



Drifting Mayflies

FLY FISHING, IT SEEMS, attracts contemplators. To participate in the sport requires more than just passive interest. And slow fishing, white noise, and secluded streams are fine settings for deliberation.

I recently had such a phase while drifting a homemade imitation of a mayfly nymph in an unrenowned brook in the Rocky Mountains. I wondered, why do mayflies drift? Is it for fun? Are they looking for food, isolation, mates? I thought of many possibilities, and after thoroughly confounding my brain (and catching a couple of brookies), I went to the library to find the explanation.

Here are some pertinent facts. Most of a mayfly's life is spent as a nymph that feeds on algae that grows on top of submerged rocks, logs, and other objects. Stoneflies and fish, in turn, feed upon mayflies. Stoneflies catch the nymphs when they are crawling on objects. Fish catch them when they are drifting downstream.

And, thus, one reason I was confused: If mayfly nymphs just become fish bait when drifting and they can obtain food by crawling to it, why do they drift? In some scientific journals I found three possible answers: (1) Perhaps the current knocks them off the rock they are on; (2) possibly they are escaping from an attacking stonefly; (3) maybe they're looking for greener pastures.

Why nymphs drift at night

CHESTER ANDERSON

Let's look at number one first. Because the mayflies' food grows on top of submerged rocks and the like, the mayflies, while grazing, may simply be swept off their claws (feet) and into the drift.

Because seeing whether or not mayflies slip is rather difficult, an expert, Dr. Dave Allan of the University of Maryland, instead looked at when mayflies drifted and when they fed to see if these times coincided.

Dr. Allan and his assistants watched mayflies in calm sections of a stream for several 24-hour periods. At night they used dim red lights so as not to disturb the insects. They found that mayflies fed mostly in the midafternoon.

Did this coincide with the hour of drifting? No. By setting nets in streams, Dr. Allan found that most mayflies drifted just after dusk. This refuted hypothesis number one: that the current knocked them off the object they were on.

One down and two and three left to evaluate. To remind you (and me), they are: Do mayflies drift to get away from an attacking stonefly, and do they drift to find more food? To answer the predator attack theory, the researchers had to know whether or not mayflies drifted to avoid being eaten by stoneflies and when stoneflies fed most often on mayflies (to see if this coincided with drifting time).

The researchers, Lynda Corkum and P. J. Pointing, discovered in their artificial streams that stoneflies fed on mayfly nymphs both night and day. They also found that the mayflies drifted more when stoneflies were present in the artificial streams than when they were absent. Even then, most of the mayflies waited until dark to drift.

These discoveries confirmed the hypothesis that mayflies did (at least in the dark) drift to avoid becoming stonefly rations, but they say nothing about whether or not mayflies also drifted to find more food.

The answer to the third question came from Dr. Steve Kohler. He found that the mayfly *Baetis tricaudatus* drifted very little when its food supply was abundant and much more when its food was scarce, supporting hypothesis number three.

So, two of our three possible answers appear to be correct: Mayflies may not be finding enough food, so

when it gets dark they enter the drift to find greener rocks. Also, carnivorous stoneflies attack mayflies, which then let go (especially if it's dark) and enter the drift to avoid becoming stonefly food.

But why wait until dark, when the insects are supposedly looking for food?

Three researchers, T. J. Elliot, Jim Jenkins, and Dave Allan, looked at this question in three different streams where, respectively, brown, rainbow, and brook trout were the predators.

By placing nets in the streams at intervals throughout several 24-hour periods, these researchers captured the insects that were drifting. At the same time the nets were out, they caught fish with electroshocking equipment (catching them on flies might have biased the data). Then, by comparing what species of mayfly and how many were caught in the nets to the kind and numbers found in the trouts' stomachs, the researchers could see whether or not the fish selected some species more than others. Also, by periodically looking into the trouts' stomachs, the researchers could find out when the trout were feeding.

A trio of interesting results was found: The trout fed primarily in the daytime; they had no preference for a particular species but did prefer larger nymphs over smaller ones; and the experimenters caught larger insects more at night than during the day in proportion to the number of little insects caught at these times. In other words, as the nymphs grew so did their preference for nighttime drifting.

We can sympathize with a trout's preference for daytime feeding, because they feed mostly by eyesight. It is also understandable why fish would select big bugs over little ones: Big ones are easier to see and they make a better meal for the effort. And when we examine the third result, in light of the first two, we find the answer to our question—why do nymphs drift at night?

Because it's safer.

CHESTER ANDERSON is an aquatic ecologist at the Rocky Mountain Biological Laboratory in Gothic, Colorado.

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Continued on page 24

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