

BOGDIVERSITY THURSDAY



—*from Head Naturalist Clinton*

Caddisflies

POST #58—February 2, 2023

Bogs are wet habitats. However, not all water is created equal! Some species of aquatic insects thrive in the somewhat acidic conditions found in bogs, where others thrive in the lakes, rivers, and streams scattered around the greater Sax-Zim Bog ecosystem. While today's featured group of species may not be enjoyed until the Spring and Summer, they are part of an interesting cohort of aquatic insects. Today, let's take a look at Caddisflies!

Caddisflies are a really cool group of aquatic macroinvertebrates. Their larvae have diverse life history notes, the adults can be quite beautiful, and caddisflies are great indicators of high water quality. Evolutionarily, caddisflies are closely related to moths. This may be a surprise to read, as other familiar aquatic macroinvertebrates, like stoneflies and mayflies, are quite closely related to one another, but only distantly related to caddisflies. If you look closely at caddisflies, you can see the similarities between them and moths. Their mouth parts are very similar to moths and most adult caddisflies have reduced mouthparts. The wings of caddisflies are similar to moths as well, as both species

may hold their wings above their bodies when at rest. However, if you look closely at their wings, moths have scales covering their wings, where caddisflies have hairs covering their wings.

Adult and larval caddisflies are very hard to identify, but are quite easy to sort into related groups. Caddisfly larvae can be sorted easily by their "homes." Most caddisfly larvae create a structure that surrounds their soft bodies called a case. Some cases are made with small pebbles, woody debris, or even leaves. However, not all caddisfly larvae utilize this strategy for protection and camouflage. Net-spinning caddisfly larvae live in fast water and spin silken nets to help capture prey and help them hold on to slick rocks in fast current. There are also caddisflies that do not build a case or spin a silken web. These "free-living" caddisflies stick close to rocks for protection.

The diversity of caddisflies in the Northwoods is quite high, with over 1500 species found in the region. So far, only 35 species of caddisfly have been identified in our area. Though a small number compared to the total diversity of the region, caddisflies make up 1/4 of the diversity of aquatic macroinvertebrates documented so far in the Sax-Zim Bog! Minnesota is also home to the Headwaters Caddisfly, which is a winter active, near endemic species to our state and can be found on top of the snow during mid-winter.

If you are hoping to find or document caddisfly diversity, adults are attracted to lights (both white and UV-light). However, the easiest way to document caddisfly diversity is through seeking out larval caddisflies in water! The species featured in the photos

below show the wide range of shapes, patterns, and colors that can be found in these relatively abundant aquatic macroinvertebrates.

More information included in the photos below!

(Photos by Head Naturalist Clinton)



Zebra Caddisfly certainly lives up to its name! It is one of the more heavily marked species of caddisfly in our area.



This caddisfly shows the extreme end of body shape and antennae length! This is a species likely in the genus *Triaenodes*.



A really lovely caddisfly, this is *Nectopsyche exquisita*. It looks very similar to moths in the genus *Coleophora*.



A pretty common species at moth lights, this is *Limnephilus ornatus*.



One of the larger species of caddisfly we have observed, this specimen is in the genus *Pycnopsyche*. It is about as long as your thumb!