

HUDSONIA HARLEM VALLEY BIODIVERSITY MANUAL SUPPLEMENT

Northern metalmark (*Calephelis borealis*) NYNHP G3G4 S1

Habitats in the Study Area

Wooded calcareous rock outcrops (limestone, marble, slate, phyllite) with roundleaf ragwort near meadow or fen habitats with adult nectar flowers (primarily summer-blooming composites). These habitats are more common in the southern half of the study area. Northern metalmark may occur in fens remote from rock exposures, if caterpillars feed on golden ragwort (*Senecio aureus*), as some authorities suggest (Vaughn & Shephard 2005).

Study Area Distribution

Known from one location in southeastern Dutchess County discovered by J. Utter in 2008 (Utter and Wallace 2008). Previously undiscovered metalmark colonies are more likely along the New England-New York boundary near known locations in Connecticut and Massachusetts, but the butterfly could occur in suitable habitat at more remote sites. The postglacial range is believed to have been more extensive, and the distribution less spotty and local than today (Cech and Tudor 2007).

Other Relevant Aspects of Ecological Niche and Behavior

Adults are weak fliers, nectaring on flowers in edges and open areas, and landing on undersides of leaves like moths. Flights in the Northeast begin in late June or early July and continue for about 15-20 days. Because adults do not travel far from emergence locations, proximate open and wooded habitats (or possibly open habitats with both adult nectar plants and caterpillar host plants) are essential requirements.

Description and Identification

Adult: upper wings suggestive of an old rug -- purplish brown with two narrow, broken silver bands near outer margin, enclosing wider orange-brown band with obscure darker spots; wings beneath light orange-buff, with black dots. Caterpillar pea green, sluglike. Since no other metalmark occurs in New York, identification to genus confirms this species in the study area.

Threats and Conservation

Probably many historic occurrences have been lost to habitat destruction and fragmentation, yet utility rights-of-way appear to maintain habitat conditions, depending on maintenance methods. Insecticides, including the bacterial insecticide *Bacillus thuringensis* (Bt) (Vaughn & Shephard 2005), can decimate or even eliminate metalmark colonies. Other threats include browsing of nectar flowers by deer (NYNHP 2008), loss of open habitat to vegetational change (e.g. increased shrub or tree cover), and loss of host plant stands to competing herbs, including exotic species.

Survey Technique Constraints

The adult flight period is short, and varies from one location to another. The butterflies are secretive, resemble other Lepidoptera, and daily flight times may be short and unpredictable.

Caterpillars are cryptic, blending well with ragwort leaves, which tend to cover the ground densely. Because other insects feed on the leaves, leaf damage does not necessarily indicate metalmark is present. Moderately warm, sunny, partly cloudy or hazy mid-days, or mornings and evenings of hot days are best for adult searches.

References to Identification Literature

Cech, R. and G. Tudor. 2007. *Butterflies of the East Coast, an observer's guide*. Princeton University Press. Princeton, New Jersey. 360 p.

Glassberg, J. 1999. *Butterflies through binoculars: The East*. Oxford University Press. New York, Oxford, U.K. 242 p.

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Utter, J.M. and W.M. Wallace. 2008. The rediscovery of northern metalmarks in New York. *American Butterflies* 16: 1. p 26-30.

Wagner, D.L. 2005. *Caterpillars of eastern North America, a guide to identification and natural history*. Princeton University Press. Princeton, New Jersey. 512 p.

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Vaughan, D. M., and M. D. Shepherd. 2005. Species Profile: *Calephelis borealis*. In Shepherd, M. D., D. M. Vaughan, and S. H. Black (Eds). *Red List of Pollinator Insects of North America*. CD-ROM Version 1 (May 2005). The Xerces Society for Invertebrate Conservation. Portland, OR 5 p.

New York Natural Heritage Program. 2008. *NYNHP Conservation Guide - Northern Metalmark (Calephelis borealis)*. New York Natural Heritage Program. Albany, NY. 6 p.

