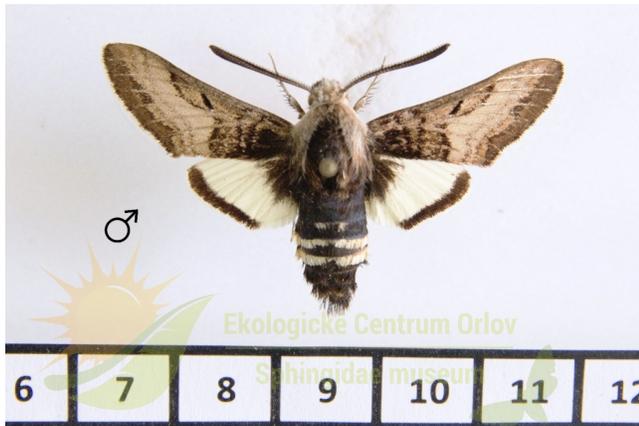


## Euproserpinus wiesti (Prairie Sphinx Moth)



Sperry, 1939



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### Taxonomy

- **Class:** INSECTA
- **Order:** LEPIDOPTERA
- **Family:** SPHINGIDAE
- **Genus:** Euproserpinus
- **Scientific Name:** *Euproserpinus wiesti* Sperry, 1939
- **Common Name:** Prairie Sphinx Moth
- **Synonyms:**
- **Taxonomic Name Source:** Hodges, R.W. et al., eds. 1983. Check List of the Lepidoptera of America North of Mexico. E.W. Classey Limited and The Wedge Entomological Research Foundation, London. 284 pp.

### Agency Status

- **NMDGF:**
- **Federal Status:**
- **BLM Sensitive:**
- **USFS:**
- **IUCN Red List:** [Critically Endangered](#)
- **Nature Serve Global:** [G3](#)
- **NHNM State:** S1
- **NM Endemic:** NO

### Description

The Prairie Sphinx Moth is a medium-sized moth that can be recognized by its long and pointed mottled light gray forewing, and black and white banded hindwing (Crabo *et al.* 2023). The thorax is dark grey and the abdomen is dark grey with a distal white band (Crabo *et al.* 2023). Antennae are long and moderately clubbed (Crabo *et al.* 2023).

### Habitat and Ecology

The Prairie Sphinx Moth is a habitat specialist of high desert dunes and sandy washes (Tuttle 2007). It is adept at surviving in hot and dry conditions and in fact in captivity is sensitive to high humidity (Tuttle 2007). The species is univoltine under favorable conditions and the adults fly from late-April through May in the hotter regions of its range, and from late-May through June in cooler northern Colorado (Tuttle 2007). Adults are diurnal and sun-loving; they bask in sunlight and males are observed flying to find mates when the sun is highest from mid-morning to mid-afternoon,

and do not fly on cloudy days (Tuttle 2007). This species is a pollinator (McIntyre pers. comm. 2010), but its nectar plants are not recorded.

Larvae are known to feed on several species of evening primroses, including Small Evening Primrose (*Oenothera latifolia*) (Tuttle 2007). Early instar larvae are green and inconspicuous, while final (fifth) instar larvae are brown, white, and black patterned with a reduced caudal horn (Tuttle 2007). These mature larvae are observed wandering off their natal plant to find new growth to feed on, and to find suitable sites for pupation in the sand (Tuttle 2007). Pupae have the ability to stay underground in diapause for several years, awaiting sufficient winter rainfall (Rubinoff *et al.* 2015).

## Geographic Range:

*Euproserpinus wiesti* is recorded from scattered occurrences across the western United States, including in Utah, Colorado, Arizona, New Mexico, and northern Texas (Tuttle 2007, GBIF.org 2024). Previously it was thought that similar-looking *Euproserpinus* populations known from northeastern California and western Nevada were also *E. wiesti* (Tuttle 2007), but have since been designated as *E. phaeton* from genetic evidence (Rubinoff *et al.* 2015). There is also a single reported collection from 1956 in Cassia County, Idaho, that closely resembles individuals of the California & Nevada populations and therefore is very likely also *E. phaeton* (Crabo *et al.* 2023).

## Conservation Considerations:

The Prairie Sphinx Moth is recorded present from single adult collections in the protected lands of Great Sand Dunes National Park in 1967, and in Grand Staircase-Escalante National Monument in 2001 (GBIF.org 2024). Research is needed to investigate population sizes and fluctuations in response to precipitation. Furthermore, barcode sequencing of *Euproserpinus* species does not always reliably split The Prairie Sphinx Moth from the Phaeton Primrose Sphinx Moth (*E. phaeton*) and the Kern Primrose Sphinx Moth (*E. euterpe*) (Ratnasingham and Hebert 2007). Combined with contentious range data above, this indicates a need for research on species delimitation within the genus. Research is also needed on the current distribution and the impact of ongoing threats.

## Threats:

Historically this species was likely impacted by the loss of high prairie habitats due to agricultural expansion. Threats to current populations may include pesticide spraying to control grasshopper outbreaks, grazing, habitat loss due to oil and gas development (NatureServe 2024), and increased drought due to climate change.

As average annual drought and heat conditions in the southwest increase in duration and variability, sand that makes up dune ecosystems becomes significantly more mobile, threatening loss of habitat (Bogle *et al.* 2015). Though larvae and adults withstand relatively hot temperatures, eggs may be less resistant to extreme heat, as egg mortality was notably high at a site in 1981, where ground-level temperatures reached up to 54.4°C (130°F) (Tuttle 2007). While this species does have the ability to remain in pupa until optimal winter rainfall occurs (Rubinoff *et al.* 2015), we do not know the maximum diapause time limit of this species and with increasing frequency and variability of droughts throughout the Southwest, this species may not be able to adapt to changing conditions.

Another threat may be competition with sympatric native sphinx moth species. For example, the White-lined Sphinx Moth (*Hyles lineata*) larvae have been observed in such high abundance following wet weather conditions, that they appear to compete with the Prairie Sphinx Moth for primrose host plant resources; furthermore White-lined Sphinx Moth larvae have been observed in the field killing small Prairie Sphinx Moth larvae using their mandibles (Tuttle 2007).

## Population:

The population size and trend are not known for this species, though in the past 20 years, there is only a single public collection record (Rubinoff *et al.* 2015, GBIF.org 2024). Total observations are from 26 occurrences, in about 16 localities, but many areas are not monitored for this species (GBIF.org 2024). They are not commonly collected, and this may partially be attributed to the temperature limitations of humans working on sand dunes in the middle of the day (NatureServe 2023). The ability to remain in pupa until optimal winter rainfall occurs, results in population fluctuating from year to year, and in dry years it can appear that the species is not present (Rubinoff *et al.* 2015). This makes it difficult to monitor populations.

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## More Information

