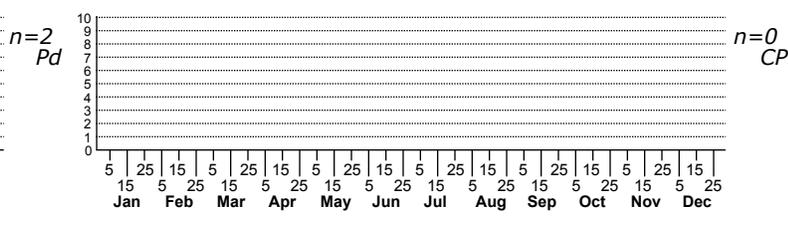
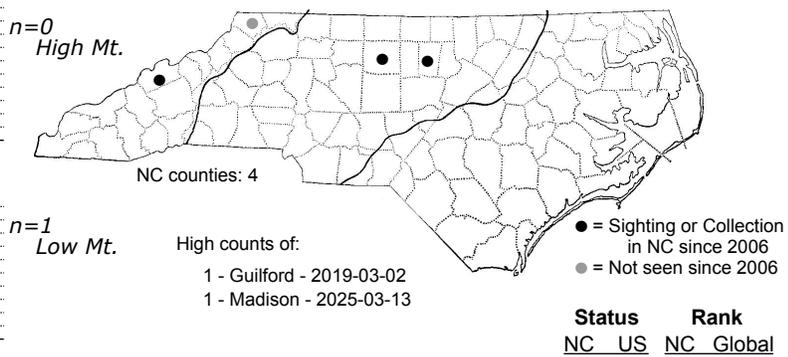
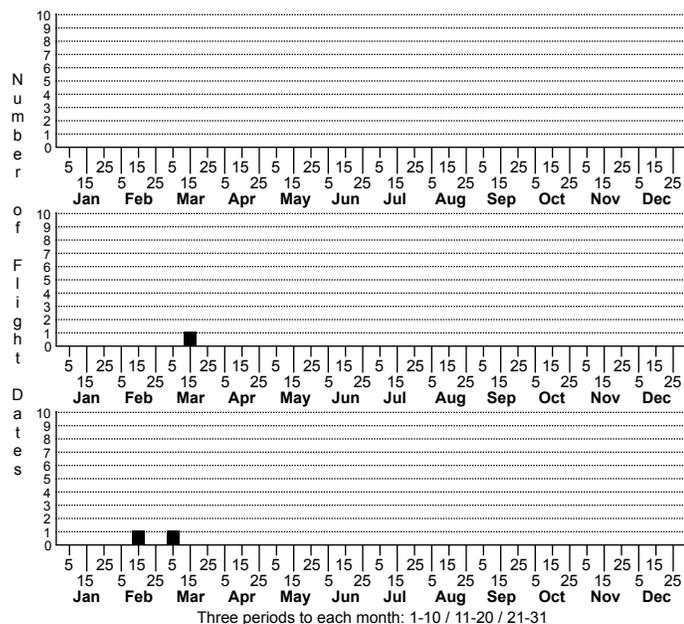


Pseudexentera mali Pale Apple Leafroller Moth



FAMILY: Tortricidae SUBFAMILY: Olethreutinae TRIBE: Eucosmini

TAXONOMIC COMMENTS: The genus *Pseudexentera* currently has 19 recognized species that are found primarily in North and Central America, with 17 recognized species in the US. They are typically found in forested settings and most fly very early in the year. Many are challenging to identify, particularly the species with fasciate forewing patterns that often show substantial intraspecific variation in patterning and have slight differences in genitalia (Miller, 1968; Gilligan et al., 2008). There has been a long history of misidentified species in the group (Miller, 1968) and there is still much confusion about external traits that are useful in sorting out certain closely related forms. DNA barcoding has not proven to be particularly useful in sorting out species since recognized species often have two or more BINS that contain multiple species names. This likely reflects weak genetic differentiation between certain forms and the large numbers of misidentified specimens in collections. Miller (1968) conducted a taxonomic revision and reviewed all of the recognized species in North America, but did not provide detailed descriptions of external coloration, patterning, or intraspecific variation within species. Here, we treat our assignment of the fasciate specimens to species as provisional since they are based on images or pinned specimens that have not been barcoded or dissected to examine genitalia. Even with the latter, specimens cannot always be confidently assigned to species.

FIELD GUIDE DESCRIPTIONS: Beadle and Leckie (2012)

ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: Freeman (1942)

TECHNICAL DESCRIPTION, IMMATURE STAGES:

ID COMMENTS: The following description is based primarily on that by Freeman (1942). The adults are sexually dimorphic with the females being more strongly marked than the males. In the males the external surfaces of the palps, and the antenna, head, and thorax are all grayish-brown. The forewing lacks strong patterning and tends to be concolorous with the remainder of the body. The basal region often tends towards dark grayish brown with an admixture of golden brown scales. Golden brown scales also tend to predominate along the posterior margin and in the apical third where the golden brown often contains a few black scales in the tornal region. The fringe is gray and darker apically. The hindwing is light smoky with a paler fringe that has a dark basal line.

In females the palps, antenna, head, and thorax are similar to that of the males, but the forewing has a dark brown basal patch that is sharply angled outwardly. Its outer margin is well defined on the dorsal half but rather obscure on the costal half. A large grayish-white, irregularly quadrate patch is present on the dorsal margin just before the tornus. It extends to about one-third the wing depth, and is followed outwardly by a brownish area containing a few black bars, then by a grayish white somewhat plumbeous ocellus containing a few black scales. The costal area from the basal patch outward consists of numerous, short, dark brown streaks interspaced with grayish-white ones. It is bordered below at the apex with an irregular patch of golden brown scales. The fringe and hindwing are similar to those of the males.

Freeman (1942) noted that *P. mali* is easily distinguished from *P. cressoniana* by its much smaller size and by the golden-brown color of the male's forewing. The females are much more strongly marked than the males and resemble females of *P. cressoniana*, but the dark brown streaks along the costa are more obscure and the grayish-white quadrate patch is more distinct. If in doubt, these should sort out by size (6-7.5 mm for *P. mali* versus 8-10 mm for *P. cressoniana*).

DISTRIBUTION: *Pseudexentera mali* is restricted to eastern North America and is more common at northern latitudes in the US. The main range extends from southern Maine and Nova Scotia westward through extreme southern Canada (Ontario, Quebec) to Illinois. It extends southward mostly through the Appalachian region to West Virginia, eastern Kentucky, Virginia, eastern Tennessee and western North Carolina. As of 2024 we have only two records from the Piedmont and a lower-elevation site in the mountains.

FLIGHT COMMENT: Local populations are univoltine, with the adults flying from February through May. At most sites a seasonal peak occurs around April.

HABITAT: This species is commonly found in apple orchards and possibly used hawthorns of other members of the Rosaceae as native hosts before the introduction of apples to the US in the 1600's.

FOOD: Larvae feed on members of the Rosaceae, including hawthorns (*Crataegus* spp.), commercial apples (*Malus domestica*), and pears (*Pyrus communis*) (Freeman, 1942; Chapman & Lienk, 1971; Brown et al., 2012).

OBSERVATION METHODS: The adults are attracted to lights and larvae can be found on apples and other hosts soon after the spring leaf-out. We need more information on native plant use and the larvae should be searched for on hawthorns at higher elevations in the mountains.

NATURAL HERITAGE PROGRAM RANKS: GNR S2S4

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

COMMENTS: As of 2022 we have only one record for North Carolina and do not have sufficient data to assess the conservation status of this species.