Homophylax adriana (Alma Caddisfly)

No Photo Available

Taxonomy

- **Class**: INSECTA
- **Order**: TRICHOPTERA
- **Family**: LIMNEPHILIDAE
- **Genus**: Homophylax
- **Scientific Name**: *Homophylax adriana* Denning, 1964
- **Common Name**: Alma Caddisfly
- **Synonyms**:
- **Taxonomic Name Source**:Clemson University Department of Entomology (J.C. Morse, ed.). 2002. Last Updated 5 September 2006. Trichoptera World Checklist. Online. Available: http://entweb.clemson.edu/database/trichopt/index.htm.

Agency Status

- **NMDGF**:
- **Federal Status**:
- **BLM Sensitive**:
- **USFS**:
- **IUCN Red List**: Not Evaluated
- **Nature Serve Global**: G2
- **NHNM State**: S1
- **NM Endemic**:YES

Description

This species is easiy distinguishable from other species of *Homophylax* due to its many dark stripes on the forewing, the shape of the aedeagus-shiels, the short cerci and other dtails of the genitalia. Males are 18-20mm in length and the general color of the head thorax and appendages is ochraceous. Females are 18-20mm in length and is similar to the male in general appearance (Denning 1964).

Habitat and Ecology

The habitat of the juvenile stages Alma Caddisfly at the type locality is a montane spring (Denning 1964). Little else is known about the ecology of the caddisfly. There is no known information about their case materials or when they emerge as adults, though the holotype was collected in July (Denning 1964). More research is needed on the ecology of this species.

Geographic Range:

The full scope of the Alma Caddisfly's range is unknown. The only occurrence data is from the type collection, which was made in 1961. It was found 18 miles east of Alma, in Bursum Camp, Catron County, New Mexico. It was found at around 2743 m in elevation (Denning 1964).

Conservation Considerations:

There are no known conservation actions in place for this caddisfly. The species was included as a Species of Greatest Conservation Need in the 2005 Comprehensive Wildlife Conservation Strategy for New Mexico, though it has since

been dropped from the list as the state does not have authority to manage most invertebrates species (NMDGF 2006). Research is needed to determine if this species remains extant, where it is distributed, population size and trend, and threats.

Threats:

The threats to this species are not well understood, as little research has been done and the species has not been observed in over 50 years. However, given this species relies on montane springs in the southwestern U.S., it is likely the species may threatened by drought due to climate change, now or in the future, and possibly wildfire as well.

This species depends on spring waters at particular times of year to complete the juvenile stages of its lifecycle (Denning 1964). In the western U.S., rising temperatures and less predictable patterns of precipitation due to climate change, are altering streamflow and groundwater recharge rates (Barnhart *et al.* 2016, Zaremehrjardy *et al*. 2022), potential impacting spring systems. The southwest also saw its driest 22-year period from 2000 to 2021 since at least 800 CE (Williams *et al*. 2022) and droughts are projected to become more prolonged, severe, and common in the region under future climate change scenarios (USGCRP 2018). This may also impact the habitat of this species.

Wildfire may also be a risk, as fires cause a higher thermal maxima and a wider temperature range in surface waters, which has been shown to reduced larval mass, extended instar periods, and reduced mass entering winter dormancy in one caddisfly species, leading to adults with reduced mass (Kremer and Caldwell 2022). This lowering of mass is associated with altered vital rates and can lead to reduced survival and lower fecundity (Kremer and Caldwell 2022).

Population:

The population size and trend are not known for this species. Determination of population size and monitoring of population trends is necessary to ensure the population is stable.

References:

- Barnhart, T.B., Molotch, N.P., Livneh, B., Harpold, A.A., Knowles, J.F., and Schneider, D.. 2016. Snowmelt rate dictates streamflow. *Geophysical Research Letters* 43: (8006-8016). https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2016GL069690
- Williams, A.P., Cook, B.I. and Smerdon, J.E. . 2022. Rapid intensification of the emerging southwestern North American megadrought in 2020â€“2021. *Nature Climate Change* 12: (232-234).
- ITIS. 2024. Integrated Taxonomic Information System (ITIS). 2024. https://www.itis.gov/
- USGCRP. 2018. Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II. *U.S. Global Change Research Program* , Washington, DC, USA : (1515).
- Zaremehrjardy, M., Victor, J., Park, S., Smerdon, B., Alessi, D.S. and Faramarzi, M.. 2022. Assessment of snowmelt and groundwater-surface water dynamics in mountains, foothills, and plains regions in northern latitudes. *Journal of Hydrology* 606. https://www.sciencedirect.com/science/article/abs/pii/S0022169422000245
- Denning, D.G.. 1964. The genus *Homophylax* (Tricoptera: Limnephilidae). *Annals of the Entomological Society of America* 57: (253-260).
- Kremer, L.B., and Caldwell, C.A.. 2022. Wildfire effects on mass and thermal tolerance of *Hydropsyche oslari* (Trichoptera) in southwestern USA montane grassland streams. *Freshwater Science* 41: (62-76).
- New Mexico Department of Game and Fish (NMDGF). 2006. Comprehensive Wildlife Conservation Strategy for New Mexico. New Mexico Department of Game and Fish, Sante Fe, NM . https://bison-m.org/documents/47967_Comprehensive-Wildlife-Conservation-Strategy.pdf

More Information