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May 12, 2011

Public Comments Processing
Attn: Docket No. FWS-R2-ES-2010-0085
Division of Policy and Directives Management
U.S. Fish and Wildlife Service
4401 N. Fairfax Drive
Suite 222
Arlington, VA 22203

Re: Listing and Designation of Critical Habitat for the Chiricahua Leopard Frog

To Whom It May Concern:

On behalf of the Center for Biological Diversity, we submit these comments on the Proposed Rule for Listing and Designation of Critical Habitat for the Chiricahua Leopard Frog. The Center applauds the proposed designation of over 11,000 acres of critical habitat for this imperiled species, but we are concerned that the U.S. Fish and Wildlife Service ("FWS") did not propose as critical habitat all those areas essential for the conservation of the species. In particular, FWS did not include essential areas found near and within the boundary for the proposed Rosemont mine despite recent surveys detecting Chiricahua leopard frogs. In addition, we urge FWS to more thoroughly consider whether leopard frogs in the Mogollon Rim area in central Arizona represent a distinct species.

BACKGROUND

Chiricahua leopard frogs (*Lithobates chiricahuaensis*) are relatively large and stocky leopard frogs reaching over five inches in length. They are green or brown with small, dark spots. Among other things, salt-and-pepper pattern on the rear thighs and relatively rough skin helps to distinguish Chiricahua leopard frogs from other species of leopard frogs within their range.

Chiricahua leopard frogs once occupied a variety of wetland habitats throughout central and southeastern Arizona to west-central and southwestern New Mexico and from southern

Arizona into Mexico. But now the species has been extirpated from over 80 percent of its former range and remaining populations are small and scattered. Primary threats include disease, introduced species, and habitat loss.

In 1996, FWS determined that the Chiricahua leopard frog warranted protection as a threatened or endangered species but that its listing was precluded by higher priority species. 61 Fed. Reg. 7596 (Feb. 28, 1996). To gain protection for the frogs, on June 10, 1998, the Center (then the Southwest Center for Biological Diversity) filed a scientific petition to list the Chiricahua leopard frog as endangered and to designate critical habitat for the species. In August of 1999, when FWS did not respond, the Center filed a complaint asking the court to require the Secretary of the Interior to take action on the petition. In June of 2000, FWS published a proposed rule to list the Chiricahua leopard frog as a threatened species. 65 Fed. Reg. 37343 (June 14, 2000). On August 29, 2001, the parties entered a settlement requiring FWS to publish, on or before June 6, 2002, a final listing and critical habitat decision for the Chiricahua leopard frog.

Thereafter, in June of 2002, FWS published a final rule listing the species as threatened. 67 Fed. Reg. 40790 (June 13, 2002). Included in the final rule was a special rule to exempt operation and maintenance of livestock tanks on non-Federal lands from the section 9 take prohibitions of the Endangered Species Act of 1973, 16 U.S.C. 1531 et seq. *See* 50 C.F.R. § 17.43(b). But FWS did not designate critical habitat for the frogs.

In May of 2009, the court ordered FWS to publish a critical habitat prudency determination for the Chiricahua leopard frog and, if found prudent, a proposed rule to designate critical habitat by December 8, 2010. Because of unforeseen delays related to species taxonomic issues, which required an inclusion of a threats analysis, FWS received an extension until March 8, 2011 for the proposed rule and March 8, 2012 for the final rule.

On March 15, 2011, FWS issued a proposed rule for the listing and designation of critical habitat for the Chiricahua leopard frog. 76 Fed. Reg. 14157 (March 15, 2011). In this rule, FWS has proposed to designate 11,136 acres for the Chiricahua leopard frog. The proposed critical habitat is located in Apache, Cochise, Gila, Graham, Greenlee, Pima, Santa Cruz, and Yavapai Counties, Arizona; and Catron, Hidalgo, Grant, Sierra, and Socorro Counties, New Mexico. In addition, because of a taxonomic revision of the Chiricahua leopard frog to include the Ramsey Canyon leopard frog (*Lithobates subaquavocalis*), FWS has reassessed the status of and threats to the currently described species *Lithobates chiricahuensis* for which it has proposed a threatened listing. FWS opened a 60-day comment period on the proposed rule.

ANALYSIS

The Center fully supports the designation of critical habitat for the Chiricahua leopard frog. Such a conclusion is compelled by the best available science on the threats faced by this imperiled species. But as explained more fully below, the Center is concerned that FWS has not proposed all currently occupied habitat as critical habitat. In particular, several recently occupied sites near the proposed Rosemont mine are not included in the proposed critical habitat designation. In addition, the Center requests that FWS consider whether the species must be split consistent with genetic studies finding that leopard frogs in the Mogollon Rim area in central Arizona may be a distinct species.

I. ALL AREAS OCCUPIED BY CHIRICAHUA LEOPARD FROGS – INCLUDING THOSE NEAR THE PROPOSED ROSEMONT MINE – SHOULD BE DESIGNATED AS CRITICAL HABITAT

A copper mine called the Rosemont mine has been proposed in Chiricahua leopard frog habitat in the northeastern portion of the Santa Rita Mountains in Pima County, Arizona. Recent research indicates that Chiricahua leopard frog tadpoles are sensitive to cadmium and copper above certain levels (Little and Calfee 2008, p. 6-10). As such, the introduction of copper into Chiricahua leopard frog habitat may be a significant threat. 76 Fed. Reg. 14129.

The Rosemont mine is most likely to impact proposed critical habitat within Recovery Unit 2, and more specifically, within Chiricahua Leopard Frog Critical Habitat Units 8 and 9. *See* 76 Fed. Reg. 14173-75 (providing descriptions and maps of Unit 8 and Unit 9). Unit 8 (Eastern Slope of the Santa Rita Mountains, Pima County, Arizona) and Unit 9 (Las Cienegas National Conservation Area, Pima County, Arizona) are just south and east of the mine and are within the same watershed (see attached map).

Several sites near and within the footprint of the mine have been recently occupied by Chiricahua leopard frogs. 76 Fed. Reg. 14129. The Box Canyon area (2-3 km northwest of Unit 8 and just southwest of the proposed Rosemont mine) has been repeatedly found occupied by the Chiricahua leopard frog over many decades. A 2008 survey of the Rosemont holdings and vicinity confirmed Chiricahua leopard frog presence in Box Canyon and nearby South Sycamore Canyon with a total of nine observed frogs in about 1.2 miles of stream channel (U.S. Forest Service 2009). The Lower Stock tank that is within the footprint of the proposed mine also contained Chiricahua leopard frogs during the 2008 survey, as well as three areas just east of the proposed mine, namely, East Dam, “Oak Tree Canyon” tank, and Highway Tank (U.S. Forest Service 2009).

The attached map shows the locations of these recently occupied areas near and within the Rosemont mine. <u>None of these areas has been proposed as critical habitat</u>.

All areas recently occupied by Chiricahua leopard frogs – including those near and within the boundaries of the proposed mine – should be designated as critical habitat because they are essential to the conservation of the species. It makes no difference that these areas may have been unoccupied at the time of listing because the Endangered Species Act provides that critical habitat includes "specific areas outside of the geographical area occupied by the species at the time it is listed . . . , upon a determination by the Secretary that such areas are essential for the conservation of the species." 16 U.S.C. § 1532(5)(A). To be sure, FWS proposed as critical habitat 13 units that are currently occupied but were not occupied (or not known to be occupied) at the time of listing. 76 Fed. Reg. 14136. FWS explained that it included those areas because the known breeding populations of Chiricahua leopard frogs are "relatively scarce (33 populations in Arizona and 20-23 in New Mexico) [and] are all considered essential to the conservation of the species, and help meet the population goals . . . ." 76 Fed. Reg. 14136.

In its description of Unit 8, FWS explains that "a number of other sites in this region [near and within the boundaries of the proposed Rosemont mine] have been found to support dispersing Chiricahua leopard frogs; however, only a few frogs and no breeding have been observed at these sites, so they are thought to represent dispersing frogs." FWS should more thoroughly investigate these areas to confirm whether breeding is occurring. But even assuming that Chiricahua leopard frogs are not breeding in these areas, the areas are still essential for the conservation of the species.

The presence of Chiricahua leopard frogs demonstrates that these areas contain the features necessary to support the frogs. Indeed, FWS recognized that dispersal habitat is a primary constituent element essential to the conservation of Chiricahua leopard frogs. 76 Fed. Reg. 14135. These dispersal areas might support breeding populations in the future and would contribute to the essential metapopulation dynamics of Recovery Unit 2. The fact that some of these areas might not be occupied by breeding populations now is irrelevant given the metapopulation dynamics at play. Ranid site occupancy is known to change or fluctuate due to immigration and colonization, particularly at stock tanks and other small, dynamic aquatic systems (FWS 2003).

FWS should designate all recently occupied areas as critical habitat. At a minimum, FWS needs to analyze each of these recently occupied locations and individually assess whether they are essential for the conservation of the Chiricahua leopard frog.

II. FWS MUST ANALYZE WHETHER LEOPARD FROGS IN THE MOGOLLON RIM AREA ARE A SEPARATE SPECIES

Northern populations of the Chiricahua leopard frog in the Mogollon Rim region are disjunct from populations to the south. More specifically, the range is divided into the following two parts: 1) a southern group of populations (the majority of the species' range) located in mountains and valleys south of the Gila River in southeastern Arizona, extreme southwestern New Mexico, and Mexico; and 2) northern montane populations in west-central New Mexico and along the Mogollon Rim in central and eastern Arizona (Platz and Mecham 1979, p. 384). Platz (1997) proposed the two segments of the distribution as separate species.

Genetic analyses, including a 50-loci starch gel survey, morphometrics, and analyses of nuclear DNA, support describing the northern populations of Chiricahua leopard frog as a distinct species (Platz and Grudzien 1999). Multiple haplotypes within *chiricahuensis* were also identified using mitochondrial DNA analysis (Benedict and Quinn 1999), providing further evidence of genetically distinct demes or groups of related populations.

In another study, frogs from these two regions showed a 2.4 percent average divergence in mitochondrial DNA sequences (Goldberg *et al.* 2004, p. 317). Goldberg *et al.* (2004, p. 317) concluded that the Mogollon Rim and southern lineages of the Chiricahua leopard frog could represent two distinct species, but examination of behavioral, ecological, and morphological differences between the groups was needed before this determination could be made.

More recently, Hillis and Wilcox (2005, p. 304) demonstrated some differences in rDNA sequences between Chiricahua leopard frogs from the Mogollon Rim in Arizona and Durango, Mexico. Based on morphological similarities, Hillis and Wilcox (2005, p. 309) suggest the northern populations may be *Rana fisheri* (Vegas Valley leopard frog), a taxon from Las Vegas Valley, Nevada, considered by most to be extinct (Bradford *et al.* 2005). Providing further evidence that northern and southern populations could be distinct species, Lemos-Espinal and Smith (2007) reported that Chiricahua leopard frogs from Chihuahua, Mexico, are much smaller (maximum snout-vent length of 58 mm) than in the United States (maximum snout-vent length of 121 mm).

Although numerous studies suggest that the two segments could be distinct species, FWS relied upon a preliminary draft by Hermann et al. (2009) to conclude that there is no evidence of multiple taxa within what is now considered to be the Chiricahua leopard frog. 76 Fed. Reg. 14127.

Hermann et al. (2009) studied the phylogeny and structure within the Chiricahua leopard frog. They conducted both mtDNA and microsatellite analysis using 279 samples from

throughout most of the range of the Chiricahua leopard frog. The Bayesian derived phylogenetic tree and the Median-joining network from mtDNA sequences indicated four major groupings within the Chiricahua leopard frog. The Mogollon Rim population was the most basal or ancestral and had the highest genetic diversity, and only one member of that group was found outside of the Mogollon Rim. The Mexico/Hildalgo-New Mexico group was the most derived and consistent group. There was also a widespread group that overlapped with all other groups and an outlier group of three closely related Mogollon Rim individuals.

Analysis of microsatellite data using a Bayesian assignment analysis also identified four groups but the groups were structured differently than in the mtDNA analysis. Specifically, the western Mogollon Rim separated from the eastern Mogollon Rim, and the southern Arizona sky island region separated from all other areas. Another group occurred mostly in Mexico but with considerable overlap across the range. A fine resolution analysis of microsatellite data using a Bayesian program GENELAND showed numerous localized groups with no widespread groups.

Hermann et al. (2009) preliminarily concluded that there is evidence of historical gene flow throughout the study area with the Mogollon Rim representing the historical lineage for the Chiricahua leopard frog. They cautioned that "more analyses of the current data are needed to fully resolve genetic differentiation of Chiricahua leopard frogs." For example, the authors explain that the outliers identified using mtDNA sequences could represent deeper ancestral lineage and that additional sampling in the Mogollon Rim area could help clarify that.

The preliminary genetic analysis performed by Hermann et al. (2009) has not been peer reviewed and the authors explained that more analysis is needed. Yet FWS relied solely on this draft study to conclude that frogs from the Mogollon Rim are not a separate species. This conclusion is premature, especially given that there has been no examination of behavioral, ecological, and morphological differences between the groups.

If the species was split, the two resulting taxa would be more imperiled than the currently recognized Chiricahua leopard frog because fewer populations would be represented in each new taxon, and threats are widespread and affecting populations in both the Mogollon Rim and southern populations (FWS 2011, p. 17). As such, the Center encourages FWS to thoroughly consider whether there might be two species within what it now recognizes as the Chiricahua leopard frog.

CONCLUSION

The Center for Biological Diversity appreciates that FWS has proposed to designate over 11,000 acres of critical habitat for the Chiricahua leopard frog. Yet FWS must do more. The designation of all occupied areas – including those near the proposed Rosemont mine – is necessary for the survival and recovery of this imperiled species. FWS also needs to follow the

best available science in determining whether leopard frogs in the Mogollon Rim area are a distinct species.

Thank you for offering the opportunity to submit comments on this proposed rulemaking. If you have any questions on these comments, please do not hesitate to contact us.

Sincerely,

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LITERATURE CITED

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. 14 pp.

Bradford, D.F., J.R. Jaeger, and S.A. Shanahan. 2005. Distributional changes and population status of amphibians in the eastern Mojave Desert. Western North American Naturalist 65:462-472.

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.

Herrmann, H-W, E. Mujica, and M. Culver. 2009. Preliminary draft: Chiricahua leopard frog conservation genetics. University of Arizona, Tucson, AZ.

Hillis, D.M., and T.P. Wilcox. 2005. Phylogeny of New World true frogs (*Rana*). Molecular Phylogenetics and Evolution 34:299-314.

Hoffman, E.A. and M.S. Blouin. 2004. Evolutionary history of the northern leopard frog: reconstruction of phylogeny, phylogeography, and historical changes in population demography from mitochondrial DNA. Evolution 58(1):145-159.

Lemos-Espinal, J.A. and H.M. Smith. 2007. Anfibios y Reptiles del Estado de Chihuahua, México/Amphibians and Reptiles of the State of Chihuahua, México. Universidad Nacional Autónoma de México and CONABIO, México D.F. 613 pp.

Little, E.E. and R.D. Calfee. 2008. Toxicity of herbicides, piscicides, and metals to the threatened Chiricahua leopard frog (*Rana chiricahuensis*). U.S. Geological Survey, Columbia Environmental Research Center, Columbia, Missouri.

Monsen, K.J. and M.S. Blouin. 2003. Genetic structure in a montane ranid frog: restricted gene flow and nuclear-mitochondrial discordance. Molecular Ecology 12: 3275-3286.

Platz, J.E. 1997. Status survey of the Ramsey Canyon Leopard Frog, Rana subaquavocalis. Report to the Arizona Game and Fish Department, Project I94051. Phoenix, Arizona.

Platz, J. E. and J. S. Mecham. 1979. Rana chiricahuensis: a new species of leopard frog (Rana pipiens complex) from Arizona. Copeia 1979:383-390.

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.

Sumida, M. H. Kaneda, Y. Kato, Y. Kanamori, H. Yonekawa, and M. Nishioka. 2000. Sequence variation and structural conservation in the D-loop region and flanking genes of mitochondrial DNA from Japanese pond frogs. Genes and Genetic Systems 75: 79-92.

US Fish and Wildlife Service. 2003. Rana chiricahuensis – Fish and Wildlife Survey Protocol for Project Evaluation.

U.S. Fish and Wildlife Service (U.S. FWS). 2011. CHIRICAHUA LEOPARD FROG (Lithobates [=Rana] chiricahuensis) 5-Year Review: Summary and Evaluation. 39 pp.

U.S. Forest Service. 2009. Rosemont 2008 Ranid Survey 04/24/09 with Updated Figure 2, available at http://www.rosemonteis.us/node/155 (last visited April 12, 2011).