

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

YOSEMITE TOAD

Anaxyrus canorus

Family: BUFONIDAE
A033

Order: ANURA

Class: AMPHIBIA

Written by: S. Beedy

Reviewed by: T. Papenfuss

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

Updated by: CWHR Program Staff, January 2000

DISTRIBUTION, ABUNDANCE, AND SEASONALITY

The Yosemite toad is restricted to the vicinities of wet meadows in the central high Sierra. It ranges from El Dorado Co. south to near Kaiser Pass, Fresno Co. It occurs at elevations of about 1950 m (6400 ft) to 3450 m (11,320 ft) (Jennings and Hayes 1994). This toad primarily frequents montane wet meadows, but also occurs in seasonal ponds associated with lodgepole pine and subalpine conifer forests.

SPECIFIC HABITAT REQUIREMENTS

Feeding: The diet of this toad includes beetles, ants, mosquitoes, dragonfly nymphs, larval lepidopterans, centipedes, and spiders (Grinnell and Storer 1924, Mullally 1953). Tadpoles feed on bottom detritus, or by filtering suspended plant material and planktonic animals.

Cover: During inactive periods, these toads seek cover inside abandoned rodent burrows, or move to adjacent forests (Karlstrom 1973). Individuals occasionally hide under rocks in streambeds. When disturbed, they often hop into nearby water (Mullally 1953, Cunningham 1963).

Reproduction: Breeding and egg-laying occur from mid-April to mid-July depending on local conditions. Eggs are deposited in shallow, quiet pools in wet meadows, or in shallow tarns surrounded by forest.

Water: This species normally frequents moist microhabitats. Water for reproductive activities is provided by spring snowmelt.

Pattern: Quiet pools in alpine meadows provide optimal habitat.

SPECIES LIFE HISTORY

Activity Patterns: Terrestrial individuals are primarily diurnal, but have much crepuscular and nocturnal activity during warmer periods. During severe Sierra winters they become inactive and reside for several months in protected hibernacula.

Seasonal Movements/Migration: Movement to and from breeding sites may be extensive. Montane B. boreas in Colorado travelled 900 m (2790 ft) from areas of summer activity to winter hibernacula (Campbell 1970). During October, Karlstrom (1957) collected a single Yosemite toad 38 cm (15 in) deep in meadow sod. It is possible that other individuals hibernate in similar sites. They may also cross expanses of snowfields to reach breeding pools from winter hibernacula (Sherman and Morton 1984).

Home Range: Seasonal variation in home range size is considerable. Mullally (1953)

estimated home ranges of some toads to be about 20 ft 2, but suggested that individuals may travel long distances away from water.

Territory: Males defend small areas around themselves during the breeding period. The defended space changes as the male toad moves. Some males are silent, and do not appear to defend a territory. Territoriality varies with density of males, with high densities resulting in breakdown of territorial behavior (Sherman and Morton 1984).

Reproduction: Mating system is polygynous. Breeding and egg-laying occur from mid-April to mid-July, and males generally appear at breeding sites a few days before the females. Mean clutch size is about 8,000 (Karlstrom 1962), and females may not breed every year. Eggs are laid in clusters. Tadpoles metamorphose during the first summer or fall after the eggs are deposited. First breeding is at 3-5 years for males and 4-6 years for females (Sherman and Morton 1984).

Niche: Tadpoles of this species may compete for food or space with those of *Hyla regilla*, *Rana muscosa*, and *B. boreas*, when they co-occur. Tadpoles are fed upon by dragonfly nymphs, adult *Rana muscosa* (Mullally 1953), some birds and probably by garter snakes. Desiccation of pools before metamorphosis is a major cause of mortality. Apparent hybrids between *B. canorus* and *B. boreas* are encountered at some localities (Stebbins 1985).

REFERENCES

- Campbell, J. B. 1970. Hibernacula of a population of *Bufo boreas boreas* in the Colorado Front Range. *Herpetologica* 26:278-282.
- Cunningham, J. D. 1963. Additional observations on the ecology of the Yosemite toad, *Bufo canorus*. *Herpetologica* 19:56-61.
- Grinnell, J., and T. I. Storer. 1924. *Animal life in the Yosemite*. Univ. California Press, Berkeley. 752pp.
- 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.
- Karlstrom, E. L. 1957. The use of CO60 as a tag for recovering amphibians in the field. *Ecology* 38:187-195.
- Karlstrom, E. L. 1958. Sympatry of the Yosemite and western toads in California. *Copeia* 1958:152-153.
- Karlstrom, E. L. 1962. The toad genus *Bufo* in the Sierra Nevada of California, ecological and systematic relationships. *Univ. Calif. Pub. Zool.* 62:1-104.
- Karlstrom, E. L. 1973. *Bufo canorus*. *Cat. Am. Amphibians and Reptiles* 132.1-132.2.
- Mullally, D. P. 1953. Observations on the ecology of the toad *Bufo canorus*. *Copeia* 1953:182-183.
- Sherman, C. K., and M. L. Morton. 1984. The toad that stays on its toes. *Nat. History* 93:73-78.
- Stebbins, R. C. 1985. *A field guide to western reptiles and amphibians*. 2nd ed., revised. Houghton Mifflin, Boston. 336pp.
- Houghton Mifflin, Boston. 336pp. Press, Berkeley. 538 pp.

A033

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 Department of Fish and Game, Sacramento, California. Updates are noted in accounts that have been added or edited since original publication.