

**Guidance on Site Assessment and Field Surveys  
for California Red-legged Frogs (*Rana aurora draytonii*)  
U.S. Fish and Wildlife Service**

**February 18, 1997**

## **I. Introduction**

A final rule determining threatened status for the California red-legged frog (*Rana aurora draytonii*) under the Endangered Species Act of 1973, as amended (Act), was published on May 23, 1996 (61 Federal Register 25813) and became effective on June 24, 1996. Since then the United States Fish and Wildlife Service (Service) has received numerous requests from private and government entities for guidance in planning for the protection of the California red-legged frog at the sites of proposed developments or of other land use activities. This document provides guidance for two procedures to accurately assess California red-legged frog status in the vicinity of a project site: (1) an assessment of California red-legged frog locality records and potential California red-legged frog habitat in and around the project area; and (2) focused field surveys of aquatic habitats to determine whether California red-legged frogs are present. Both procedures may be recommended because California red-legged frogs are mobile and, during different life history stages or different seasons of the year, may occupy a variety of aquatic and upland habitats. Both procedures should be incorporated into any assessment of the potential effects of projects on California red-legged frogs, unless field surveys are determined to be unnecessary based on the site assessment (see "Interpreting the results of the site assessment" section).

Ongoing contact and discussions with the Service before, during, and after site assessments and field surveys are a crucial element of this guidance. Results of the site assessment and field survey should also be reported to the Service (see "Reporting the results" sections below); however, results of the site assessment should be reported prior to proceeding with field surveys. The addresses and phone numbers of the appropriate field office are provided in section V below.

## **II. Site Assessment**

Careful evaluation of the following information about California red-legged frogs and their habitats in the vicinity of projects or other land use activities is important because this information indicates the likelihood that California red-legged frogs may occur on the project site.

### **Protocol**

1. Is the project site within the range of the California red-legged frog?

Because knowledge of the distribution of the California red-legged frog is likely to change as new locality information becomes available, surveyors should contact the appropriate Service field office (see section V below) to determine if a project site is within the range of this species.

2. What are the known localities of California red-legged frogs within the project site and within 8 kilometers (km) (five miles) of the project boundaries?

The surveyor should consult the Natural Diversity Data Base (NDDDB) maintained by the California Department of Fish and Game's Natural Heritage Division to determine known localities of California red-legged frogs. Information on the NDDDB is attached to the end of this document. Other information sources on local occurrences of California red-legged frogs should be consulted. These sources may include, but are not limited to, biological consultants, local residents, amateur herpetologists, resource managers and biologists from municipal, State, and Federal agencies, environmental groups, and herpetologists at museums and universities. The surveyor should report to the Service all known California red-legged frog localities within the project site and within 8 km of the project boundaries.

3. What are the habitats within the project site and within 1.6 km (one mile) of the project boundaries?

Describe the upland and aquatic habitats within the project site and within 1.6 km of the project boundaries. The aquatic habitats should be mapped and characterized (e.g. ponds vs. creeks; pool, riffle, rootball, vegetation) The information provided in section 4 of the attached appendix serves as a guide to the features that will indicate possible California red-legged frog habitat.

**Reporting the results of the site assessment.** Surveyors should prepare a report that includes the following: photographs of the project site, survey dates and times, names of surveyors, a description of the methods used, and a map of the site showing habitat as requested in section II(3) above. The report should include copies of those portions of the 7.5' topographic quads that contain the site and the area within 1.6 km of its boundaries. A list of California red-legged frog localities as requested in section II(2) above should be included. The report should be provided to the appropriate Service field office (see section V below).

**Interpreting the results of site assessment.** After completing elements 1-3 of the site assessment above, the appropriate Service field office should be contacted for technical assistance. Based on the information provided from the site assessment, the Service will provide guidance on how California red-legged frogs should be addressed, including whether field surveys are needed or whether incidental take authorization should be obtained through section 7 consultation or a section 10(a)(1)(B) permit pursuant to the Act. A protocol for field surveys is presented below.

### **III. Field surveys**

Frogs can be detected opportunistically in various habitats depending on weather and time of year. Aquatic sampling during the summer months is a reliable method of detecting frogs. Care should be taken to apply a level of effort and to use a style of surveying appropriate to the site. For instance, survey methods may differ according to habitat extent and type (e.g. deep pond, shallow pond, creek). In addition, field work should be conducted according to the best professional judgement of the surveyor (e.g. dogs should not be brought on surveys as they

disturb frogs). The Service recommends that surveyors have field experience in the identification of California amphibians. The Service is willing to cooperate with surveyors who have specific needs not addressed by this field survey protocol and who may wish to propose alternative methods.

## **Protocol**

1. Surveys should be conducted between May 1 and November 1. These sampling dates were selected because they allow surveys to be conducted with minimal disturbance of breeding frogs, eggs, or tadpoles during a period when frogs can be reliably detected.
2. All aquatic habitat identified during the site assessment should be surveyed four times, twice during the day and twice at night. Surveyors should wait at least twenty-four hours and possibly longer, to meet the environmental conditions described in section III(3) below, before repeating surveys at the same site.
3. Day-surveys should be conducted on clear, sunny days. Night-surveys should be conducted on warm, still nights between one hour after sunset and 12 midnight. Warm, still nights are preferable for surveying because the probability of observing frogs tends to decrease under cold, windy conditions. In some circumstances where safety issues preclude night-surveys, the Service can provide alternatives to the surveyor on a case-by-case basis to ensure that safe surveys are conducted.
4. Surveyors should work along the entire shore (either on the bank or in the water), visually scanning all shoreline areas in all aquatic habitats identified during the site assessment. This methodology should be applied to both day- and night-surveys. In the case of water bodies covered with floating vegetation such as duckweed, both the shoreline and surface of the water should be scanned. When wading, surveyors should take maximum care to avoid disturbing sediments, vegetation, and any visible larvae. When walking on the bank, surveyors should take care to not crush rootballs, overhanging banks, and stream side vegetation that might provide shelter for frogs.
5. When conducting night-surveys for eyeshine, flashlights and headlamps that use one 6-volt or four to six D-cell batteries are recommended. High-powered spotlights are prohibited to avoid harming frogs.
6. Although not required, photographs of frogs observed during field surveys may aid in verification of species identifications. Surveyors should limit photography to the extent necessary to document the presence of California red-legged frogs and should not attempt to photograph frogs if this is likely to disturb them.

**Reporting the results of field surveys.** Any information on California red-legged frog distribution resulting from field surveys should be sent to the Natural Diversity Data Base (NDDB) administered by the Natural Heritage program of the California Department of Fish and Game. Information about the NDDB is attached to the end of this document. Copies of the

NDDDB form should be mailed immediately to both the Service and CDFG.

Surveyors should also prepare a final report that includes the following: copies of all field notes, data sheets, photographs of the project site and of frogs observed, and a typed summary providing survey dates and times (both begin and end times), names of surveyors, temperature (water and air), wind speed, a description of the methods used, numbers and size classes of all amphibians observed, a map of the site showing survey locations, habitat and frog sightings, a copy of the NDDDB form, and a description of possible threats to California red-legged frogs observed at the site. The report should be provided to the appropriate Service field office (see section V below).

**Interpreting the results of field surveys.** Based on the results of field surveys, the Service will provide guidance on how California red-legged frog should be addressed. If California red-legged frogs are found, the Service will work with the project proponent through the section 7 or section 10(a)(1)(B) process to determine a further course of action, including the consideration of avoidance or minimization measures and whether incidental take authorization is needed. If frogs are observed but not identified to species, additional survey effort may be recommended. If the Service recommended that field surveys be conducted and if California red-legged frogs were not identified during these field surveys conducted according to this protocol, the Service will consider the California red-legged frog not to be present on the project site and will not recommend any further take avoidance or mitigation measures. The Service may question the results of field surveys conducted under this protocol for any of the following reasons: 1) if the appropriate Service field office was not contacted prior to field surveys being conducted; 2) if field surveys were conducted in a manner inconsistent with this protocol; 3) if field surveys were incomplete; or 4) if the reporting requirements, including submission of NDDDB forms, were not fulfilled.

#### **IV. Statement on permitted activities.**

This field survey protocol allows for conducting visual surveys for California red-legged frogs. Surveys following this protocol do not require a section 10(a)(1)(A) recovery permit pursuant to the Act. Activities that would require a section 10(a)(1)(A) recovery permit include: 1) any capture or handling of California red-legged frog adults, larvae, or eggs; 2) any activity intended to significantly modify the behavior of California red-legged frogs; 3) any activity that subjects California red-legged frogs to some environmental condition not naturally present (e.g. experiments designed to study a frog's response to heat, moisture, noise) other than low-level illumination for night surveys as described in section III(5); and 4) any survey methods not covered in this field survey protocol if any form of "take" would occur during such activities. All surveyors using this field survey protocol should make all possible efforts to avoid unintentionally disturbing California red-legged frogs or their habitat. Surveyors should direct inquiries about section 10(a)(1)(A) recovery permits to the Service's Regional Office (see section V below).

#### **V. Service Contacts**

For project sites and land use activities in Santa Cruz, Monterey, San Benito, San Luis Obispo, Santa Barbara, and Ventura Counties, portions of Los Angeles and San Bernardino Counties outside of the Los Angeles Basin, and portions of Kern, Inyo and Mono Counties east of the Sierra Crest and south of Conway Summit, contact:

Ventura Fish & Wildlife Office,  
2493 Portola Road, Suite B  
Ventura, California, 93003 (805/644-1766)

For project sites and land use activities in all other areas of the state south of the Transverse Ranges, contact:

Carlsbad Fish & Wildlife Office  
2730 Loker Avenue West  
Carlsbad, California, 92008 (619/431-9440)

For project sites and land use activities in all other areas of the state, contact:

Sacramento Fish & Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825  
(916/414-6600)

For information on section 10(a)(1)(A) recovery permits, contact:

Regional Office,  
Eastside Federal Complex 911 N.E., 11th Avenue  
Portland, Oregon 97232-4181  
(503) 231-6241.

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## **Appendix**

### **California red-legged frog ecology and distribution**

#### **1. Identification**

The California red-legged frog *Rana aurora draytonii* is a relatively large aquatic frog ranging from 4 to 13 centimeters (cm) (1 1/2 to 5 inches) from the tip of the snout to the vent. From above the California red-legged frog can appear brown, gray, olive, red or orange, often with a pattern of dark flecks or spots. The skin usually does not look rough or warty. The back of the California red-legged frog is bordered on either side by an often prominent dorsolateral fold of skin running from the eye to the hip. The hindlegs are well-developed with large webbed feet. A cream, white, or orange stripe usually extends along the upper lip from beneath the eye to the rear of the jaw. The undersides of adult California red-legged frogs are white, usually with patches of bright red or orange on the abdomen and hindlegs. The groin area can show a bold black mottling with a white or yellow background.

California red-legged frog tadpoles range from 14 to 80 millimeters (mm) (1/2 to 3 1/4 inches) in length. They are generally brownish with darker marbling and lack distinct black or white spotting or speckling. Large California red-legged frog tadpoles often have a wash of red coloration on their undersides.

Positive diagnostic marks should be used to accurately distinguish California red-legged frogs from other species of frogs that may be observed. A positive diagnostic mark is some attribute of the animal that will not be found on any other animal one might expect to encounter at the same locality. The following features are positive diagnostic marks that, if observed, will distinguish California red-legged frogs from yellow-legged frogs *Rana boylei* and bullfrogs *Rana catesbeiana*:

- a. Prominent dorsolateral folds (thick upraised fold of skin running from eye to hip) on any frog greater than 5 cm long from snout to vent. Young yellow-legged frogs can show reddish folds; these usually fade as the frogs attain maturity.
- b. Bright red dorsum.
- c. Well defined stripe as described above running along upper lip.

Because California red-legged frogs are often confused with bullfrogs, surveyors should note those features that might be found on bullfrogs that will rarely be observed on California red-legged frogs. These features are:

- a. Bright yellow on throat.
- b. Uniform bright green snout.
- c. Body length greater than 15 cm (6 inches).

d. Tympanum (ear disc) distinct and much larger than eye. Please note that some frogs may lack all of the above characteristics given for both California red-legged frogs and bullfrogs. Surveyors should regard such frogs as "unidentified."

California red-legged frogs are cryptic because their coloration tends to help them blend in with their surroundings, and they can remain immobile for one half hour or more. When an individual California red-legged frog is disturbed, it may jump into the water with a distinct "plop." The California red-legged frog may do this either when the surveyor is still distant or when a surveyor is very near. Bullfrogs exhibit similar behavior but will often emit a "squawk" as they dive into the water. Because a California red-legged frog is unlikely to make such a sound, a "squawk" from a fleeing frog will be considered sufficient to positively identify the frog as a bullfrog.

## 2. Reproduction

California red-legged frogs breed during the winter and early spring from late November through April. Adults engage in complex courtship behaviors that result in the female depositing from 2,000 to 6,000 eggs, each measuring between 2 and 3 mm. California red-legged frog eggs are typically laid in a loose mass attached to emergent vegetation near the surface of the water body, where they can be easily dislodged. Eggs hatch within 6 to 14 days after deposition at which time the newly hatched tadpoles are delicate. California red-legged frog tadpoles transform into juvenile frogs in 3.5 to 7 months.

## 3. Movement

California red-legged frogs may move up to 1.6 km (one mile) up or down a drainage and are known to wander throughout riparian woodlands up to several dozen meters from the water. On rainy nights California red-legged frogs may roam away from aquatic sites as much as 1.6 km. California red-legged frogs will often move away from the water after the first winter rains, causing sites where California red-legged frogs were easily observed in the summer months to appear devoid of this species.

## 4. Habitat

California red-legged frogs occur in different habitats depending on their life stage and the season. All life history stages are most likely to be encountered in and around breeding sites, which are known to include coastal lagoons, marshes, springs, permanent and semipermanent natural ponds, ponded and backwater portions of streams, as well as artificial impoundments such as stock ponds, irrigation ponds, and siltation ponds. California red-legged frog eggs are usually found in ponds or in backwater pools in creeks attached to emergent vegetation such as Typha and Scirpus. California red-legged frog tadpoles remain in these habitats until metamorphosis in the summer months. Young California red-legged frogs can occur in slow moving, shallow riffle zones in creeks or along the margins of ponds. In the summer, older California red-legged frogs are often found close to a pond or a deep pool in a creek where emergent vegetation, undercut banks, or semi-submerged rootballs afford shelter from predators. Older California red-legged frogs may also take shelter in small mammal burrows and other

refugia on the banks up to several dozen meters from the water any time of the year and can be encountered in smaller, even ephemeral bodies of water in a variety of upland settings. California red-legged frogs are frequently encountered in open grasslands occupying seeps and springs. Such bodies may not be suitable for breeding but may function as foraging habitat or refugia for wandering frogs. Creeks and ponds where California red-legged frogs are found often have dense growths of woody riparian vegetation, especially willows (*Salix* sp.). The absence of *Typha*, *Scirpus*, and *Salix* at an aquatic site does not rule out the possibility that the site provides habitat for California red-legged frogs, but the presence of one or all of these plants is an important indicator that the site may provide foraging or breeding habitat for California red-legged frogs.