

Swamp Metalmarks (*Calephelis muticum*) found in Alabama

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On May 28, 2011, Vitaly Charny discovered that he had photographed a Swamp Metalmark (*Calephelis muticum*) at Cane Creek Canyon Nature Preserve in northwest Alabama, approximately 300 miles from its nearest previously known population. Charny had planned to run his usual butterfly-monitoring route at the Preserve, but at the last minute he and his wife Larissa decided to investigate a newly opened pathway. While taking a break at a small clearing, Charny noticed two diminutive orange butterflies swirling above clusters of Daisy Fleabane (*Erigeron* spp.). One looked unusually small, so he quickly snapped some shots with his digital camera. The identity of the first butterfly was predictable (a male Pearl Crescent, *Phyciodes tharos*), but the other was a complete surprise. The tiny individual was clearly a metalmark, by all accounts, far out of range. Little Metalmark (*C. virginianensis*) is generally considered the only resident metalmark in the southeastern United States, but when Charny studied his photos, he realized that this dark-bodied butterfly was no Little Metalmark. Believing he was looking at a Swamp Metalmark, he sent images to Dr. Paul Opler, who confirmed the ID.

Calephelis muticum is associated with grass/sedge wetlands in the Upper Midwest, Ohio Valley and Ozark Mountain regions, extending as far south as Kentucky and Arkansas. Despite the production of multiple broods in its more southern populations, Swamp Metalmark is almost never common, and many records consist of just one or only a few individuals. Even in Missouri, its stronghold, populations are small and highly isolated, with many not having been seen in decades (Bess, 2005). In Illinois, the species has been absent since the 1980's, and re-introduction attempts are underway (Odway, 2008). The Arkansas population has not been observed in over thirty years (Bess, 2005). Kentucky's population is highly imperiled, its only known sustained colony in danger of eradication from potential loss of habitat (Loran Gibson, personal communication, February 28, 2012).

Swamp Metalmarks are always found in close association with their primary larval food plants, and these native thistles (Swamp Thistle, *Cirsium muticum*; Tall Thistle, *C. altissimum*; and Carolina Thistle, *C. carolinianum*) (Bess, 2005) are much more common than the butterfly. At Cane Creek Canyon Nature Preserve, Sara Bright and Paulette Ogard determined that Tall Thistle (*C. altissimum*) is the sole host plant. Thistles are biennials—plants that

require two years to complete their life cycle. They produce only an evergreen basal rosette of leaves during their first season; a tall flower stalk emerges during the second year of growth. Once seeds are set, dieback and decomposition follows. According to several reports, *C. muticum* deposit eggs on non-flowering, first-year basal rosettes (Bess, 2005; Borkin, 2005; WDNR, 2011). However, Bright and Ogard observed that females from the first flight oviposited on the emerging flower stalk. During repeated visits over an eight-week period, they found caterpillars of all instars (as many as thirty-five in one day) and one chrysalid, all on second year plants. Conversely, females from the second flight chose non-flowering, first-year plants as oviposition sites, presumably because the majority of the subsequent larvae over-winter and require the protection and continued food resource provided by the thistle leaves. In January 2012, Ogard and Bright located three mid-instar caterpillars clinging to the underside of leaves, each on a different basal rosette. Two of the three larvae were found near windowpane-shaped chew patterns characteristic of metalmark caterpillars. The marks were fresh, indicating that the caterpillars had taken advantage of warm winter temperatures to eat.

The Alabama *C. muticum* colony produced multiple broods during summer 2011. Vitaly Charny's first sighting was in late May. A second flight occurred in late July/August with a high count of ten butterflies. In October, Charny observed four individuals, representing a partial final brood. How did Swamp Metalmarks come to reside in northwest



Swamp Metalmark (*Calephelis muticum*) at Cane Creek Canyon Nature Preserve, Colbert Co., Alabama, June 4, 2011 (Photo by Vitaly Charny)



Swamp Metalmark (*Calephelis muticum*)
larva (photo by Sara Bright)

Alabama? Charny theorizes that as glaciers shrank following the last Ice Age, butterflies with the same affinities, like Little Metalmark (*C. virginensis*) and Georgia Satyr (*Neonympha areolatus*), remained primarily in their southern refugia, while others, like Swamp Metalmark (*C. muticum*) and Mitchell's Satyr (*N. mitchellii*) followed the receding glaciers farther north, remaining in areas that met their similar needs. At Cane Creek Canyon Nature Preserve, more recent activities helped create the proper habitat. Beavers have long maintained an active presence, and their tree felling opened holes in the forest canopy that allowed sun-lovers like Tall Thistle to gain a toehold in the calcareous soils that are preferred by the plant and typical of the area. Since it is a beaver impacted wetland, the Preserve's habitat is not fire-dependent, unlike many of the other locations that support *C. muticum*.

Cane Creek Canyon Nature Preserve is one of several sites that Vitaly Charny visits regularly to monitor butterfly populations. The Preserve is a 700-acre privately protected scenic natural area in the Little Mountain region of Colbert County, Alabama. Situated around a complex of small sandstone canyons, the area has rugged topography that includes a number of waterfalls, creek cascades, boulder fields, and rock shelters. It serves as a sanctuary for native flora and fauna and is home to several rare plant species (Friends, 2011). Alabama's butterflies are well represented. Those that frequent woodlands, canebrakes, and wetlands are particularly notable; for example, the Preserve supports eight satyr species (Satyrinae), large numbers of Silvery Checkerspots (*Chlosyne nycteis*), both of the cane-eating Pearly-eyes (*Enodia portlandia* and *E. creola*), and a healthy population of Lace-winged Roadside-Skippers (*Amblyscirtes aesculapius*). It provides refuge to imperiled species like Yehl Skipper (*Poanes yehl*) and Swamp Metalmark and to species not commonly found in Alabama such as Delaware Skipper (*Anatrytone logan*), Common Sootywing (*Pholisora catullus*), Checkered White (*Pontia protodice*), and Coral Hairstreak (*Satyrium titus*). Charny conducted 23 counts in the Preserve from March 2010-March 2012 and documented 72 species with a total of 2336 individuals.

Cane Creek Canyon Nature Preserve has been granted official "nature preserve" status through a conservation easement with The Nature Conservancy of Alabama. "Leave no trace rules apply," and collecting is strictly prohibited. The Preserve is open year-round to the public at no charge for hiking and other outdoor educational and recreational activities (Friends, 2011). Jim and Faye Lacefield, who own and maintain the property, have been actively involved in all activities surrounding the discovery and life history documentation of *C. muticum* at the site and are committed to its long term conservation at Cane Creek Canyon Nature Preserve.

The authors hope that news of this discovery in northwest Alabama will spur those in nearby states to search likely habitats for this extremely uncommon butterfly so that both can be preserved and protected.

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Cane Creek Canyon Nature Preserve, Colbert Co., Alabama, June (Photo by Vitaly Charny)