

Michael Hubbard

THE FOOD HABITS OF THE NYMPH OF THE MAYFLY SIPHLONURUS OCCIDENTALIS

George F. Edmunds, Jr.
University of Utah

THE nymphs of the mayfly genus *Siphonurus* have generalized chewing mouth parts with robust mandibles with well developed molar surfaces. No specific nymphal food habit studies have been reported, but the structure of the mouth parts has suggested that they are vegetarians.

In the late spring of 1959 a single nymph of *Siphonurus occidentalis* Eaton was left in a jar of mosquito larvae being reared by L. T. Nielsen. After a large number of mosquito larvae disappeared from the culture, the nymph was turned over to me. A dozen third or fourth instar larvae were placed in the jar with the nymph and the supply replenished daily. These continued to disappear at the rate of three to six per day, but the nymph was never observed in the act of catching or eating larvae. Larvae feeding on the bottom were often approached by the nymph, but it was never seen to stalk the mosquito larvae in the manner in which dragonfly nymphs do.

To check the feeding reaction of the nymph a mosquito larvae was stunned by pinching the thorax with forceps. The crippled larva dropped to the bottom of the jar where it was actively wriggling; the mayfly nymph walked slowly in the direction of the mosquito larvae and with a final one-half-inch rush seized the larvae. The larva was consumed in about 10 seconds. During the next few days the experiment was repeated 6 times with comparable results. Mosquito larvae which were killed and dropped to the bottom were not readily located by the mayfly, but were readily eaten when, apparently, they were encountered accidentally.

The nymphs of *S. occidentalis* are commonly found in lakes, ponds, and pools which are, or were, connected to running water. They may also occur in streams, particularly at the edges or in heavy vegetation, where they are presumably not subject to predation by fish. Many times *S. occidentalis* nymphs occur in the same pools with mosquito larvae.

During August 1959, a pool at the side of the Lamar River in Yellowstone National Park, Wyoming, was found to contain hundreds of *S. occidentalis* nymphs. No mosquitoes were present in the pool, and no algae was visible. The sandy bottom of the pool was

covered with stream worn fragments of higher plants with many tube-dwelling chironomid larvae present. Smears of the digestive contents of about 20 *S. occidentalis* nymphs revealed a mixture of sand, plant remains, and chironomid larvae. The tubiculous chironomids would not seem to be detected by the mayfly nymphs but are merely ingested during general feeding as the *Siphonurus* nymphs pick up material from the bottom of the pool.

It appears that the nymphs of *Siphonurus occidentalis* are omnivorous, feeding on plant and insect remains, and capturing slow moving soft-bodied bottom-feeding insects whenever they get the opportunity. They have not been seen, however, feeding on filamentous algae supplied to them in an aquarium. These mayfly nymphs are frequently abundant in the same pools with montane or northern mosquitoes so it is suggested that their role as mosquito predators is worthy of more study.