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May 17, 2007

Mr. Gene Blankenbaker
Forest Supervisor
Tonto National Forest
2324 East McDowell Road
Phoenix, Arizona 85006

Re: Ten-year Livestock Grazing Management Plan for Red Lake Allotment, Pleasant Valley
Ranger District, Tonto National Forest

Dear Mr. Blankenbaker:

Thank you for your February 26, 2007, letter received in our office on February 27, 2007, requesting initiation of formal section 7 consultation under the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.). At issue are impacts that may result from the proposed 10-year grazing permit for the Red Lake Allotment located in the Pleasant Valley Ranger District of the Tonto National Forest (Tonto), Gila County, Arizona. Specifically, the Tonto stated that the proposed action may adversely affect the threatened Chiricahua leopard frog (*Rana chiricahuensis*) (CLF). You also requested our concurrence with your determination that the proposed action may affect, but will not likely adversely affect, the threatened Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its critical habitat. We provide our rationale for our concurrence with those determinations in Appendix A.

This biological opinion is based on information provided in the February 27, 2007, biological assessment and evaluation (BAE), written correspondence between our agencies, telephone conversations, interagency meetings, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, livestock grazing and its effects, or other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Consultation History

- September 20, 2004: We received a request for concurrence from the Tonto for potential effects to the MSO and its designated critical habitat, the CLF, and the southwestern willow flycatcher (*Empidonax traillii extimus*) on a project that proposed to allow 35 head of livestock to graze the northern portion of the Red Lake Allotment (Grave/Naegelin Pasture) from mid-March through mid-October and the southern portion of the Catholic Peak Allotment (Catholic Peak Pasture) from mid-October through mid-November with a project duration of 12 months.
- October 2004 - Present: Various e-mail correspondence exchanged among our staff and those of the Tonto and Arizona Game and Fish Department (AGFD) regarding information on project details and species status.
- November 30, 2004: We issued a concurrence letter to the Tonto on the above-referenced request of September 20, 2004.
- October 21, 2005: We received a second request from the Tonto dated October 21, 2005, to allow a continuance of the 12-month grazing plan. In subsequent discussions with the Tonto, it was agreed that grazing past the 12-month timeframe of the Red Lake Allotment would require initiation of a new consultation.
- July 21, 2006: Meeting held at Pleasant Valley Ranger District between cooperating agencies and the permittee to discuss the future management of CLF and livestock grazing in the Red Lake Allotment. Participants included representatives from the Tonto, the AGFD, the Red Lake Allotment permittees, and our office.
- October 24, 2006: We received a request for concurrence from the Tonto dated October 23, 2006 for potential effects to the CLF, the MSO and its designated critical habitat, that proposed to stock the 4,355-acre Gentry Pasture of the Red Lake Allotment with 35 head of adult livestock and their associated yearlings for six months, commencing on November 1, 2006, and ending April 30, 2007.
- October 30, 2006: We issued a concurrence letter to the Tonto on the above-referenced request of October 24, 2006.
- February 27, 2007: We received a request from the Tonto for formal consultation on effects to the CLF, the MSO, and its designated critical habitat. The proposed action (the subject of this consultation) includes authorization of a 10-year grazing plan for the Red Lake Allotment which is described in greater detail below.
- March 16, 2007: We initiated formal consultation on this proposed action.
- April 19-21, 2007: We informally coordinated with the Tonto on a preliminary draft biological opinion addressing anticipated effects to the CLF, and concurrence for potential effects to the MSO, and its designated critical habitat.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The 38,216-acre Red Lake Allotment actually encompasses three individual allotments: Catholic Peak, Gentry Mountain, and Red Lake. This allotment complex is located within the Pleasant Valley Ranger District of the Tonto National Forest in the vicinity of Young, Arizona.

In September 2005, the Tonto adopted a policy of rangeland adaptive management in Chapter 90 of the Forest Service Handbook (FSH) 2209.13. Under this policy, limits on timing, intensity, frequency, and duration of livestock grazing are set in Environmental Assessments which reflect Allotment Management Plans (AMP), and reflect the management framework as called for in the Tonto Restocking Guidelines and the Tonto Drought Policy. These documents recognized the need for recovery following drought, and, as a general rule, recommend a minimum of one growing season's rest following drought.

Grazing will be conducted at conservative use levels. Conservative use, or forage utilization, specifies that key forage species be maintained between 30 and 40% or less of annual forage production by weight for herbaceous perennials and 50% or less on woody browse species. Qualitative indicators of conservative use can be described by the following: forage plants have abundant seed stalks; areas more than a mile from water show little use; about one third to one half primary forage plants show grazing on key areas (Holechek and Galt 2000). Key forage species are those serving as an indicator to the degree of use of associated species, and because of their importance, must be considered in any management program (Society for Range Management 1998).

The Tonto specified in their BAE that precipitation patterns, which vary and may be highly erratic both within and among years, will be an important consideration in adaptive management of livestock grazing within the Red Lake Allotment. The Tonto BAE also stressed that the maintenance of sufficient residual biomass to ensure plant vigor and ground cover on all grazed rangelands is critical for wildlife habitat and watershed protection throughout the year. Combined these management considerations are important forces driving the adaptive management strategies for this grazing permit to prevent potential degradation of watershed function or wildlife habitat quality. Lastly, the Tonto BAE stressed that flexibility to adjust livestock numbers throughout the season or year is essential to a successful adaptive management strategy.

Under the proposed term grazing permit, the Tonto has authorized grazing of up to 95 adult livestock and 25 yearlings for 10 months until all range improvements outlined in the 1997 AMP are in place, at which time up to 115 adult livestock and 30 yearlings for 10 months may be authorized (a total of 2,032 AUMs). The actual number of livestock on the allotment at any given time may vary as a result of available forage and use levels as provided for under an adaptive management strategy, but the total number will not exceed that mentioned above. This proposed grazing system is the same as the current AMP for the Red Lake Allotment and consists of a deferred, rest-rotation system in which two of the winter and summer pastures are used every year with one receiving rest. The rested pasture will be rotated so that each pasture will receive rest one year every three years. The life of the project is ten years.

Winter-use pastures are Gentry, Sheep, and Catholic and will be used November through April. When the allotment is stocked at or near permitted levels, two winter pastures will be used concurrently with approximately half of the herd in each pasture, although each winter pasture is able to support the entire herd.

Summer pastures are Guard, Frog, and Grave/Naegelin and will be used May through October. The Frog Pasture will not be used until the fencing around the CLF-occupied West Prong Gentry site is complete. The Grave/Naegelin Pasture is large and will likely be divided into two separate pastures in the future for added management flexibility. If it is fenced and there are four separate summer pastures, three will be used each year for approximately two months at a time in a deferred, rest-rotation grazing system stocked at or near permitted levels. Until this fencing project is completed, the Tonto proposes to use the Grave/Naegelin Pasture for 4 months at a time alternating between the early use period (May through August) one year, and the following year at the late use period (July through October), with the remaining 2 months use in either Frog or Guard Pastures in alternate years.

This proposed fenceline was included in the 1997 AMP and is required to stock the maximum number of livestock on the permit (2,032 AUMs). The constructed fence will be approximately 4.5 miles in length and will bisect the pasture from north to south along State Route 288, otherwise known as Forest Road (FR) 512 or the "Young Highway". Hand tools and mechanized equipment will be used to construct the fence. Small trees and brush will be cleared from the fenceline; little vegetation removal is anticipated due to its association with the road right-of-way. The fence will not pass through occupied CLF habitat or MSO protected activity centers (PACs), but will pass through designated MSO critical habitat.

The Tonto has proposed the construction of several range improvements within the next few years on the Red Lake Allotment which also stand to improve the status of the Gentry metapopulation of CLF. These improvements generally consist of the establishment of new waters, improving the suitability of existing waters, and the construction of additional fencing to improve livestock management within the allotment. Two new tanks may be constructed in the Frog Pasture near ridges on the west and east of the West Prong of Gentry Creek. These tanks will provide additional water within the pasture and thus improve distribution of livestock and elk using water in the pasture. The tanks could also provide habitat for dispersing CLF. Creation of additional waters will increase habitat connectivity between West Prong Gentry and Frog Pond. Frog Pond is a historical CLF site that is now occupied by nonnative predatory fish. The vast majority of Frog Pond resides on Tonto managed lands with a small pie-shaped slice owned by a private party. Coordination among stakeholders has commenced and negotiations are underway to renovate this pond and reintroduce CLF.

Three new tanks also may be constructed in the Grave/Naegelin Pasture if that pasture is divided into two pastures. These ponds could provide additional habitat for frogs dispersing from Ramer Tank, a wildlife water in which CLF were reintroduced in 2006. Tanks would be constructed using heavy equipment, and some lined with bentonite to enhance permanency.

If necessary, maintenance on existing or subsequently installed stock tanks that occur in occupied or potentially occupied CLF habitat will be done in accordance to the "Stockpond and Aquatic Habitat Maintenance Guidelines for the Chiricahua Leopard Frog on the Coronado National Forest" which is found in Appendix A of the draft CLF recovery plan (USFWS 2006).

As new CLF sites become established, the permittee, Tonto, AGFD, and our office will coordinate to determine if fencing additional sites, for the complete or partial exclusion of elk or livestock, is necessary to enhance protection of occupied CLF habitat and contribute to recovery of that species. The Tonto has expressed its desire for flexibility to construct these fences as necessary throughout the year. Only hand tools and small mechanized equipment are proposed for use. Small trees and brush will be cleared from the fenceline using a chainsaw. Sites will be surveyed for frogs, eggs, and tadpoles prior to fence construction and, if detected, will be avoided during construction.

Another fence-construction project will be conducted around Trail Tank, which is historical location for CLF, but habitat is currently considered unsuitable due to the presence of bullfrogs. The fence would be approximately 0.75 mile of 4-strand wire fence that will form a trap around Trail Tank. One side of this new fence is an existing pasture boundary fence that is adjacent to FR 102. The purpose of this fence is to create a holding trap where livestock can be held for a day or so while the herd is moved between pastures. This fence could also be used to help control livestock distribution by prohibiting access to a water source (i.e., Trail Tank). Potential future recovery efforts for the CLF may include renovation and repatriation of Trail Tank. In the event that CLF reoccupy Trail Tank, a portion of the tank will also be fenced to protect habitat.

Summary of Range Improvements

- Construct two new stock tanks in the Frog Pasture and three in the Grave/Naegelin Pasture.
- Construct a fence to divide the Grave/Naegelin Pasture into two separate pastures as indicated in the 1997 AMP.
- Sites that become occupied by CLF in the future may or may not be fenced to exclude livestock/elk. Decisions on whether to fence will be a collaborative process between the permittee, USFS, USFWS, and AGFD.
- Construct a fence to form a trap around Trail Tank.

In an amendment to the proposed action received via e-mail on May 8, 2007, the Tonto stated that it may be necessary to conduct stock tank maintenance in occupied or potentially occupied habitat. These stock tank maintenance procedures will follow the recommendations provided in Appendix A of the draft CLF recovery plan (USFWS 2006).

Monitoring

Monitoring of grazing conditions will occur at key areas in a grazing unit as appropriate. Key-area monitoring examines upland range sites and assesses changes in ground cover and relative composition of perennial forage plants, which indicates range condition and trend. Data will be

collected by Tonto range conservationists, biologists, other Tonto personnel, as well as by the permittee, in upland areas using a variety of methods. These data will be presented and analyzed by the Tonto to assist in making adaptive-management decisions.

Critical areas, such as riparian habitats and locations where listed species occur, will also be monitored throughout the season or year, and use will be adjusted if conservative use levels are exceeded. The Tonto has proposed to conduct monitoring of critical areas during the grazing season to ensure that sufficient residual vegetation and streambank integrity (where appropriate) are maintained to mitigate flood disturbance throughout the year, and to ensure that fencelines are intact and that the six CLF occupied sites that have been identified in the action area remain protected from livestock access. Monitoring will also be conducted along key stream reaches within riparian areas, which are to be selected with by the Tonto's interdisciplinary team (i.e. riparian ecologist, biologist, hydrologist, range staff, grazing permittee).

Livestock-use standards for riparian areas will include the following:

- For obligate woody riparian species, limit use to < 50% of terminal leaders on the top 1/3 of plants that are accessible to livestock (< 6.0 ft tall) (use of 50% of terminal leaders on the top 1/3 of plants is equivalent to approximately 20% of annual growth by volume).
- For herbaceous species within riparian habitats, limit use to < 50% of plant species biomass.
- Where alterable stream banks are present, limit physical impacts to <20% of the bank.

In uplands outside of critical areas, adaptive management will be conducted if utilization is exceeded or analyses indicate that range conditions are not improving due to management, with consideration for drought, elk/deer use, and/or other environmental factors that may contribute to the effects of the proposed grazing management. This will be accomplished by adjusting one or more aspects of grazing (intensity, timing, frequency, or duration of grazing).

STATUS OF THE SPECIES

Rangewide

We listed the CLF as a threatened species without critical habitat on June 13, 2002 (USFWS 2002). A draft recovery plan was completed in April 2006 (USFWS 2006) and is expected to be finalized in 2007. Threats to CLF include predation by nonnative organisms, especially bullfrogs (*Rana catesbeiana*), fish (including fish in the families Salmonidae and Centrarchidae, such as *Micropterus* spp. and *Lepomis* spp.), and crayfish (*Orconectes virilis* and possibly others); disease; drought; floods; degradation and loss of habitat as a result of water diversions and groundwater pumping, improper livestock management, altered fire regimes due to fire suppression and livestock grazing, mining, development, and other human activities; disruption of metapopulation dynamics; increased chance of extirpation or extinction resulting from small numbers of populations and individuals; and environmental contamination. CLF has disappeared from more than 75 percent of its historical localities (Clarkson and Rorabaugh 1989, Jennings 1995, Rosen *et al.* 1996, Sredl *et al.* 1997, Painter 2000, USFWS files). Loss of CLF populations

is part of a pattern of global amphibian decline, suggesting other regional or global causes of decline may be important as well (Carey *et al.* 2001).

The CLF is an inhabitant of cienegas, pools, livestock tanks, lakes, reservoirs, streams, and rivers at elevations of 3,281 to 8,890 feet in central and southeastern Arizona; west-central and southwestern New Mexico; and in Mexico, northern Sonora and the Sierra Madre Occidental of Chihuahua (Platz and Mecham 1984, Degenhardt *et al.* 1996, Sredl *et al.* 1997, Sredl and Jennings 2005). In New Mexico, of sites occupied by CLFs from 1994-1999, 67 percent were creeks or rivers, 17 percent were springs or spring runs, and 12 percent were stock tanks (Painter 2000). In Arizona, slightly more than half of all known historical localities are natural lotic systems, a little less than half are stock tanks, and the remaining locations are lakes and reservoirs (Sredl *et al.* 1997). Sixty-three percent of populations extant in Arizona from 1993-1996 were found in stock tanks (Sredl and Saylor 1998).

Northern populations of the CLF along the Mogollon Rim and in the mountains of west-central New Mexico are disjunct from those in southeastern Arizona, southwestern New Mexico, and Mexico. Recent genetic analyses support describing the northern populations as a distinct species (Benedict and Quinn 1999, Platz and Grudzien 1999, Goldberg *et al.* 2004). Goldberg *et al.* (2004) present evidence that *R. subaquavocalis* (Ramsey Canyon leopard frog) and *R. chiricahuensis* may be conspecific.

The species is still extant in most major drainages in Arizona and adjacent areas of New Mexico where it occurred historically, with the exception of the Little Colorado River drainage in Arizona and possibly the Yaqui drainage in New Mexico (Painter 2000, Sredl *et al.* 1997, USFWS files). However, it has not been found recently in many rivers, valleys, and mountain ranges, including the following in Arizona: White River, West Clear Creek, Tonto Creek, Verde River mainstem, San Francisco River, San Carlos River, upper San Pedro River mainstem, Santa Cruz River mainstem, Aravaipa Creek, Babocomari River mainstem, and Sonoita Creek mainstem. In southeastern Arizona, no recent records (1995 to the present) exist for the following mountain ranges or valleys: Pinaleno Mountains, Peloncillo Mountains, Sulphur Springs Valley, and Huachuca Mountains. Moreover, the species is now absent from all but one of the southeastern Arizona valley-bottom cienega complexes. In many of these regions, CLFs were not found for a decade or more despite repeated surveys. Recent surveys suggest that the species may have recently disappeared from some of the major drainages in New Mexico (R. Jennings pers. comm. 2004).

Disruption of metapopulation dynamics is likely an important factor in regional loss of populations (Sredl *et al.* 1997, Sredl and Howland 1994). CLF populations are often small and habitats are dynamic, resulting in a relatively low probability of long-term population persistence. Historically, populations were more numerous and closer together. If populations were lost due to drought, disease, or other causes, extirpated sites could be recolonized via immigration from nearby populations. As numbers of populations declined, populations became more isolated and were less likely to be recolonized if extirpation occurred. Also, most of the larger source populations along major rivers and in cienega complexes have disappeared.

The dispersal abilities of CLFs are key to determining the likelihood that suitable habitats will be colonized from a nearby extant population. Evidence exists to show substantial movements of leopard frogs and passive movement of tadpoles along stream courses. Current guidance,

supported by scientific literature, suggests dispersal of CLF can be up to one mile overland, three miles within intermittent drainages, and five miles within perennial drainages. Dispersal of this species is largely thought to occur during the summer monsoon.

Within the last decade, a chytridiomycete skin fungus (*Batrachochytrium dendrobatidis*) has been recognized as an important contributor to global declines of frogs, toads, and salamanders (Speare and Berger 2000, Longcore *et al.* 1999, Berger *et al.* 1998, Daszak 2000, Hale 2001). The chytrid fungus does not have an airborne spore, so it must spread via other means, including the international pet trade (Europe and USA), outdoor pond supplies (USA), zoo trade (Europe and USA), or laboratory supply houses (USA).

Chytrids could also be spread by people (and terrestrial animals) moving among various tanks and/or by personnel sampling aquatic habitats (Halliday 1998). The fungus can exist in water or mud and spread by wet or muddy boots, vehicles, livestock, and other animals moving among aquatic sites, or during scientific sampling of fish, amphibians, or other aquatic organisms.

Numerous studies indicate that declines and extirpations of CLFs are at least in part caused by predation and possibly competition by nonnative organisms, including fish in the family Centrarchidae, bullfrogs, tiger salamanders, crayfish, and several other species of fish (Fernandez and Rosen 1996; 1998; Rosen *et al.* 1994; 1996; Snyder *et al.* 1996; Fernandez and Bagnara 1995; Sredl and Howland 1994; Clarkson and Rorabaugh 1989).

Actions that result in changes to the water and structural quality and quantity of the leopard frog's habitats can result in negative impacts on the species. These actions include wildfire suppression, prescribed fire, wildland-fire use, road-management activities, recreational use, water extraction, and livestock grazing among other actions. Some of these actions in habitat and upslope may result in soil or ash depositing in occupied waters, decreasing the quantity or quality of water, reducing riparian vegetation, smothering eggs and tadpoles, and reducing the macroinvertebrate community used as a prey base. A lack of vegetation in and upslope of habitat may result in less dependable water quantity and other structural characteristics that CLFs may require. These indirect effects have the capability of affecting the numbers and reproduction of the species and may result in a change in its distribution, if isolated populations are locally extirpated and recolonization from adjacent sites is not feasible.

Additional information about the CLF can be found in Painter (2000), Sredl *et al.* (1997), Jennings (1995), Degenhardt *et al.* (1996), Rosen *et al.* (1994, 1996), Sredl and Howland (1994), Platz and Mecham (1979, 1984), Sredl and Jennings (2005), and USFWS (2006).

Recovery Unit 5

The draft Recovery Plan for CLF (USFWS 2006) delineated eight recovery units in key areas that were targeted as valuable in the recovery of this species. The action area for this proposed action lies within Recovery Unit 5, which is delineated on the west by the Verde River southeast of Camp Verde, to the north along the interface between the forested mountains and the grasslands and pinyon-juniper woodlands of the Colorado Plateau, to the east where elevations rise into the White Mountains, and to the south where elevations drop below about 4,000 feet which corresponds to the presumed lower limit of the frog's distribution within the recovery unit.

Five management units have been delineated within Recovery Unit 5. The action area for this project resides within the Gentry Creek Management Area.

Within Recovery Unit 5, the CLF is currently known from three presumed metapopulations: 1) the Buckskin Hills area of the Coconino National Forest (Fossil Creek drainage); 2) the upper Ellison Creek drainage within the Payson Ranger District of the Tonto; and 3) the Cherry and Crouch creek area near Young within the Pleasant Valley Ranger District on the Tonto, which is also referred to as the Gentry Creek Conservation Management Zone (CMZ).

In the Buckskin Hills, CLF were observed at 15 different livestock tanks during the 1990s and early 2000s. However, invasion by nonnative predators and drought reduced the number of occupied tanks dramatically by the end of 2002. In 2002, CLFs were salvaged from Walt's Tank as it was going dry and were transferred to the Arizona-Sonora Desert Museum for temporary holding. The tank was renovated and refilled, and the frogs were repatriated in 2003. Water was pumped to Sycamore Basin Tank to prevent it from drying and to conserve the frog population there. Five tanks in the area were chemically renovated to remove nonnative fishes, which is expected to provide additional habitat for the frogs. Currently only a small number of frogs occupy two tanks. In September 2005, four frogs were salvaged and taken to the Phoenix Zoo for captive breeding in the hope of creating a source of animals for reestablishment projects. One of the four frogs died, but the effort has produced two viable egg masses.

Little is known about the current status of CLF in the upper Ellison Creek drainage. In June 2006, multi-agency survey efforts discovered three adult CLF in small tributaries to Ellison Creek within the Moore and Ellison Creek pastures of the Little Green Valley Complex Allotment and within the footprint of the 1990 Dude Fire. Subsequent surveys in 2006 failed to locate CLF in these same drainages. The June 2006 observations were the first of this species in this area since the last recorded observation in 1998 (USFWS 2004). Complex and abundant potential habitat in this area require significant survey effort to more accurately describe the status of this CLF metapopulation. As of the date of this biological opinion, no frogs, tadpoles, or egg masses have been observed in this area. Multi-agency plans for significant additional survey work are underway for the remainder of the 2007 and the 2008 field seasons.

Several Federal actions affect this species every year. A complete list of all consultations affecting this species can be found on our website (<http://www.fws.gov/southwest/es/arizona/>) by clicking on the "Document Library" tab and then on the "Section 7 Biological Opinions" tab. Survey work and recovery projects also occur periodically, and are summarized in the appropriate land-management agency or AGFD documents as well as in the BAE associated with this project.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

The action area for this consultation consists of all areas within the Red Lake Allotment boundaries as well as one mile downstream of all perennial, intermittent, or ephemeral streams that flow out of the allotment. Some of the named streams include Crouch, Gentry, Cherry, Ashurst, Parallel Canyon, Lost Tank, and West Prong Gentry creeks. Perennial pools occur along Cherry, Crouch, and Gentry creeks, as well as the West Prong of Gentry Creek. Elevations within the Red Lake Allotment range from 4,900 to 7,000 feet. Dominant vegetation type is ponderosa pine forest, with pinyon/juniper and chaparral types also present within the lower elevations. The majority of the allotment is in the Cherry Creek 5th code watershed.

The Grave/Naegelin and Catholic pastures have been lightly stocked (35 head) and the Gentry, Frog, and Sheep Pastures have not been stocked since 2002 due to precautions provided for in the Tonto's drought policy. Parker Three-Step condition and trend data were collected in 1994. The Parker Three-Step methodology rates areas with good herbaceous cover the highest rating since it is based on livestock grazing preferences. This rating does not give an indication of site potential or ecological status. The vegetation trend on the Grave/Naegelin and Catholic pastures was stable and condition was classified as poor due to the overstory present on the allotment and subsequent needle cast produced by dense stands of ponderosa pine, juniper, and chaparral, which limits herbaceous vegetation growth. The Tonto stated that tree and shrub density and thickness of the needle cast layer yields a greater impact on the herbaceous forage production and vigor on the allotment than livestock grazing.

Soil condition overall was fair and trend overall was stable within the remainder of the Red Lake Allotment. This indicates that the soils are well-protected and that the watershed is in satisfactory condition within most areas within the allotment. The Tonto predicts that allotment trend and condition for soils is likely improved since 1994 due to the reduced stocking that has been prescribed on the allotment in recent years. The Red Lake Allotment is heavily impacted by elk, particularly in areas with access to perennial water. Elk damage is most evident at Crouch Creek where CLF remains extant, but where excessive streamside vegetation trampling has occurred and siltation of pools continues to be a significant concern. Excessive siltation also occurs adjacent to FR 202 just downstream of Carroll Spring where CLF are also extant. Silt from the neighboring FR 202 is impacting adjacent pool habitat by filling them in with sediment.

The grazing capacity, based solely on herbaceous plant production, is about 81 adult livestock yearlong, or 966 AUM's. However the browse component to the forage base boosts the allotment's capacity to 2,032 AUMs.

Before the drought conditions of 2002, the permittee had regularly stocked the allotments to full permitted numbers. The vegetation and soil condition did not visually appear to decline during this period (based on Tonto's comparison to 1995 range trend monitoring photos). The biggest management problem observed during range inspections was poor livestock distribution. Livestock tended to concentrate use in easily accessible areas near roads, while areas of good forage production on flat to gentle slopes away from trails and roads tended to be under-utilized.

According to the "Arizona Basin Outlook Report" for March 15, 2007, the Salt River Watershed snowpack stands at 44 percent of the 30-year median average, while the forecast for surface runoff stands at 20 percent of median flows (USDA 2007). These figures indicate that this watershed is still in a drought cycle although, as previously stated, the effects of drought are variable across the landscape.

Status of the Species in the Action Area

As of 2005, four distinct, occupied subpopulations comprised the metapopulation of CLF within the Gentry Creek CMZ of the Gentry Creek Management Area: 1) Bottle Spring; 2) Carroll Spring; 3) Crouch Creek; and 4) West Prong Gentry Creek. The draft CLF Recovery Plan (USFWS 2006) cited the three primary threats to this metapopulation as drought, invasion of nonnative predators, and potentially chytridiomycosis.

In 2005 and 2006, several habitat-improvement projects, which included sediment removal and fence reconstruction, were initiated in occupied sites or sites where CLF reintroductions were planned within the Gentry Creek CMZ. In 2006 and subsequent to those efforts, 25 tadpoles and metamorphs were released at both Bottle Spring and Carroll Spring to augment the extant populations at those sites. Additionally, a total of 49 tadpoles and metamorphs were released at Crouch Creek to augment the extant population at that locality.

Finally, two historical sites that were extirpated of CLF, Ramer Tank and Pine Spring, were reintroduced with 662 and 400 tadpoles and metamorphs, respectively, which were headstarted with the assistance of the Phoenix Zoo. These two sites occur within wildlife exclosures within the Red Lake and Gentry pastures, respectively. The day that tadpoles and metamorphs were released into these sites, a low pressure weather system had settled in the area which brought significant amounts of precipitation. These wet conditions may have provided incentive for some of the newly released metamorphs to disperse out of these sites, using either drainages or overland travel as dispersal routes, given the wet conditions. However, no evidence of immediate dispersal of released metamorphs was observed at that time and there is no survey evidence that other sites in the vicinity have become occupied by metamorphs that dispersed from either location. These two sites have not yet been formally surveyed in 2007. Therefore, the current status of the species at either site can not be confirmed, but we remain reasonably certain that the species is present at both locations.

In total, a net gain of two extant localities of CLF in the Gentry Creek CMZ resulted from this conservation and recovery effort coordinated by multiple agencies, the Phoenix Zoo, and the permittee. Currently, the Gentry Creek CMZ is comprised of six extant, discrete CLF populations, although the long term sustainability of the two reintroduced populations has yet to be verified. All six populations have been fenced to eliminate access from livestock. It is important to acknowledge that an occupied site, or population, can consist of one or two adult frogs, and therefore, may be particularly vulnerable to short or long-term perturbations.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Livestock grazing can cause a decline in diversity, abundance, and species composition of riparian herpetofauna communities from direct or indirect threats including: (1) declines in the structural richness of the vegetative community; (2) losses or reductions of the prey base; (3) increased aridity of habitat; (4) loss of thermal cover and protection from predators; and (5) a rise in water temperatures to levels lethal to larval stages of amphibian and fish development (Szaro *et al.* 1985; Schulz and Leininger 1990; Belsky *et al.* 1999). Livestock grazing may also lead to desertification (the process of becoming arid land or desert as a result of land mismanagement, climate change, or other extenuating circumstances) due to a loss in soil fertility from erosion and gaseous emissions spurred by a reduction in vegetative ground cover, particularly at lower elevations (Schlesinger *et al.* 1990). Specific attributes of ecosystems, such as composition, function, and structure, have been documented as being altered by improper livestock management through a variety of means including: (1) decreasing the density and biomass of individual species, reducing species richness, and changing biological community organization; (2) interfering with nutrient cycling and ecological succession; and (3) changing vegetation stratification, contributing to soil erosion, and decreasing availability of water to biotic communities (Fleischner 1994). These effects can largely be attenuated through consistent monitoring and adaptive management as proposed by the Tonto in their management plan for the Red Lake Allotment.

Management of stock tanks is an important consideration for CLF. Stock tanks can be intermediary “stepping stones” in the dispersal of nonnative species from larger source populations to new areas (Rosen *et al.* 2001). Stock tanks may facilitate the spread of nonnative species of fish, amphibians, and crayfish when they are intentionally or unintentionally stocked by anglers and private landowners (Rosen *et al.* 2001). Stock tanks that receive heavy livestock use may become fouled to such a point they may become toxic to frogs. Dense bank and aquatic vegetation is an important habitat characteristic for the CLF that can be affected if the impoundment receives too much grazing use, which may lead to trampling or overgrazing of the bankside vegetation. Alternatively, well-managed stock tanks provide important habitat for CLF, especially when the tank remains devoid of nonnative species; provides adequate vegetation cover; and provides reliable water sources in periods of prolonged drought. Given these benefits of well-managed stock tanks, we believe well-managed stock tanks are an important component to CLF recovery and will be an important facet for CLF conservation on the Red Lake Allotment.

A key to proper livestock management on the Red Lake Allotment is increasing the distribution of livestock across the entire grazing space. Fleischner (1994) found that “Because livestock congregate in riparian ecosystems, which are among the most biologically rich habitats in arid and semiarid regions, the ecological costs of grazing are magnified at these sites.” Stromberg and Chew (2002) and Trimble and Mendel (1995) also discussed the propensity for livestock to remain within or adjacent to riparian communities. Trimble and Mendel (1995) stated that “Cows, unlike sheep, appear to love water and spend an inordinate amount of time together lounging in streams and ponds, especially in summer (surface-active season for reptiles and amphibians), sometimes going in and coming out several times in the course of a day.” These livestock behaviors can be expected to occur on the Red Lake Allotment as well. Expectedly, this inactive behavior is more pronounced in more arid regions (Trimble and Mendel 1995). In one rangeland study, it was concluded that 81 percent of the vegetation that was removed by livestock was from a riparian area which amounted to only two percent of the total grazing space (Trimble and Mendel 1995). Another study reported that grazing rates were 5 to 30 times higher

in riparian areas than on the uplands which may be due in part to several factors: (1) higher forage volume and palatability of species in riparian areas; (2) water availability; (3) the close proximity of riparian areas to the best upland grazing sites; and (4) microclimatic features such as cooler temperatures and shade (Trimble and Mendel 1995). These studies illustrate the propensity for riparian habitat to easily become overgrazed, especially in a drought cycle within an arid region such as the Red Lake Allotment.

The CLF uses riparian herbaceous vegetation for cover, thermoregulation, and foraging. These behaviors are often observed at Crouch Creek, and at Carroll and Bottle springs where the CLF is extant. Clary and Webster (1989) noted that excessive grazing and trampling from livestock can affect riparian and stream communities by reducing or eliminating this vegetation, causing channel aggradation or degradation, causing widening or incisement of stream channels, and changing streambank morphology, with the cumulative result of lowering corresponding water tables. These effects, while attributed largely to elk, can be readily observed at Crouch Creek; and demonstrate the relative fragility of some occupied habitat on the Red Lake Allotment. As stated previously, these effects can largely be attributed to the tendency of livestock in the arid Southwest to spend a disproportionately longer time in riparian areas than in upland range pasture (5-30 times longer, comparatively), which leads to overgrazing of the riparian vegetation (Clary and Medin 1990). However, even when livestock access to riparian areas is restricted, grazing in the uplands can lead to soil compaction and decreased filtering capacity of vegetation. These effects increase the speed and amount of runoff from the uplands, which contributes heightened, unnatural amounts of sediment in aquatic habitat. This situation is further adversely affected by elk which cause significant damage to bankside vegetation while further contributing to sedimentation of the pool habitat, such as at Crouch Creek on the Red Lake Allotment. Siltation damages the suitability of that habitat and fills in pools, which may affect their permanency during extended dry periods (Sartz and Tolsted 1974; Weltz and Wood 1986; Orodho *et al.* 1990; Trimble and Mendel 1995; Pearce *et al.* 1998). To minimize the potential effects of livestock grazing on occupied riparian habitat, the Tonto has emphasized the importance of improving livestock dispersal throughout the Allotment to avoid concentrating use too heavily in any given area.

The Draft Chiricahua Leopard Frog Recovery Plan (USFWS 2006) also provides a lengthy discussion of potential effects to CLF from livestock grazing activities with emphasis on effects to CLF during the warmer periods of the year when the species is surface-active and/or reproductive. The direct and indirect effects described herein from livestock grazing could occur during both winter and summer use on the Red Lake Allotment. Proposed winter use pastures are Gentry, Sheep, and Catholic and will be used November through April; only one site (Pine Spring) is considered occupied at this time which occurs within the Gentry Pasture. Two new tanks will be constructed in the Grave/Naegelin Pasture and may become occupied in the future. Summer pastures are Guard, Frog, and Grave/Naegelin and will be used May through October. Ramer Tank in the Grave/Naegelin Pasture and West Prong Gentry Creek in the Frog Pasture are the only occupied sites in these areas. Three new tanks will be constructed in Frog Pasture and may also become occupied habitat in the future.

Both direct and indirect adverse effects may occur to individual frogs through a variety of means during the non-active seasons of the year for CLFs in winter use pastures, which include trampling of hibernating frogs or tadpoles; erosion and/or siltation of stream courses; elimination of undercut banks that provide cover for frogs; loss of wetland and riparian vegetation and

backwater pools; and spread of disease and nonnative predators (Arizona State University 1979, Hendrickson and Minckley 1984, Ohmart 1995, Harding 1997, Jancovich *et al.* 1997, Belsky *et al.* 1999, Ross *et al.* 1999, USFWS 2000, Sredl and Jennings 2005).

Direct mortality of amphibian species, in all life stages, from being trampled by livestock has been documented in the literature (Bartelt 1998; Ross *et al.* 1999). Direct mortality may also occur from livestock tank maintenance activities in occupied habitat, although the Tonto will take measures to minimize effects of tank maintenance by using the protocol outlined in Appendix A of the recovery plan (USFWS 2006). Direct mortality or injury of CLF, tadpoles, or egg masses from human trampling could also occur should fencing be constructed in occupied habitat. In these instances, the Tonto will work with other stakeholders to minimize these effects. The Tonto has committed to several range improvements that promote recovery of the CLF and is expected to continue their conservation activities.

In review of the potential effects to occupied CLF habitat and individual frogs discussed above, we are reasonably certain that trampling of egg masses, or dormant-season metamorphosed frogs, will occur at some rate over the life of the ten-year grazing permit. Additionally, we are reasonably certain that adverse effects to bankside and aquatic vegetation in occupied habitat, causing loss of cover for frogs, will also occur at some level during the duration of this proposed action. We anticipate these direct and indirect effects could occur in one or all of the following current or future habitat occupancy scenarios within the Red Lake Allotment:

- 1) Within existing suitable habitat where the species becomes established within the action area (e.g. currently suitable habitat outside of livestock enclosures, but within actively used pastures); and/or
- 2) Within currently occupied locations that are managed as livestock enclosures but where maintenance activities are required or livestock have gained unauthorized access either from public land users leaving gates open or fences being damaged or downed by fallen trees or by vandalism; and/or
- 3) Within newly created stock tanks, proposed by the Tonto as allotment improvements, that become occupied either via natural colonization from dispersing frogs or from introduction activities.

While watershed effects such as increased siltation are often associated with livestock grazing of upland habitats, we are reasonably certain that monitoring, conservative use, and adaptive management proposed by the Tonto for the Red Lake Allotment, as well as the influence of heightened levels of organic debris such as needle cast on the ground surface, will minimize any potential effects of upland grazing on occupied habitat.

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.

Moderate amounts of dispersed camping, hiking, hunting, and angling likely occur within the action area. These are Forest Service regulated activities. However, these activities are not known to appreciably affect CLF or their habitat in this area with the exception of Pine Spring. An access gate exists on the FR 126 road into Pine Spring just west of FR 202 which is occasionally left open by the public and may allow livestock entrance into this enclosure. In 2006, the Tonto took measures to address this problem including the installation of a better latching system and additional signage to minimize these instances. Off-highway vehicle (OHV) use also occurs within the action area in association with camping and hunting activities which may contribute to sedimentation of CLF habitat. OHV use, specifically, is not considered a significant stressor to CLF habitat, however. Since the land within the action area is managed by a Federal agency (Tonto), most activities that could potentially affect listed species are Federal activities and subject to additional section 7 consultation.

CONCLUSION

After reviewing the current status of the CLF, the environmental baseline for the action area, the effects of the proposed livestock grazing and the potential for cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the CLF. No critical habitat has been designated for this species; therefore, none will be affected.

We present this conclusion on the CLF because of the significant conservation and recovery actions that have occurred and are projected to continue within the Gentry Conservation and Management Zone, which are also supported in part by this proposed action. Within the last two calendar years, a myriad of activities ranging from habitat-improvement projects, to head-starting programs, to reintroductions of CLF into historical localities, have been initiated and completed within the action area. Additionally, the Tonto has proposed to construct additional range improvements (water sources; fence construction, etc.) to primarily enhance livestock distribution and secondarily provide additional CLF habitat within the action area to facilitate metapopulation dynamics. The Tonto has expressed a continued commitment to remain a principle partner in CLF conservation and recovery actions for this species in this area. These recent, multi-stakeholder, collaborative efforts have resulted in a 50 percent increase in CLF-occupied sites and orders of magnitude more individual frogs being extant within the action area as a whole. Ultimately, the projected trend for this species' status within Recovery Unit 5 is positive, largely as a result of these efforts within the Gentry Conservation and Management Zone. Such efforts and results are testament to the value of collaborative species management through partnerships. The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is defined (50 CFR 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is

defined (50 CFR 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Tonto so that they become binding conditions of any grant or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. The Tonto has a continuing duty to regulate the activity covered by this incidental take statement. If the Tonto (1) fails to assume and implement the terms and conditions or (2) fails to require the (applicant) to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Tonto must report the progress of the action and its impact on the species to our office as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

We anticipate that the proposed action is reasonably certain to result in incidental take of CLF. However, it is difficult to quantify the number of individual frogs taken because: (1) dead or impaired individuals are difficult to find and losses may be masked by seasonal fluctuations in environmental conditions; (2) the status of the species could change over time through immigration, emigration, and loss or creation of habitat; and (3) the species is small-bodied, well camouflaged, and occurs under water of varying clarity. For these reasons, we will attribute take at the sub-population level (hereinafter referred to as "populations"; also known as occupied sites) as addressed in the Programmatic Biological and Conference Opinion on the Continued Implementation of the Land and Resource Implementation Plans for the Eleven National Forests and National Grasslands of the Southwest Region (LRMP BO; USFWS 2005). We anticipate the following forms of take over the 10-year life of the project:

1. Direct mortality or injury of CLF adult, metamorphs, tadpoles, or egg masses at one occupied livestock tank each year where maintenance activities result in significant disturbance at the tank (e.g., dredging or silt removal, major repair of berms).
2. Direct mortality or injury through trampling of CLF adults, metamorphs, tadpoles, or egg masses at one occupied site in a summer pasture at which cattle have authorized access, or gain unauthorized access from March through October; and trampling of small tadpoles and overwintering frogs at one occupied site in a winter pasture where cattle have access from November through February.
3. Harm or harassment of CLF at one occupied site due to unintentional introduction of chytridiomycosis resulting from cattle movement, or transport of water or mud from aquatic sites by ranch hands, or other activities associated with livestock grazing management. Once the chytrids fungus becomes established at a site, the site becomes unsuitable for CLF occupation.

4. Harm or harassment including lost productivity of CLF due to loss of bankline and emergent vegetation cover at one occupied site where cattle have unrestricted access to all banklines. Harm of CLF due to sedimentation of pools or other forms of habitat degradation at one occupied site where cattle contribute to erosion within or upstream of these sites.
5. Harassment of CLF at one occupied livestock tank due to unintentional benefit to, or facilitation of, nonnative bullfrogs, fish, salamanders, or crayfish that immigrate to newly constructed livestock tanks from nearby populations.
6. Harassment of CLF at one livestock tank where livestock have access to the tank and foul the water to such an extent that conditions become toxic to frogs.

Occupancy of suitable habitat within a CLF metapopulation is dynamic. Discovery of new populations, recolonizations of extirpated sites, and extirpation of occupied sites are common occurrences with this species; therefore, we expect that over the life of this proposed action, sites where take may occur (sites occupied by CLF) will change across the allotment. The above anticipated take considers the dynamic nature of frog occupancy; thus, we do not believe reinitiation is needed whenever a new population of CLF is found, or frogs in a particular livestock tank are periodically absent.

We also reviewed the prescriptions for take outlined on pages 270 and 271 of the LRMP BO to identify when take has been exceeded. In the LRMP BO and as of June 10, 2005, the Pleasant Valley Ranger District was identified as possessing four extant populations of CLF. As provided for in the LRMP BO, the authorized level of incidental take of CLF from the proposed action will be exceeded if, after a period of two consecutive years, there is a decrease in the total number of occupied CLF population sites on the Pleasant Valley Ranger District of the Tonto National Forest as a result of the proposed action. In other words, if after a period of two consecutive years, the total number of occupied CLF sites totals less than four in the Pleasant Valley Ranger District as a result of livestock management, take will have been exceeded.

EFFECT OF THE TAKE

In this biological opinion, we determine that this level of anticipated take is not likely to result in jeopardy to CLF.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Tonto must comply with the following terms and conditions (T&Cs), which implement the reasonable and prudent measures (RPMs) and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following reasonable and prudent measures and terms and conditions are necessary and appropriate to minimize take of CLF:

1. Ensure the continued integrity of all current or future pasture boundary or livestock enclosure fence lines.

- a. The Tonto shall inspect pasture boundary and any appropriate livestock enclosure fence lines at least once at the beginning of pasture use and again during the mid-point of each pasture used.
 - b. If breaches are found, the Tonto must repair the fenceline immediately or as soon as feasibly possible.
2. Ensure that trespass livestock that gain access to unauthorized areas (i.e. livestock enclosures including, but not limited to, Carroll Spring, Crouch Creek, Bottle Spring, West Prong Gentry Creek, Ramer Tank, and Pine Spring) are removed as soon as possible.
 - a. The Tonto shall ensure that any trespass livestock that are observed in unauthorized areas are removed from those areas within 48 hours of their discovery.
 - b. After removal of trespass livestock from unauthorized areas, the Tonto shall determine the route of entry used by the trespass livestock and initiate corrective action immediately to avoid future breaches.
3. Take appropriate actions to help prevent nonnative species such as sportfish, crayfish, or bullfrogs from becoming established in proposed livestock waters constructed as range improvements.
 - a. The Tonto shall conduct annual surveys of newly constructed stock tanks as per approved protocol. Also, report any observations of nonnative species to our office and to other cooperating partners.
 - b. If nonnative species are detected in newly constructed stock tanks, the Tonto shall immediately initiate a multi-stakeholder planning effort to remove the nonnative species from the stock tank as quickly as possible. If a complete drying of a stock tank is deemed as the most effective management tool to address the threat of nonnatives, the Tonto may time this action so as to not place an unnecessary burden on the permittee.
4. Reporting monitoring findings and to our office.
 - a. The Tonto shall report annually, the documented results of fence line assessments conducted pursuant to the T&C and RPM item 1.a. above. In the event that a fence line is observed in disrepair, the Tonto shall notify our office within two business days of when the situation was discovered and how it was remedied. Initial notification to our office, for this and subsequent RPMs can be accomplished via telephone or e-mail.
 - b. The Tonto shall report within two business days of its observed occurrence, any observation of trespass livestock in unauthorized areas of the Red Lake Allotment and what corrective actions were implemented and when pursuant to the T&C and RPM items 2.a. and 2.b. above.

c. The Tonto shall report within two business days of its observed occurrence, the discovery of nonnative species in any newly constructed stock tank to provide for collaborative emergency planning and corrective action as required in T&C and RPM items 3.a. and 3.b. above.

d. The Tonto shall submit an annual report to our office by January 1 following the first year of project implementation. These reports shall briefly document, for the previous calendar year, the results of any monitoring efforts conducted as well as a summary of any situations, and their corrective actions, that pertain to above items. The report shall also make recommendations for modifying or refining these terms and conditions to enhance listed species protection.

Review requirement: The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The Tonto must immediately provide an explanation of the causes of the taking and review with the AESO the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. 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 provide the following recommendations prescribed in the draft CLF Recovery Plan (USFWS 2006) for your consideration [several recommendations to accomplish each of the following objectives can be found in USFWS (2006)]:

1. Implement guidelines for livestock pond use and maintenance. The “Recommended Minimization Measures”, Part IV “Actions Available for Leopard Frog Recovery” in Appendix A and “Livestock Grazing and Management” in Appendix I of the Recovery Plan provide guidance regarding minimizing effects of livestock grazing activities, including livestock pond use and maintenance, on the CLF.
2. Continue to enhance bankline and aquatic vegetation, and habitat complexity at sites with extant populations, where needed.
3. Continue to collaborate with other stakeholders to eliminate nonnative predators at or near CLF populations that pose a threat to those populations, and/or prevent existing sites with suitable CLF habitat from becoming occupied by nonnative species, most notably at sites including, but not limited to, Frog Pond, Trail Tank, Upper Tank, and the unnamed tank southwest of Upper Tank within the Gentry Creek Management Area.

4. Continue to collaborate in identifying, restoring, or creating as needed, and protecting currently unoccupied recovery sites in the Gentry Creek Management Area necessary to support viable populations and metapopulations of CLF.
5. Continue to collaborate in establishing new, or re-establishing former, populations of CLF at selected recovery sites.
6. Continue to collaborate in augmenting populations in the Gentry Creek Management Area, as needed, to increase persistence.
7. Continue to collaborate in monitoring extant CLF populations and habitats, and implementation of the recovery plan.
8. Continue to support research needed to support recovery actions and adaptive management.
9. Continue to encourage and develop support for the recovery efforts for the CLF in the Gentry Creek Management Unit through collaborative public and private partnerships.

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

REINITIATION NOTICE

This concludes formal consultation on the action outlined herein. 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; (4) if utilization levels are consistently exceeded in critical areas; or (5) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate the Tonto's efforts to identify and minimize effects to listed species from this project. We encourage you to coordinate review of this project with the Arizona Game and Fish Department. For further information please contact Jeff Servoss (x237) or Debra Bills (x239).

Please refer to consultation numbers, 22410-2007-F-0052 and 02-21-04-I-0487 in future correspondence concerning this project.

Sincerely,

/s/ Steven L. Spangle
Field Supervisor

cc: Forest Biologist, Tonto National Forest, Supervisor's Office, Phoenix, AZ
(Attn: Steve Lohr)
District Biologist, Pleasant Valley Ranger District, Young, AZ (Attn: Duke Klein)
Shaula Hedwall, Arizona Ecological Services Field Office, Flagstaff, AZ
Jim Rorabaugh, Arizona Ecological Services Field Office, Phoenix, AZ
Habitat Branch Chief, Arizona Game and Fish Department, Phoenix, AZ
Mike Sredl, Nongame Branch, Arizona Game and Fish Department, Phoenix, AZ
Bill Burger, Arizona Game and Fish Department - Region 6, Mesa, AZ

LITERATURE CITED

- Arizona State University. 1979. Resource inventory for the Gila River complex, Eastern Arizona. Report to the Bureau of Land Management, Safford District, Safford, Arizona. Contract No. YA-512-CT6-216.
- Bartelt, P. E. 1998. *Bufo boreas* (Western Toad) mortality. Herpetological Review 29(2):96.
- Belsky, A.J., A. Matzke, and S. Uselman. 1999. Survey of livestock influences on stream and riparian ecosystems in the Western United States. Journal of Soil and Water Conservation 54:419-431.
- Benedict, N., and T.W. Quinn. 1999. Identification of Rio Grande leopard frogs by mitochondrial DNA analysis: a tool for monitoring the spread of a non-native species. Department of Biological Sciences, University of Denver, CO.
- Berger L., R. Speare, P. Daszak, D.E. Green, A.A. Cunningham, C.L. Goggins, R. Slocombe, M.A. Ragan, A.D. Hyatt, K.R. McDonald, H.B. Hines, K.R. Lips, G. Marantelli, and H. Parkes. 1998. Chytridiomycosis causes amphibian mortality associated with population declines in the rain forests of Australia and Central America. Proceedings of the National Academy of Science, USA 95:9031-9036.
- Carey, C., W.R. Heyer, J. Wilkinson, R.A. Alford, J.W. Arntzen, T. Halliday, L. Hungerford, K.R. Lips, E.M. Middleton, S.A. Orchard, and A.S. Rand. 2001. Amphibian declines and environmental change: use of remote sensing data to identify environmental correlates. Conservation Biology 15(4):903-913.
- Clarkson, R.W., and J.C. Rorabaugh. 1989. Status of leopard frogs (*Rana pipiens* Complex) in Arizona and southeastern California. Southwestern Naturalist 34(4):531-538.
- Clary, W. P. and B. F. Webster. 1989. Managing grazing of riparian areas in the Intermountain Region., USDA Forest Service.
- Clary, W. P. and D. E. Medin. 1990. Differences in vegetation biomass and structure due to cattle grazing in a northern Nevada riparian ecosystem. USDA Forest Service.
- Collins, J.P., J.L. Brunner, V. Miera, M.J. Parris, D.M. Schock, and A. Storfer. 2003. Ecology and evolution of infectious disease. Pages 137-151 in R.D. Semlitsch, Amphibian Conservation. Smithsonian Books, Washington D.C.
- Daszak, P. 2000. Frog decline and epidemic disease. International Society for Infectious Diseases. [Http://www.promedmail.org](http://www.promedmail.org).
- Davidson, C. 1996. Frog and toad calls of the Rocky Mountains. Library of Natural Sounds, Cornell Laboratory of Ornithology, Ithaca, NewYork.

- Degenhardt, W.G., C.W. Painter, and A.H. Price. 1996. Amphibians and reptiles of New Mexico. University of New Mexico Press, Albuquerque.
- Fernandez, P.J., and J.T. Bagnara. 1995. Recent changes in leopard frog distribution in the White Mountains of east central Arizona. Page 4 in abstracts of the First Annual Meeting of the Southwestern Working Group of the Declining Amphibian Populations Task Force, Phoenix, Arizona.
- Fernandez, P.J., and P.C. Rosen. 1996. Effects of the introduced crayfish *Oronectes virilis* on the native aquatic herpetofauna in Arizona. Report to the Arizona Game and Fish Department, Heritage Program, IIPAM Project No. I94054.
- Fernandez, P.J. and P.C. Rosen. 1998. Effects of introduced crayfish on the Chiricahua leopard frog and its stream habitat in the White Mountains, Arizona. Page 5 in abstracts of the Fourth Annual Meeting of the Declining Amphibian Populations Task Force, Phoenix, Arizona.
- Fleischner, T. L. 1994. Ecological costs of livestock grazing in western North America. *Conservation Biology* 8(3): 629-644.
- Goldberg, C.S., K.J. Field, and M.J. Sredl. 2004. Mitochondrial DNA sequences do not support species status of the Ramsey Canyon leopard frog (*Rana subaquavocalis*). *Journal of Herpetology* 38(3):313-319.
- Hale, S.F. 2001. The status of the Tarahumara frog in Sonora, Mexico based on a re-survey of selected localities, and search for additional populations. Report to the U.S. Fish and Wildlife Service, Phoenix, Arizona.
- Halliday, T.R. 1998. A declining amphibian conundrum. *Nature* 394:418-419.
- Harding, J.H. 1997. Amphibians and Reptiles of the Great Lakes Region. The University of Michigan Press, Ann Arbor.
- Hendrickson, D.A., and W.L. Minckley. 1984. Cienegas - vanishing climax communities of the American Southwest. *Desert Plants* 6(3):131-175.
- Holecheck, J. and D. Galt. 2000. Grazing intensity guidelines. *J. Rangelands* 22(30), pg 11-14.
- Jancovich, J.K., E.W. Davidson, J.F. Morado, B.L. Jacobs, J.P. Collins. 1997. Isolation of a lethal virus from the endangered tiger salamander *Ambystoma tigrinum stebbinsi*. *Diseases of Aquatic Organisms* 31:161-167.
- Jennings, R.D. 1995. Investigations of recently viable leopard frog populations in New Mexico: *Rana chiricahuensis* and *Rana yavapaiensis*. New Mexico Game and Fish Department, Santa Fe.
- Longcore, J.E., A.P. Pessier, and D.K. Nichols. 1999. *Batrachyrium dendrobatidis* gen. Et sp. Nov., a chytrid pathogenic to amphibians. *Mycologia* 91(2):219-227.

- Ohmart, R.D. 1995. Ecological condition of the East Fork of the Gila River and selected tributaries: Gila National Forest, New Mexico. Pages 312-317 in D.W. Shaw and D.M. Finch (tech. coords.). Desired future conditions for Southwestern riparian ecosystems: bringing interests and concerns together. USDA Forest Service, General Technical Report RM-GTR-272.
- Orodho, A.B., M.J. Trlica, and C.D. Bonham. 1990. Long-term heavy-grazing effects on soil and vegetation in the four corners region. *The Southwestern Naturalist* 35(1):9-15.
- Painter, C.W. 2000. Chiricahua leopard frog, *Rana chiricahuensis* Platz and Mecham 1979. Pages 10-21 and Appendix in Completion Report to the U.S. Fish and Wildlife Service, Albuquerque, New Mexico. Grant No. E-31/1-5.
- Pearce, R.A., M.J. Trlica, W.C. Leininger, D.E. Mergen, and G. Fraser. 1998. Sediment movement through riparian vegetation under simulated rainfall and overland flow. *Journal of Range Management* 51(3):301-308.
- Platz, J.E., and J.S. Mecham. 1979. *Rana chiricahuensis*, a new species of leopard frog (*Rana pipiens* Complex) from Arizona. *Copeia* 1979(3):383-390.
- Platz, J.E., and J.S. Mecham. 1984. *Rana chiricahuensis*. Catalogue of American Amphibians and Reptiles 347.1.
- Platz, J.E., and T. Grudzien. 1999. The taxonomic status of leopard frogs from the Mogollon Rim country of central Arizona: evidence for recognition of a new species. *Proceedings of Nebraska Academy of Sciences* 109:51.
- Rosen, P.C., C.R. Schwalbe, D.A. Parizek, P.A. Holm, and C.H. Lowe. 1994. Introduced aquatic vertebrates in the Chiricahua region: effects on declining native ranid frogs. Pages 251-261 in L.F. DeBano, G.J. Gottfried, R.H. Hamre, C.B. Edminster, P.F. Ffolliott, and A. Ortega-Rubio (tech. coords.), Biodiversity and management of the Madrean Archipelago. USDA Forest Service, General Technical Report RM-GTR-264.
- Rosen, P.C., C.R. Schwalbe, and S.S. Sartorius. 1996. Decline of the Chiricahua leopard frog in Arizona mediated by introduced species. Report to Heritage program, Arizona Game and Fish Department, Phoenix, Arizona. IIPAM Project No. I92052.
- Rosen, P. C., E. J. Wallace, and C. R. Schwalbe. 2001. Resurvey of the Mexican Garter Snake (*Thamnophis eques*) in Southeastern Arizona Pp. 70-94 in P. C. Rosen and C. R. Schwalbe. 2002. Conservation of wetland herpetofauna in southeastern Arizona. Final Report to the Arizona Game and Fish Department (Heritage Grant #I99016) and U.S. Fish and Wildlife Service. 160 pp.
- Ross, D.A., J.K. Reaser, P. Kleeman, and D.L. Drake. 1999. *Rana luteiventris* (Columbia spotted frog). Mortality and site fidelity. *Herpetological Review* 30(3):163.

- Sartz, R. S. and D.N. Tolsted. 1974. Effect of grazing on runoff from two small watersheds in southwestern Wisconsin. *Water Resources Research* 10(2): 354- 356.
- Schlesinger, W.H., J.R. Reynolds, G.L. Cunningham, L.F. Huenneke, W.M. Jarrell, R.A. Virginia, and W.G. Whitford. 1990. Biological feedbacks in global desertification. *Science* 246:1043-1048.
- Schulz, T. T., and W.C. Leininger. 1990. Differences in riparian vegetation structure between grazed areas and exclosures. *Journal of Range Management* 43(4): 295- 299.
- Snyder, J., T. Maret, and J.P. Collins. 1996. Exotic species and the distribution of native amphibians in the San Rafael Valley, AZ. Page 6 in abstracts of the Second Annual Meeting of the Southwestern United States Working Group of the Declining Amphibian Populations Task Force, Tucson, Arizona.
- Society for Range Management. 1998. Glossary of Terms used in Range Management. Fourth Edition. Denver, Colorado.
- Speare, R., and L. Berger. 2000. Global distribution of chytridiomycosis in amphibians. [Http://www.jcu.edu.au/school/phtm/PHTM/frogs/chyglob.htm](http://www.jcu.edu.au/school/phtm/PHTM/frogs/chyglob.htm).
- Sredl, M.J., and J.M. Howland. 1994. Conservation and management of Madrean populations of the Chiricahua leopard frog, *Rana chiricahuensis*. Arizona Game and Fish Department, Nongame Branch, Phoenix, Arizona.
- Sredl, M.J., J.M. Howland, J.E. Wallace, and L.S. Saylor. 1997. Status and distribution of Arizona's native ranid frogs. Pages 45-101 in M.J. Sredl (ed). Ranid frog conservation and management. Arizona Game and Fish Department, Nongame and Endangered Wildlife Program, Technical Report 121. Phoenix, Arizona.
- Sredl, M.J., and L.S. Saylor. 1998. Conservation and management zones and the role of earthen cattle tanks in conserving Arizona leopard frogs on large landscapes. Pages 211-225 in Proceedings of Symposium on Environmental, Economic, and Legal Issues Related to Rangeland Water Developments. November 13-15, 1997, Tempe, Arizona.
- Sredl, M.J., and R.D. Jennings. 2005. *Rana chiricahuensis*: Platz and Mecham, 1979, Chiricahua leopard frog. Pages 546-549 in M.J. Lanoo (ed), Amphibian Declines: The Conservation Status of United States Amphibians. University of California Press, Berkeley, California
- Stromberg J. C. and M. K. Chew. 2002. Foreign visitors in riparian corridors of the American Southwest. pp. 195-219 in Tellman, B. 2002. Invasive exotic species in the Sonoran region. The University of Arizona Press and the Arizona-Sonora Desert Museum. Tucson, Arizona.
- Szaro, R. C., S. C. Belfit, J. K. Aitkin, and J. N. Rinne. 1985. Impact of grazing on a riparian garter snake. In Riparian ecosystems and their management: Reconciling conflicting uses. First American Riparian conference, April 16-18, 1985, Tucson, Arizona, USDA Forest Service General Tech. Report RM-120.

- Trimble, S.W. and A.C. Mendel. 1995. The cow as a geomorphic agent -- a critical review. *Geomorphology* 13:233-253.
- USDA Natural Resources conservation Service. 2007. Arizona basin outlook report March 15, 2007. 17 pp. Phoenix, Arizona.
- USFWS. 2000. Draft recovery plan for the California red-legged frog (*Rana aurora draytonii*). Region 1, US Fish and Wildlife Service, Portland, Oregon.
- USFWS. 2002. Endangered and threatened wildlife and plants; Listing of the Chiricahua leopard frog (*Rana chiricahuensis*); Final Rule. *Federal Register* 67(114):40790-40811.
- USFWS. 2004. Biological opinion for 10 year livestock grazing permit on the Little Green Valley Complex. Arizona Ecological Services Office, Phoenix, Arizona.
- USFWS. 2005. Programmatic biological and conference opinion on the continued implementation of the land and resource implementation plans for the eleven national forests and national grasslands of the Southwest Region. 830 pp. + Appendices A-D.
- USFWS. 2006. Draft Chiricahua Leopard Frog (*Rana chiricahuensis*) Recovery Plan. U.S. Fish and Wildlife Service, Southwest Region, Albuquerque, NM. 149 pp. + Appendices A-N.
- Weltz, M., and M.K. Wood. 1986. Short duration grazing in central New Mexico: effects on infiltration rates. *Journal of Range Management* 39:365-368.

APPENDIX A - CONCURRENCE

Mexican Spotted Owl and its Critical Habitat

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the MSO or its critical habitat. We base this concurrence on the following:

- 1) Permitted livestock numbers would be conservatively balanced with allotment livestock capacity which will assist in maintaining good to excellent vegetation trends.
- 2) Key areas, which are mainly in riparian habitat, will be monitored to ensure compliance with designated utilization levels and promote good riparian rating conditions.
- 3) Livestock use within MSO PACs is expected to be minimal due to steep topography and the considerable amount forage and water that are expected to be available on the gentler slopes within pastures, outside of PACs.
- 4) No human disturbance or construction activities associated with livestock grazing operations will occur within PACs during the breeding season (March 1 through August 31).
- 5) Proposed range improvements are expected to improve livestock distribution and reduce potential effects to MSO prey species habitat.
- 6) The primary constituent elements of MSO critical habitat will not be adversely affected. Livestock grazing and management activities will provide for levels that provide the woody and herbaceous vegetation necessary for prey species habitat, the residual biomass that will support prescribed natural and ignited fires, and the regeneration of riparian trees.