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ADULT STAGES OF SOME COMMON AQUATIC INSECTS

by

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In the May issue of Michigan Conservation the writer attempted to give some hints on how to recognize a few of the commoner insect nymphs and larvae inhabiting our trout streams. The present article is an endeavor to link those immature stages with the adult insects into which they transform.

The common names assigned to the adult stages of many of our aquatic insects are familiar to all sportsmen and Nature lovers. These common names, however, are frequently misapplied. The large ephemerid mayfly which occurs in great numbers on our larger rivers is in some sections known as a "caddis" and in others as a "fish fly." Both these latter names properly belong to two very different insects. The large two-winged insect which is sometimes seen skimming along over the water in erratic flight, now and then striking the surface with the tip of its abdomen, is a crane-fly; but it shares with the dragonfly the appellation of "mosquito-hawk." It is sometimes called "daddy-long-legs", a term also applied by many to the malodorous harvestman, which is not an insect at all, but a close relative of the spiders. The highly predaceous dragonfly, in addition to its well-merited alias of "mosquito-hawk", is also known to some as a "Devil's darning needle"; but others apply this name to the weird walking-stick insects which, like the daughter in the jingle, "don't go near the water." For each of the more familiar groups of aquatic insects, however, there is a common name which is quite generally recognized and accepted.

One of the smaller aquatic members of the order Neuroptera is the smoky alder-fly. This name was assigned to it many years ago by British anglers, due to its habit of perching, often in great numbers, in the alders along streams whose waters supported it during its larval stages. It is a very dusky insect, almost black in color, and devoid of lighter markings. Once recognized it is not easily confused with any other insect. There are some very superficial resemblances to certain of the larger stoneflies; but the wings of the latter always fold flat over the insect's back, while the wings of the alderfly are dilated along the inner margins, giving it a definitely hump-backed appearance when at rest. It is most commonly encountered along stream banks adjoining relatively quiet stretches of water. In northern Michigan, the peak of abundance seems to be reached about the first week of July.

A larger representative of this order is the fishfly, whose larva is ^{the} well-known "hellgrammite." There are several species of fishflies in this state, but only one (Fig. 1) is of common occurrence along trout streams. During its emergence period, large numbers of specimens may be seen resting on streamside vegetation, particularly among tall grass tufts. Neither fishflies nor alderflies appear to play much part in the diet of trout, although they are often taken during their larval stages.

The order Ephemeroptera includes the mayflies, prime stimulators of "rises." They are one of the three most important groups of aquatic insects in the dietary of trout, and are frequently of considerable importance in that of lake fishes as well. Famed since times of antiquity for their fleeting life, adult mayflies live only long enough to reproduce their kind. Their mouth-parts are atrophied, their alimentary tract functional only as a balloon to aid in buoying them up on the surface of the water. In their life-history there is one peculiarity which sets them off from all other insects: after emerging from the nymphal skin with functional wings, they fly away to shelter to undergo an additional molt. Technically, the first post-nymphal stage is known as the "subimago", the last as the "imago." Trout fishermen refer to them as "duns" during the first stage, as "spinners" during the last. In the final stage the legs are longer and the wings more transparent than during the first.

Fishermen generally recognize mayflies as such. In certain sections, however, misleading names are occasionally applied. This is especially true along some of the larger rivers, such as the Pere Marquette and Main Au Sable, where adults of the large burrowing mayflies are often referred to as "caddis." Although mayflies range in size from the tiny Caenis, with a wing spread of about a quarter of an inch, to the large Hexagenia (Fig. 2) and Ephemera whose wings may spread almost two inches, their wings are always membranous, and they possess two or three long tails. True caddisflies possess long antennae, but have no tails and their wings are covered with fine, powdery scales like those of a moth. In rest, the wings of the caddisfly are folded flat over the back like a moth's, while the mayfly holds the wings erect like a butterfly's.

Dragonflies and damselflies, members of the order Odonata, are almost always recognized as such by sportsmen. As has been stated above, dragonflies are locally known as "snake-feeders", "devil's-darning-needles", and "horse-stingers", but the damselflies (Fig. 3) seem to have acquired no alias, probably because they are not so striking in appearance as their larger relatives. Few insects can compare with the dragonfly for sheer grace and beauty. His trim, armor-plated body, bedizened with jewel-like colors and supported by long, powerful wings, seem fitting to his position of lordship over the lesser insects. The rapacity of the dragonfly is almost incredible. An Australian student once snipped off a dragonfly's abdomen, and offered it to the insect's head. With great nonchalance and a fine appetite, it proceeded to devour its own abdomen.

Dragonflies are seldom encountered when examining the stomach contents of game fish. Damselflies occur more frequently, and the nymphal stages of both are found even more often. Nymphs of a few of the largest species of dragonflies have been known to eat young fish fry in hatchery ponds, although this form of predation is probably of rare occurrence under natural conditions. Odonata prey chiefly upon other insects, both as nymphs and as adults.

Stoneflies, or Plecoptera, are often of considerable importance as trout food during their immature stages. As adults, however, their tendency to seek the shelter

of streamside vegetation renders them less available to trout. Many of our species emerge quietly, and attract little attention from surface-feeding fish. A few species, of which Neophasganophora capitata (Fig. 4) is one, do at times emerge in great numbers, constituting definite "hatches", to which trout respond as well as to a mayfly "hatch."

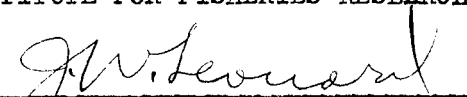
Caddisflies have certain obvious characteristics which set them off at once from all other aquatic insects. Their ordinal name, Trichoptera, means "hairy-winged", and is justified by the fact that their wings are covered with minute scales, similar to those of a moth. Their antennae are usually quite long, often longer than their body. They do not possess the long tails characteristic of mayflies. They are of very great importance in the diet of trout, especially as larvae.

The order of the true flies, Diptera, contains the midges, or Chironomidae, which rate with the mayflies and caddisflies in importance as trout food. Midges have but one pair of wings. They resemble mosquitoes, but do not bite. Their antennae are frequently plumose, -- shaped like tiny feathers. Light attracts them, and window screens are often covered with them at night. Sometimes along lakes their dead bodies are cast up in veritable windrows, two or three inches wide and several hundred yards long.

Craneflies also belong to the Diptera. There are a great many species in Michigan, ranging in size from tiny individuals only a few millimeters in length to the huge members of the genus Tipula whose bodies may attain a length of one and one-half inches. They often attract attention because of their long, awkward-appearing legs, which readily break loose from the body. Although craneflies are of common occurrence in aquatic situations they seldom occur in sufficiently large numbers to make them important as a fish food.

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