

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

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SANTA CRUZ LONG-TOED SALAMANDER  
Family: AMBYSTOMATIDAE  
A003a

*Ambystoma macrodactylum croceum*  
Order: CAUDATA

Class: AMPHIBIA

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#### DISTRIBUTION, ABUNDANCE, AND SEASONALITY

The endangered subspecies occurs in a small number of restricted localities in southern Santa Cruz County and the northern edge of Monterey County. Primary habitat is ephemeral fresh water ponds with adjacent upland habitat including riparian vegetation, chaparral, coast live oak, and Monterey pine (USFWS 2004).

#### SPECIFIC HABITAT REQUIREMENTS

Feeding: During dry periods adults feed primarily on arthropods, especially spiders, insects and isopods. During wetter months, when breeding occurs, aquatic dipterans and terrestrial insects are taken. The aquatic larvae of this species feed mostly on small aquatic crustaceans (cladocerans, copepods and ostracods), aquatic dipterans, and tadpoles (Anderson 1968).

Cover: Adults of this species are subterranean during most of the year, utilizing mammal burrows, rock fissures, root systems of trees, rotten logs, leaf litter and occasionally human-made structures. During breeding migrations they may be found under surface objects such as rocks or logs near the breeding pond. Terrestrial juveniles may spend the entire first summer of life in mammal burrows or under surface objects in the immediate vicinity of the breeding pond due to arid summer climate (Anderson 1967, Howard 1997). Aquatic larvae prefer shallow turbid water, less than 30 cm (12 in) in depth, and utilize clumps of vegetation or other bottom debris as cover.

Reproduction: Breeds primarily in temporary ponds formed by winter and spring rains. However, some populations are also found to persist in permanent ponds where they aren't precluded by exotic predators such as bullfrog and non-native fish. .

Water: Rainfall are important in the formation and maintenance of breeding ponds. Most surface movements such as migration to and from breeding ponds, and the dispersal of juveniles away from ponds, are associated with sustained rainfall, especially at night.

Pattern: *A. m. croceum* is found in oak woodlands, riparian, and coastal scrub habitats in the vicinity of the coast.

#### SPECIES LIFE HISTORY

Activity Patterns: Adults are subterranean most of the year. Nocturnal surface activity in the periods preceding and following breeding.

Seasonal Movements/Migration: They begin breeding migrations at night with the first heavy rains of November through March (Howard 1997, USFWS 2004). Return migrations may occur immediately after breeding, or may not take place until several weeks after the cessation of breeding activities. In personal communications with M. Allaback, most adults have returned by the end of March (USFWS 2004).

Home Range: Little movement during most of the year. Breeding migrations probably less than 1,000 m. (3,280 ft.) in most localities.

Territory: Not known to be territorial.

Reproduction: *A. m. croceum* breeds from mid-January to mid-February and lays eggs singly or in loose clusters on pond vegetation in shallow water 5-8 cm (2-3.2 in) below the surface (Anderson 1967). Larvae metamorphose prior to the drying of breeding ponds, but may overwinter in unusually cool permanent ponds .

Niche: Larvae may compete with other larval amphibians where they are sympatric, and are probably preyed upon by aquatic invertebrates, garter snakes, and possibly by other vertebrates. Adults appear to be protected by noxious skin secretions (Anderson

1963).

General Comments: The few existing populations are very restricted, and exist in ecologically fragile locations. Any human activity near these populations may affect significant numbers of the existing population (Bury and Ruth 1972).

#### REFERENCES

- Anderson, J. D. 1963. Reactions of the western mole to skin secretions of *Ambystoma macrodactylum croceum*. *Herpetologica* 19:282-284.
- Anderson, J. D. 1967. A comparison of the life histories of coastal and montane populations of *Ambystoma macrodactylum* in California. *Am. Midl. Nat.* 77:323-355.
- Anderson, J. D. 1968. A comparison of the food habits of *Ambystoma macrodactylum sigillatum*, *Ambystoma macrodactylum croceum*, and *Ambystoma tigrinum californiense*. *Herpetologica* 24:273-284.
- Bury, R. B., and S. B. Ruth. 1972. Santa Cruz long-toed salamander: survival in doubt. *Herpetol. Rev.* 4:20-22.
- Ferguson, D. E. 1961. The geographic variation of *Ambystoma macrodactylum* (Baird), with the description of two new subspecies. *Am. Midl. Nat.* 65:311-338.
- Ferguson, D. E. 1963. *Ambystoma macrodactylum*. *Cat. Am. Amphibians and Reptiles* 4.1-4.2.
- Howard, Janet L. 1997. *Ambystoma macrodactylum*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). <http://www.fs.fed.us/database/feis/animals/amphibian/amma/all.html>. Accessed May 14, 2018.
- Stebbins, R. C. 1954. *Amphibians and reptiles of western North America*. McGraw-Hill, New York. 536pp.
- U.S. Fish and Wildlife Service (USFWS). 2004. Draft revised recovery plan for the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*). U.S. Fish and Wildlife Service, Portland, Oregon. vii + 108 pp. <http://www.elkhornsloughctp.org/uploads/files/1240533407SCLTS%20Rec%20Plan%20-%20Dec%202004%20draft.pdf>. Accessed May 10, 2018.

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