

Memorandum

Date: November 30, 2011

To: Sonke Mastrup.
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director
Department of Fish and Game



Subject: Southern mountain yellow-legged frog and Sierra Nevada yellow-legged frog status evaluation

The Department of Fish and Game (Department) is pleased to transmit the attached status evaluation for receipt by the Fish and Game Commission (Commission) at the upcoming meeting scheduled on December 15, 2011. The Department is providing the status evaluation pursuant to Fish and Game Code section 2074.6, and in connection with the Commission's scheduled consideration and possible action regarding the petition to list the mountain yellow-legged frog (*Rana muscosa* and *Rana sierrae*) under the California Endangered Species Act (CESA), a petition the Commission received on January 27, 2010. At a future meeting, the Commission will consider the status evaluation, and other relevant information it receives, to determine whether there is sufficient information to indicate the petitioned action is warranted. (Fish & G. Code § 2075.5.).

On October 1, 2010, the Commission published notice of its decision to accept the petition to list the mountain yellow-legged frog (*Rana muscosa* and *Rana sierrae*) under CESA for further consideration. Following the Commission's determination, the Department notified affected and interested parties and solicited data and comments on the petitioned action per Fish and Game Code section 2074.4. (see also Cal. Code Regs, tit 14 § 670.1(f)(2).) In addition, the Department commenced its review of the status of the species as required by Fish and Game Code section 2074.6. The attached status evaluation represents the Department's final written review of the status of the southern mountain yellow-legged frog *Rana muscosa*, and Sierra Nevada yellow-legged frog *R. sierrae* and is based upon the best scientific information available to the Department. The status evaluation contains the Department's recommendation to list southern mountain yellow-legged frog *R. muscosa* as endangered and Sierra Nevada yellow-legged frog *R. sierrae* as threatened, as well as preliminary identification of the habitat that may be essential to the continued existence of the species, and recommendations for management activities and other conservation actions.

If you have any questions regarding the Department's status evaluation or need additional information, please contact Mr. Stafford Lehr, Fisheries Branch Chief, at 916-327-8840. As always, the Department appreciates the opportunity to provide input and information to the Commission.

Attachments

1. EXECUTIVE SUMMARY

This document describes the current status of the Mountain Yellow-Legged Frog (*Rana sierrae* and *Rana muscosa*) (MYLF) in California as informed by the scientific information available to the Department of Fish and Game (Department). The Department recommends to the Fish and Game Commission (Commission) that designation of the MYLF in California as threatened/endangered is warranted.

1.1. Background

On January 27, 2010, the Fish and Game Commission (Commission) received a petition from the Center for Biological Diversity (Center) to list all populations of MYLF as "Endangered" under California Endangered Species Act (CESA).

On February 4, 2010, Commission staff transmitted the petition to the Department of Fish and Game (Department) for evaluation.

On February 26, 2010, Commission staff published formal notice of receipt of the Petition. (Cal. Reg. Notice Register 2010, No. 9-Z, p. 333).

On April 22, 2010, the Department requested that the Commission grant the Department an extension to allow the Department additional time to further analyze and evaluate the petition and complete the evaluation report.

On May 20, 2010, the Commission granted the Department an extension to complete the petition evaluation report.

On June 22, 2010, the Department provided the Commission with a written evaluation of the petition pursuant to FGC section 2073.5, indicating that the Department believed the petition provided sufficient information to indicate the petitioned action may be warranted.

On September 15, 2010, at a public meeting in McClellan, California, the Commission considered the petition, the Department's evaluation report and recommendation, and other information presented to the Commission, and determined that sufficient information existed to indicate that the petitioned action may be warranted. At the meeting, the Commission also adopted an emergency regulation pursuant to FGC section 2084 to allow incidental take of MYLF during its candidacy period subject to specified conditions. (Cal. Reg. Notice Register 2010, No. 43-Z, p. 1782 (October 22, 2010).)

On September 23, 2010, the Commission sent a Notice of Proposed Emergency Changes in Regulations relating to incidental take of MYLF to interested parties. On October 1, 2010, the Commission published a Notice of Findings in the California Regulatory Notice Register accepting for consideration the petition to list the MYLF under the CESA. (Cal. Reg. Notice Register 2010, No 40-Z, p. 1601 (October 1, 2010).) On October 11, 2010, the Office of Administrative Law approved the Commission's Emergency Changes in Regulations relating to incidental take of MYLF during the candidacy period.

1.2. Summary of Findings

MYLF (*Rana sierrae* and *Rana muscosa*) are moderate-sized ranid frogs inhabiting lakes, ponds, marshes, and streams at elevations below 3,690 m. *R. sierrae* is endemic to the Sierra Nevada of California and adjacent Nevada. Within the Sierra Nevada, the range of *R. muscosa* extends from the Monarch Divide and Cirque Crest (Fresno County) in the north to Taylor and Dunlap Meadows (Tulare County) in the south. In southern California, *R. muscosa* occurs in the Transverse and Peninsular Ranges, including the San Gabriel Mountains (Los Angeles and San Bernardino Counties), San Bernardino Mountains (San Bernardino County), and San Jacinto Mountains (Riverside County). In the Sierra Nevada, the elevation range historically occupied by *R. muscosa* and *R. sierrae* extended from approximately 1400 m to 3690 m. In southern California, *R. muscosa* occurred from approximately 350 to 2780 m (Vredenburg et al. 2007; Stebbins 2003; Zweifel 1955).

Because of the relatively short growing season characteristic of the high elevation habitats occupied by MYLF, tadpoles cannot metamorphose into juvenile frogs in a single season. Instead, tadpoles typically require 2-3 summers before metamorphosis, and therefore overwinter 1-2 times. Breeding at higher elevations occurs primarily in permanent lakes and ponds deeper than 4 meters. In lower elevation areas, most breeding takes place in lowgradient stretches of perennial streams. These types of habitats are used for breeding because they do not dry up during the summer or freeze to the bottom during winter and therefore provide high-quality habitat for overwintering tadpoles.

After metamorphosis, juvenile frogs require 3-4 years to reach sexual maturity and adults can live for at least ten years. Even older ages are likely. Given that the tadpole stage can last 2-3 years, the maximum age of MYLF (including tadpole + post-metamorphic stages) is likely to exceed 12-13 years.

Historically, MYLF were abundant in the Sierra Nevada (California and adjacent Nevada) and the mountain ranges of southern California. During the past century, both species have declined throughout their ranges. These declines are well documented in a series of papers, all of which are consistent in their finding of widespread population extirpations across the ranges of both *R. muscosa* and *R. sierrae*. The most recent and extensively researched estimate of the extent of the species' declines estimates 94% of historical MYLF populations are now extirpated.

For this status review, the Department developed the most complete data set of MYLF localities (1899–2010) and used these data to estimate the range-wide status of MYLF. This data set significantly increases the proportion of the ranges of both species covered, as compared to previous analyses. Using these data, the Department estimates that 84% of historical MYLF populations are now extirpated. These data also indicate recent, ongoing declines since 1995. The Department estimates that 54% of populations extant in 1995 are currently extirpated and those that remain have witnessed a 19% decline in post-metamorphic frog abundance. Details of these analyses are presented in **Section 4. Species Status and Population Trends.**

1.3. Threats

Threats to the continued survival of MYLF are discussed in detail in **Section 5. Factors Affecting Ability to Survive and Reproduce.** MYLF are extirpated from most of their historic range due primarily to disease and introductions of non-native trout. Several

other factors that may affect the ability of MYLF to survive are discussed in this Status Review, including airborne contaminants, wildland fires, fire suppression activities, climate change, livestock grazing, water developments, and recreational activities. Although these factors may have localized impacts on MYLF, they are not considered to be the primary stressors that have caused the observed range-wide declines.

1.4. Petitioned Action

The Department recommends the Commission find as warranted the petition to list the MYLF as threatened/endangered, and the Commission should publish notice of its intent to amend Title CCR §670.5 to list MYLF as follows:

The southern mountain yellow-legged frog (*R. muscosa*) is warranted as Endangered. The Sierra Nevada yellow-legged frog (*R. sierrae*) is warranted as Threatened.

1.5. Management and Recovery Recommendations

The Department provides several actions described herein that it believes would have population-level benefits for MYLF and their habitat.