

Arotrura landryorum (Landry's Flower Moth)



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Taxonomy

- **Class:** INSECTA
- **Order:** LEPIDOPTERA
- **Family:** SCYTHRIDIDAE
- **Genus:** Arotrura
- **Scientific Name:** *Arotrura landryorum* Metzler, 2016
- **Common Name:** Landry's Flower Moth
- **Synonyms:**
- **Taxonomic Name Source:** Metzler, E.H. and D. Adamski. 2016. The Lepidoptera of White Sands National Monument, Otero County, New Mexico, USA 11. A new species of *Arotrura* Walsingham 1888 (Scythrididae), another iconic species from the Monument. *Journal of The Lepidopterists' Society* 70(3): 194-200.

Agency Status

- **NMDGF:**
- **Federal Status:**
- **BLM Sensitive:**
- **USFS:**
- **IUCN Red List:** [Not Evaluated](#)
- **Nature Serve Global:** [GNR](#)
- **NHNM State:** S1
- **NM Endemic:** YES

Description

Arotrura landryorum is a small, completely pale yellow-white moth with elongate fringe-like scales on the hindwing and pointed forewings (Metzler 2016).

Habitat and Ecology

This species occurs in the gypsum sand dune ecosystem of the Chihuahuan Desert. Adults are attracted to black light. The larval form and host plant is unknown (Metzler 2016). Scythrididae is a family commonly known as "flower moths" because the majority of species are floral visitors (Travers *et al.* 2011).

Geographic Range:

This moth is only known from the Tularosa Basin of Otero County, in southern New Mexico. So far, it has only been collected in one locality at White Sands National Park (Metzler 2016).

Conservation Considerations:

The majority of gypsum sand habitat in New Mexico is under management by the National Park Service and the US Department of Defense (DOD). This species occurs in White Sands National Park, which is the world's largest white gypsum sand field and completely protected from resource extraction and development (Metzler *et al.* 2009). The neighboring dune area is managed by the DOD White Sands Missile Range, so the degree of disturbance affecting this moth's habitat there is unknown. However, neither site manages habitat for this species specifically. This species is poorly understood. Research on the distribution, population size and trend, habitat and life history, and the impact of threats is needed.

Threats:

This species is endemic to the White Sands gypsum ecosystem. Insect species of the gypsum sands are relatively poorly characterized (Metzler *et al.* 2009), however because of its small range, *Arotrura landryorum* may be highly habitat-specific and adapted to feed on plants of the unique gypsum soils of White Sands (Metzler 2021).

The White Sands dune field is an ecosystem at risk of instability due to extensive groundwater extraction on the eastern edge of the Tularosa Basin. Hydrologic modeling has shown that increased groundwater pumping in response to increased temperatures and drought conditions will lead to water level decreases up to 1.5 meters. The dune field only exists as a permanent landscape feature because the gypsum sands are held in place at the base by water weight wicked up from the ground, so a decrease in water resources could result in increased sand motility, and therefore instability of the interdune habitats where herbivorous insects live (Bourret 2015).

Groundwater extraction is more heavily utilized in periods of drought and increased temperatures. The Southwestern U.S. saw its driest 22-year period from 2000 to 2021, since at least 800 CE (the time period used in previous climatic reconstructions) (Williams *et al.* 2022). Droughts are projected to become more prolonged, severe, and common in the region under future climate change scenarios (USGCRP 2018). In addition to increased groundwater use, drought may impact the species in other ways. Drought has been shown to advanced timing to adulthood has been observed in some butterfly species, which may lead to phenological mismatch with plant resources (Forister *et al.* 2018) and drought may adversely impact larval host plants and nectar sources (Pettorelli *et al.* 2007, Gottfried *et al.* 2012). In addition, endemic species are on average at three times higher risk of extinction from threat of climate change than other native species (Manes *et al.* 2021)

White Sands is also threatened by invasive species, in particular Saltcedar (*Tamarix* spp.), which creeps into the interdune areas where the water table is high and outcompetes native plants while increasing soil salinity (Hager 1998).

Population:

The population size and trend are not known for this species. As it was not described until 2016, and because of lack of survey, it has not been recorded regularly since time of description.

References:

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More Information

