

***Sericostriata surdickae* (Wiggins, Weaver and Unzicker 1995)**  
**A northern Rocky Mountain Refugium caddisfly**  
**Trichoptera: Uenoidae**

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**SUMMARY**

*Sericostriata surdickae* is a tube-case making caddisfly endemic to Montana and Idaho. It is known from about 9 counties in these states, primarily in the border region between Montana and Idaho known as the Northern Rocky Mountain Refugium. Larvae of this species inhabit the upper surface of rocks in cold, fast-flowing perennial mountain streams. Water quality degradation and stream alteration as the result of heavy recreational use, logging, road construction, and water development may threaten *S. surdickae* habitat. Global climate change could also threaten this species' habitat in the long-term. Research should focus on understanding the biology of this species, establishing the distribution and population size, and implementing effective habitat management.

**CONSERVATION STATUS**

**Rankings:**

Canada – Species at Risk Act: N/A

Canada – provincial status: N/A

Mexico: N/A

USA – Endangered Species Act: N/A

USA – state status: Montana SNR Unranked; Idaho Not assessed

NatureServe: G1G3 Imperiled

IUCN Red List: N/A

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**SPECIES PROFILE**

**DESCRIPTION**

*Sericostriata surdickae* is a caddisfly in the family Uenoidae (uenoid case-makers). The larvae of *S. surdickae* occur on the upper surfaces of rocks in cold, fast-flowing, high-gradient mountain streams, primarily in the Idaho-Montana boundary area known as the Northern Rocky Mountain Refugium. Larvae reach 6 – 8 mm (0.2 – 0.3 inches) in length, and construct portable cases from dark, tough silk that resemble a curved tube, slightly tapered at one end. The cases of *Sericostriata* larvae are distinctive due to the presence of thin ridges that run the length of the case, and a transverse light-and-dark banding pattern resulting from slight color differences in the silk used during each episode of case-building (Wiggins *et al.* 1985; Wiggins 1996). The

unique cases, along with aspects of the thoracic segment appearance, make *S. surdickae* easily distinguished from other genera in this family.

Adult *S. surdickae* can be distinguished from members of related genera based on characteristics of the ocelli, wing veins, antennae, and genitalia.

### **TAXONOMIC STATUS**

*Sericostriata surdickae* Wiggins, Weaver, and Unzicker. The taxonomic status of this species is accepted as valid. *Sericostriata* is a monotypic genus, i.e. *S. surdickae* is the only species in the genus. The genus name reflects the distinctive ridged or striped appearance of the larval case.

### **LIFE HISTORY**

Like many members of the family Uenoidae, larvae of *S. surdickae* require cold, fast-flowing streams. *S. surdickae* larvae occur on the upper surfaces of rocks in rapid, cold mountain streams, especially in the steep wet or splash zones (hygropteric zone), and are often found in aggregates. Larval feeding behavior has not been examined in detail, but members of this family are considered to be scrapers and collector-gatherers of organic detritus, algae, and diatoms. Adults, are also known as little dark sedges, emerge from mid-July to mid-August. Because adults, pupae, and early instar larvae have all been collected at the same time, it is thought that completion of their life cycle may require two years (Wiggins *et al.* 1985).

### **DISTRIBUTION**

*Sericostriata surdickae* is endemic to in Idaho and Montana. It inhabits high elevation, steep gradient, forested-headwater streams, primarily in the region of the Northern Rocky Mountain Refugium, which is a mountainous, forested area around the Idaho-Montana border that was not affected by ice sheets from the north during glacial periods or by lava flows from eruptions to the south and west. In Montana, *S. surdickae* has been reported from Missoula, Mineral, Ravalli, and Sanders Counties, which share the Idaho border, and the adjacent Granite and Powell counties in southwest Montana. *S. surdickae* has been reported from several counties in west-central Idaho including Idaho and Lemhi Counties, which share the Montana border, and Custer, Adams, Blaine, Boise, Valley and Elmore Counties, which are further south.

### **THREATS**

Most known sites where *S. surdickae* occurs are on public lands in the Clearwater, Salmon-Challis, and Lolo National Forests. These areas are subject to heavy recreational use as well as logging activities, road construction, aerial application of fire retardant, and water developments. The impacts of large numbers of people engaging in camping, hiking, driving, fishing, rafting, snowmobiling, mountain biking, boating and hunting in the area could negatively impact *S. surdickae* habitat. Unauthorized off-road vehicle (ORV) use could seriously damage riparian areas and stream bank integrity. The water quality in the cold, clear, fast streams that this caddisfly requires could be altered or impaired by a variety of factors related to logging and roads, including warmed and polluted runoff from roads and highways; increased sedimentation and habitat degradation from logging waste, prescribed burns, and logging roads in the watershed; and contamination from fire retardant.

The Western Airborne Contaminants Assessment Project (2008), which examined levels of 100 different contaminants in the ecosystems of 20 national parks, found 70 at detectable levels in

snow, water, lake sediment, vegetation, and fish in these parks, and indicated that parks at higher elevations and in colder climates are at higher risk. Many of the contaminants studied occurred at high levels in fish, including the potent insecticides Dieldrin and DDT, suggesting that freshwater habitats in remote areas such as the Northern Rocky Mountain Refugium are at risk.

Global climate change could also pose a long-term threat to *S. surdickae*. Assessment of climate change trends in North America has already revealed changes in precipitation patterns, stream hydrology, and plant bloom time. Overall, annual mean air temperature increased in North America from 1955-2005, and total annual flow has decreased in many streams in the central Rocky Mountain region throughout the past century at an average rate of 0.2%/year (Rood *et al.* 2005). The effects of global climate change are projected to include warming in the western mountains, causing snowpack and ice to melt earlier in the season (Field *et al.* 2007). This could lead to increased flooding early in the spring and drier summer conditions, particularly in arid western areas where snowmelt sustains stream flows. Spring and summer snow cover has already been documented as decreasing in the western United States, and drought has become more frequent and intense (Intergovernmental Panel on Climate Change 2007). Floods and droughts are projected to increase in frequency and intensity; erosion is also projected to increase due to decreased soil stability from higher temperatures and reduced soil moisture, and increases in winds and high intensity storms. As a species that requires cold, clear, fast-running streams, the survival of *S. surdickae* could be threatened by habitat impairment due to global warming, including increased frequency and severity of seasonal flooding and droughts, reduced snowpack to feed stream flow, increased erosion and siltation, and increasing air and water temperatures.

#### **CONSERVATION STATUS**

*S. surdickae* currently receives no federal protection. It is a U.S. Forest Service Region 1 Species of Concern (SOC).

#### **CONSERVATION NEEDS**

Additional surveys are needed to identify potential new populations of *S. surdickae*, establish the range of this species, and assess population abundance and stability at existing sites.

#### **RESEARCH NEEDS**

Little is known about the biology of this species. Research into life history and habitat management in the area would be valuable.

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## **RESOURCES**

#### **CONTACTS**

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#### **WEBSITES**

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