



U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Species Account
KERN PRIMROSE SPHINX MOTH
Euproserpinus euterpe



CLASSIFICATION: Threatened
Federal Register 45:24090; April 8, 1980
http://ecos.fws.gov/docs/federal_register/fr402.pdf

On October 9, 2007, we published a [5-year review](#) recommending that the species remain listed as threatened.

CRITICAL HABITAT: None Designated

RECOVERY PLAN: FINAL
Kern Primrose Sphinx Moth Recovery Plan, February 8, 1984
http://ecos.fws.gov/docs/recovery_plan/840208.pdf

The [5-year review](#) states that the 1984 recovery plan does not adequately address the current threats to the Kern primrose sphinx moth and no longer conforms to the best available scientific information. The review recommends that a new plan should be developed.

DESCRIPTION

The Kern primrose sphinx moth (*Euproserpinus euterpe*) is one of three species within the genus *Euproserpinus*, which are members of the family Sphingidae, commonly called hawk moths or sphinx moths.

This is a moderate sized, diurnal (day-flying) moth. It has a streamlined yet stout body and elongate forewings, which are oblique at the outer margins.

Adults are distinctly marked by a broad and contrasting white band on the abdomen, convex costal margins of the hindwing and forewing, and white scaling on the dorsal surface of the antenna.

The colorful larvae are without hair or spines. The dorsal part of the eighth abdominal segment contains a horn or spur (Powell and Hogue 1979).

Flight periods for the adults range from late February to early April. However, pupae are known to diapause (delay metamorphosis to adult form) underground for multiple years during drought periods (Jump et al. 2006).

The 0.04-inch, light green eggs are laid on evening primrose (*Camissonia contorta epilobiodes*) and on filaree (*Erodium cicutarium*). Larvae emerge from the eggs a few days after oviposition and begin to feed.

At the time of listing, the non-native, invasive, low-growing weedy plant, filaree (*Erodium* sp.), was thought to negatively impact the Kern primrose sphinx moth at the Walker Basin because it was noted that female Kern primrose sphinx moth oviposit on non-host plants and other objects.

Subsequent observations revealed that the first instar (growth period between molts in larval insects) larvae is actually capable of making forays from non-host plants across open ground to find host plants if the individual host plants are of adequate density (Longcore and Rich 2002, Osborne 2005). Thus, Kern primrose sphinx moth oviposition on filaree does not necessarily lead to death of the hatching larvae.

Adults nectar on a variety of flowering species that occur in the region, including, filaree, goldfields (*Lasthenia chrysostoma*), baby blue-eyes (*Nemophila menziesii*) and miniature lupine (*Lupinus bicolor*).

DISTRIBUTION

At the time of listing, the Kern primrose sphinx moth was known from only the northwest portion of the Walker Basin, primarily on 4,000 square meters (43,053 square feet) of a sandy wash.

In 2002 and 2003, three populations were discovered for the first time at the Carrizo Plain in San Luis Obispo County, about 120 km (75 miles) west of the Walker Basin population (Jump et al. 2006).

See our [5-year review](#) for more information about the species' distribution.

THREATS

Since listing, the primary threats to the Kern primrose sphinx moth are agricultural land use practices that degrade Kern primrose sphinx moth habitat, particularly cattle grazing, disking, using pesticides and herbicides, and development.

Sheep grazing can be both beneficial and harmful to the Kern primrose sphinx moth. Although grazing is used to control invasive weeds (Marty 2004), grazing animals can trample Kern primrose sphinx moth eggs, larvae, and pupae, as well as the Kern primrose sphinx moth host plant. Sheep grazing and trailing are considered as a threat at this time only to those few Carrizo Plains Kern primrose sphinx moth populations and has not been observed at the Walker Basin or the Cuyama Valley.

Many agricultural pesticides are specifically designed to target insect larvae (caterpillars) as well as adult moths. Some herbicides have also been found to negatively impact a variety of insects (Dewey 1986). Agricultural practices in the Central Valley include spreading thousands of tons of pesticides and herbicides annually, which can be spread beyond the target area by prevailing winds and have been implicated in affecting animals 9 many miles downwind of applications (Davidson et al. 2002). All Kern primrose sphinx moth populations are potentially at risk from this effect.

At the time of listing, collectors had removed a significant number of moths, the majority of which were the slower flying and, thus, easier-caught females. Illegal collection for commercial purposes remains a threat for this moth.

REFERENCES FOR ADDITIONAL INFORMATION

- Davidson, C., H. Bradley Shaffer, M.R. Jennings. 2002. Spatial tests of the pesticide drift, habitat destruction, UV-B, and climate change hypotheses for California amphibian declines. *Conservation Biology* 16(6): 1588 – 1600.
- Dewey, S. 1986. The effects of herbicide atrazine on aquatic insect community structure and emergence. *Ecology* 67(1): 148 – 162.
- Jump, P.M., T. Longcore, and C. Rich. 2006. Ecology and distribution of a newly discovered population of the federally threatened *Euproserpinus euterpe* (Sphingidae). *Journal of the Lepidopterists' Society* 60(1): 41-50.
- Longcore, T. and C. Rich. 2002. Action plan for the Kern primrose sphinx moth (*Euproserpinus euterpe*) at Carrizo Plain National Monument. The Urban Wildlands Group, Los Angeles, California.
- Marty, J.T. 2004. Effects of cattle grazing on diversity in ephemeral wetlands. *Conservation Biology* 19(5): 1626-1632.
- Osborne, K. H. 2005. Report on the status of the euterpe sphinx moth (*Euproserpinus euterpe*) and assessment of habitats on the 660-acre DeLuca property, Walker Basin. Prepared for U.S. Fish and Wildlife Service, SFWO, Sacramento, California dated July 18, 2005. Osborne Biological Consulting. Riverside, California.
- Powell, J. and C. Hogue. 1979. *California insects*. University of California Press, Berkeley, California. 388 pp.
- Photographs: See California Academy of Sciences, Calphoto ID: [9092 3191 3540 0092](#) and [9092 3191 3540 0053](#)

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825
Phone (916) 414-6600
FAX (916) 414-6713

Last updated October 10, 2007