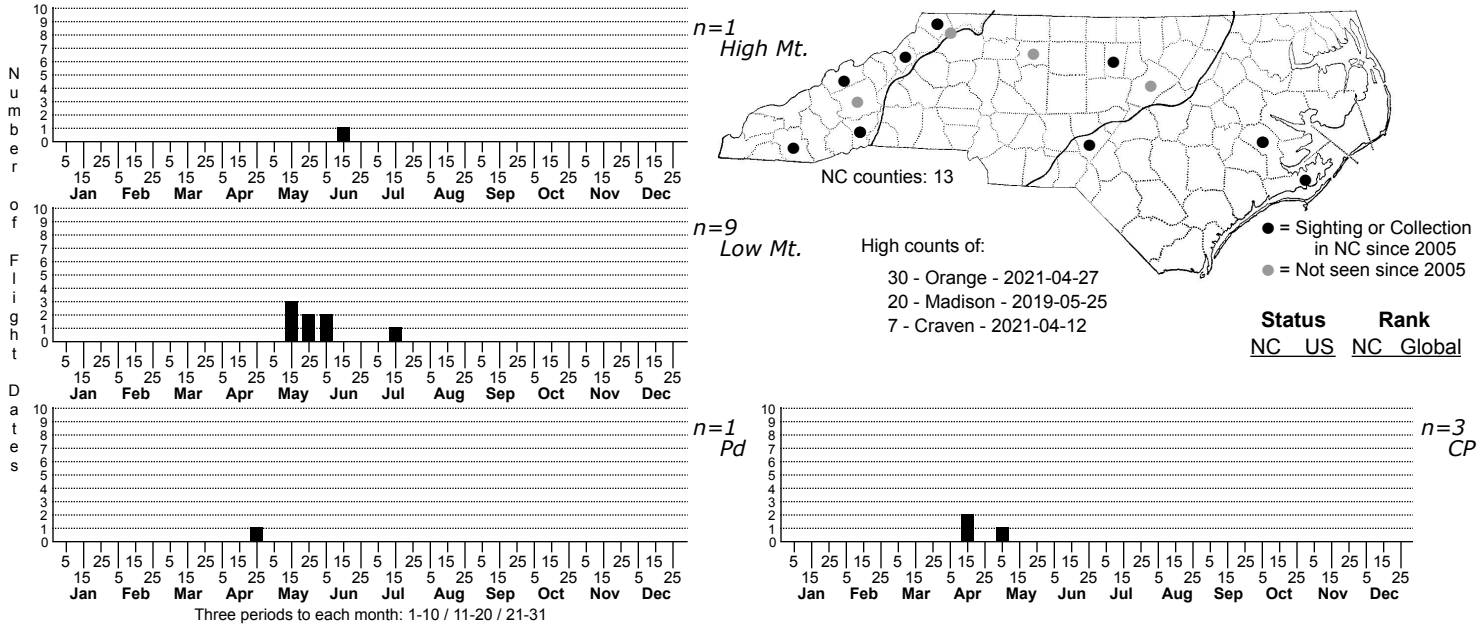
Podosesia syringae Ash Borer Moth



FAMILY: Sesiidae SUBFAMILY: Sesiinae TRIBE: Synanthedonini
TAXONOMIC_COMMENTS: Of the 136 or more members of the Sesiidae that occur in North American north of Mexico, 37 have been recorded in North Carolina. Some sesiids, known broadly as clearwing borers, are significant pests of commercial crops. The great majority are mimics of wasps and hornets. Podosesia syringae is one of two species of Podosesia found in the state, and both utilize ashes (Fraxinus spp.) as a food plant.

FIELD GUIDE DESCRIPTIONS: Covell (1984); Beadle and Leckie (2018)
ONLINE PHOTOS:
TECHNICAL DESCRIPTION, ADULTS: Eichlin and Duckworth (1988)
TECHNICAL DESCRIPTION, IMMATURE STAGES: Solomon (1975)

ID COMMENTS: Podosesia syringae resembles a paper wasp. The thorax is brownish-black with red scales scattered above the base of wings and immediately adjacent to the abdomen. The abdomen is brownish-black and is constricted at the base in males. The anal tuft is brownish-black and pointed, while the forewing is brownish-black except for a small hyaline area at the base where there is red on the margins. The hindwing is hyaline with narrow, black margins. The terminal half of the legs are yellow, and the proximal half mixed with red, yellow, and black. The hindlimb is very long and is dangled beneath the body as the moth flies in a slow, hovering flight that resembles that of a paper wasp. The following detailed description of the male is mostly from that of Purrington and Nielson (1977) and Eichlin and Duckworth (1988).

The antenna is orange to reddish-orange and blackened on the apical third, while the labial palp is roughened, orangish-red above, and black below. The vertex of the head is silver gray and the front grayish-brown, with the occipital fringe (collar) orangish-red. The thorax is brownish-black and often strongly powdered with chestnut-red on the sides, above the wing base, and on the posterior margin of the mesothorax. There is a yellow spot beneath the wing base and a small patch of yellow laterally on the posterior margin of the metathorax. The abdomen is constricted somewhat at the base and mostly brownish-black, with reddish scaling often on segments 2 and 3 above. The anal tuft is pointed and black. The legs are marked with black, orange and yellow from the fibia to the tarsus. The hindleg is unusual in having the first tarsal segment very long, and about as long as the tibia. The first segment is yellow, with brownish-black on the apical half, while the other tarsal segments are yellow and much shorter. The forewing is opaque except for hyaline areas at the base. It is mostly brownish-black above with red basally on the margins. The hindwing is mostly hyaline, with the veins, fringe, and discal spot brownish-black. The wing margin is variously suffused with brownish-black and lightly powdered with orange. The females are similar to the males but without the noticeably constricted abdomen. Specimens toward the southern portion of the range have increasingly more rust red, especially on the thorax and abdominal segments two and three.

Podosesia aureocincta closely resembles the dark, typical, color form of P. syringae as described above and that occurs in the eastern US. Both are mimics of Polistes paper wasps. These two sibling species can be distinguished by the morphology of the eggs, the number of crochets on the proleg of the sixth abdominal segment of the last instar of the larvae, the flight season, and banding on the abdomen (Purrington and Nielson, 1977). The adults of both sexes of P. aureocincta have a distinctive orange-yellow band on abdominal segment 4 that is absent on the dark morph of P. syringae. In addition, local populations that are sympatric fly at different times of the year, with P. syringae typically flying in April-July in North Carolina and P. aureocincta in August and September.

DISTRIBUTION: Podosesia syringae is widely distributed across North America, with the range including almost all of the eastern US from the Atlantic Coast states to the Great Plains, much of southern Canada from British Columbia eastward to Nova Scotia, and more spottily in non-arid regions of the western states. In the eastern US, the range extends from Maine southward to northern Florida, and westward to eastern Texas, central Oklahoma, eastern Kansas, eastern Nebraska and Minnesota. This species occurs statewide in North Carolina.

FLIGHT COMMENT: Adults have been observed from January through September in different areas of the range, with a seasonal peak typically from May through July. As of 2024, our records are from late-April through mid-July. Local populations are univoltine in North Carolina, with populations in the Coastal Plain and Piedmont flying in April and May, and those in the Blue Ridge 3-4 weeks later.

HABITAT: Local populations occur in rural, urban, and forested areas where ashes or other host plants are present.

FOOD: The larvae feed on members of the Oleaceae (Forbes, 1911, 1923; Seaver, 1916; Engelhardt 1946; Peterson, 1964; Baker, 1972; Solomon, 1975). They are a major pest of Green Ash (Fraxinus pennsylvanica) both in the wild and where they are used as shade trees or nursery stock. They can also cause significant losses to Lilac (Syringa vulgaris) that is grown in nurseries. Other documented hosts include Fringetree (Chionanthus virginicus), American Ash (F. americana), Carolina Ash (F. caroliniana), Black Ash (F. nigra), various European and red ashes, a Ligustrum sp. (privet) and ornamental plantings of olive (Olea europaea). Forbes (1911) reported them to feed on American Mountain-ash (Sorbus americana) in the Rosaceae, but this needs additional verification.

OBSERVATION_METHODS: The adults are diurnally active and are not attracted to lights, but frequently visit flowers. They are most easily collected by employing synthetic pheromone traps (see Taft et al., 2004, for a list of species-specific pheromone blends).

NATURAL HERITAGE PROGRAM RANKS: GNR [S2S3]

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

COMMENTS: This species closely mimics a Polistes paper wasp in both appearance and behavior. P. syringae does not pose a serious threat to ash trees in North Carolina given the prevalence of Fraxinus in the state. However, the arrival of the Emerald Ash Borer beetle (Agrilus planipennis) in the state in 2013 could potentially impact populations of P. syringae in the future due to the widespread loss of ash trees statewide.