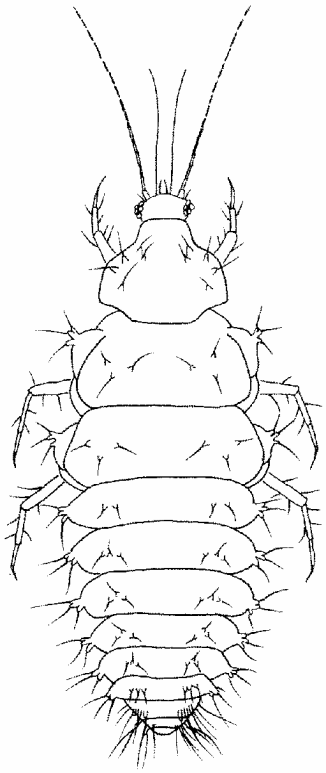
CHAPTER 9

NEUROPTERA
(Spongillaflies)



Citation:

Bouchard, R.W., Jr. 2004. Guide to aquatic macroinvertebrates of the Upper Midwest. Water Resources Center, University of Minnesota, St. Paul, MN. 208 pp.

9 ORDER NEUROPTERA
Spongillaflies

There is only a single family of aquatic Neuroptera represented by the Sisyridae. The larvae of these insects are associated with freshwater sponges. Using their elongated mouthparts they pierce sponge cells and suck the fluids from the sponge. In addition to their interesting feeding habits, spongillaflies also have a fascinating life history.

The eggs are laid on an object overhanging the water such as the underside of a leaf. When the larva hatches from the egg it drops into the water and is planktonic until it finds a sponge host. Once it locates a sponge, the larva begins to feed and will remain with the sponge for the rest of its larval stage unless the sponge dies. When the larva is ready to pupate, it leaves the water and crawls up to 16 m from the water. Once a suitable site has been selected, the larva spins a cocoon and pupates inside. After 5-6 days the adult emerges from the cocoon.

Neuroptera Morphology

The most diagnostic characteristic of spongillaflies is the presence of elongated jaws modified into unsegmented stylets (Fig. 9.1). For other characteristics see the family description.

Neuroptera Family Descriptions

Sisyridae

Common Name: Spongillaflies
Feeding Group: Piercers
Tolerance Value: Undetermined
Habitat: Spongillafly larvae occur in lotic and lentic habitats where freshwater sponges are found. They are found on the outside or in the canals of sponges.
Size: Small (5 mm)
Characteristics: Antennae long and multisegmented (longer than jaws); jaws long and needle-like; body covered in long setae; single tarsal claw at the end of each leg; thoracic and abdominal segments each with a pair of sclerites (hardened plates); abdominal segments 1-7 with lateral tubercles bearing long setae; abdominal segment 8 with two pairs of lateral tubercles bearing long setae.
Notes: Spongillaflies are an interesting group due to the dependence of the larvae on freshwater sponges for nourishment.

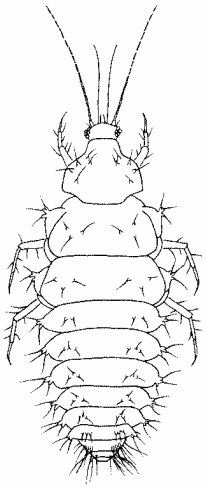


Figure 9.1: *Climacia areolaris* (Sisyridae) larva, Dorsal View.