive and predacious aquatic species, diseases and parasites that affect native aquatic species (Minckley and Deacon 1991, Rinne and Minckley 1991, Rosen and Schwalbe 2002, Tellman et. al. 1997). This project would fulfill the Bureau's responsibility to conserve listed species and other BLM sensitive species. Section 7(a)1 of the Endangered Species Act of 1973 directs all federal agencies to use their authorities to further the purposes of the Act by conserving threatened and endangered species. Two other aquatic special status species would benefit from reintroduction as well: Mexican gartersnake (*Thamnophis eques*), a federal candidate species, and Sonora mud turtle (*Kinosternon sonoriense*), a BLM sensitive species.

Cienega Creek and associated wetlands once harbored robust populations of two native frog species, three fish species, Mexican gartersnake, and Sonora mud turtle (BLM records). Today

the Chiricahua leopard frog, a federally threatened species, is represented by only a single population in the system. The recovery plan (USFWS 2008) directs the BLM and other agencies to create new self-sustaining populations that are interacting with other populations to create “meta-populations.” A limited number of springs and small wetlands provide the opportunity to re-establish native fishes, frogs, reptiles and plants that are now regionally and globally imperiled. In addition to the natural sites, there are artificially maintained aquatic habitats created for watering livestock and wildlife. Historically, Chiricahua leopard frog, Gila topminnow, Monkey Spring pupfish (*Cyprinodon arcuatus*) and Mexican gartersnake were found throughout much of the Santa Cruz Basin. Currently the chub and topminnow are listed as endangered species and the pupfish is now extinct. These species and the desert pupfish (found in the greater Gila Basin) are in need of actions that improve their status as outlined in the Sonoran topminnow (Gila and Yaqui) Recovery Plan (USFWS 1984) and desert pupfish recovery plan (USFWS 1993), respectively.

The Chiricahua leopard frog is in special need of recovery attention. It is the primary objective of this project to attain population levels of this species that provide for adaptation (immunity) to a disease causing fungus introduced into the environment several decades ago that has contaminated wild aquatic habitats. This appears to be an opportunity to improve the population viability of this species in the Cienega Creek basin.

The LCNCA has more than 40 “dirt tanks” (small livestock watering ponds) in a large array of settings. Most are supplied by well water and are allowed to dry seasonally as a requirement by a Biological Opinion rendered by the USFWS in 2002 (02-221-02-F-162). The Service has issued a revision of the BO to include the effects of managing ponds as perennial waters for listed aquatic species (22410-2002-F-0162-R001) in accordance with the proposed action analyzed in this Environmental Assessment.

The Purpose of the Project:

The purpose of this project is to conserve imperiled aquatic species through establishment of new populations in strategically located livestock and wildlife watering ponds. The conversion of these habitats to perennial ponds with dual use of these habitats is to benefit these aquatic species without interfering with livestock or game species use. The project would allow the development of model agency-rancher cooperation for aquatic species conservation within an active grazing allotment.

This project has been developed with the participation of several entities concerned about wildlife management activities on the LCNCA. These include the Sonoita Valley Planning Partnership, Cienega Watershed Partnership, grazing lessee, Audubon Research Ranch, Arizona Nature Conservancy, Natural Resource Conservation Service, and the Four Southern Tribes (Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community, Gila River Indian Community, Tohono O’odham Nation).

Conformance with Land Use Plan:

The proposed action is in conformance with the Las Cienegas RMP/EIS and implements decisions WF05, WF18, AA08, and AA09. Review of the RMP has determined that the project, as proposed, would not preclude attainment of any other resource goals, objectives or desired resource conditions, or otherwise interfere with carrying out other resource decisions contained

in the plan. This proposed action has been reviewed to determine if it conforms to the land use plan terms and conditions as required by 43 CFR 1610.5, BLM MS 1617.3.

Relationship to Statutes, Regulations or Other Plans or Policies:

50 CFR §402.01 directs Federal agencies to carry out conservation programs for listed species under the Endangered Species Act. Conservation is “...to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures of pursuant to this Act are no longer necessary.” The proposed project is entirely within the national LCNCA and SVAPD created by congress. Enabling legislation for the LCNCA directed the BLM to “conserve, protect and enhance” resources including aquatic habitat, fish and wildlife. The BLM is responsible for assisting the U.S. Fish and Wildlife Service (USFWS) with actions that support the recovery of threatened and endangered species [Section 7(a)1].

LCNCA Legislation - Public Law 106-538 (December 6, 2000): (excerpt) *In order to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the unique and nationally important aquatic, wildlife, vegetative, archaeological, paleontological, scientific, cave, cultural, historical, recreational, educational, scenic, rangeland, and riparian resources and values of the public lands described in subsection (b) while allowing livestock grazing and recreation to continue in appropriate areas, there is hereby established the Las Cienegas National Conservation Area in the State of Arizona. The Secretary shall manage the Conservation Area in a manner that conserves, protects, and enhances its resources and values, including the resources and values specified in section above, pursuant to the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.) and other applicable law, including this Act. The Secretary shall allow only such uses of the Conservation Area as the Secretary finds will further the purposes for which the Conservation Area is established.*

The proposal is authorized under the Federal Land Policy and Management Act of 1979 (43 U.S.C. 1701 et seq.), BLM manual 6840 – Special Status Species Management, and BLM manual 1745 – introduction, transplant, augmentation, and reestablishment of fish, wildlife, and plants. The proposed project meets the goals and objectives stated in the Arizona Riparian-Wetland Area Management Plan (UDI-BLM 1990) and program guidance found in the Special Status Fishes Management Plan (USDI-BLM 1991).

All three recovery plans for federally listed species call for the establishment of new populations in order to improve their status in an effort to meet stated recovery criteria (USFWS 1984, 1993, 2008). The improvement of the status of the Chiricahua leopard frog, Gila topminnow, desert pupfish, Gila chub, Huachuca water umbel and Mexican gartersnake will require the establishment of new populations.

The BLM decision only authorizes use of BLM land. Use of non-BLM land (National Forest, State Trust Land, private land) is subject to the agency or private landowners' permission. Public lands in the area are subject to the Section 7(a)2 of the Endangered Species Act as the proposed project is likely to have some limited adverse effects to listed species (see BO 22410-2002-F-0162-R001).

The Migratory Bird Treaty Act (MBTA) of 1918 prohibits hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting migratory birds, parts, nests and eggs, covered by the Act, except as permitted by regulations (50 CFR Subchapter B). Executive Order 13186 directs executive branch departments and agencies to take certain actions to further implement the MBTA. Section 3 of EO 13186 requires each agency ensure that environmental analysis of federal actions required by NEPA or other established environmental review processes evaluates the effects of actions and agency plans on migratory birds, with emphasis on species of concern. “Species of Concern” are defined as those species listed in the periodic report, Birds of Conservation Concern, published by the Fish and Wildlife Service Division of Migratory Bird Management. BLM Instruction Memorandum No. 2008-050 indicates that the Western BLM Bird Species of Conservation Concern list is applicable to BLM, MBTA, and NEPA review at the project level. A memorandum of Understanding between the U.S. Department of Interior Bureau of Land Management and the U.S. Fish and Wildlife Service to promote the conservation of migratory birds (WO-IB-2010-110) is intended to strengthen migratory bird conservation through improved cooperation and protection of migratory birds and directs BLM policy.

Stipulations Associated with the Proposed Action:

Additional Site Specific NEPA Review: Since this programmatic EA does not have site specific actions and analysis of impacts, each proposed site specific action will be checked for consistency through the Determination of NEPA Adequacy process (DNA). If the current analysis with mitigation and stipulation is found insufficient, a new EA would be required as a matter of BLM policy.

Cultural Resource Clearance:

Prior to project implementation all locations scheduled for new pipelines, fence, informational and regulatory signs or kiosks, water trough installation, water storage tanks, pond excavation or pond expansion will be required to be surveyed for cultural resources as required under Section 106 NHPA (National Historic Preservation Act). A Class III cultural resource survey will be required. All previously known or newly recorded cultural resource sites will be avoided during project operations. Additional cultural resource surveys will be required in the event the project location is changed or additional surface disturbing operations are added to the project after the initial survey. Any such survey would have to be completed prior to commencement of operations.

Cultural resource sites will be protected by relocating ground disturbing activities to adjacent locations. However, all pond locations determined to have cultural resources in the general vicinity would require site monitoring both during and after project work.

All work in the area shall stop immediately, and the Tucson Field Office Archaeologist shall be notified immediately if the following should occur:

- 1) if any archaeological, historical artifacts, human remains or vertebrate fossils discovered during operations, project or construction activities; they shall be left intact and undisturbed;
- 2) if any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (P.L. 101-601; Stat. 3048; 25 U.S.C. 3001) are discovered; work shall cease in the immediate area of the discovery and protect the remains and objects.

(Please note that all persons who are associated with the project operations will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts).

Range - Livestock Grazing:

At each site where livestock continue to use earthen ponds or troughs for watering, the development of new ponds or modification to existing ponds to provide aquatic habitat for reintroductions, will be made compatible with the needs of the ranching operation. In locations where livestock watering ponds have been replaced by metal drinkers, man-made wetland habitat may not require compatibility other than sharing the water source and storage facilities. Under all conditions, water will be made available to livestock in sufficient quantity during the seasonal use in each pasture.

Threatened and Endangered Species: Prior to project implementation all areas scheduled for new water pipelines, fencing, informational and regulatory signs or kiosks, water storage tanks, water trough installation, pond excavation or pond expansion would be required to be surveyed for federally listed and proposed species. Consultation and conference with the USFWS has already taken place and should cover all activities for any anticipated take (see Biological Opinion 22410-2002-F-0162-R001). If a species or effect not accounted for in the BO occurs, then the site will not be selected or a separate EA and consultation will be required (see NEPA process outlined above).

Migratory Bird Treaty Act: Site specific steps will be taken to avoid disturbance of any nesting at sites slated for development. The general practice would be to schedule project implementation to avoid potential conflicts during the nesting season (October 1 to March 1); however, the site characteristics will largely determine the likelihood of affecting any priority migratory bird populations (Western BLM Bird Species of Conservation Concern list). Any required measures will be determined on an individual basis.

Visual Resource Management: Solar systems, storage tanks, signs and fences proposed for construction would require site specific placement and color design to limit impacts to visual resources.

Section II: Alternatives Including the Proposed Action

Description of the Proposed Action:

A. Species Translocations

- Interagency Coordination: the BLM, Tucson Field Office, in coordination with the USFWS and AGFD, propose to establish populations of Chiricahua leopard frog, Gila

topminnow, desert pupfish, Gila chub, Mexican gartersnake, Sonora mud turtle and Huachuca water umbel into multiple (up to 16) earthen stock tanks and modified large above-ground water storage tanks. The primary goal is to create self-sustaining metapopulations of leopard frogs that will aid in the recovery of this species and its biologically imperiled (federal candidate) predator the Mexican gartersnake. All livestock watering tanks (earthen ponds and modified storage tanks) would be inventoried for habitat suitability and potential for conflicts with neighboring property and livestock operations.

- Fish and Leopard Frog Releases: the proposed project consists of releasing federally listed Chiricahua leopard frog, desert pupfish, Gila topminnow and Gila chub into perennial livestock watering ponds and modified storage tanks. Population augmentations would occur over a 10 year period. The initial stockings of fish and leopard frogs would consist of up to several hundred individuals. Over the next nine years, additional fish and leopard frogs would be added to each location. This would provide each species with a genetically diverse, founding population. Fish and frogs (eggs/tadpoles/recent metamorphs/adults) used for the translocation would come from an appropriate source as determined by the USFWS in cooperation with the AGFD with guidance from recovery plans and the latest biogeographic and genetic information. Species mix for each habitat, exact quantity and timing of the releases would be determined by the USFWS and AGFD, in consultation with BLM. The AGFD, USFWS, and properly permitted individuals would be responsible for collecting and moving native fish and frogs (eggs, tadpoles, recent metamorphs or adults). No fish or frogs would be transplanted until stock ponds are excavated and sufficient time has passed (approx. one month) for water quality to stabilize and aquatic ecosystem functions related to the food web have progressed sufficiently. The BLM would monitor habitat and jointly monitor populations with the USFWS and AGFD.
- Mexican Gartersnake and Sonora Mud Turtle: the proposed project consists of releasing gartersnakes into stock ponds and modified storage tanks. Mud turtles would only be released into stock ponds from sources in Cienega and O'Donnell creek basins. Population augmentation of gartersnakes would occur over a ten year period. The initial stocking would be determined at a future time as this species does not yet have a captive source population to draw individuals from. Over the next nine years additional snakes would go to each location. This would provide the gartersnake with a genetically diverse, founding population. Gartersnake introductions to sites would follow the establishment of robust populations of leopard frogs and fish, which serve as the primary prey for gartersnakes. The AGFD and properly permitted individuals in consultation with partners would be responsible for collecting and moving Mexican gartersnakes. Should the species become listed under the ESA, this responsibility would be shared with the USFWS.
- Huachuca Water Umbel Transplant: Huachuca water umbel would be planted at suitable pond locations. Additional plugs would be added to each site, as needed, to maintain a healthy, self-sustaining population over a 10 year period. Plant stock used for the translocations would be chosen by the USFWS. Water umbel plants are typically transplanted as "plugs" grown under controlled conditions specifically for transplanting to new sites. The suitability of the habitats for Huachuca water umbel would be assessed

by a qualified botanist and a suitable number of umbel plants would be moved to each site (10 to 20 plugs). The exact quantity and timing of transplants would be dictated by the number of plugs available and days remaining in the growing season. The USFWS would be responsible for collecting and moving this endangered plant.

- Protection of Native Leopard Frog, Fish and Reptile Populations from Invasive Species: Sites will be monitored on a semi-annual basis. Exotic invasive species that may gain access to reintroduction sites from adjacent waters include crayfish, bullfrogs, and a variety of sport and bait fishes. These species will be captured and removed from the site in an expedient manner to prevent their spread to and establishment at other sites. Methods of removal include setting hoop nets, seining, electrofishing, and drying ponds.
- Population Augmentation and Site Suitability: following the initial establishment of individual populations of each species at each site, it may be necessary to augment species numbers when populations are reduced due to flood, drought, habitat maintenance, disease or for maintenance of genetic diversity. In the event of population failure at any site, following the 10 year establishment period, a determination as to the suitability of the site for continued recovery efforts would be reached jointly by the BLM, USFWS, and AGFD. Sites that are found no longer to be suitable would not continue to be augmented or managed for that particular species.

Figure 1. Map of locations currently being considered for Chiricahua leopard frogs and other special status aquatic species at the north end of the LCNCA.

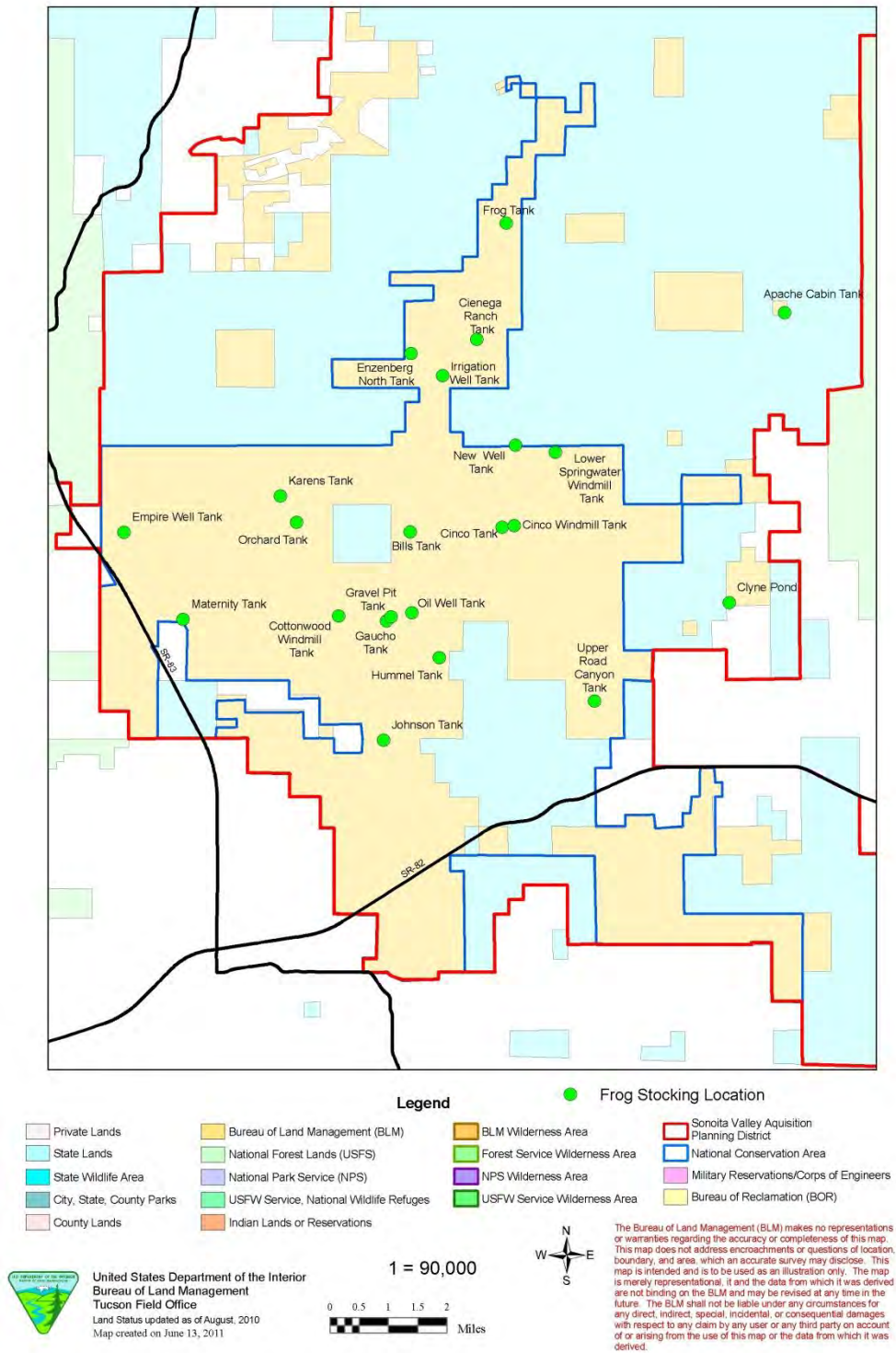
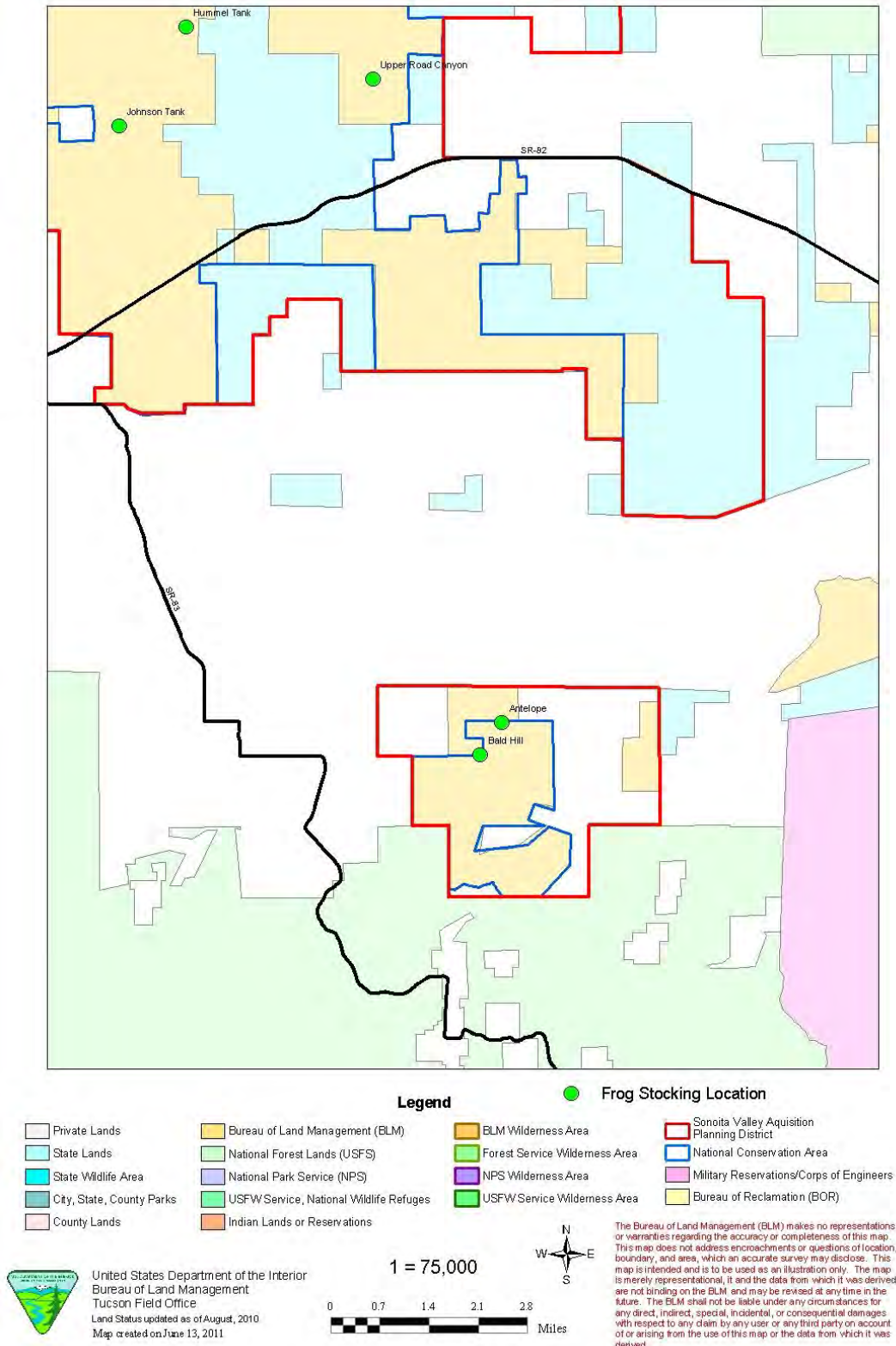


Figure 2. Map of locations currently being considered for Chiricahua leopard frogs and other special status aquatic species at the south end of the LCNCA.



A. Stock Pond Site Modification and Improvement

Selected stock tanks that are currently managed as seasonal waters for livestock in adjacent pastures would be converted to year-round water sources. This would be accomplished with solar operated pumping systems that utilize existing wells. In most cases, dirt livestock ponds would be replaced with metal or plastic drinking basins. These residual ponds can be used for wildlife without the need to excavate a second pond. In other cases, a second pond will be constructed in order to create a set of “twin” ponds. One of the ponds will be fenced (see Figure 3 and Appendix A) in order to create an ungrazed refuge for aquatic species, while the other will be used as a watering point for livestock, but will also have the same species composition as fenced ponds (e.g. fish and leopard frogs). For very large ponds (>100ft in diameter) a portion of the pond (minimum 1/2) would have fencing in order to provide a safe haven for aquatic wildlife. This habitat enhancement and protection of ponds for leopard frogs would also provide habitat for an array of wildlife species including aquatic insects, deer, pronghorn, box turtles, javelina, quail and a variety of other species.

Some sites will also have livestock watering troughs installed to replace earthen watering ponds in order to meet the goal of improving livestock health and growth rates.

Basic Project Elements

- **Solar Water Systems and Drinkers:** Water will generally be provided from nearby wells equipped with a solar pump and panels (Figure 5). These systems require a panel stand with frame and wiring from the panels to the well. Poles for solar panels would be up to 15 feet tall, and have a dull finish to minimize visual impacts. Pipeline with a 1/2 inch diameter will feed water to storage tanks and drinkers (troughs). The pipe would be buried approximately one foot deep using hand tools (short run). For long lines (>50ft) heavy equipment (e.g., backhoe or bull dozer with trenching attachment) would be used to dig the trench, lay pipeline and bury it. One to four drinkers would be placed at each site. The drinkers would number from two to as many as eight. They would have a capacity of 800 gallons and would be buried six to fourteen inches deep. Water storage units would be located near drinkers. These units would have a capacity of 2,500 to 5000 gallons and are constructed of high strength plastic. Existing open water storage tanks would have wildlife ramps installed to prevent drowning. Storage tanks and troughs would have color tones selected that mimic that of adjacent environments such as trees, grass during the season of highest recreation use, in this case fall through spring (non-growing season color of yellow). Non-reflective paint or an acid treatment wash to metal that produce a rusty non-reflective appearance on metal pipe rails or other metal structures would be used to reduce visual impacts. In addition, solar systems will be placed on the south side of trees in order to further reduce their visibility.

Examples of site development for drinkers to replace or negate the need for a second pond are described as follows: Cottonwood Tank would require four drinkers to replace one of the dirt tanks. Maternity Tank would require four drinkers each in two nearby pastures to replace the Bellota Tank (eight total). Empire Tank would require four

drinkers with about ½ mile of pipeline and four 5,000 gallon storage tanks located between the well and drinkers. These modifications would be done following site planning to mitigate impacts to visual resources and following individual archaeological surveys and clearances. Implementation of site specific mitigation would ensure avoidance of any cultural artifacts.

- **Pond Dimensions:** New ponds would be excavated to a maximum depth of 6 feet. Pond surface area would not exceed 1,962 ft² (50 foot diameter). Existing ponds used for this project would not be reduced in size should they exceed this diameter.
- **Construction of Pipe Livestock Fence:** A welded three-rail steel pipe and T-post fence would be erected around one of the paired stock tanks or would be used to split larger dirt tanks with sufficient capacity to meet livestock watering needs. The fences would measure 42 inches tall and be constructed with steel pipe (1 to 1.5 inch dia.) welded to T-posts set every 8 feet (Appendix A). Gates would be installed on the pipe fences to facilitate the removal of livestock that gain access to the enclosure. Approximately 200 to 300 feet of pipe rail fence would be constructed to enclose each pond. No galvanized pipe or fittings will be used in order to minimize visual contrast.
- **Use of Existing Barbed-wire Fences:** at some locations an existing barb-wire fence surrounds the perimeter of existing stock ponds. When such fences are suitably placed, they would be enhanced to improve their strength. Standard barbwire fencing is generally not adequate to keep livestock from a water source; however, when the option is practical enhancements to strengthen barbed-wire fencing may include inserting extra t-posts, additional wire or stronger materials at fence corners.
- **Cement Storage Tank Modification:** some locations have cement storage tanks used to supply water for dirt stock tanks. Where these have been abandoned, they may be modified by cutting a large opening along the perimeter of the tank. From 30 to 50% of the tank perimeter may be cut away leaving a pond depth of 18" to 2 feet (Figure 4).



Pond Maintenance: Dredging of ponds may be necessary on an infrequent basis (5-10 years). Aquatic animals would be salvaged from the pond scheduled for dredging and held in the other pond (i.e., where twin ponds are used) while the operation is taking place. The animals would be kept safe by moving them between ponds during the dredging procedure. BLM will coordinate with USFWS to determine if salvage of Huachuca water umbel from a pond scheduled for dredging or draining is needed. In the case where there are livestock drinkers and a single pond or a modified cement storage tank is used, the BLM may use an above ground storage tank of appropriate capacity to temporarily hold fish and frogs. In addition, AGFD may employ portable, above ground, pools and circulating pumps or other holding facilities. Dredge material from ponds would be placed around the pond perimeter in a similar manner to the current practice. Fish and frogs would be released back into habitat shortly after verifying that the pond will hold water and water quality is adequate (2-5 days). Solar water systems would be checked for integrity and operation jointly by the BLM or permittee on a regular basis (monthly).

- **Livestock Management:** Permittee will remove unauthorized livestock shortly after detection in fenced areas.
- **Sealing Ponds:** Dirt ponds may need to be sealed with clay to prevent seepage losses. Standard practice is to use bentonite clay. This comes in powdered form and is spread on the pond bottom and worked into dry bottom sediments prior to filling. Occasionally, rubberized pond liners may be used. Modified storage tanks may need to be sealed with a rubberized coating if there is seepage through cracks.
- **Fire prevention:** Where there are fine fuels such as grass, it would be mowed with a tractor to a width of eight feet around the perimeter of each pond prior to fence construction. This is anticipated to limit fire starts from welding and assist layout of fence lines. When fire danger reaches “High”, no welding would occur. Most sites have entirely bare ground surrounding dirt stock tanks. Nonetheless, fire prevention requirements including the following items will remain on hand at all times: shovel, five gallon bucket of sand, dirt or water and 10 pound fire extinguisher (Class ABC is sufficient) or 20 gallon backpack water sprayer.
- **Wetland Plants:** Some plant species would be removed by hand upon detection in order to limit their establishment (e.g., bulrush and cattail). Initial plantings of wetland plants would occur in order to preclude establishment of less desirable species. Plugs of spike rush (*Eleocharis sp.*), wire rush (*Juncus articus* var. *balticus*) and knot grass (*Paspalum distichum*) are species that would likely be selected. Other species would colonize the wetland from sources such as windblown seeds and shore bird droppings. All plantings will be coordinated with the USFWS to prevent the establishment of species incompatible with water umbel.
- **Habitat Structures.** Structure for sunning locations would be introduced into the ponds. Rocks and logs would be located along the banks of ponds. Cottonwood logs from the abandoned agricultural fields along Cienega Creek or mesquite logs from upland habitat restoration projects would be placed in ponds on an opportunistic basis (based on supply available).
- **Information and Education.** A sign panel(s) describing the aquatic ecosystem and conservation value of the stock pond and aquatic species habitat concept would be installed at the Cottonwood Tank project and other sites with good public access. In addition, each location would have a sign that communicates a message that includes the presence of federally listed species, the importance of conservation and stewardship, notice that the LCNCA is closed to fishing by commission order and that listed species in the ponds are protected by federal law. Areas with Huachuca water umbel would have an additional message to warn the public of risk to endangered plants from trampling.
- **Contaminant Prevention.** Only well maintained leak-free equipment would be used for pond maintenance. Refueling and repair would be done away from the project sites.
- **Leopard Frog Disease Prevention.** Standard operating procedures for leopard frog habitat and releases include disinfecting all field equipment to prevent the spread of amphibian chytrid, *Batrachochytrium dendrobatidis* (Bd) (see Appendix B). Both plants

and logs in the area would come from sources unlikely to be contaminated with chytrid or would be decontaminated prior to use pond habitats.

- **Bullfrog Control.** Any incursions of bullfrogs (*Lithobates catesbeiana*) into the ponds would be controlled in the spring and summer by mechanical removal. If necessary, the contaminated pond(s) would be dried. This would be accomplished by controlling inflow from the source or pumping the pond dry. Native and listed aquatic species would be held as described above in the *pond maintenance section*. Fish and frogs would be released back into habitat shortly after bullfrogs and tadpoles have been eliminated.
- **Monitoring.** BLM would work with USFWS and AGFD to develop a plan to monitor aquatic animal species and habitat to identify factors related to the success and failure of the newly established population. The monitoring plan will include a decision framework to carry out the following actions during the ten year project period:
 - augment numbers and genetic diversity through additional stockings,
 - remove Gila chub or species in ponds where Chiricahua leopard frog populations appear to be declining due to mortality of tadpoles,
 - re-establish populations in the case of a catastrophic event such as disease outbreak, flood, fire, water quality contamination or other unforeseen circumstances.

Monitoring of habitat conditions to identify factors related to the success and failure of the newly established population would occur in conjunction with population monitoring. The primary factors that may affect the success of establishing a self-sustaining population and long-term site suitability include the following items: 1) size of the initial founding population, 2) water quality, 3) availability of open surface water, 4) environmental contaminants, 5) plant competition with water umbel and 6) presence of invasive, non-indigenous aquatic plants and animals.

- **Selected Pond Sites.** A preliminary group of livestock water ponds have been selected for evaluation for pond additions, remodeling, and livestock water trough installation. Other locations will be considered as necessary. Up to 16 sites will serve as perennial aquatic species habitats at any one time. As sites receive water troughs to replace duplicate ponds, the total number will decrease with concomitant reductions in water use. Sites that do not meet the requirements for aquatic species management would be replaced by another site at a suitable location within the range of the metapopulation. New pond construction will only occur outside of designated critical habitat for listed species and outside of the Wild and Scenic River Study Area. The initial list of 24 ponds for evaluation and project implementation are provided below:

- | | | |
|-------------------------------|--------------------------|-------------------------------------|
| - Cottonwood Tank | - Bald Hill Tank | - Road Canyon
(upper tank) |
| - Oil Well Tank | - Bill's Tank | - Clyne Pond |
| - Upper Road
Canyon Tank | - Empire Well | - Gaucho Well &
Gravel Pit Tanks |
| - Upper Cienega
Ranch Tank | - Enzenberg Tank | - Apache Spring
Tank |
| - Irrigation Well
Tank | - Maternity Tank | - Spring Water
Windmill Tank |
| - Karen's Tank | - Cinco Tank | - Frog Tank |
| - Orchard Tank | - Cinco Windmill
Tank | |
| - Antelope Tank | - New Well Tank | |
| | - Hummel Tank | |
| | - Johnson Tank | |

Figure 3. Examples of enhancement design types for tanks to support native aquatic species at Las Cienegas NCA. A twin-tank design is shown at left and partial fencing design of a large pond (>100ft in length) on the right . Supplemental water would come via pipeline from nearby wells and water storage tanks (dark blue). Runoff may support additional seasonal habitat (light blue). Fences to protect some of the habitat from overuse by cattle (black lines) would be designed to accommodate needs of livestock and native species.

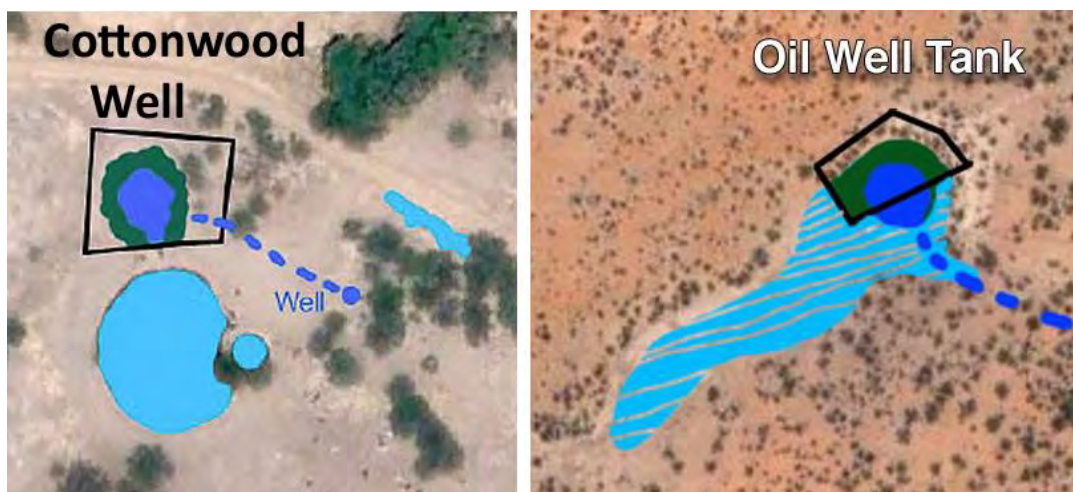


Figure 4. Photo of storage tank modified for wildlife water and aquatic habitat suitable for native fish and frog conservation at Antelope Tank. Note well in the foreground.



Figure 5. Example of solar system used to power well pump at Bald Hill Tank.



B. Wildlife Pond Habitat Construction

The LCNCA has over 80 wells, many of which have potential for creating artificial wetlands with ponds. At undeveloped sites, an individual environmental assessment will be required to determine potential impacts and mitigation on previously undisturbed locations as this EA is for sites that have already been developed for watering livestock.

Alternative 1. No Action

This alternative would leave stock ponds in their present state of management. Ponds would be allowed to dry annually. Endangered species recovery plan implementation would need to occur elsewhere or project specific NEPA analysis will need to be completed for each project, on a case-by-case basis.

III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES:

Environmental Setting

The project area is located on the LCNCA and SVAPD. Precipitation varies from a high of 28 inches per year in the Santa Rita Mountains to a low of 15 inches in the lower valley locations. The months of April, May, and June are the driest months and a time of great moisture stress for native vegetation. Temperatures frequently exceed 100° F in summer and occasionally drop below freezing in winter. Depth to groundwater ranges from artesian to over 200 feet below land surface.

Cienega Creek and springs in the valley are fed by ground water that is recharged in the nearby mountain ranges. Cieneguita Wetland is located in Cieneguita pasture on the Empire allotment 6090 (figure 1). Pastures are used by up to 1500 head of cattle for a few weeks to 2 months annually.

Together, Las Cienegas NCA and the SVAPD encompass nearly 96,000 acres. Situated in southeastern Pima County and northeastern Santa Cruz County, the areas are within an hours' drive of the rapidly growing Tucson metropolitan area. In addition, the area is readily accessible from the nearby towns of Sonoita, Patagonia, Benson and Sierra Vista. The Las Cienegas NCA and SVAPD encompass much of the upper Cienega Creek watershed, which is important to Tucson for flood control and aquifer recharge. Among the significant resources within the NCA are:

- Five of the rarest habitat types in the American Southwest: cienegas, cottonwood/willow riparian areas, sacaton grasslands, mesquite bosques, and semi-desert grasslands.
- Habitat for several endangered species.
- A site on the National Register of Historic Places.
- Two proposed wild and scenic river segments.
- Entire LCNCA is an Area of Critical Environmental Concern

Stock ponds on the LCNCA are generally open dirt ponds excavated to a depth of 3 feet and between 20 and 100 feet in diameter. Water is supplied by pumping water from a well seasonally in which livestock use a pasture (1 to 3 months). Some stock tanks collect runoff and have water for several months out of the year. Oil Well Tank and Clyne Ponds are greater than six feet deep and typically are the only watering locations to have water year-round.

The LCNCA is within an hour's drive from two major metropolitan areas (Sierra Vista and Tucson). Recreational use is largely "dispersed" and occurs year-round. However, because of climatic conditions and visitors' preferences, use is higher during the cool weather months of fall and spring. Popular activities include hunting, off-highway driving, bird watching, camping, picnicking, and sightseeing. The NCA is readily accessible and recreation use is increasing. Some of the sites are remote, while other sites have easy access from well travelled roads. Fencing will naturally limit the human access to ponds as gates will be locked. Public access will be limited to climbing over fences.

Figure 6. Large livestock water or “represso” at the Oil Well site.



Resources Not Affected

The following resources are not affected by the proposed action or alternatives because they do not occur in the proposed use area, or because of the nature of the proposed action: prime or unique farm lands, hazardous or solid wastes, wilderness, national energy policy and environmental justice.

ACEC

The Empire-Cienega ACEC is 45,859 acres and includes the entire LCNCA and the action area. The goals of this ACEC are to protect and enhance watershed, grassland, and threatened and endangered wildlife resources, emphasizing ecosystem management. The ACEC was also designated to protect threatened and endangered fish and wildlife habitat including but not limited to a combination of maintenance of adequate woody species regeneration, promotion of mixed-aged stands of woody species, promotion of mature cottonwood overstory, and maintenance of cienega habitats.

Impacts of the Proposed Action: The project would meet the goals of the ACEC while providing additional habitat for listed aquatic species.

Impacts of the No Action Alternative: No impact.

Wildlife/Migratory Birds/Threatened and Endangered Species:

Adjacent riparian and wetland habitats support a wide variety of wildlife. At least five species of raptors have been documented to nest in the riparian areas as well as great blue herons and numerous songbirds. Waterfowl use wetland ponds along Cienega Creek and stock ponds. Nesting Virginia rails and red-winged black birds have been found in the wetland habitat along Cienega Creek where dense vegetation is available. Cienega Creek and its floodplain wetlands also supported a large population of lowland and Chiricahua leopard frogs until their demise in the mid 1990's, likely due to the effects of disease caused by a chytrid fungus. Huachuca water umbel was inventoried last year with 100 separate groups recorded. This species occurred along Cienega Creek, Mattie Canyon and Empire Gulch.

The diversity of vegetation types contribute to the LCNCA's value as wildlife habitat. The riparian areas along Cienega Creek, Empire Gulch, Gardner Canyon, and Mattie Canyon provide breeding, foraging, watering, resting, and escape cover as well as travel corridors for a variety of wildlife. Many of the special status wildlife species which inhabit the area are entirely or partially dependent on these riparian and wetland areas. They are likely to use stock ponds to a larger degree once they are vegetated and have perennial water.

The entire assemblage of native fishes and native leopard frogs of the Gila River system are all biologically imperiled to various degrees and are found on federal, state and BLM sensitive species lists. There are three native fishes present in Cienega Creek and Mattie Canyon: Gila topminnow (endangered), Gila chub (endangered) and the longfin dace (BLM sensitive). Gila topminnow and longfin dace have also been transplanted to upper Empire Gulch. Gila topminnow were reintroduced into two springs in Nogales and Little Nogales Springs by the Arizona Game and Fish Department on May 8th.

Both lowland and Chiricahua leopard frogs can be found sporadically in Cienega Creek. Nogales and Little Nogales springs harbor lowland leopard frogs (*Lithobates yavapaiensis*). Mexican garter snakes once common in lower Empire Gulch and Cienega Creek are now very rare, likely due to the collapse of the leopard frog population. Critical habitat for the Chiricahua leopard frog was designated in the Federal Register (USFWS 2012) in March of this year.

The livestock watering ponds sites do not currently have any federally listed or other special status species present, with the exception of Chiricahua leopard frogs, which have been expanding their distribution where there is perennial water. This species was found at Maternity Tank last summer but is no longer present there. The last natural, self-sustaining Chiricahua leopard frog population in the Cienega Creek valley is located approximately 3 miles upstream of the Cieneguita Wetland at Empire Spring. These project sites are easily within the migratory range of both Chiricahua leopard frogs and bullfrogs; these sites have the potential aid bullfrog migration to Empire Gulch Spring. Bullfrogs in the area are known to be infected with chytridiomycosis, which is generally considered lethal to leopard frogs (Rosen 2004). Currently, the BLM is actively suppressing the bullfrog population through annual mechanical removal efforts and monitoring for crayfish.

On the portion of the LCNCA within the Appleton-Whittell Research Ranch, there are no range improvements for livestock. However, wildlife waters have been constructed out of abandoned

storage tanks. These old livestock watering locations provide an opportunity for creating small wetlands for aquatic fish and wildlife.

Impacts of the Proposed Action: This project would allow for the opportunity to establish self-sustaining populations of Gila topminnow, Gila chub, desert pupfish, Chiricahua leopard frog, Mexican gartersnake, Sonora mud turtle and Huachuca water umbel. The Biological Opinion rendered by the USFWS (22410-2002-F-0162-R001) found that the action of BLM on Las Cienegas NCA, as proposed, is not likely to jeopardize the continued existence of Chiricahua leopard frog, Gila chub, Gila topminnow, desert pupfish, and Huachuca water umbel. Their rationale for their conclusions is summarized as follows:

1. Populations of these species do not currently exist at the sites proposed under this action. Establishing populations at these sites will not jeopardize source populations and the loss of populations or individuals resulting from the proposed actions will not affect the existing baseline for these species;
2. Most of the impacts from the proposed action will be transitory;
3. Both short-and long-term effects have a small footprint;
4. Conservation measures proposed by the BLM will reduce or eliminate impacts;
5. Natural trophic dynamics among the species will be encouraged, and ecological condition of the area will continue to be maintained and improved in accordance with the RMP;
6. Inter-specific impacts of multiple aquatic species present at stock ponds should not preclude establishment of viable populations; and
7. The proposed action, including conservation measures, is specifically designed to promote conservation and recovery of species protected under the Act.

In addition, the effects of the project were analyzed through informal consultation with the Service to address the recently proposed critical habitat for Chiricahua leopard frog and potential effects on lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*). The Service concurred that the proposed action is not likely to adversely affect the endangered lesser long-nosed bat and is not likely to destroy or adversely modify proposed critical habitat for the Chiricahua leopard frog. For a more extensive discussion of impacts, see biological conference opinion (22410-2002-F-0162-R001, p31).

Effects of livestock grazing and range improvements including livestock watering ponds on southwestern willow flycatcher (*Empidonax traillii extimus*) were analyzed in BO 02-21-02-F-162. No new effects are anticipated from using existing stock ponds to this species as they are removed from occupied, suitable and proposed critical habitat. Critical habitat proposed by the USFWS would not be impacted by this project as all stock ponds are outside of the proposed areas. Existing ponds and duplicate ponds for fish and wildlife are not located inside the 100 year floodplain of Cienega Creek nor will they affect any of the primary constituent elements (USFWS 2011 p. 50597). The perennial ponds are unlikely to create suitable habitat as they will be vegetated with herbaceous vegetation with very little tree canopy. Flycatchers

do migrate through the area and a few have been known to occupy breeding territories along Cienega Creek. Few stock ponds are located near the suitable habitat. In cases where there may be an effect that cannot be mitigated, the site not be selected in order to avoid the possibility of disturbing this species.

The addition of open water would likely attract additional bird species to the area, especially waterfowl and shorebirds. However, open water is anticipated to have little effect on larger mammals using ponds, as there is water in Cienega Creek, Empire Gulch, Cinco Wetlands, Mattie Canyon and various stock tanks filled on a seasonal basis. In areas that support pronghorn, they may benefit from additional perennial water sources. On the Appleton-Whittell Research Ranch, there are few perennial springs or creeks. The addition of wetlands for wildlife will attract deer and pronghorn. Their numbers may increase as a result and their distribution would likely be altered in favor of watering locations. This is likely to have a limited beneficial impact on populations of these species in the area. Wildlife can drown in open storage tanks, but the proposed action will prevent this with the installation of wildlife ramps.

The current habitat conditions at the livestock watering sites are not suitable for supporting a population of bullfrogs, which do occur in the Cinco Ponds wetlands located within a few miles of most stock tank locations. Bullfrogs are known to ingest small mammals, birds, fish, other frogs, insects, snakes and any other prey item that it can capture (Dr. Phil Rosen, pers. comm.). Should bullfrogs gain access to perennial ponds, monitoring is designed to detect and BLM and AGFD would eliminate them by capture of adults and draining ponds to capture tadpoles.

During construction, a small numbers of nesting birds may be disturbed for one or two days if some project elements are implemented during the breeding season. Since most of the livestock waters are poorly vegetated and have few trees, this impact is likely to be negligible to bird populations found on the LCNCA. Maintenance of fences, water systems, pond vegetation may disturb birds as well. Construction and maintenance activities are anticipated to have short-term impacts to other wildlife species inhabiting the area in close proximity to these sites. However, the creation of open water surrounded by emergent vegetation has the potential to provide habitat for breeding waterfowl and shore birds, especially at the larger sites (Clyne Pond and Oil Well Tank). These perennial ponds will eventually attract wetland birds that may nest at these sites on a regular basis.

Impacts of the No Action Alternative: Management of endangered species needed to aid in recovery would not occur at the proposed locations, leaving these species at the current level of risk of extinction. The status of the Mexican garter snake, and Sonora mud turtle would not improve. Other benefits of perennial water to other wildlife species would not occur.

Water Quality and Quantity

The aquifer in the Empire valley is characterized by tight thin layers of sand alternating with lenses of silt and clay; this strata lies at depths <350 feet. Most wells lie in this upper aquifer. Below 350 feet water under the layers of silt and clay is subject to pressure. As a result, the lower aquifer “leaks,” providing an upward transfer of water. Total ground water outflow from the upper basin (236.5 mi²) has been estimated at 7,261 acre feet (BLM 2003).

Cienega Creek has perennial flow for up to 8 miles while its tributaries, Mattie Canyon and Empire Gulch, have perennial flow for up to another 2 miles. During periods of drought, the creek becomes interrupted in places resulting in stream segments that are completely dewatered or are simply a series of isolated pools. There are a number of significant springs in the planning area including Apache Spring, Cold Spring, Upper Empire Gulch Spring, Nogales Spring, and Little Nogales Spring. Perennial ponds include Clyne Pond (Northwest Reservoir), Oil Well tank, Cienega Ranch Marsh, Cieneguita Wetland complex, Spring Water Wetland and five perennial wetlands near the mouth of Cinco Canyon. A segment of Cienega Creek, from its confluence with Gardner Canyon to the USGS gage station in Pima County covering 28.3 miles has been designated as an *outstanding Arizona water* (formerly unique water). This water body has been determined by ADEQ to be an outstanding water resource of the state based upon its importance as a natural groundwater recharge area, as a flood control area and as habitat for native fish. This designation requires that existing water quality is maintained and protected on Cienega Creek. BLM has the surface water rights on the LCNCA and jurisdiction over the wells used for livestock and wildlife waters.

Impacts of the Proposed Action: Water quality would be affected by turbidity while ponds are being excavated. Water is anticipated to clear up within a week as clay and other suspended solids settle to the bottom. The water quality is expected to meet wildlife standards for surface waters at all the project locations.

Each pond will have a surface area of approximately 1/16 (0.06) of an acre. The evaporation rate for the area is approximately 100 inches annually (University of Arizona web site 2011). For each pair of ponds 0.7 acre feet of water is required. Sixteen pairs would require 11 acre feet which is equivalent to 12.5 households in the Sonoita area (0.88 acre feet per year, AFY – see table below). Less than this amount will be used as some ponds are converted to drinking troughs over time, while others will only have a single pond. If the drinkers replace all the duplicate dirt tanks, then the water consumption would be cut in half to about 5.5 AFY. The annual ground water outflow from the upper basin (236.5 mi²) has been estimated at 7,261 acre feet. The use of ground water for ponds can be estimated at 0.15% to 0.075% of this amount.

Per capita daily (gallons) use in the Sonoita Area

CASA ARROYO ASSN INC	89
SONOITA VALLEY WATER CO	103
SONOITA WATER UTILITY	110

Impacts of the No Action Alternative: No Impact.

Wetlands and Riparian Vegetation

Cienega Creek has a perennial flow for about 8 miles while its tributaries, Mattie Canyon and Empire Gulch, have perennial flow for about another 2 miles. There are a number of significant springs in the planning area including Apache Spring, Cold Spring, Upper Empire Gulch Spring, Nogales Spring, and Little Nogales Spring. Perennial wetlands include Cienega Ranch Marsh, Cieneguita Wetland complex, Spring Water Wetland, five perennial wetlands near the mouth of Cinco Canyon and a number of small wetlands that have not been inventoried yet.

Impacts of the Proposed Action: The proposed action would result in the creation of up to 16 semi-natural wetland/ponds. This would add a small additional wetland component to that which already exists on the LCNCA.

Impacts of the No Action Alternative: No Impact.

Vegetation

The LCNCA has five of the rarest habitat types in the American Southwest: cienegas, cottonwood/willow riparian areas, sacaton grasslands, mesquite bosques, and semi-desert grasslands.

Impacts of the Proposed Action: existing and new ponds would not be located in undisturbed mesquite bosques and semi-desert grasslands locations. The sites have already been heavily disturbed by water developments and annual livestock use. The ponds behind fencing would support a small wetland plant community comprised of sedges, rushes, aquatic and semi aquatic plants including the Huachuca water umbel.

Impacts of the No Action Alternative: No impact.

Recreation

The conservation area is within one hour's drive of Tucson and Sierra Vista and readily accessible from highways 82 and 83. Recreational use is largely dispersed and occurs year round. But because of climatic conditions, visitor use is higher during the cool weather months of fall and spring. The area provides a setting for a wide variety of recreation opportunities. Most opportunities are for dispersed recreation. These activities vary from off-highway vehicle driving to camping, bird watching, nature and historic study, hang gliding, picnicking, horseback riding, hunting and training bird dogs. Areas of concentrated use are in Oak Tree Canyon, Maternity Well site, and the Air Strip Group site. Some areas for are near these high use areas (e.g., Maternity Tank, Karen's Tank, Cotton Wood Windmill Tank).

Impacts of the Proposed Action:

The project will have impacts on visual resources where the project sites are within view from established back country roads and popular dispersed camp areas. The initial earth moving work may have some residual impacts to line and form of the localized landscape area for several years. These will dissipate as the natural elements of weather and vegetation growth reclaim the disturbed vegetation and soil. The occasional reflection of the sun on metal and solar panel structures and the appearance of large, bulky, 800 gallon tank metal and plastic structures within full view of popular back country roads and

dispersed camp sites will attract attention by casual observers. These impacts will be lessened by locating above ground objects out of view, partial burying them, use of non-galvanized steel pipe and painting of storage tanks and troughs to match background colors of individual sites. These actions should reduce the visual impacts considerably.

Impacts of the No Action Alternative: No impact.

Wild and Scenic Rivers

The Cienega Creek Wild and Scenic River Study Area contains 10.5 miles of Cienega Creek including a width of ¼ mile on either side of the high water mark. Cienega Creek qualified as eligible and suitable for Scenic River status in a statewide evaluation (USBLM 1994). The two stream segments found to qualify as “scenic” have been forwarded to Congress for designation.

Impacts of the Proposed Action: Nearly all of the livestock watering sites are outside of the study area. Those that are inside the area would not be selected for development. Therefore, the aesthetic value of the study area would not change.

Impacts of the No Action Alternative: No impact.

Air Quality

Impacts of the Proposed Action: Initial excavation or deepening of ponds may create fugitive dust while excavation is occurring inside of a quarter acre foot print. This work can be accomplished in 4 to 5 hours. Pond maintenance would generally be done in moist to wet soils resulting in little to no fugitive dust.

Impacts of the No Action Alternative: No impact.

Cultural Resources

The Cienega Valley has been inhabited by humans for approximately 5000 years. Material cultural remains have been found for the Archaic, Ceramic, Protohistoric, and Historic periods of occupation along portions of Cienega Creek and its tributaries. Cienega Creek was a major focus for prehistoric occupation due to the presence of a dependable year-round water supply and abundant natural resources, including wildlife, which served to supplement the economic needs of the prehistoric inhabitants. It is possible that paleontological resources are present at the project sites.

Impacts of the Proposed Action: Many areas with livestock developments have Class III level surveys, but some do not. The sites proposed for development would need to conform to federal standards outlined in the National Historic Preservation Act, Section 106. Field surveys in compliance with section 106 of NHPA would be performed by the BLM Archaeologist and scheduled prior to project implementation. A class III inventory would be conducted at sites that lack prior inventory data. If cultural sites are located, they will be protected by avoiding the site. Site visits would include collaboration on the specific proposed pond excavation locations, buried pipe routes, solar placement and ingress/egress route for heavy equipment travel. Please see *Mitigation and Stipulations* section on page 4 for protection of cultural resources.

1. Any archaeological or historical artifacts or remains, or vertebrate fossils discovered during operations shall be left intact and undisturbed; all work in the area shall stop immediately; and the Tucson BLM Staff Archaeologist shall be notified immediately. Commencement of operations shall be allowed upon clearance by the Field Manager.
2. An additional cultural and paleontological resource survey may be required in the event the project location is changed or additional surface disturbing operations are added to the project after the initial survey. Any such survey would have to be completed prior to commencement of operations.
3. If in connection with operations, any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (:L 101-601; Stat. 3048; 25 U. S. C. 3001) are discovered, the project proponent shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the Tucson BLM Archaeologist of the discovery. The project proponent shall continue to protect the immediate area of the discovery until notified by the Tucson Field Manager that operations may resume.

Impacts of the Proposed Action and all alternatives: No impact.

Native American Religious Concerns: The Four Southern Tribes were consulted on the proposed action in accordance with the National Historic Preservation Act (NHPA) of 1966, Section 106, and the American Indian Religious Freedom Act of 1978.

Impacts of the Proposed Action: From the response of representatives of the Four Southern Tribes, the excavation of wetlands and reintroductions of native plant and animal species is not likely to affect Native American religious values.

Impacts of the No Action Alternative: No impact.

Soils: Soils in the area of analysis are generally stable and well vegetated except at livestock watering locations, which are heavily disturbed. In some cases the watering sites show active erosion.

Impacts of the Proposed Action: The creation of ponds within small fenced enclosures would not change the level of erosion or soil loss in the surround area.

Dredge material stored adjacent to ponds is unlikely to erode and would likely revegetate with grasses that recolonize the bare soil, because it would be unavailable to livestock. This is anticipated to stabilize the soil surface in a protected area of about a quarter acre.

Impacts of the No Action Alternative: No Impact.

Noxious Weeds: Weeds occur in the Las Cienegas National Conservation area and have become an ecological problem in some cases. The project area is susceptible to the establishment of weeds if care is not taken to prevent the introduction of seeds.

Impacts of the Proposed Action: The mitigation measure related to washing equipment would provide a protection against the spread of weeds on the LCNCA.

Impacts of the No Action Alternative: No impact.

Range: Stock ponds in allotment 6090 on the LCNCA are generally open dirt ponds excavated to a depth of 3 feet and between 20 and 100 feet in diameter. Water is supplied by pumping water from a well seasonally in which livestock use a pasture (1 to 3 months). A small number of stock tanks collect runoff and have water for several months out of the year. Oil Well Tank and Clyne Ponds are greater than six feet deep and typically have water year around.

Impacts of the Proposed Action: The project has incorporated actions developed with the permittee that mitigate potential conflicts. Sites with unresolvable conflicts that would impair grazing management would not be used for wildlife pond development. Range land condition in the pasture will not change due to the addition of additional ponds situated next to existing ponds..

Impacts of the No Action Alternative: No impact.

Visual Resources

The current visual rating applied to public lands in LCNCA is a visual resource management Class II. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes are required to repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Impacts of the Proposed Action: The project will have impacts on visual resources if the project sites are within view from established back country roads and popular dispersed camp areas. The initial dozer work may have some residual impacts to line and form of the localized landscape area for several years until the natural elements of weather and vegetation growth can reclaim the dozer work impacts. The occasional reflection of the sun on metal and solar panel structures and the appearance of large bulky 800 gallon tank metal and plastic structures within full view of popular back country roads and dispersed camp sites will attract attention by casual observers. The use of non-reflective paint or an acid treatment wash to metal that produce a rusty non-reflective appearance on metal pipe rails or other metal structures, reduces visual impacts.

Impacts of the No Action Alternative: No impact.

Residual Impacts

Residual impacts include creation of open water and wetland vegetation that would need periodic removal or thinning. Addition of infrastructure to selected sites would impair VRM quality in some areas. Federally listed aquatic species and wildlife would benefit from the creation of multiple small wetland habitats. Imperiled aquatic species are anticipated to have new

populations established at up to 16 sites. This would provide more populations that aid in the recovery of these listed species. Lowland leopard frogs would potential reach population levels that provide for adaptation to wild habitats that are contaminated with a disease causing fungus introduced into the environment several decades ago.

Cumulative Impacts of the Proposed Action

In general, the cumulative impacts of endangered species management on the LCNCA along with other efforts in the Gila River Basin would improve the status of each species as new populations are established and persist. This project would counter the trend towards the loss of wetland and aquatic habitat in the southwest. The project, in conjunction with similar efforts elsewhere in the state, would make a contribution to the conservation of Gila topminnow, Gila chub, desert pupfish, Chiricahua leopard frogs, Huachuca water umbel, Mexican gartersnake and Sonora mud turtle. The proposed action is expected to be followed by some type of future species reintroductions at other habitats within the Las Cienegas NCA, San Pedro RNCA, other BLM Field Offices, Coronado National Forest, Arizona State Trust Land, and private land. In addition, individuals from populations established here could be used by other agencies for future reintroductions. This project would counter the trend towards the loss of wetland and aquatic habitat in the southwest.

Global warming may decrease the amount of available ground water over time. Ground water exploitation from existing development and future development in the basin is likely to increase over time. The proposed action adds slightly to the cumulative impacts of ground water depletion, but is relatively minor in relation to the overall development in the basin or proposed development such as the Rosemont mine. Reduction in mesquite stands in the watershed is likely to offset impacts from the creation of these surface waters.

Cumulative Impacts of the No Action Alternative: Without the use of these locations for establishing replacement populations for those lost over time, the cumulative impact of passive management of listed species would retard their recovery.

Mitigation Measures, Conservation Measures, and Terms and Conditions from the Biological Opinion Rendered by the U.S. Fish and Wildlife Service:

- 1) Should any archaeological resources or vertebrate fossils be discovered during implementation of this project, all surface disturbing activities in the area of discovery shall cease and the BLM Field Office Archaeologist will be notified. The archaeologist will evaluate the discovery and provide recommendations to the Authorized Officer. Surface disturbing activities shall not resume until permission is obtained from the Authorized Officer;
- 2) All federal authorizations to carry out land use activities on federal lands or tribal lands, including all leases and permits, must include a requirement for the holder of the authorization to notify the appropriate federal or tribal official immediately upon discovery of human remains, funerary objects, sacred objects or objects of cultural patrimony pursuant to Sec. 10.4(b) of these regulations;
- 3) Signs at release sites will be located with the aid of the staff archaeologist in order to prevent damage to paleontological or cultural resources;
- 4) The excavation of new ponds will require presence of an archaeologist;

- 5) Equipment used on the project will be inspected for mud and plant debris by BLM staff prior to deployment on the Las Cienegas NCA. Any equipment that appears to have arrived without thorough cleaning will not be allowed to proceed to project site;
- 6) Re-initiation of Section 7 consultation will occur when incidental take, as defined by the USFWS has been exceeded. We anticipate that the proposed action could result in up to 100% loss of any or all of the five species at each site. Therefore, we will consider incidental take to have been exceeded if 50 percent of reestablishment sites fail due to one or more of the six causes of take.

IV. TRIBES, INDIVIDUALS, ORGANIZATIONS, or AGENCIES CONSULTED and LIST of BLM PREPARERS

This proposal has been presented and discussed annually since 2006 with the Sonoita Valley Partnership and others at annual Biological Planning meetings on the Las Cienegas NCA. These meetings also included site visits to receive site specific issues. The latest meeting was held on April 28, 2010. Ian Tomlinson, the grazing permittee was present at the meeting and has been consulted in the field twice for input on the implications of this project on his grazing program. The project has undergone several changes as suggested by concerned publics, the grazing permittee, agencies and organizations all of which were presented at this meeting.

The Four Southern Tribes (Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community, Gila River Indian Community, Tohono O’odham Nation) were consulted on the proposed action in March of 2010. Their input was received at the meeting. Others that contributed to the development of the proposed action and alternatives are listed below.

Contact person	Contact organization	Contact contribution
Jeff Simms	BLM	Primary preparer
Kristen Duarte	BLM	Ranch management and plant communities
Keith Hughes Damon McRae	BLM	Fire safety
Phil Rosen, Ph.D.	Research Herpetologist Univ. of Arizona	Project design
David Hall, Ph.D.	Herpetologist	Project design
Dennis Caldwell	Herpetologist	Project design
Doug Duncan	U.S. Fish and Wildlife Service	Project design & consultation issues
Cat Crawford	U.S. Fish and Wildlife Service	Project design & formal consultation on T&E species
Mike Sredl	AZ Game and Fish Dept.	Project design & agency coordination, reptiles and amphibians

Tom Jones, Ph.D.	AZ Game and Fish Dept.	Project design & agency coordination, reptiles and amphibians
Ross Timmons	AZ Game and Fish Dept.	Project design & agency coordination, native fish
Ian Tomlinson	Vera Earl Ranch	Project design & ranch management

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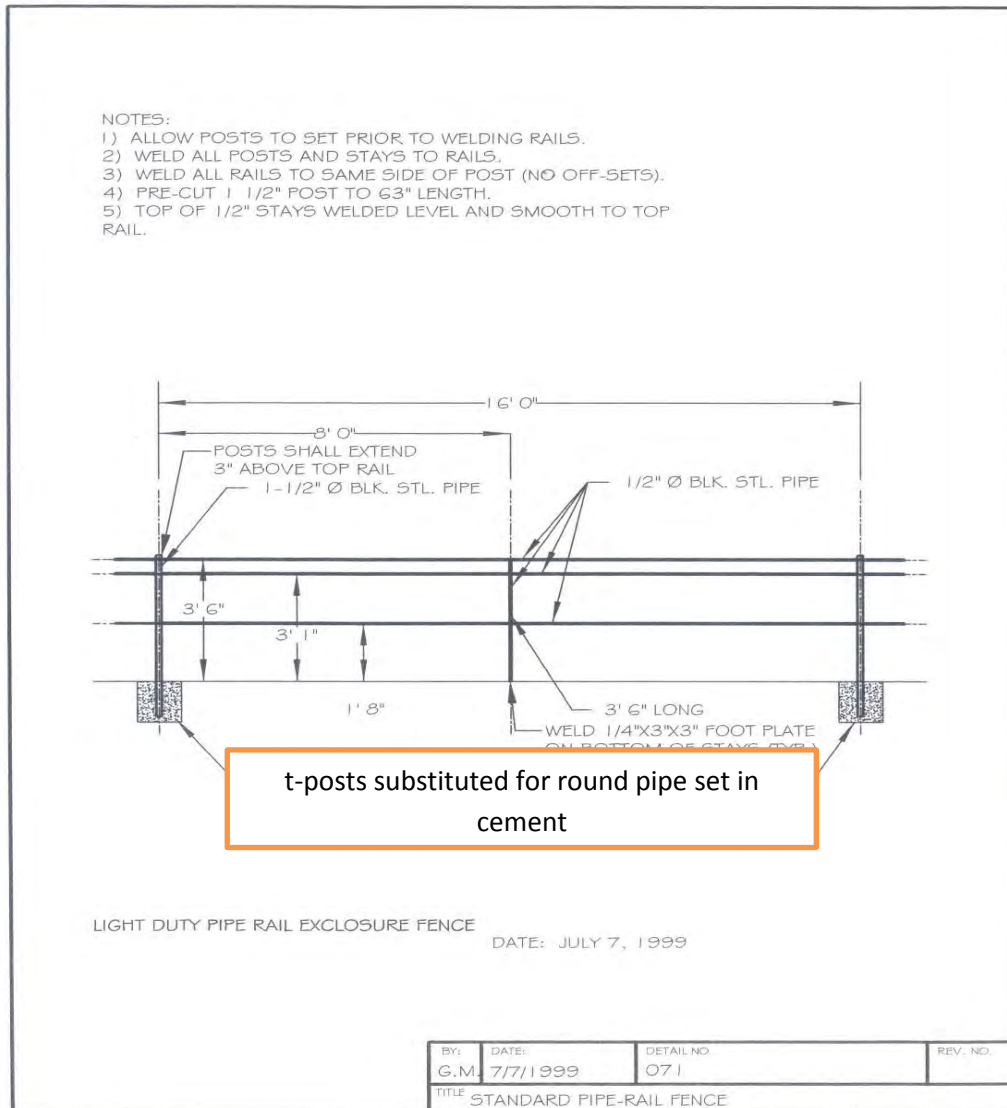
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Appendix A – specifications for pipe fence surrounding wetlands

Materials for this design used would vary by site to meet needs of fence application.

T-posts will be used in place of steel pipe except at corners. Corner posts will be cemented and braced. One and one-half inch pipe will be welded to T-posts in the field.

Frog fences will use this design for supporting 1/2 inch galvanized wire hardware cloth attached to 14” aluminum flashing buried down to a depth of one foot. The top of the fence will have an outward facing eve constructed of hardware cloth and extending 6”.



Appendix B – Requirements for Working in Wetland and Aquatic Systems

All resource and land management agencies, researchers, and others conducting aquatic monitoring or research are encouraged to follow this protocol to prevent or reduce the spread of water borne diseases to amphibians and other aquatic life. This protocol for working in wetland habitats is adapted from the Declining Amphibian Populations Task Force Fieldwork Code of Practice, which provides guidelines for use by anyone conducting fieldwork in aquatic habitats with amphibians present. Chytrid fungus, iridoviruses, and other highly contagious and deadly diseases are being reported worldwide, and may be a significant cause of amphibian population declines. Pathogens such as chytrid fungus can easily be transferred between habitats on equipment and footwear of fieldworkers, spreading to new locations containing species that have little or no resistance to these pathogens. It is vitally important for anyone involved in amphibian research and other types of wetland studies, including those on fish, bats, invertebrates and plants, to take steps to prevent the introduction of disease agents and parasites. For further information, see <http://www.open.ac.uk/daptf/index.htm> (website current as of March 2004).

Dedicated equipment will be used by staff, crews, and permittees frequently working in springs occupied by Chiricahua leopard frogs. This includes footwear. Dedicated equipment will be cleaned and stored separately. Equipment which cannot be duplicated or can be easily cleaned must be disinfected between visits to springs. Equipment will be rinsed and all debris removed. Surfaces, which should appear clean, will be scrubbed with one of the following solutions:

1. rinsing with 1 percent of fresh sodium hypochlorite (household bleach);
2. 20-second exposure to 70 percent ethanol or 1 mg/ml benzalkonium chloride; desiccation and exposure to 50-60°C heat for 30 minutes;
3. 0.012 percent Path-X™ or 0.008 percent quaternary ammonium compound 128 (both containing DDAC, didecyl dimethyl ammonium chloride as active ingredient)
4. Solution concentrations from Johnson et, al. (2003) can be used for disinfection. Fungicidal effects of chemical disinfectants, UV light, desiccation and heat on the amphibian chytrid *Batrachochytrium dendrobatidis*. Following disinfection, equipment should be rinsed copiously with tap water.
5. Footwear belonging to occasional users must be completely cleaned before and between visiting spring sites, with special attention paid to grips, cleats, and laces. Felt-bottomed wader boots are very difficult to clean completely and should be avoided whenever possible. To further reduce the risk of disease transfer, all equipment will be completely dried before re-use. Bat and bird netting which has remained out of the water does not have to be wetted. Poles and stakes need to be completely cleaned as above. Trowels used to collect plants need to be dedicated or completely disinfected between springs.

In remote locations, clean all equipment as described above upon return to the lab or base camp. If disinfecting in the field is necessary, sanitize all items before arriving at the next location. Do not use solutions in the immediate vicinity of the springs or in other habitats. Used cleaning materials (including liquids) must be disposed of safely and if necessary taken back to the lab for proper disposal.