



**Status:** State endangered

**Global and state rank:** G4/S1

**Family:** Noctuidae (owlet moths)

**Range:** The leadplant flower moth is widespread but local, known from the central and western U.S. and southern provinces of Canada, east to North Carolina and south to Florida (Covell 1984). Records exist for California, Arizona, New Mexico, Nevada, Oklahoma, Kansas, Nebraska, Colorado, North and South Dakota (Opler et al. 2007).

**State distribution:** Known from only one site in southwestern Michigan (St. Joseph County). There is a published record for Newaygo County (Newman and Nielsen 1973) but no actual specimens have been located that confirm this record. These moths are very local and are rarely found a great distance from their larval food plants.

**Recognition:** The leadplant flower moth has a wingspan between 25-28 mm (0.98-1.10 in). The dorsal surface of the **forewing is mottled dark and light purple** with a whitish cast and dark streaks at the outer margin; the dorsal surface of the **hindwing is yellowish with variable dark brown blotches**

(Covell 1984). Ventral surfaces are a mosaic of white, purple, and yellowish brown, with a few scattered black spots. During the day, adults can be found resting on the flowering heads of leadplant (*Amorpha canescens*). The larvae have a buff head and 7 pairs of lateral stripes (Forbes 1954).

**Best survey time:** The single brooded, adult flight period for the leadplant flower moth stretches from late June through late July, with the peak abundance occurring in early July in most years. The best way to survey for this species is by meandering thorough potential habitat while checking leadplant (*Amorpha canescens*) flowers. Another way to survey is by nighttime blacklighting, a technique where a white bed sheet is stretched across two trees or poles and an ultraviolet (and/or mercury vapor) light is used to illuminate the sheet thereby attracting moths to the sheet. Moths can be collected directly from the sheet.

**Habitat:** In Michigan, the leadplant flower moth occurs in very close association with its larval host plant in remnant, dry sand prairies and open oak barrens. These areas are usually dominated by grasses such as little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), needle grass (*Stipa spartea*), and fall witchgrass (*Leptoloma cognatum*). Forbs commonly found in *lucens* habitat include rough



blazing star (*Liatris aspera*), round-headed bush-clover (*Lepedeza capitata*), common spiderwort (*Tradescantia ohioensis*), common milkweed (*Asclepias syriaca*), butterflyweed (*Asclepias tuberosa*) various asters (*Aster* spp.), wild lupine (*Lupinus perennis*), dotted monarda (*Monarda punctata*), tower mustard (*Arabis glabra*), hairy hawkweed (*Hieracium gronovii*), dwarf dandelion (*Krigia virginica*), and blue toadflax (*Linaria canadensis*).

**Biology:** Little is known about the life history of this moth. Larvae feed from May to June on the developing seed heads of their host. The leadplant flower moth has a single generation each year, with adults emerging in late June and July. Adults typically perch on flowers of leadplant where they are well camouflaged. Adults are diurnal but can also be collected at lights during the night. The overwintering stage of this species is not known but is presumed to be a pupa, as is the case with other *Schinia* species (Forbes 1954). The only known location for this moth in Michigan is a tiny prairie remnant along an old railroad line and the habitat has burned several times in the past so either the moth has some adaptation to fire or a portion of the population has escaped the fires in unburned refugia (Evers 1994). I have also collected this species from moderately grazed (unburned) prairie in southeastern North Dakota.

**Conservation/management:** The fact that the moth is known from only one site in Michigan makes habitat protection and enhancement essential to the conservation and long-term survival of the leadplant flower moth. Immediate action should be taken to protect this population from further habitat degradation and loss. Managing the prairie and barrens communities, especially through carefully controlled, prescribed burns, is critical to the long-term survival of the moth. Prior to beginning a burn management program, the location and extent of habitat use of populations of the leadplant flower moth and other rare plant and animal species should be determined. Burn management units should be established with special attention to microgeographic variation in the distribution of rare species and their host plants (Opler 1981). Dividing sites into several management units, burned in a rotation, should assure that a substantial fraction of the population be unexposed to fire in any prescribed burn. For division to be effective, however, actual moth habitat (leadplant

locations) within a site has to be determined so that it will be divided among the units.

**Research needs:** In Michigan the leadplant flower moth is known from only a single location. Furthermore, the moth relies on leadplant, a rare prairie plant which occurs in scattered, small populations throughout southern Michigan. Systematic surveys should be conducted to determine if additional populations of the leadplant flower moth exist in Michigan. At the same time, surveys could help determine the long-term viability of the leadplant itself, as it is suspected that many of the sites are not viable. More life history studies need to be conducted before specific management recommendations can be provided. Studies should focus on larval ecology, population dynamics, dispersal capabilities of adults, and information on habitat requirements other than foodplants. Very site specific studies should look at where the skipper occurs on the site before any burn regimens are implemented. Any information on speed of recolonization after prescribed burns would be useful. More precise information as to what is the overwintering stage and where the pupa/larva overwinter is needed. This information can be used to better time burns or schedule grazing/mowing rotations.

**Related abstracts:** leadplant, oak barrens, oak openings, woodland prairie

### Selected references

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### **Abstract citation**

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