



Male valley elderberry longhorn beetle courtesy of T. S. Talley

The valley elderberry longhorn beetle is a **threatened species**. Threatened species are plants and animals whose population numbers are so low that they may become endangered in the near future.

Endangered species are plants and animals that are in immediate danger of becoming extinct.

The U.S. Environmental Protection Agency's (EPA) Endangered Species Protection Program (ESPP) will help ensure that pesticide use does not jeopardize the survival of listed species.

Desmocerus californicus dimorphus

Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*

Description and Ecology

Status Threatened, listed August 8, 1980.

Critical Habitat Designated August 8, 1980.

Appearance The adult valley elderberry longhorn beetle has an elongated shield-shaped body, 1/2 to 1 inch long when measured from the top of the head to the tail. Its dark and knobby antennae are nearly as long as its body. The antennae of males are longer than those of females, but the bodies of females are larger, 3/4 to 1 inch in length. Both have dark heads and legs. The outer wings, or elytra, of females are a dark, nearly metallic green in contrast with a bright red edge. Male elytra are bright red accented with four oblong dark spots.

Range At the time of its listing the valley elderberry longhorn beetle was known in only 10 locations along the American River, Putah Creek, and the Merced River. Since that time, surveys have documented a broader distribution of the species; according to 190 records the species was located from southern Shasta County south to Fresno County in the San Joaquin Valley.

Habitat Valley elderberry longhorn beetles are found in riparian habitat only in the vicinity of their host plant, the elderberry (*Sambucus* species such as the Mexican elderberry *Sambucus mexicana*). Leaves and flowers of the elderberry provide food for the adult beetle while the interior pith of elderberry stems and roots at least one inch in diameter provides both food and shelter for the developing larva. Loss of riparian habitat from 1900 to 1990 was about 96% in the southern Central Valley (Kern County to Fresno County), 84% in the middle Valley (Merced County to San Joaquin County) and 80% in the northern Valley (Sacramento and Solano counties to Shasta County). At the time of listing, critical habitat was designated in just two places (the Sacramento

Zone and the American River Parkway Zone) along and close to the American River in Sacramento. Over the past 25 years the loss of riparian habitat has slowed, and in the middle and northern Valley 50,000 acres of existing riparian habitat have been protected. In addition, 5,000 acres of riparian habitat have been restored specifically for the valley elderberry longhorn beetle. The slowdown in habitat loss, the protection and restoration of riverine habitat, and the increase in valley elderberry longhorn beetle occurrences, together have been the major reasons for the Fish and Wildlife Service (FWS) having considered delisting this species (*Valley Elderberry Longhorn Beetle 5-year Review*, September 26, 2006). However, the FWS recognizes that maintenance of levees and canals may limit future restoration of valley elderberry longhorn beetle/riparian habitat, that not enough is known about the survivability of elderberry within the restored habitat or whether restored habitat will be adopted by beetles, and the specific metapopulation dynamics of the valley elderberry longhorn beetle are not fully understood. As a result, the species remains listed as threatened.

Reproduction and Life Cycle The complete life cycle of the valley elderberry longhorn beetle has four stages: egg, larva, pupa, and adult. The adult beetles are active, feeding and mating, from March until June. After mating, their eggs are deposited on live elderberry bushes in the crevices of the bark, at the stem/trunk junctions, or at the stem/petiole junctions. After hatching the larvae bore through the bark into the pith of the elderberry stem where they tunnel and eat for up to two years. For the larvae to be successful in completing the cycle the stems of the elderberries must be at least 1.0 inch in diameter at ground level. In their last stage, larvae bore back out of the stem (thereby creating the "exit hole") and then return to the pith, closing the exit hole with

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a substance composed of wood shavings or chewed wood and excrement called "frass." The larvae then enter the pupal stage. After transformation, the adult beetle need only break through the frass plug at the exit hole to continue the cycle once again among the elderberries. Typically, adult valley elderberry longhorn beetles emerge at about the same time as the elderberry flowers bloom (between mid-March and mid-June). Lizards, European earwigs, and non-native Argentine ants prey upon the various life stages of the valley elderberry longhorn beetle.

Recovery Plan FWS developed a recovery plan for the valley elderberry longhorn beetle in 1984. Recovery plans outline reasonable actions that FWS believes are required to recover or protect listed species. FWS prepares recovery plans, sometimes with the assistance of recovery teams, contractors, state agencies, and others. Recovery plans do not necessarily represent the views nor the official positions or approvals of any individuals or agencies, other than FWS, involved in the plan formulation. Approved recovery plans are subject to modification as dictated by new findings, changes in species' status, and the completion of recovery tasks.

Valley Elderberry Longhorn Beetle Information Sources

Primary Reference Beacham, Walton, Castronova, Frank F., and Sessine, Suzanne (eds.) 2001. *Beacham's Guide to the Endangered Species of North America*, Gale Group, New York. Vol. 3, pp. 1475–1476.

Listing Notice U.S. Fish and Wildlife Service, 1980. Federal Register 45 No. 155, pp. 52803-52807, August 8, 1980. http://ecos.fws.gov/docs/federal_register/fr449.pdf

Critical Habitat Designation U.S. Fish and Wildlife Service. 1980. Federal Register 45 No. 155, pp. 52803-52807, August 8, 1980. http://ecos.fws.gov/docs/federal_register/fr449.pdf

Recovery Plan U.S. Fish and Wildlife Service, 1984. Valley Elderberry Longhorn Beetle Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon. 62 pp. http://www.fws.gov/sacramento/es/recovery_plans/velb_recovery_plan.pdf

Species Account U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2009. http://www.fws.gov/sacramento/es/animal_spp_acct/velb.pdf

5-year Review U.S. Fish and Wildlife Service, 2006. 5-Year Review: Summary and Evaluation for the Valley Elderberry Longhorn Beetle (*Desmocerus californicus*). U.S. Fish and Wildlife Service, Sacramento Field Office, Sacramento, California. 28 pp. http://ecos.fws.gov/docs/five_year_review/doc779.pdf



Female Valley Elderberry Longhorn Beetle courtesy of T. S. Talley



Side view and front view of male valley elderberry longhorn beetles. Courtesy of T. S. Talley