

**Chiricahua leopard frog Recovery Team Mogollon Rim Steering Committee  
Meeting  
10 February 2010 - Payson, AZ**

**Attendees**

<b>Name</b>	<b>Affiliation</b>	<b>Email Address</b>
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**Introductions and Review of Major Accomplishments**

See the 2009 Recovery Update for the Mogollon Rim Region of Arizona. Some revisions to that document were made based on input and discussion at the meeting. If additional edits are needed, please get proposed revisions to Jim Rorabaugh. The 'CMED' (Chiricahua Leopard Frog Criteria for Making Effects Determinations) is available on the recovery website and is useful in determining project effects and to develop mitigation in NEPA documents and in section 7 consultations.

Mike Sredl gave a brief presentation on the AGFD budget (legislative/administrative threats to Wildlife Conservation Fund and Heritage \$\$). Check out AZGFD website for more information. This could greatly impact the recovery efforts for CLF in Arizona as well as a number of other species. Loss of the Heritage funds would have a ripple effect throughout the agency.

Mike and the rest of the Ranid Frog Program staff at AGFD have been very busy working on the section 7 consultation for the statewide sports fishing program, so he has devoted most of his energy to that recently. With this work; however, there will likely be mitigation opportunities for Chiricahua leopard frogs. March 1, 2010 is the deadline for the sports fishing consultation.

Question: If Heritage dollars evaporate, what does that mean for the Nongame Branch?

Answer (Mike S): It will affect 60 positions and possibly a re-evaluation of AGFD critical mission. There could possibly be a redistribution of workloads and projects. If the Wildlife Conservation Fund (WCF) comes into play and those funds are lost, that will be another 25 positions Department-wide, including I&E and Monitoring. It may not be that every Heritage position goes and others stay, but it would affect everyone in the Department to some degree.

Question: "I thought Heritage was protected by voters"

Answer (Mike S): WCF is protected by Prop. 105, but would be revisited. Heritage was passed by voter initiative prior to Prop. 105, so it is not protected. Twenty percent of the AGFD budget could be affected.

**RU Discussions: Refer to the Recovery Update for more information. The following paragraphs are supplemental:**

#### **RU 5**

Gentry Creek frog sites all are fairly small, with small water bodies and just a few frogs. Three of those regularly produce egg masses. In recent years, 1-2 egg masses have been harvested from the wild for hatching and rearing at the Phoenix Zoo and/or Bubbling Ponds Hatchery. Head started tadpoles and small metamorphs are then used to augment existing populations or to establish new populations. Reproduction was documented at Cherry Creek in 2009. Gentry Creek frogs were also put back to a site where no frogs have been since 1990. Small populations and habitats, plus bullfrogs in some areas, pose the biggest recovery challenges. Efforts are planned in 2010 to eradicate bullfrogs from Trail Tank (B. Berger). Six CLF from Cherry Creek tested positive for *Bd* - which were the first such positive tests for CLF on the Mogollon Rim of Arizona. A cool season visit to Cherry Creek is prudent to search for dead or moribund frogs. Mike: Duke found several dead frogs at Bottle Springs, but lab analysis did not detect *Bd* (but frogs were pretty decomposed). No significant leopard frog die offs have been noted on the Mogollon Rim of Arizona, but the area is largely under sampled. *Bd* is on the Rim in other species (e.g. *Hyla wrightorum* and *Pseudacris triseriata*), but it has not been documented as a problem for leopard frogs. Such is not the case in West-Central New Mexico, where the disease appears to be the primary limiting factor for recovery.

Buckskin Hills- Cecelia Overby reported for Janie Agyagos. This area, which once supported a robust metapopulation (frogs documented at 12 sites), crashed during the drought in 2002 and then failed to recover on its own. Recent reestablishments have created a good breeding population at Middle Tank and frogs are now once again at Walt's Tank. Five tanks were wedge-fenced in 2009 with pipe-rail fencing that prevents cattle access to a portion of these tanks. Need to get photos of the fences and costs to the group as examples for future planning. The fences are not meant to exclude elk, which are a growing concern in the Verde valley, but have not really been an issue in the Buckskin Hills yet. As the frog population continues to grow, Middle Tank could possibly be used as a source for wild to wild translocations. Will have to see how it goes over the next year or two. *Bd* positive *Pseudacris triseriata* were detected at Divide Tank in 2009. Additional *Bd* monitoring will be conducted in 2010. It is difficult to sample for

*Bd* at the right time of the year (the frogs are probably most susceptible in the fall and spring). B. Christensen paper on *L. pipiens* illustrated the disease present at 30-40% of *pipiens* sites in New Mexico; interestingly, the most robust pops were positive for *Bd*. The disease is also present in some of the Stoneman Lake metapopulation *pipiens*.

Ellison/Lewis Creek -Mike wanted to send a “shout out” to recognize the great work that Ray Tanner (a grazing permittee) has contributed to the frog work. “He has done such a great job and is a real voice of reason with good questions and he is someone who keeps himself informed.” Ray and son Trey helped release frogs to new sites. Between 1996-2006 frogs were seen intermittently in the Ellison Creek area, but in 2009 were reestablished at four sites. Short term monitoring has indicated frog persistence from the 2009 releases, but need additional assessment. Dramatic winter storms may have scoured and flooded lotic release sites. Fred Henderson (ranch hand) has suggested potential additional release sites. There is a positive and unique relationship on the Tonto with permittees. SRM field trip helped to highlight “frogs and cows can coexist”. Fred Wong of the Tonto NF procured \$50,000 for the Phoenix Zoo captive breeding and headstarting facilities.

#### **RU 6**

Two releases of frogs and tadpoles were made to the Safe Harbor Agreement property near Concho. Potential exists for a metapopulation involving Three Forks/Black River, Concho Bill and Sierra Blanca Lake. The lack of detections at Sierra Blanca despite years of releases is baffling. Due in part to the sportfish consultation, no additional trout will be stocked into Sierra Blanca Lake. Need to assess habitat at potential stock tank release sites. Non-natives (crayfish and also many predators) are a limiting factor. A 25 Feb 2010 RU 6 meeting is scheduled at the Pinetop AGFD Office from 10-3. Biologists from the Gila NF and Charlie Painter (NMDGF) plan to attend. Coordination with the New Mexico portion of the RU is needed to ensure recovery criteria are met.

Need to look for frogs in the Coleman Creek area. Frogs have not been found there for many years, but the site is large, complex, and not easily accessed. The recovery update needs revision to show this site in RU 6 (listed as being in RU 7).

#### **RU 7:**

Four sites could form the “bones” of a metapopulation in Arizona. Need better connections from Dix Creek to other sites. There is a good tank between the right prong of Dix Creek and Rattlesnake Pasture Tank that could potentially provide a stepping stone for CLF, provided there are no fish. Needs investigation.

#### **RUs in NM:**

The West-Central NM steering committee met in Silver City on 12 January. The focus of the group is on backing up extant populations with refugia, particularly in the Mogollon Rim region of the Gila NF. *Bd* is a serious limiting factor throughout much of the region. However, frogs are persisting with the disease at sites on the Mimbres River, Cuchillo Negro Warm Springs, and Alamosa Warm Springs (RU 8). Sites in RU 6 are not well connected; there are six breeding pops, two of which are robust populations. The site on

Blue Creek (BLM lands in the Burro Mtns of RU 7) was confirmed as a breeding site on 2009. Animals were collected from that site and installed in a refugia at the Jornada Experimental Range

The status of the frog in RU 8, which includes the Río Grande and Mimbres drainages, including the Silver City area, Hurley, and Chino Mines area, is hopeful. A strong metapopulation exists on Ted Turner's Ladder Ranch in the Rio Grande drainage. A metapopulation exists in the Mimbres area, as well.

**RU 1 (AZ/Sonora):** Southeastern Arizona west of I-19 south into Mexico. Frogs are doing better in this RU than in any other. The greatest limiting factor is the bullfrog; however, massive efforts are in place to remove them. Also lowland leopard frogs present. If progress continues to be made, RU 1 will be well on its way to recovery in the near future.

**RU 2 (AZ/Sonora):** See recovery update. NFWF is funding a grassland initiative – they want to spend a million dollars per year and Chiricahua leopard frog is a flagship species for the program. Two NFWF projects were funded in RU 2 (Las Cienegas and Rancho Los Fresnos). This initiative covers grasslands in RUs 1-3 north and south of the border. Populations of frogs are doing fairly well in this RU. Metapopulations and isolated robust populations are taking shape.

**RU 3 (SEAZ/SWNM east of the San Pedro, not includingDragoons and Galiuros).** Need more work here. Not a lot of recovery work yet. Sky Island Alliance received a grant that will benefit frogs in the Cloverdale area. Opportunities for reestablishment projects need to be followed up. The SW Research Station near Portal is rearing frogs from Leslie Canyon.

**RU 4 (Galiuros and Dragoons).** The two populations in the Dragoon Mountains may be treated as isolated, robust populations. One of those is a reestablished population. A metapopulation exists in the Deer Creek area of the Galiuro Mountains. It has its ups and downs but overall, it is doing okay. Areas to the north of Deer Creek are being assessed for a second metapopulation in the Galiuros.

**Mexico:** Jim R, Abi, and Tara Sprankle (Phoenix Zoo) have been working with Mexican counterparts on amphibian conservation. Annual amphibian workshops are conducted for Mexican biologists and students. Funding is being sought to conduct status surveys for CLF.

Mike discussed the development of a statewide Environmental Assessment Checklist (EAC) to cover all future reestablishment projects. When in place, it will streamline the compliance for these projects. The interagency section 7 sportfish consultation should be completed fairly soon, as well. Once these documents are in place, AGFD will then have the paperwork in place to release frogs and tadpoles with the permission of the landowner and coordination with permittees. Mike S. hopes the consultation and EAC will be completed by the beginning of the 2010 field season, but releases will probably happen

before that in areas where permission has already been given. Ed Armenta, the Payson District Ranger, requested that AGFD please communicate early with the USFS or other land manager before releases. The USFS needs enough lead time to complete their coordination as well.

Cecelia Overby requested that Mike S. send the final EAC and biological opinion to the forest biologists. Then they can distribute to the district biologists and rangers that need to be informed. Mike agreed to send those documents out when they are completed.

Please be sure to look at RU summaries in the recovery update. This new section, in italics, highlights how far along each unit is in the recovery process, and broadly what needs to be accomplished to move recovery along.

### **Critical Habitat Discussion**

A May 2009 order from the Arizona District Court requires USFWS to propose critical habitat by 8 December 2010. A final rule will be due in December 2011. USFWS is beginning the assessment process now. There are two prongs to CH:

1. The specific areas within the geographical area occupied at the time it was listed in accordance with the provisions of section 4 of the ESA, on which are found those physical or biological features (1) essential to the conservation of the species and (2) which may require special management considerations or protections, and
2. specific areas outside the geographical area occupied by the species at the time it was listed in accordance with the provisions of section 4 of the ESA, upon a determination by the Secretary of the Interior that such areas are essential for the conservation of the species.

In the final rule, USFWS can exclude certain areas from critical habitat; although areas proposed on Federal lands will likely be designated (no exclusions likely there). There is the potential for critical habitat to damage relationships with partners in frog recovery. Need outreach and education materials for the public and agencies so they understand what critical habitat is and what the implications are. There are many misconceptions about critical habitat.

Regarding areas/projects for which consultation has been completed, reinitiation will be necessary if there are discretionary actions not already implemented that may affect critical habitat. New consultations may be needed for projects or areas in which frogs do not currently occur but where critical habitat is designated. Changes in management due to the designation will likely be few or none, particularly if consultations have already occurred on the species. Critical habitat has no effect on private or other non-Federal lands unless a project on those lands requires Federal funding, permitting, or other Federal action to proceed, in which case a section 7 consultation would be required of the Federal agency if the action may affect the critical habitat. Critical habitat may be an incentive for safe harbor agreement enrollment. In any case, need to try to address the

rumor mill. Jim will prepare some “talking points” on critical habitat that can be posted on the recovery website and listserv as a heads up.

### **Management Implications of Recent Genetic Work**

The group discussed the desirability of mixing frogs from different areas in light of the recent Werner-Herrman and Culver genetic work. Preliminary results suggest the Mogollon Rim form in Arizona is the basal clade of the species, with 8-15 other clades derived from the Mogollon Rim frogs. There is no evidence of multiple taxa within what we now recognize as *L. chiricahuensis*. The recovery plan states we would not mix frogs between the northern (RUs 5-8) and southern (RUs 1-4) groupings, and that the first preference is to seek a source population as close to the recipient site as possible. The results of the genetics study are in the preliminary stage. Once finalized, we can make better decisions about what frogs are appropriate to move where. In some cases, it may be desirable to diversify gene pools (as we did when we crossed the Gentry and Buckskin frogs for reestablishments at Ellison and Lewis creeks, and in the Buckskin Hills).

Additional tangential discussion occurred, including 1) if we had greater access to frogs, might we recover the species sooner?; 2) if we had more frogs, do we have the capacity for rearing them (Phoenix Zoo can rear 2-3 egg masses or up to 3,000 tadpoles this year)?, 3) staff may not be available to monitor increasing numbers of reestablished populations, but what is the minimum monitoring needed (that has never been established)? The problem with limited capacity to captively rear frogs could be ameliorated with more wild to wild translocations. For instance, Middle Tank may be on a trajectory to becoming a robust population. It could potentially serve as a source of reestablishment stock. Let us wait until the genetics report is finalized before we address these questions. Consulting a conservation geneticist would be of value.

### **pH and *Bd***

A side note: *Bd* grows between pH of 4 and 8. Many waters in Arizona are at or above pH 8 at some times of the year. These sites may be buffered against the disease. Note – the upper pH tolerance of leopard frogs is unknown, but *L. pipiens* experiences reproductive problems below pH of 6 and dies below pH of 5.

### **Determining if a Reestablishment Project is Successful**

How does one determine if a reestablishment is successful? The recovery plan deferred these monitoring protocol questions to a later date, and we have not yet developed those protocols. However, documenting breeding, all life stages, and recruitment is important, as well as persistence over time. Tarahumara frog monitoring protocols could be a model, which prescribes four visual encounter surveys per year, as follows:

<i>Time Period</i>	<i>Purpose</i>
March	VES (and maintenance of reflectors and flagging – unique to T Frog)

	project)
mid May - mid June	Pre-monsoon VES and egg mass surveys
late July - late Aug	monsoonal VES
mid Sept - mid Oct	post monsoonal VES

However, the utility of a monsoon survey is questionable in lotic systems that may be near flood stage in the summer. A minimum might be pre- and post-monsoon surveys. The former would detect frogs when water is most limiting, and the latter could allow detection of breeding and metamorphosis of young frogs. We may be able to use volunteers or 'citizen science' to help monitor sites. "Adopt a pond" concept. What level of training would be needed? This needs further thought and discussion across recovery units.

### **Cover Requirements and Stock Tank Manageability**

Shawn asked if there are any guidelines for vegetation cover. It is agreed that CLF need: A variety of cover, open water, some open basking banklines, but protection from trampling as well. Frogs can be excluded from sites that become completely overgrown. Water depths of more than about 2.5 meters will exclude cattails. See discussion above about wedge fencing in the Buckskin Hills, and assignments below regarding distributing information on that fencing to the group. Slide gates through the berm of stock tanks are desirable but rarely included in designs. Such gates allow tanks to be drained if necessary to remove non-natives.

### **Survey Databases**

Presently, most agencies are using their own method to organize and collate survey data. Should an effort be made to pool those databases and then make it available to everyone who needs said data? A database is being developed in New Mexico that will do just that for New Mexico. The USFS is beginning to use a spatial database (NRIS). Might we learn from these examples? What is the monitoring database we should use and what information should populate it? It should be simple, yet illustrate key information needed to track recovery. Dan G. volunteered to develop a pilot webpage for RU 6 for posting of ongoing activities, etc. We will try that to see if it can meet database needs. Whatever we do needs to cross a diverse group of agencies and people. Types of data desirable for a database accessible to recovery partners include:

1. Presence/absence at a site.
2. Evidence of breeding or lack thereof.
3. 60+ adults or 40+ in a drought-resistant site (is the population robust?).
4. Threat assessment (non-natives, habitat problems, *Bd*).
5. Connectivity to other occupied sites (is the site part of a metapopulation?).

Data should illuminate and focus on the delisting criteria. If the database is in Access, it could be used across agency boundaries and with GIS. Forms we collect in the field are helpful but, with the exception of occupied sites, they often become a stack of papers from which useful information is not easily extracted. We should strive to make information we collect more available and useful for assessing recovery progress.

We may be able to modify the AGFD Ranid database, as it talks to the HDMS database. Right now HDMS does not take negative records like the Ranid database does. Some other biologists/agencies have their own databases adding to the complexity. Scanning survey forms into an electronic format could be helpful. The team needs to elaborate on this discussion. Please send ideas to the group for discussion or for inclusion in these notes. A few people have follow up assignments on this topic. See below.

### **Miscellanea**

Sandy Volentine (Prescott College) was asked by Abi if she had developed ideas for a frog study. Suggestions included: Juvenile dispersal, telemetry, identifying the best times/seasons to release frogs/tadpoles for maximizing success, and habitat modeling.

The *Bd* pre-release treatment protocols using itraconazole and benzykonium chloride described in the recovery plan are not clearing all individuals of the disease. For best results, we now recommend using the protocol described by Nichols and Lamirande (2000) (see recovery update). However, the technique used could perhaps be gauged to the risk. If the risk is high (e.g. recipient populations are likely very sensitive), then the Nichols and Lamirande protocol should be used. If the risk is low (e.g. *Bd* is already widespread in the area of the recipient site and/or frogs are persisting well with the disease), then perhaps only cursory or no treatment is needed. May be able to treat with warm (32<sup>0</sup> C) water (see recovery update). Dan Groebner said he could experiment with that.

There was some discussion on monitoring requirements or intensity needed for project clearance versus gauging recovery. They have different information needs and thus different survey protocols may be needed. More intense surveys may be needed where significant issues and threats are associated with a project.

### **ACTION ITEMS:**

NRIS (on online USFS spatial database) applicability. Could we use it as a model for data exchange? Barbara and Cecelia

Send out final EAC and consultation to forest bios. Mike

Database - contact Rayo to find out what the NM group is doing. Jim and Mike will set up conference call.

Follow up with J. Agyagos to obtain costs of wedge fences, design, substrate of Middle Tank, photos, etc and distribute to the group for planning of similar projects. Barbara and Cecelia

Get any needed revisions to the recovery update to Jim, pronto. All

Revise recovery update. Jim

Talking points to team members on Critical Habitat designation (website and listserv). Jim

Any Publications- Ask appropriate person. All

Website for RU6. Dan

Further discussion across recovery units about protocols for monitoring the success of reestablishment projects. All, Jim and Mike leads.

Look at citizen science as an option for monitoring in the future. Think about this for the future. All, Jim and Mike leads.

*Thanks to Barbara Garcia for taking notes!*

**Quote for the good of the order:** *“I’d kiss a frog even if there was no promise of a Prince Charming popping out of it. I love frogs.” Cameron Diaz, Actress*