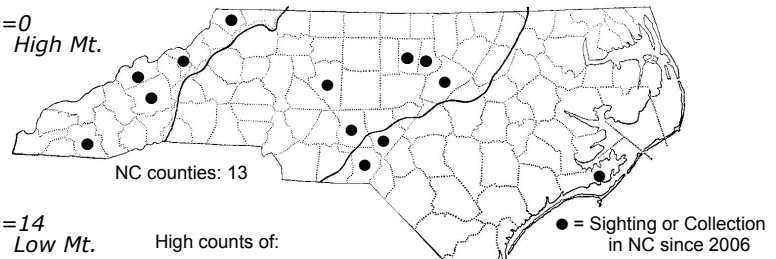
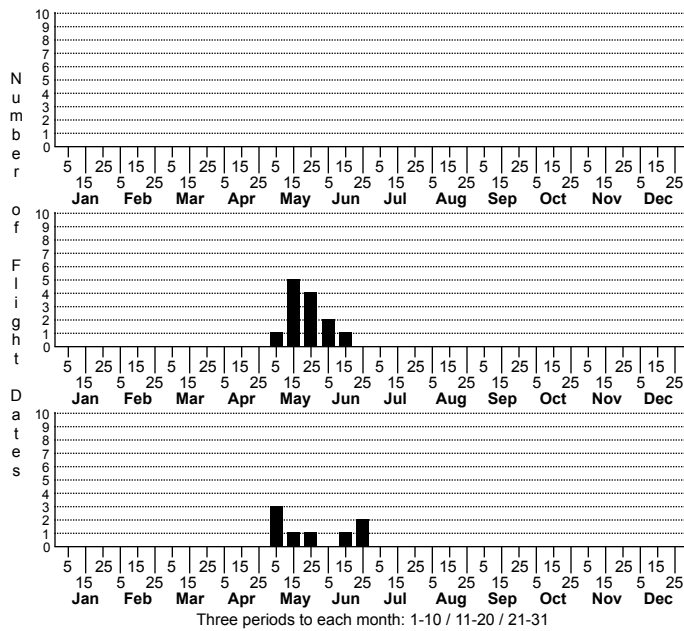


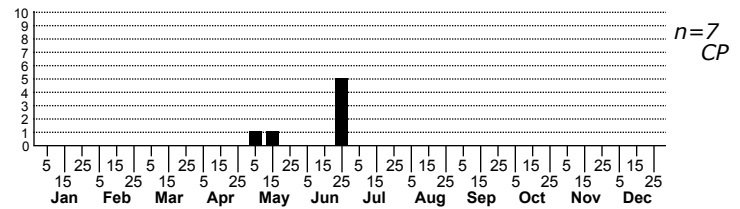
# Paranthrene simulans Hornet Clearwing



High counts of:

50 - Madison - 2025-05-16  
24 - Mitchell - 2025-06-04  
7 - Buncombe - 2025-05-18

Status Rank  
NC US NC Global



FAMILY: Sesiidae SUBFAMILY: Tinthiinae TRIBE: Paranthrenini

TAXONOMIC COMMENTS: North America has 136 or more species in the family Sesiidae, with 37 species found in North Carolina. Many are similar in appearance to one another, and some are significant pests of commercial crops. Almost all are mimics of wasps and hornets.

FIELD GUIDE DESCRIPTIONS:

ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: Engelhardt (1946); Solomon (1995).

TECHNICAL DESCRIPTION, IMMATURE STAGES: MacKay (1968); Solomon (1995)

ID COMMENTS: *Paranthrene simulans* is a large black and yellowish to yellowish-orange species that closely resembles the queens of native hornets (*Vespa* spp.). The resemblance includes its coloration, flight behavior and resting behavior where the abdomen is nervously moved about (Engelhardt, 1946). The coloration and patterning is variable, with the abdomen mostly yellow, but more commonly with black and yellowish striping. The forewing is shaded brown on the costal half, while the hindwing is transparent. The females closely resemble the males, but are larger, have heavier brown dusting on the forewing, and have a simple antenna with a touch of yellow at the inner base. This species is geographically and locally variable, with Coastal Plain populations often having forms with a golden abdomen with black striping, along with a more prominent lateral yellow stripe along the side of the thorax. These were previously treated as a separate species (*P. palmii*; Engelhardt, 1946), but have since been synonymized with *P. simulans*. Intermediates between the two forms are commonly encountered locally.

The following detailed description of the males is based on that of Engelhardt (1946). The antenna is bipectinate and black with brown tips. The labial palp is yellow with black at the base and along the sides. The head is black, with the eyes margined broadly with yellow in the front, while the collar is yellow behind and black in the front. The thorax is black with a yellow spot on the posterior margin, immediately below the collar on each side, in front of the forewing and immediately below the forewing. The tegulae is prominently striped with yellow on the lower half, and there is a black-and yellow tuft on the metathorax. The abdomen is variable in patterning and coloration, with varying levels of yellow or orangish-yellow to golden scales covering each segment. A common pattern is for segment 1 to be mostly black, with the remaining segments having yellow and black banding. Some specimens may have the black bands well-developed, while others may have them greatly reduced or absent. The anal tuft is short and compact, with a mix of yellow and black scales. The posterior tibia is yellow and shaded with rust and black scales, while the tarsi vary from yellowish to orange. The forewing is heavily dusted with brownish-black scales that are most concentrated on the costa half and on the middle portion of the inner margin, while the region around the anal margin tends to be translucent. The discal mark on the forewing is indicated by denser, brownish scales, and the hindwing is transparent with a brownish fringe and brown veins.

*Paranthrene pellucida* is a sibling species of *P. simulans* and is morphologically indistinguishable from the latter except for the absence of extensive dark dusting on the forewing. Where they occur sympatrically, *P. pellucida* flies about a month later than *P. simulans* so that the flight seasons only slightly overlap. These two species also show no obvious differences in the male and female genitalia and have very similar life cycles, with a two-year larval period (Eichlin and Duckworth, 1988). As of 2024, the flight season records that we have for North Carolina do not overlap, with *P. simulans* flying in May and June, and *P. pellucida* flying in July.

DISTRIBUTION: *Paranthrene simulans* is endemic to the eastern US and a portion of southern Canada (Manitoba; Ontario; Quebec; Nova Scotia). In the US the range extends from southern Maine, New Hampshire and Vermont southward along the Atlantic Seaboard to central Florida, and westward to central Texas, central Oklahoma, eastern Kansas, Iowa and Minnesota. As of 2024, we have scattered records from all three physiographic regions of the state.

FLIGHT COMMENT: The adults have been documented from March through October in different areas of the range, with a seasonal peak commonly in May through July. As of 2024, our records are from early-May through late-June.

HABITAT: Local populations are generally found in hardwood forests or residential settings with oaks, including habitats that range from bottomland forests to more xeric habitats.

FOOD: The larvae feed on American Chestnut (*Castanea dentata*) and a wide variety of oaks, including members of both the red oak and white oak groups (Engelhardt, 1946; Brown and Mizzel, 1993; Solomon, 1995; Robinson et al., 2023). The reported hosts include White Oak (*Quercus alba*), Emory Oak (*Q. emoryi*), Bear Oak (*Q. ilicifolia*), Chestnut Oak (*Q. montana*), Cherrybark Oak (*Q. pagoda*), Pin Oak (*Q. palustris*), Northern Red Oak (*Q. rubra*), Shumard Oak (*Q. shumardii*), Nuttall's Oak (*Q. texana*), and Black Oak (*Q. velutina*). Engelhardt (1946) and Solomon (1995) noted that a variety of deciduous and evergreen scrub oaks are also used in Florida.

OBSERVATION METHODS: The adults are diurnally active and do not visit lights. They can be found around infested trees, but are most easily collected using traps with artificial pheromone lures.

NATURAL HERITAGE PROGRAM RANKS: GNR [S3S4]

STATE PROTECTION:

COMMENTS: This species is widespread within North Carolina and is probably more common than records suggest due to its two-year population cycle and relatively short flight season.