

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

SEQUOIA SLENDER SALAMANDER
Family: PLETHODONTIDAE
A061

Batrachoseps kawia
Order: CAUDATA

Class: AMPHIBIA

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DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Yearlong resident in the western slope of the southern Sierra Nevada, Tulare Co. Individuals occur along streams and in moist wooded canyons in valley foothill riparian habitats, blue oak woodlands, and Sierra mixed conifer woodlands (Yanev 1978). Brame and Murray (1968) included salamanders from four disjunct regions, including the southern Sierra Nevada, in *B. pacificus*. Jennings and Hayes (1994) elevated the animals from the southern Sierra Nevada to specific status (*B. relictus*). Then, on the basis of DNA analyses (Jockusch 1996, Jockusch et al. 1998), the *B. relictus* complex was split out into four distinct species: *B. relictus*, *B. regius*, *B. kawia* and *B. diabolicus*. *B. kawia* is only known from the Kaweah river system in Tulare Co. (Stebbins 2003).

SPECIFIC HABITAT REQUIREMENTS

Feeding: Feeding probably occurs both above and below ground (Hendrickson 1954). Stebbins (1951) reported that a similar species, the pacific slender salamander (*B. pacificus*), fed on earthworms, small slugs, a variety of terrestrial arthropods including sowbugs and millipedes, and insects including collembolans, aphids, caterpillars, small beetles, beetle larvae, and ants. The relictual slender salamander probably eats a similar array of prey items.

Cover: Members of the genus *Batrachoseps* do not usually excavate burrows. They rely on passages made by other animals, or produced by root decay or soil shrinkage (Yanev 1978). They are usually found under boards, rotting logs, rocks, and surface litter (Stebbins 1954).

Reproduction: Most reproductive activities probably occur underground (Yanev 1978). Eggs usually are laid in communal sites underground, but near, or under, a flat surface object (Stebbins 1954).

Water: Surface activity is limited to rainy winter months (Yanev 1978).

Pattern: Use relatively small, mesic areas (e.g., swales, drainages, etc.) with an overstory of trees or shrubs and abundant rocks, litter, or woody debris.

SPECIES LIFE HISTORY

Activity Patterns: The life history of the relictual slender salamander is virtually unknown (Jennings and Hayes 1994). Pacific slender salamanders are active underground from April or May until November or December. After the first winter rains, when moisture and temperature conditions are favorable, they increase surface activities (Stebbins 1954). They are normally active at night, and return to cover during daylight. During periods of extended rainfall, they may remain on the surface during the day to feed (Hendrickson 1954). Surface activity is limited by extremes of temperature and unfavorable moisture conditions.

Seasonal Movements/Migration: Highly sedentary; hatchlings presumably disperse, but no data found (Yanev 1978).

Home Range: No data for *B. kawia*, but they probably occupy a small home range. Hendrickson (1954) found that adults of *B. attenuatus* moved within a mean of 1.5 m (5 ft) from their home cover over 2 years, and 59% of the individuals were found repeatedly under the same cover.

Territory: No data.

Reproduction: No data for this species. *B. pacificus* lays eggs during late fall and winter; egg sets have been found from December 8 to January 18 (Stebbins 1954). The number of eggs per set ranged from 13 to 20. Hatchlings emerge during winter and early spring. It is not known if adults tend their young (Stebbins 1954).

Niche: The closely related *B. pacificus* is incapable of excavating its own burrows, except in loose soil and leaf litter (Stebbins 1954);

thus, competition for cover sites may occur between individuals of the same species and other species with similar habitat requirements (Yanev 1978). Potential predators include spotted and striped skunks, raccoons, ringtails, gray foxes, ringneck snakes, and various skinks, moles, and shrews.

REFERENCES

- Brame, A. H., Jr., and K. F. Murray. 1968. Three new slender salamanders (*Batrachoseps*) with a discussion of relationships and speciation within the genus. Bull. Los Angeles Co. Mus. Nat. Hist., Sci. 4:1-35.
- Hendrickson, J. R. 1954. Ecology and systematics of salamanders of the genus *Batrachoseps*. Univ. Calif. Publ. Zool. 54:1-46.
- Jennings, M. R. and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. Final Report to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA. 225 pp.
- Jockusch, E. L. 1996. Evolutionary studies in *Batrachoseps* and other Plethodontid salamanders: correlated character evolution, molecular phylogenetics, and reaction norm evolution. Ph.D. Diss., Univ. Calif., Berkeley. 220pp.
- Jockusch, E. L. D. B. Wake, and K. P. Yanev. 1998. New species of slender salamanders, *Batrachoseps* (Amphibia: Plethodontidae), from the Sierra Nevada of California. Contributions in Science, No. 472, pp. 1-17.
- Stebbins, R. C. 1951. Amphibians of western North America. Univ. California Press, Berkeley. 538 pp. Stebbins, R. C. 1954. Amphibians and reptiles of western North America. McGraw-Hill, New York. 536pp.
- Stebbins, R.C. 2003. Western reptiles and amphibians, 3rd edition. Houghton Mifflin, Boston. 533 pp. Yanev, K. P. 1978. Evolutionary studies of the plethodontid salamander genus *Batrachoseps*. Ph. D. Diss. Univ. Calif., Berkeley. 251pp.
- Yanev, K. P. 1980. Biogeography and distribution of three parapatric salamander species in coastal and borderline California. Pages 531-550 in D. M. Power, ed. The California Islands: proceedings of a multidisciplinary symposium. Santa Barbara Mus. Nat. Hist. Santa Barbara, CA 787pp.

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