

# The Outside Story



## The Curious Case of the Cute “Face” Crane Fly By: Declan McCabe

An email chirped in my inbox; “Check out the cute face on this insect we found.” I opened the attachment (yes, from a reliable source). My colleague Professor Peter Hope had taken a spectacular photograph through his microscope. The larva in question had fallen into a pit trap set by our first-year Saint Michael’s College students in Camp Johnson in Colchester.

The ‘face’ seemed to have two very circular black eyes, a downturned smile, and a wild cartoonish hairstyle sprouting from lobes radiating in five directions. My esteemed colleague, a gifted botanist, had photographed the rear end of a crane fly larva. In fairness, any reasonable person might have made this mistake, especially because the front of the insect doesn’t look like a front, its head pulled so far back into the body as to be invisible.

More than 14,000 crane fly species make up the family *Tipulidae*, the largest true fly family. They are often called “daddy long leg flies” because the larger species, with three-inch wing spans, sport spectacularly long legs. When I’m asked to identify a “huge mosquito,” the answer is usually “crane fly.” Smaller species, as little as an eighth of an inch in length, more easily escape notice.

Summer flying adult crane flies are fascinating, but much important biology happens during larval stages, which can be as short as six weeks or as long as five years depending on the species. Aquatic larvae continue to grow throughout the winter, feasting away in cold temperatures that put many of their fish predators in a torpor.

Students collecting river and stream samples are always impressed when their nets yield insects the size and shape of pinky fingers. Innards visible through translucent skin add to the fascination, or to the ick factor, depending on the student’s viewpoint. These are the larvae of large crane fly species, and they are often found in streambeds, where they consume submerged leaves. Smaller crane flies, in the genus *Antocha*, fasten silk homes to submerged rocks and are far less conspicuous. Although small, they gather and consume large quantities of organic debris, and collectively can help to improve water quality. Regardless of their food source, crane flies in or near water risk becoming fish food and are of interest to anglers who, as described in Thomas Ames’ book *Fishbugs*, tie “gangle-leg” flies to mimic the adult form.

Fish are by no means the only predators pursuing crane flies. Amphibians and reptiles also partake in the tipulid feast. A study in New Hampshire revealed that the adults are common menu items for little brown bats. Barn swallows and other birds also frequently snack on these insects. Crane flies are among the largest insects eaten by some species of swift (first cousins of swallows), making them a most valuable prey item during the nesting season.

Although crane fly larvae are best known as aquatic insects, there are also terrestrial species that occupy habitats from tundra to desert. For example, a type of crane fly larvae dubbed “leatherjackets” cause yellowing and bald patches in European lawns by devouring both roots and grass blades.

Unfortunately, two European leatherjacket species have been detected in central New York and in Long Island and may well munch their way through the Northeast in coming years. These new pests have also been in Ontario since the 1990s. According to Pam Charbonneau of the Ontario Ministry of Agriculture, Food, and Rural Affairs, starlings and skunks do additional lawn damage in search of the juicy little moveable feasts. Large numbers of the larvae are sometimes forced to the surface after heavy rain and might be a gardener’s first clue to the cause of their yellowed lawn.

Regardless of habitat or food habits, crane fly larvae tend to have distinctive “facial” features on their rear ends. (To help students instantly identify the larvae, a grad school colleague liked to say “tipulids have

traces of faces round their anus”). The dark “eyes” are in fact spiracles, or the openings to the insect’s respiratory system. The mane-like lobes that surround the spiracles, or form a crown shape, are prehensile in some species and used for movement and other functions. One aquatic species uses water repellent hairs on its lobes to contain a buoyant cup of air that suspends the larva from the water surface while also facilitating respiration.

While preparing an insect ID cheat sheet, I recently asked Professor Hope to resend me the photograph as an example for students. This time the subject line read “Fly butt photograph.” It seems that Peter is learning his insects faster than I’m learning my plants.

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