

**California Wildlife Habitat Relationships System**  
**California Department of Fish and Wildlife**  
**California Interagency Wildlife Task Group**

---

SOUTHERN MOUNTAIN YELLOW-LEGGED FROG

*Rana muscosa*

Family: RANIDAE

Order: ANURA

Class: AMPHIBIA

A044

Written by: S. Morey

Reviewed by: T. Papenfuss

Edited by: R. Duke, E. C. Beedy

Updated by: CWHR Program Staff, January 2000, August 2008, and January 2014

**DISTRIBUTION, ABUNDANCE, AND SEASONALITY**

The Southern mountain yellow-legged frog occurs in the Sierra Nevada from Fresno Co. to Kern Co. In southern California, isolated populations exist in the San Gabriel, San Bernardino, and San Jacinto Mts. This species was once known as the mountain yellow-legged frog with a range extending throughout the Sierra Nevada as far north as Plumas Co., but populations north of a ridge dividing the middle and south forks of the Kings River are now considered to be a new species -- *Rana sierrae*, the Sierra Nevada yellow-legged frog (Vredenburg et al. 2007). Elevation range in the Sierra extends from 1370 m (4500 ft) to over 3650 m (11980 ft) and in southern California from 370 m (1200 ft) to 2290 m (7500 ft) (Jennings and Hayes 1994). In the Sierra, this species is associated with streams, lakes and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitats. In southern California, populations are restricted to streams in ponderosa pine, montane hardwood-conifer, and montane riparian habitats.

**SPECIFIC HABITAT REQUIREMENTS**

**Feeding:** Feeds primarily on aquatic and terrestrial invertebrates and favors terrestrial insects. Adults have been observed eating tadpoles of the Yosemite toad (Mullally 1953), and cannibalism in captivity has been reported (Heller 1960). Tadpoles graze on algae and diatoms along rocky bottoms in shallow water of streams, lakes, and ponds.

**Cover:** Frogs usually crouch on rocks or clumps of grass within a few jumps of water. When disturbed, they dive into water, take refuge under rocks, or rest exposed on the bottom. Less commonly, frogs bury themselves in bottom sediments. During dry conditions they may enter rodent burrows near water.

**Reproduction:** Eggs are usually laid in shallow water attached to gravel or rocks. Reproduction does not take place until lakes and streams are free of ice.

**Water:** This aquatic species is always encountered within a few feet of water. Tadpoles may require up to two overwintering periods to complete their aquatic development (Cory 1962).

**Pattern:** This species is associated with streams, lakes and ponds in montane riparian, and a variety of other habitats.

**SPECIES LIFE HISTORY**

**Activity Patterns:** Terrestrial individuals are primarily diurnal. During winter, adults apparently hibernate beneath ice-covered streams, lakes, and ponds. Terrestrial hibernation has not been reported. In southern California, some individuals aestivate during especially dry periods of late summer (Mullally 1959).

Seasonal Movements/Migration: Significant seasonal movements or migrations have not been reported for this species.

Home Range: Typical home ranges for this species are probably less than 10 m (33 ft) in the longest dimension. Occasional movements up to 50 m (165 ft) may be associated with habitat deterioration, especially drying.

Territory: Like most ranid frogs, males of this species probably defend areas around themselves during the breeding season (Martof 1953, Emlen 1968). Weak vocalizations are given by males that may function in territorial defense.

Reproduction: Breeding and egg-laying at higher elevations usually occur from June to August depending on local conditions. In southern California, reproduction takes place earlier, from March to May. Roundish clusters of up to 500 eggs (usually 200 to 300) are deposited in shallow water and attached to gravel or submerged rocks. Tadpoles usually over-winter at all localities.

Niche: One of the few high-elevation amphibians of the Sierra Nevada and southern California. Tadpoles of this species may compete for food or space with those of the Yosemite toad and the Pacific treefrog. Adults may also feed on tadpoles of the Yosemite toad and the Pacific treefrog (Mullally 1953). Adults and tadpoles are commonly preyed upon by garter snakes and introduced trout (Cory 1963, Zweifel 1968).

#### REFERENCES

- Cory, B. L. 1962. Life-history and behavior differences between ranids in isolated populations in the Sierra Nevada. *Am. Zool.* 2:515.
- Cory, B. L. 1963. Effects of introduced trout on the evolution of native frogs in the high Sierra Nevada Mountains. *Proc. XVI Int. Congr. Zool., Wash.* 2:172.
- Emlen, S. T. 1968. Territoriality in the bullfrog, *Rana catesbeiana*. *Copeia* 1968:240-243.
- Heller, C. L. 1960. The Sierra yellow-legged frog. *Yosemite Nat. Notes* 39:126-128.
- Jennings, M. R. and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game. Rancho Cordova 255 pp.
- Martof, B. S. 1953. Territoriality in the green frog, *Rana clamitans*. *Ecology* 34:165-174.
- Mullally, D. P. 1953. Observations on the ecology of the toad *Bufo canorus*. *Copeia* 1953: 182-183.
- Mullally, D. P. 1959. Notes on the natural history of *Rana muscosa* Camp in the San Bernardino Mountains. *Herpetologica* 15:78-80.
- Stebbins, R. C. 1972. California amphibians and reptiles. Univ. California Press, Berkeley. 152 pp.
- Stebbins, R. C. 1985. A field guide to western reptiles and amphibians. 2nd ed., revised. Houghton Mifflin, Boston. 336pp.
- Vredenburg, V. T., R. Bingham, R. Knapp, J. A. T. Morgan, C. Moritz and D. Wake. 2007. Concordant molecular and phenotypic data delineate new taxonomy and conservation priorities for the endangered mountain yellow-legged frog. *Journal of Zoology* 271:361-374.
- Zweifel, R. G. 1968. *Rana muscosa*. *Cat. Am. Amphibians and Reptiles* 65.1-65.2.oup. Univ. Calif. Publ. Zool. 54:207-292.

A044

Life history accounts for species in the California Wildlife Habitat Relationships (CWHR) System were originally published in: Zeiner, D.C., W.F.Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Depart. of Fish and Game, Sacramento, California. Updates are noted in accounts that have been added or edited since original publication.