

## Areniscythriss whitesands (White Sands Dune Moth)

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### Taxonomy

- **Class:** INSECTA
- **Order:** LEPIDOPTERA
- **Family:** SCYTHRIDIDAE
- **Genus:** Areniscythriss
- **Scientific Name:** *Areniscythriss whitesands* Metzler & Lightfoot, 2014
- **Common Name:** White Sands Dune Moth
- **Synonyms:**
- **Taxonomic Name Source:** Metzler, E.H. and D.C. Lightfoot. 2014. The Lepidoptera of White Sands National Monument 7: a new species of the genus *Areniscythriss* (Scythruididae), a recently rediscovered iconic species from the Monument. Journal of the Lepidopterists' Society 68(3):185-190.

### Agency Status

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

### Description

*Areniscythriss whitesands* is a small, completely off-white moth (sometimes light gray or tan in color) with elongate fringe-like scales on the hindwing and narrow, pointed forewings (Metzler and Lightfoot 2014). The complete white coloring is common in endemic species from White Sands, and it is theorized that it is a camouflage adaptation to the uniquely light-colored soil (Metzler 2021).

### Habitat and Ecology

This species occurs in the gypsum sand dune ecosystem of the Chihuahuan Desert. This species was found in the daytime resting on the sand surface of dune crests. Though the host plant is unknown, this species was found near

patches of Frosted mint (*Poliomintha incana*) (Metzler and Lightfoot 2014). 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 its type locality, in White Sands National Park, in the Tularosa Basin of Otero County, in southern New Mexico. It was specifically found in association with dune crests, which are poorly surveyed (Metzler and Lightfoot 2014).

## Conservation Considerations:

The majority of gypsum sand habitat in New Mexico, where this species is found, 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). However, this site does not manage 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, *Areniscythis whitesands* 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 2014, and because of lack of survey, it has not been recorded regularly since time of description.

## References:

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## More Information

