The Inconspicuous Caddisfly

The diminutive *Glossosoma* species may seem small and unimportant to us, but they are often abundant and available to trout.

We’ve got overcast skies and clear water, so where are the fish? That’s what I was thinking as I stood knee-deep in the tailout of the riffle. The evening before, I had caught a couple of 10-inch rainbows on a caddisfly-nymph pattern fished deep. But the water seemed to hold more promise than just a couple of small trout. The only signs of insect activity were the small caddisfly adults crawling over the rocks along the bank. I was hoping for a mayfly hatch, but the water flowed peacefully, with no emergence activity to break its smooth surface.

Out of the corner of my eye, I saw the quick flash of a fish below me. I watched intently—nothing. Then I glanced down toward my feet and was greeted with a peculiar sight. A dozen tiny caddisfly pupae were crawling up my waders. Small, dark gray adults flew off, leaving empty pupal cases clinging to my legs like tiny burs stuck to a sock. A hatch was on!

I scanned the water. Still no surface activity, but I did notice a small caddisfly adult skittering across the surface. If fish were feeding, they must have been taking pupae near the bottom. I picked a pupa off my leg and pulled out a fly box full of emerger patterns. The natural was yellowish brown with black wingpads. The closest pattern I had was a size 18 dirty-yellow Soft Hackle. I tied it on, added a small split shot 10 inches up the leader, and cast it up into the riffle.

It drifted seven or eight feet, then zip!, the strike indicator was gone and a 14-inch trout broke the quiet surface, dancing through the riffle. Ah, the joy of success. For the next hour, fish hit that small Soft...
Hackle like there was no tomorrow. In fact, the pattern proved to be effective both mornings and afternoons for the rest of my two-day trip.

When I got home, I took a few specimens I had collected along the river and identified them as Glossosoma velona. Never heard of them? Their common name is turtle-case or saddle-case caddisflies. Still never heard of them? You're not alone. In his book Caddisflies, Gary LaFontaine says this about Glossosoma:

The inconspicuous species of Glossosoma have never been highly rated, even among caddisflies, possibly because they are case makers as larvae and spurious emergers as pupae. They are not particularly prominent as adults either. They are easy to dismiss overall as only a secondary food source for trout, one of little consequence to the fly fisherman.

Such an assessment, however, has been a serious mistake, underestimating one of the most important insects in cool, running waters. Not just among caddisflies, but among the entire fauna in many trout rivers.

With that in mind, I would like to shed some light on these inconspicuous caddisflies.

**Master Builders**

The family Glossosomatidae comprises six genera and 79 species, of which Glossosoma velona is just one. Their common name, turtle-case or saddle-case caddisflies, refers to the turtle-shell-like cases that the larvae construct out of small stones. While easy to overlook, these small, cased larvae are also easy to recognize. Pick up any smooth, softball-size rock from a riffle in a cool mountain stream and you will likely see small, oval, limpet-like clumps of gravel stuck to the rock's surface. Under each of these turtle-like clusters is a glossosomatid larva.

These are primitive caddisflies, meaning they have been around a long time. The rough turtle-shell cases are considered
the earliest attempt at making portable cases by caddisflies. The finely tapered, tubular, sand-and-plant cases of better-known caddisfly larvae are the results of a hundred thousand more years of evolution.

The habitat of glossosomatids is restricted to flowing water, and their greatest abundance occurs in cool, rapid streams of small to moderate size. Herbert Ross in Evolution and Classification of the Mountain Caddisflies, the definitive study of the glossosomatids, states:

Some groups [of Glossosomatidae] such as Agapetus live chiefly in spring-fed rills or brooks; others such as Protoptila and Glossosoma live in cold rapid rivers of moderate size. Both adults and larvae are relatively uniform in appearance throughout the family, but there is a considerable range in size, from Glossosoma species measuring 10 mm in length to some of the smaller Protoptila species, which are less than 3 mm long. This preference for cool mountain streams puts these insects in the very places where trout thrive.

The greatest diversity of species occurs in the western mountains. More than 90 percent of all known species are found from the Rocky Mountains west to the Pacific Coast and from California north to Alaska. But diversity does not necessarily mean abundance. Excellent populations have been documented in many cool trout streams of the Midwest and East. Some species have even adapted to warmer, slower streams. Some species of the genus Protoptila, for example, are found in thermal streams, such as the Firehole.

**Life Cycle**

Behavior of the glossosomatids is similar wherever they are found. The larvae feed by scraping the fine layer of algae, called periphyton, off the surface of smooth rocks. They pull their cases with them, so they are rarely exposed. Like most caddisflies, they must make their cases larger as they grow. Unlike many other cased caddisflies, which simply enlarge their current case, glossosomatids must build a new case each time they molt. During these periods, the larvae abandon their old cases and end up drifting in the current, sometimes in large numbers. More than 1,600 larvae per square meter per hour have been measured in the drift. The stomach contents of trout reflect this behavior.

Once a larva reaches full size, pupation begins. First, the case is securely anchored to the side of a rock in a moderate to swift current. Larvae often seem to congregate at preferred spots, and some rocks become completely encrusted with the pebbled cases of the larvae. After anchoring the case, the larva spins a fine silk cocoon inside and transforms into a pupa.

Pupation takes three to six weeks, after which the pupa breaks out of its case. The pupae are 3 to 10 mm long, with yellowish brown bodies and dark gray or black heads and wingpads. Their hind legs are fringed with fine hairs, making them effective oars, which pupae use to swim with a quick, erratic darting motion. At the surface, the adults struggle out of the pupal shuck, float or run briefly on the surface, and then fly for the safety of the shoreline.

The adults are nervous creatures. If not for their small size and grayish black color, you could see them running and skittering over rocks and shrubs along the bank. After mating, females return to the water to lay their eggs, where they again become vulnerable to hungry trout. On reaching the water, they dive and swim to the bottom, where they paste their eggs to a rock. They then let go and swim back to the surface, where many die—if they’re not eaten first.

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ENTOMOLOGY

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The emergence period for these caddisflies often lasts from four to eight weeks. The specific time of year depends on the species and water conditions. (See the emergence chart on page 16.) In the West, with its diverse populations, a nearly continuous chain of hatches occurs from March through November. June through August appears to be the period of greatest emergence activity in the Midwest and East. A few species have a bimodal emergence, or two hatches per season, with peaks in the spring and fall.

Angling Approaches Fishing success depends on timing and observation, not on being able to identify the specific species occurring in your streams. These small caddisflies go through their entire life cycle unnoticed by most anglers. Even if a fly fisherman sees larvae clustered on a rock or adults skittering over the bank, they don’t register as important to imitate. If I hadn’t seen the pupae crawling up my waders, I would have completely overlooked their emergence, even though I saw numerous adults crawling on the bank.

The behavior of the larvae, pupae, and adults results in all stages being worthy of imitation. The larvae become available to trout during periods of high drift rates, when old cases are left behind to build new ones. As a rule, the greatest growth, and thus drift, of these larvae occurs in the spring and early summer. Gary Lafontaine has this to say about the importance of the larvae:

From May to July...[the dominant species in an area can completely control the day and dusk activity of a stream. The larvae form a food supply in the current that concentrates both forage fish and gamefish in or below riffles that have high populations of the insect.]

Make sure that you have a few larva patterns in your fly box, and give them a try in the spring and early summer where you have confirmed healthy populations of the naturals exist. This is easy to deter-