

On the Southern

MARCH BROWN

Its predictable occurrence makes this mayfly a dependable food for trout and fly selection for anglers.

Written by Matt Green



SOC CLAY



The March brown is easily the most confusing mayfly in all of fly-fishing lore. For nearly a century anglers have been mystified both by its appearance and as to why trout find it so delectable. American fly-fishing legends such as Theodore Gordon, Ray Bergman, Sparse Grey Hackle (Alfred W. Miller), Joan and Lee Wulff and many others spent years of their lives perfecting what we know today as classic March brown imitations for fooling trout.

Early March brown imitations were designed to be distinctly American, that is, more closely resembling the coloration, morphology and emergence behavior of the mayfly species *Maccaffertium vicarium* rather than its closely related English sister species *Rhithrogena germanica*. British wet fly imitations of *Rhithrogena germanica* initiated a wave of American originality in dressing flies for streams in the northeastern United States, particularly in the Catskill Mountain region of upstate New York.

One example, the Quill Gordon, created by the father of American dry-fly fishing, Theodore Gordon, is an early imitation of the March brown mayfly using spun hackle and a quill body. Although originally created to imitate a wide assortment of insects, the Quill Gordon certainly would have fooled any trout taking emerging March browns off of the surface of the Beaverkill River, where the fly was first fished by Gordon himself. Now, in the modern era of fly-fishing, the advent of the selective trout has merited enough reason for fly-fishermen to dig deeper for more imitations of the March brown than just the famed Quill Gordon. The angler must

be keen to imitations that cover all developmental stages from nymph to imago (sexually mature adult), in addition to the multitude of fly patterns that imitate both nymphal and adult behavior pre- and post-emergence.

The March brown is the first major spring aquatic insect emergence in North Carolina's mountain freestone streams, and over time trout have come to depend on its survival and timely development. Months spent searching and dining on the immature stages of chironomid midges, stoneflies and various species of mayflies makes life challenging for trout in the winter, but the convenience of the March brown's clockwork-like emergence in the spring makes winter foraging seem like a distant memory. Trout find the vulnerable March brown mayflies to be filet mignon compared to the meatless midges of winter. Their availability as a "first of the year food source" makes them of extreme importance to anglers who fish freestone streams during the early spring. Therefore, understanding what they look like, their habitat, timing of development and emergence behavior can and should make you a more successful fisherman.

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March Brown Classification, Coloration and Morphology

As a student who studies mayflies for a living, one of the first questions I usually am asked is, what exactly is a mayfly and what does one actually look like? In the past, my initial reaction has always been one of bewilderment, but lately I have come to find that mayflies, of all insects, are one of the least spoken about publically by scientists.

Mayflies belong to an order of insects called the Ephemeroptera, and March browns are in the family Heptageniidae, also known as the flat-headed mayflies. March browns belong to the newly formed species *Maccaffertium vicarium* within the new genus *Maccaffertium* and have often been confused with other closely related mayfly species,

a March brown clinging to a piece of vegetation will actually appear lighter in color to a fish as compared to a nymph clinging to a piece of darker cobble. The angler must fish to the fishing situation and choose the color of the nymph that best suits the water where he or she is fishing. Given that trout primarily feed at the substrate level, albeit from insects emerging, fishing with nymphs that match the correct shade of substrate at the stream where you are fishing increases success.

Fly-fisherman are lucky when it comes to tying imitations or identifying mayfly adults. The adult subimago of *Maccaffertium vicarium* has a unique coloration that its closely related sister species do not share. They are all similar in morphology, having two well defined cerci, are approximately 30–35mm long and 25mm tall (size 12–14 dry/wet fly hook), have

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such as *Stenonema femoratum* (cream cahill), *Maccaffertium modestum* (cream cahill), *Maccaffertium ithaca* (light cahill), and *Stenacron interpunctatum* (light cahill). The nymphs of these species and that of *Maccaffertium vicarium* look very similar and are almost indistinguishable in both morphology and coloration. In fact, only minute observations made with a dissecting microscope and DNA barcoding help explain why these mayflies are treated as different species. All of these nymphs are characterized by dark, flat, streamlined bodies with three prominent cerci (or tails), widened femora on the fore legs, are 20–25mm long (size 14–16 nymph hook), and have lateral gills (gray or tan) along the sides of the abdomen.

Although most March browns that I have found in the field have been darker in color (usually a medium brown), I also have found that these mayflies are fairly translucent in coloration as nymphs and that when the nymphs attach themselves to darker substrates these substrates make the nymphs appear darker than they really are. Therefore, when tying the nymph, the angler must tie nymphs for particular habitats and not for just one individual habitat or stream. For example,

ribbed abdomens, prominent hind wings and enlarged eyes. However, the March brown adult has brown mottled wings, a brown and tan colored abdomen and bulging grey or black eyes. Other closely related species come close but do not match this coloration and are much lighter, being light tan or white. The March brown imago lacks blotted wings, but rather has clear see-through wings. The males have lengthened forelegs for grasping females during copulation, and the cerci are twice as long as the subimago. Aside from these small differences, the rest of the body remains pretty much the same in both coloration and morphology.

Again, as stated earlier, for nymphs color remains crucial for tying and choosing patterns. Understanding the differences in coloration between true March brown adults and closely related species that make up the cream cahills and light cahills will lead to greater success on the water and more hook-ups.

March Brown Habitat

Although March browns are usually confined to North Carolina's Mountain regions, they can be found in the Piedmont sections of the

state during the winter and early spring. March browns are purely cryophilic, meaning that they thrive at low-water temperatures. Thus, our mountains provide an ideal habitat for suitable reproduction and sustainability of medium to large populations of this mayfly. Interestingly enough, March browns can actually be found in high numbers at the headwaters of some of the state's blackwater rivers, especially in the Sandhills. Spring-fed water from bogs and wetlands provides clean, cold water year-round for the March browns successful development.

Even though this mayfly lives in the quick moving riffles and runs of rivers and streams throughout the state, it thrives in the clean, clear and cold water of our southern mountains. The nymphs cling to rocky substrate, including boulders, bedrock, cobble and in some rivers long strands of aquatic bryophytes (mosses). Additionally, the nymphs are commonly found on large woody debris and in sunken leaf packs. Their diet is largely comprised of fine organic material and algae that they scrape off of substrate using tarsal claws on their forelegs.

What perhaps most fly-fishermen do not realize is that when fishing a particular nymph the angler should target the habitat of that nymph with his cast. In this instance reading water becomes essential. Since March browns live in quick flowing riffles, it makes little sense to cast a March brown nymph directly into a pool and hope for a strike. A more realistic presentation would be to cast the nymph upstream into a riffle or run above the head of the pool using a reach cast. Allow the nymph to drift freely in the run and slowly dead drift into the pool as an exposed prey item that has fallen victim to flow or simply a product of diurnal drift. A trout that sees a March brown nymph floating at an incorrect depth, at the wrong speed (related to depth), and in the wrong habitat will likely refuse the fly.

Timing of Development and Emergence

Mayflies are the oldest living winged insects on earth and are purely aquatic. Immature mayflies, commonly referred to as nymphs by entomologists, spend the majority of their life history under water, usually for a period of 3–10 months depending on the species and climate. Mayfly nymphs develop in successional stages called instars, and most mayflies have at least 10 instars, while some

Nymph: Begin fishing this fly in stream riffles before the start of the emergence. Gradually work your way downstream of the riffles with the fly to imitate a March brown that has released itself from substrate to emerge and become an adult. I begin fishing this fly very hard two-three weeks prior to March brown emergence.



FILES BY MELISSA MCGRAW/CWRC

Soft hackle: This is the most important fly in your fly box. Use this fly when fish begin to feed actively on the surface. March browns spend a lot of time in the surface film (in 1–2 inches of water below the surface) while emerging from their nymphal exuvia or exoskeleton. These mayflies make easy prey for trout when they struggle to escape from their nymphal entrapments while floating downstream. Cast and fish this fly downstream of riffles in the vicinity of feeding trout.

To learn how to tie a soft hackle, go to ncwildlife.org/winc and click on Videos.



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Wet Fly Dun: Use this fly if trout begin to feed more actively on mayflies floating on the surface of the water. The fly will sink somewhat, but also float, thus imitating two emergence stages of the march brown at the same time acting both wet and dry.



(Top) An angler plays a trout as a hatch occurs around him. (Bottom) A nice rainbow comes to the net for unhooking and release.

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species can have as many as 35–40. When they reach their final nymphal instar stage (after a perfect combination of ideal day length and water temperature) they leave their home on the river bottom and swim, float or crawl to the water's surface to emerge from their nymphal exuvia or exoskeleton. After shedding their exuvia, these newly emerged mayflies called subimagos (or duns by fly-fishermen) fly to nearby trees and vegetation to undergo a second molt as an adult. Mayflies are the only adult insects known to have two adult stages. Although it is not clearly understood why this is, it is important for the fly-fisherman to understand the two stages of adulthood. After spending as little as a few hours or a few days as adults, mayflies return to the river or stream where they first emerged to mate, lay their eggs on the surface of the water and die.

March browns are a species of mayfly that is particularly long-lived, given that they thrive in colder water. Colder water temperatures extend the mayfly's growing period by slowing development, allowing the mayfly to

reach a larger size than many cahill and light cahill species. During the late fall and early winter when water temperatures in mountain streams begin to cool from the hot summer, March brown eggs hatch into first instar larvae and begin to develop throughout the winter, reaching full nymphal development after a minimum of 25 instars. March brown emergence varies from region to region, but in North Carolina, March browns usually emerge in mountain streams starting in mid-March or early April in the early to mid-afternoon. In the Northeast, March browns begin emerging between late April and mid-May and can last into late June or the first week of July. However, in North Carolina, March brown emergences are fairly predictable given a normal winter. The March brown is a univoltine (having one generation per year) species whose emergence can last one to three weeks depending on the weather, but occurs only once during the entire year. Closely related species such as cahills are known to be bivoltine and have two generations a year.

In western North Carolina, closely synchronized aquatic insect emergences can also be used as indicators for pre- and post-March brown emergence. Blue wing olive mayflies emerging prior to a March brown emergence could indicate the early stages of the emergence, while cream cahills emerging in conjunction with March browns could indicate the later stages of the emergence. Trout are more vulnerable and less picky during the early stages of the March brown emergence. As the emergence lengthens over time, trout become more selective and begin to refuse some of the more common March brown imitations. Having an understanding of where you stand in relation to the duration of the March brown emergence can benefit your success in selecting an imitation that is more appropriate for a selective trout.

Emergence Behavior and the Relative Importance of Particular Life History Imitations

Trout wait eagerly in the winter months for the March brown emergence and feed heavily on March brown nymphs in the weeks prior to the first adult emergence. Here, choosing a pattern that fits the natural coloration of the insect is most proper. In late February and early March, spring air temperatures increase

water temperatures slightly causing an increase in the insect's metabolism. March brown nymphs then begin growing a little quicker, moving around more, eating more and getting in good position for emergence. The trout notice this increased level of activity and begin feeding on the exposed and vulnerable mayflies before the real emergence even begins. Fishing March brown nymphs in natural browns and light to natural brown colors are most effective during this period for catching trout.

Upon emergence, trout will often position themselves downstream of a riffle at the head of a pool so that they can catch emerging March browns in the surface film. March browns take longer than most aquatic insects to leave their exuvia (sometimes as long as

with the appropriate amount of split shot applied for the fishing situation. When March browns begin emerging in the early to mid-afternoon and fish are noticeably feeding on them, remove the nymphs and switch to a tandem March brown soft hackle rig. If the emergence is heavier than normal, some March browns may remain unscathed long enough to stand on the surface of the water. In this case, trout may switch over to feeding half on emerging March browns and the other half on duns standing on the water's surface. If this becomes the case, it is best to replace one of the soft hackles with the March brown wet fly dun. In rare cases, trout will switch completely to March browns floating on the water's surface. This is a very rare instance in North Carolina, as the emergence

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two minutes) and therefore are left vulnerable as emerging nymphs for an extended period of time. It has often been said by anglers fishing Catskill streams in the Northeast that March brown super emergences occur. However, anglers are usually displeased not by the lack of activity but by the lack of winged insects in the air and those taking flight. This is because most, if not all, of the activity during a March brown emergence is occurring within one inch of water below the surface film. Perhaps a better term for this phenomenon is not a "super emergence" but a period of "super activity." March brown emergences are known to produce many stillborn and crippled duns. Given the amount of time spent by the nymph on the surface of the water it is no wonder that most of the activity occurs just below the surface film. Hence, the most effective patterns during a March brown emergence are soft hackles, floating nymphs, sinking cripples, emergers and wet flies.

In North Carolina, March brown emergences are not as strong or heavy as they are on Catskill Rivers. However, the technique to fish the emergence stays the same. When the March brown emergence is eminent, it is important to begin the day fishing with a nymph similar in coloration to an exposed mayfly in the current (medium brown color)

would have to be very heavy for the trout to switch completely over to two wet fly duns.

Unlike many famous Catskill Rivers, North Carolina mountain streams are not blessed with the March brown populations that these rivers provide northeastern anglers. As such, super spinner falls of mayfly imagos common to Catskill Rivers are not common in the North Carolina mountains. For fly-fishermen in the South, refining your nymph fishing skills and skills of fishing soft hackles and wet flies are of greater importance during the March brown emergence.

Designing techniques to fish the March brown spinner fall on freestone rivers in our region is not your best option. By gaining an understanding of what March browns look like, where they live, their different stages of development and their emergence behavior you should be able to refine your skills as a fly angler to better approach this emergence with greater poise and more effective technique. ♡

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