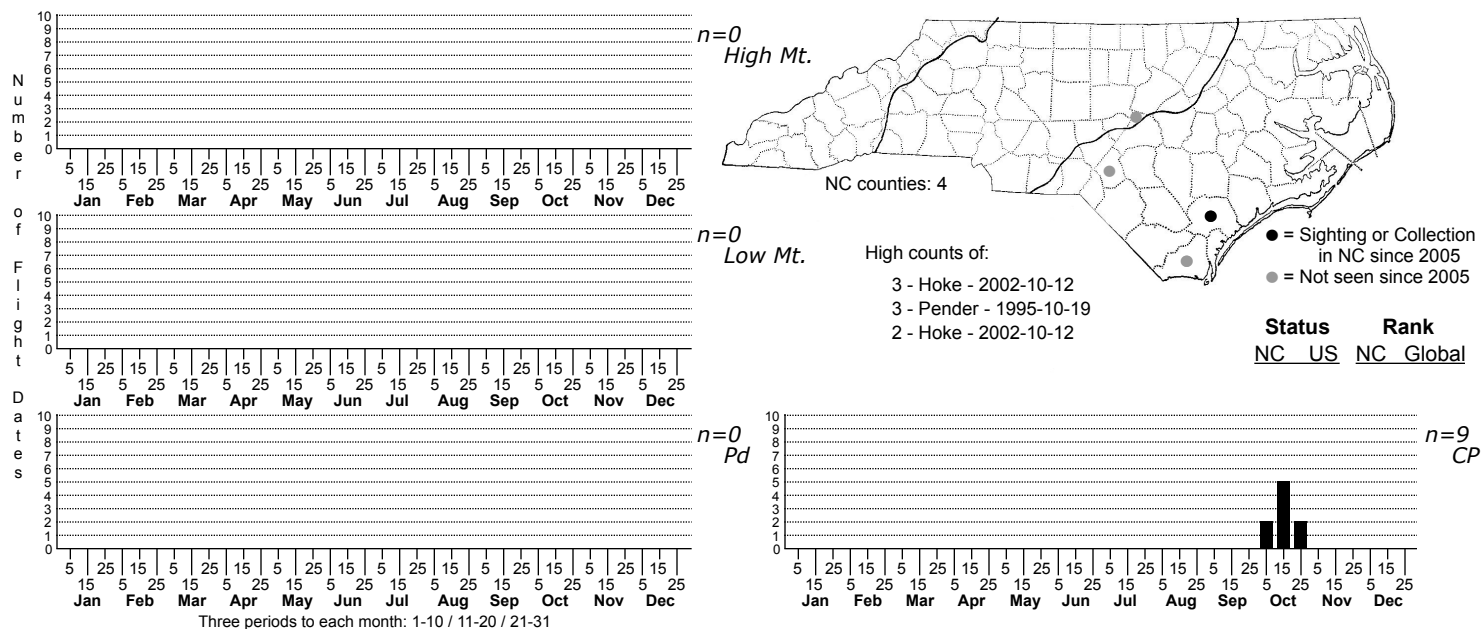


## *Papaipema appassionata* Pitcher-plant Borer Moth



FAMILY: Noctuidae SUBFAMILY: Noctuinae TRIBE: Apameini

TAXONOMIC COMMENTS: One of 44 species in this genus that occur in North America north of Mexico (Lafontaine and Schmidt, 2010, 2015), 30 of which have been recorded in North Carolina

FIELD GUIDE DESCRIPTIONS: Covell (1984)

ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: Forbes (1954)

TECHNICAL DESCRIPTION, IMMATURE STAGES: Forbes (1954); Wagner et al. (2011)

ID COMMENTS: A medium-sized, brightly colored, and conspicuously spotted *Papaipema*. The basal and medial areas are largely yellow to ochre, with dark reddish-brown filling the subterminal and terminal areas, as well as the space between the orbicular and reniform spots and between the antemedian and basal lines; the lines themselves are this same shade of reddish-brown. The orbicular, claviform, and reniform are all very large, filled with white, with both the claviform and reniform subdivided into separate spots. The reniform, in particular, is distinctively large in this species, coming into contact at its top and bottom edges with the postmedian line (Forbes, 1954). The hindwings are tan to light buff.

DISTRIBUTION: We have records, so far, only from the Coastal Plain. However, both this moth as well as one of its primary host plants -- *Sarracenia purpurea* -- occur as far north as southern Canada and we expect to find it in our mountains, where populations of *S. purpurea* exist

FLIGHT COMMENT: Univoltine with our records for adults all coming from October.

HABITAT: Our records come from Longleaf Pine Savannas in the Outer Coastal Plain and Sandhill Seeps in the Fall-line Sandhills.

FOOD: Larvae are stenophagous, feeding solely on the rhizomes of pitcherplants (<i>Sarracenia</i> spp.); both Yellow Pitcherplant (<i>S. flava</i>) and Purple Pitcherplant (<i>S. purpurea</i>) are known to be hosts for this species. In North Carolina, the only confirmed host is Yellow Pitcherplant.

OBSERVATION METHODS: Adults come to blacklights but populations can be more easily detected looking for wilting Pitcher Plants and searching for the distinctive mounds of frass at the base of the stems.

NATURAL HERITAGE PROGRAM RANKS: G3G4 S1S2

STATE PROTECTION: Listed as Significantly Rare by the Natural Heritage Program. That designation, however, does not confer any legal protection, although permits are required to collect it on state parks and other public lands.

COMMENTS: This species is an extreme specialist on plants that are themselves highly specialized on open, sunny habitats with acidic, saturated soils. The savannas, sandhill seeps and open peatlands that once prevailed across the Coastal Plain have largely been converted and those that remain are highly vulnerable to the effects of fire suppression. While its subterranean larvae are probably less vulnerable to the effects of fire itself than are the completely above-ground larvae of *Exyra* species, *P. appassionata* appears to be far rarer. That may be possibly due to colony crashes caused by its own over-destruction of its host plants. That, in turn, may suggest that this species was naturally a fugitive, requiring frequent dispersal to find recovered populations of its host plant. As such, it would be highly vulnerable to the effects of habitat fragmentation. Alternatively, these population crashes suggest some sort of failure occurring within the predators, parasitoids, and diseases that normally keep insect populations under control. That, again, could be an effect of the extreme habitat fragmentation that Longleaf Pine Habitats and Peatlands have undergone over the past 200 years. More surveys need to be conducted using larval searches to better determine the current distribution and abundance of this species in North Carolina. The factors involved in population regulation in this species also need to be better understood.