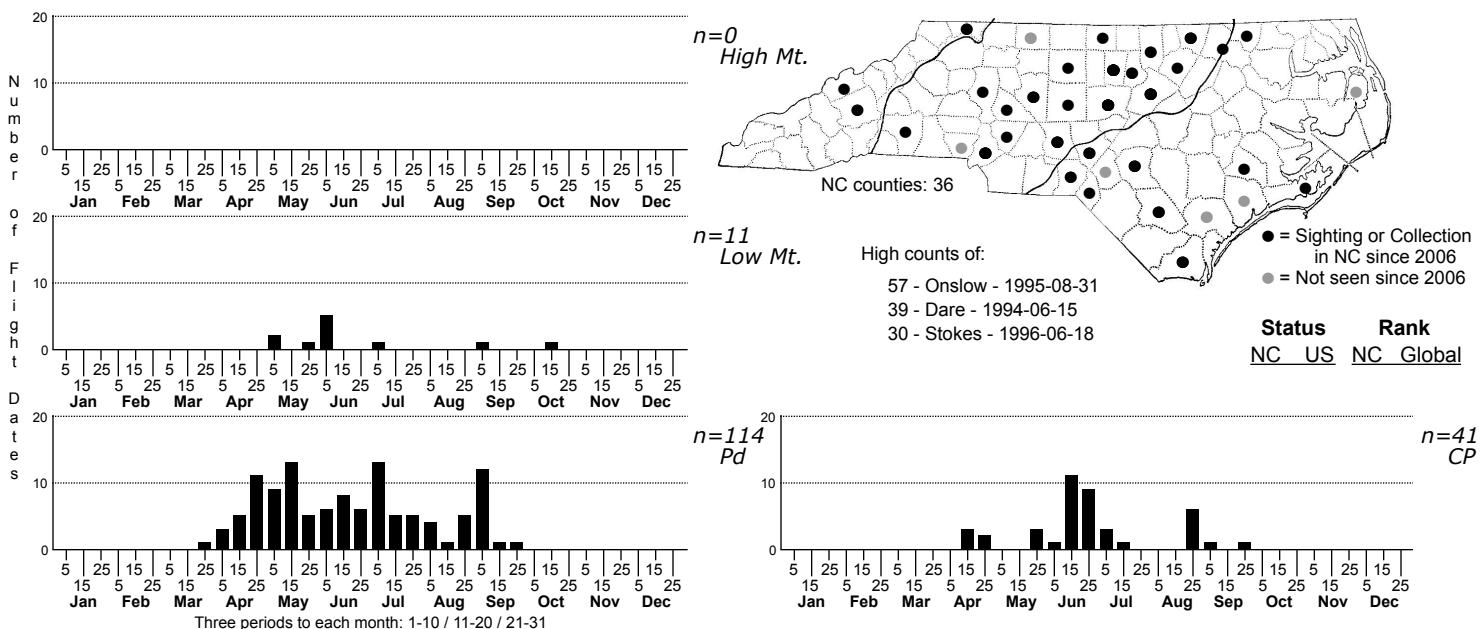


## Macaria multilineata Many-lined Angle



FAMILY: Geometridae SUBFAMILY: Ennominae TRIBE: Macariini

TAXONOMIC COMMENTS: This is one of 73 species in this genus that occur in North America, with 17 species occurring in North Carolina. In the latest checklist of North American Lepidoptera (Pohl and Nanz, 2023), North American members of the genus *Speranza* and *Epelis* were treated as junior synonyms of *Macaria*.

FIELD GUIDE DESCRIPTIONS: Covell (1984; as *Semiothisa multilineata*)

ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: Ferguson (2008)

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

ID COMMENTS: A reddish-brown Angle that is prominently striped with multiple straight and parallel lines, on both pairs of wings and on both the upper and lower surfaces of the wings. A few other Macaria also have fairly straight lines, e.g., *fissinotata* and *aequifaria*, but not as many or as markedly parallel as in *multilineata*.

DISTRIBUTION: As currently documented, *multilineata* ranges from the Blue Ridge Escarpment to the Outer Coastal Plain, but with records missing from the Barrier Islands and from the Mountains west of the escarpment.

FLIGHT COMMENT: Primarily a spring through summer species, with no clear indication that there are multiple broods in North Carolina.

HABITAT: Over most of the Coastal Plain, populations of *Macaria multilineata* are associated with Atlantic White Cedars, which occurs in peatland habitats, including both the large peat domes and peat-filled Carolina Bays in the Outer Coastal Plain and the smaller expanses of streamhead peatlands found in the Fall-line Sandhills. In the Piedmont and lower Mountains, populations are associated with Eastern Red Cedar, which occurs in both naturally occurring glades and open woodlands, particularly where substrates of mafic rock exist, but also with woodland edges, old fields, and other successional habitats. Although a number of surveys have been conducted on the North Carolina Barrier Islands, no populations of *M. multilineata* have yet been found in association with Southern Red Cedar, which is confined to tidewater habitats.

FOOD: Larvae are stenophagous, feeding on cedars, including Eastern Red Cedar (*Juniperus virginiana*), Southern Red Cedar (*J. silicicola*), and Atlantic White Cedar (*Chamaecyparis thyoides*), all of which are native to North Carolina, as well as Northern White Cedar (*Thuja occidentalis*) (Wagner et al., 2001; Ferguson, 2008; Maier et al., 2013). In North Carolina, our only feeding record is for Eastern Red Cedar.

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 SNR [S4S5]

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

COMMENTS: Populations associated with peatland habitats in the Coastal Plain are threatened by habitat drainage and conversion, direct commercial exploitation of Atlantic White Cedar, loss of wildfires that play a role in regenerating stands of White Cedar, and destruction of coastal peat domes by sea level rise and saltwater intrusion. Habitats used by this species in the Piedmont are not threatened, however, given that Eastern Red Cedar thrives in successional habitats. In at least that region of the state, *multilineata* appears to be secure.