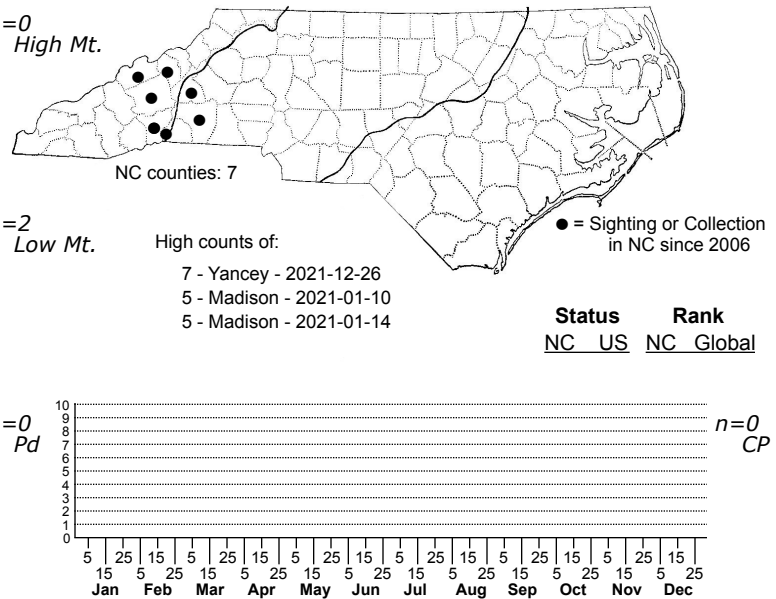
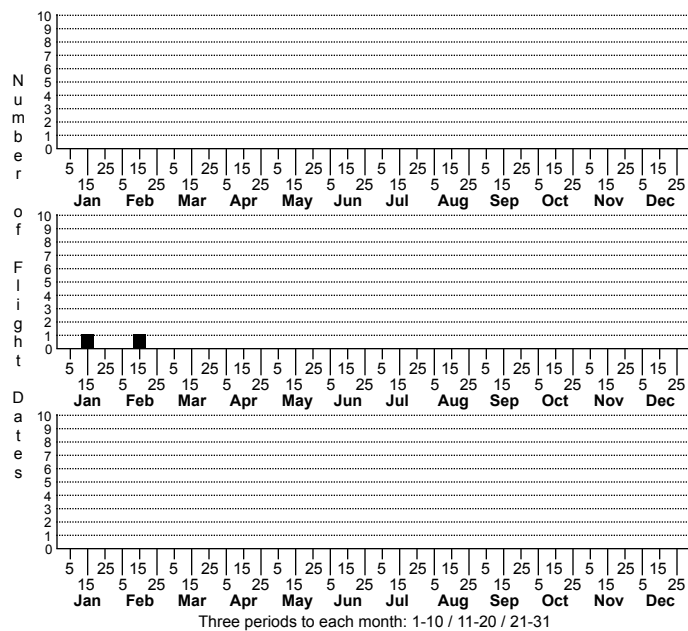


Coleotechnites macleodi Brown Hemlock Needleminer Moth



FAMILY: Gelechiidae SUBFAMILY: Gelechiinae TRIBE:

TAXONOMIC COMMENTS: The genus *Coleotechnites* includes 49 very small species that occur in North America. Most species are specialists on conifers and tend to feed on a single genus of host plant. Many of the *Coleotechnites* species have almost identical genitalia that are not very useful in delineating closely related forms (Freeman, 1960; 1965). Freeman (1960) noted that host plants and the mining characteristics often provide the most reliable way to identify closely related species.

FIELD GUIDE DESCRIPTIONS:

ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: Freeman (1965)

TECHNICAL DESCRIPTION, IMMATURE STAGES: Freeman (1965)

ID COMMENTS: The following is based mostly on the original description by Freeman (1965). The antenna is alternately marked with ochreous and brown bands. The labial palp is light ochreous, and the second joint has basal and subapical brownish spots. The apical joint has a brownish sub-basal band and a black sub-apical ring. The face and vertex vary from whitish to ochreous white. The thorax and ground color of the forewing are ochreous white, and the forewing has a series of small, dark raised patches at about one-fourth, one-half, and two-thirds the wing length. These may be missing or reduced in worn specimens. The forewing has an oblique black streak that extends from the base of the costa to just beyond the fold, and that terminates in a small patch of raised scales. Just before the middle, there is another transverse black band that extends less obliquely to the middle of the wing. Opposite this, and just below the fold, there is another small black spot of raised scales. On the costa at the outer third there is a rather broad, blackish transverse band that is narrowly bordered with white apically. It continues across the wing to form a flattened V-shape. Around the apex of the wing there are five or six small black dots. The apical fringe is gray, and the trailing fringe somewhat lighter. The hindwing and fringe are light gray. The front and middle legs have black and cream bands. The hindlegs are cream, with some black bands on the tarsi. The male has an ochreous hair-pencil that arises from beneath the base of the hindwing.

This adults of this species resemble those of several other *Coleotechnites* species. Host specificity and larval traits are helpful in sorting out the numerous species of *Coleotechnites* that occur in the US. There are only two species in eastern North America that specialize on hemlocks, and this is the only species that has brown larvae. *Coleotechnites apictripunctella* is the other hemlock specialist, but it has green larvae.

DISTRIBUTION: *Coleotechnites macleodi* is found in eastern North America. It was thought to be restricted to Ontario, Quebec, Massachusetts and perhaps a few adjoining states, but was recently discovered in western North Carolina. As of 2025, we have records based on overwintering larva from seven counties in the Blue Ridge, and mostly from lower-elevation sites.

FLIGHT COMMENT: Populations are univoltine. Freeman (1965) reported that the adults fly from late-May and early-June in Canada. Nora Murdock reared two adults from larvae that were collected in mid-January and kept at 60-65 degrees. The adults emergence in mid-February, but it is uncertain when they would emerge in the wild in North Carolina - perhaps in April.

HABITAT: This species has only been observed feeding on Eastern Hemlock, which is most commonly found in cool, moist forested sites.

FOOD: Eastern Hemlock (*Tsuga canadensis*) is the only known host (Eiseman, 2022), but Carolina Hemlock (*Tsuga caroliniana*) could potentially be a host for southern Appalachian populations.

OBSERVATION METHODS: We recommend searching for the webbed leaves during winter and spring. The color of the caterpillars should be checked to verify that they are brown with dark brown heads and thoracic shields. *Coleotechnites apictripunctella* builds similar webs, but has green larvae with amber-colored heads and thoracic shields.

NATURAL HERITAGE PROGRAM RANKS: GNR S2S3

STATE PROTECTION:

COMMENTS: *Coleotechnites macleodi* was only recently discovered in North Carolina, and more information is needed on its distribution and abundance before we can fully assess its conservation status. This and other species that are hemlock specialists are being severely impacted by the widespread loss of Eastern Hemlock due to infestations of the hemlock woolly adelgid. Both of our *Coleotechnites* species that are hemlock specialists appear to tolerate the systemic insecticides that are used to treat adelgids and reproduce successfully on treated trees.