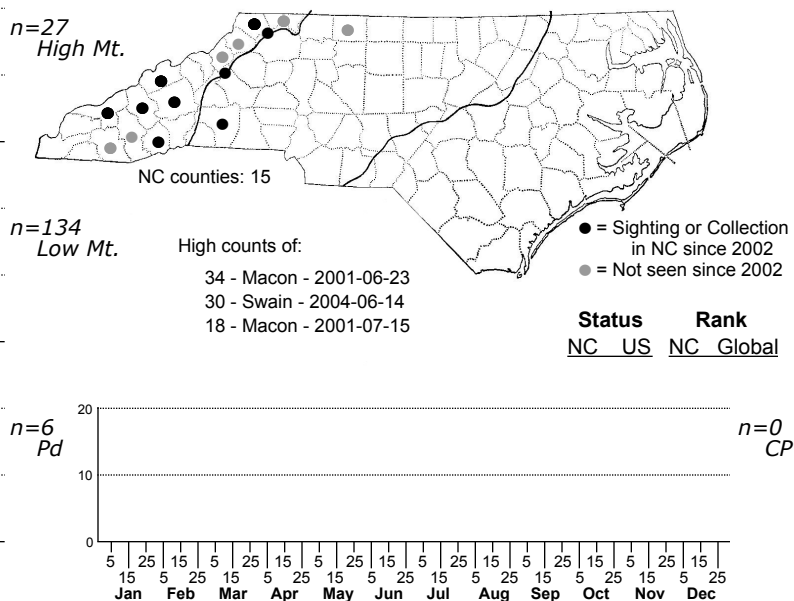
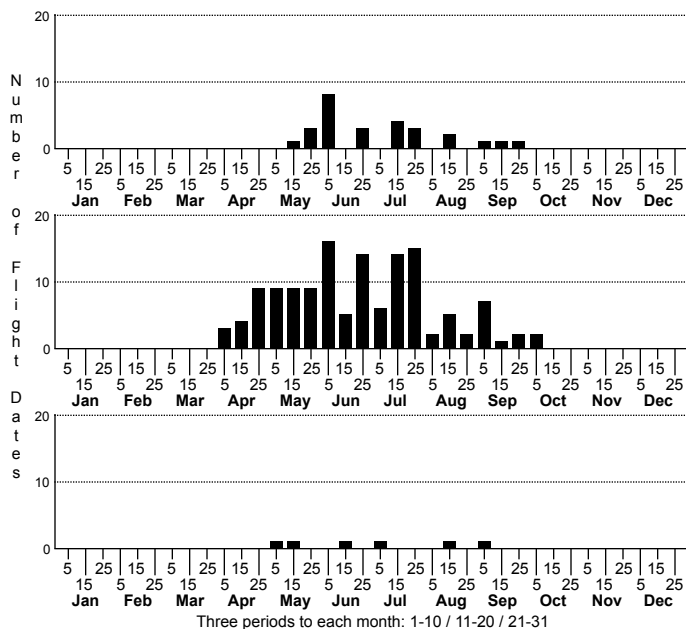


*Macaria fissinotata* Hemlock Angle



FAMILY: Geometridae SUBFAMILY: Ennominae TRIBE: Macariini

TAXONOMIC\_COMMENTS: One of 25 species in this genus -- commonly known as Angles (as in angular, referring to the wing shape) -- that occur in North America; 17 have been reported from North Carolina.

FIELD GUIDE DESCRIPTIONS: Covell (1984; as *Semiothisa fissinotata*); Beadle and Leckie (2012)

ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: Ferguson (2008)

TECHNICAL DESCRIPTION, IMMATURE STAGES: Maier et al., 2013

ID COMMENTS: Members of the signaria group are similar to other *Macaria* in their angled hindwings and sub-falcate forewings, but are distinguished from other North Carolina *Macaria* in possessing a grayish rather than a yellowish head (Forbes, 1948). All members of this group are generally similar in their pattern of lines and spots. *Fissinotata* is the most lightly marked, least contrasting member of this group. The median line is often faint or absent, especially in males, and the postmedian is distinctive among members of this group by being nearly straight rather than waved. The pre-apical spot and spot patch on the subterminal line at the end of the cell are usually weak or occasionally missing, again particularly in males.

DISTRIBUTION: Restricted to the Mountains and to the high, montane-like habitats of the Sauratown Mountains in the western Piedmont.

FLIGHT COMMENT: Appears to have a single flight period spread over the entire growing season, from spring to early fall.

HABITAT: Habitats used in the Mountains include both mesic sites, including cove and riparian forests, and dry slopes and ridges. In some of the drier sites, Carolina Hemlock may be used but Eastern Hemlock is likely to be the main host used in most other areas.

FOOD: Possibly monophagous or narrowly stenophagous, feeding primarily on Hemlocks (*Tsuga canadensis* and possibly *Tsuga carolinus*); later instar larvae would also feed on other conifers (Ferguson, 1974). Maier et al. (2013) report that it rarely uses Spruce (*Picea*).

OBSERVATION\_METHODS: Comes well to 15 watt blacklights but we do not have any records from either bait or flowers.

NATURAL HERITAGE PROGRAM RANKS: G5 [S4]

STATE PROTECTION: Has no legal protection, although permits are required to collect it on state parks and other public lands.

COMMENTS: Currently, this species still appears to be fairly common but is highly threatened by the ongoing devastation of Hemlocks due to the Hemlock Woolly Adelgid. Unless it can switch to using other species of conifers (as seems possible from captive rearing), there is at least some potential for it to become extirpated from the state. Although it is not currently tracked by the Natural Heritage Program, we recommend that it be added to the Watch List and its status closely monitored.