Hydropsyche vanaca (a net-spinning caddisfly)

No Photo Available

Taxonomy

- **Class**: INSECTA
- **Order**: Trichoptera
- **Family**: Hydropsychidae
- **Genus**: Hydropsyche
- **Scientific Name**: Hydropsyche vanaca Denning, 1965
- **Common Name**: a net-spinning caddisfly
- **Synonyms**:
- **Taxonomic Name Source**:New Hydropsychidae (Trichoptera) D. G. Denning Journal of the Kansas Entomological Society, Vol. 38, No. 1 (Jan., 1965), pp. 75-84 (10 pages)

Agency Status

- **NMDGF**:
- **Federal Status**:
- **BLM Sensitive**:
- **USFS**:
- **IUCN Red List**: Not Evaluated
- **Nature Serve Global**: G1
- **NHNM State**:
- **NM Endemic**:NO

Description

Habitat and Ecology

The Taos Caddisfly uses montane stream for habitat during the early stages of their lifecycle before emerging (Denning 1965). Not much is known about the ecology of the caddisfly, there is no known information about their case materials or when they emerge into adulthood, however the holotype was collected on June 24 (Denning 1965) and has been found on August 9 in Colorado (GBIF.org 2025). More research is needed on the ecology of this species.

Geographic Range:

The full scope of the Taos Caddisfly's range is unknown but is thought to include the entire Sangre De Cristo mountains (Denning 1965, GBIF.org 2025). The only occurrence data comes from two locations, one in Colorado and one in New Mexico. Both occurrence locations are within the Sangre De Cristo mountains. In New Mexico it is only known from the type collection, which was collected in 1949. It was found by a stream in the Sangre De Cristo mountains near Taos, New Mexico (Denning 1965). The other occurrences came from 2007 in Colorado, it was found near a pond in North Santa Clara Creek (GBIF 2024).

Conservation Considerations:

There are no known active range-wide conservation actions in place for this caddisfly. The caddisfly was given the rank of "Critically Imperiled" in a 2005 NatureServe assessment (NatureServe 2024). The species was petitioned for listing on the United States' Endangered Species List in 2007 but was not listed (USFWS 2025).

Threats:

This caddisfly's range includes the Southwestern United States. which 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) and droughts are projected to become more prolonged, severe, and common in the region under future climate change scenarios (USGCRP 2018). Drought conditions over the last few years have severely limited food and resources (Hughes 2020) and environmental stochasticity, especially variation in plant quantity, quality, and phenology (Ehrlich and Murphy 1987). Another threat facing this caddisfly is catastrophic fire or lack of fire. The impacts of fire on t2his species may depend on the intensity and size of the fire, as well as seasonal timing (USFWS et al. 2004). With population numbers in small areas one fire, controlled or wild, could wipe out a large percentage of this species (Cary et al. 2004, Wasserman et. al 2023). On the other hand, with no fire this habitat may grow senescent or be succeeded which will also drive the taxa towards potential extinction (Cary et al. 2004, Wasserman et. al 2023). The impacts of land use on fire intensity and spread may also be consequential. For example, grazing may temper a fire, as grazed meadows carry less fuel load, but the presence of some invasive grasses which are more abundant in grazed areas, such as Cheatgrass (Bromus tectorum), may cause more frequent fires due to invasive grasses adding novel and continuous fuels (USFWS Et al. 2004, Fusco et al. 2019). Research in Kremer and Caldwell (2022) showed wildfires also affect the mass and temperature resiliency of caddisfly instars in southwest United States montane grassland streams. They studied the Oslar's Net-spinning Caddisfly (Hydropsyche oslari), a generalist caddisfly using montane streams in New Mexico. Wildfires affect the thermal maxima and temperature range of montane streams (Kremer and Caldwell 2022), streams with a higher thermal maxima and a wider temperature range led to reduced mass as larvae, extended instar periods, and reduced mass entering winter dormancy which leads to adults with reduced mass (Kremer and Caldwell 2022). This lowering of mass is associated with altering other vital rates and can lead to reduced survival and lower fecundity (Ruel and Ayres 1999, Angilletta 2009, Dallas and Ross-Gillespie 2015, Kremer and Caldwell 2022), this could alter benthic assemblage structure and function (Kremer and Caldwell 2022). Additionally. catastrophic fires leave the soil with burn scars that create a hydrophobic layer that makes an affected area more susceptible to flash floods (NOAA 2024). In the larval and pupal stages of life the Cadisfly makes use of streams (Denning 1964). These Riparian habitats are threatened by drought, riparian corridor severance, damage due to cattle grazing, and hydrological modification for farming, ranching, and industry. In Arizona, for example, From the 1780s to the 1980s, an estimated 36% of wetlands were lost (Dahl 1990), largely due to increased demand for water from agriculture, urbanization, and industry (Fretwell et al. 1996). Many of the major rivers have been dammed, diverted, or otherwise modified and many perennial streams and wetlands have been lost due to groundwater drawdown of aquifers and altered hydrology of drainages (Fretwell et al. 1996). Lastly, occurring in just two locations (Denning 1965) leaves the species vulnerable to more stochastic events. Spending the first stages of their life as an aquatic species leaves them with limited mobility, exposing them to environmental stochastic events such as wildfires and predation. More research is needed on the threats to this caddisfly.

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.

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More Information