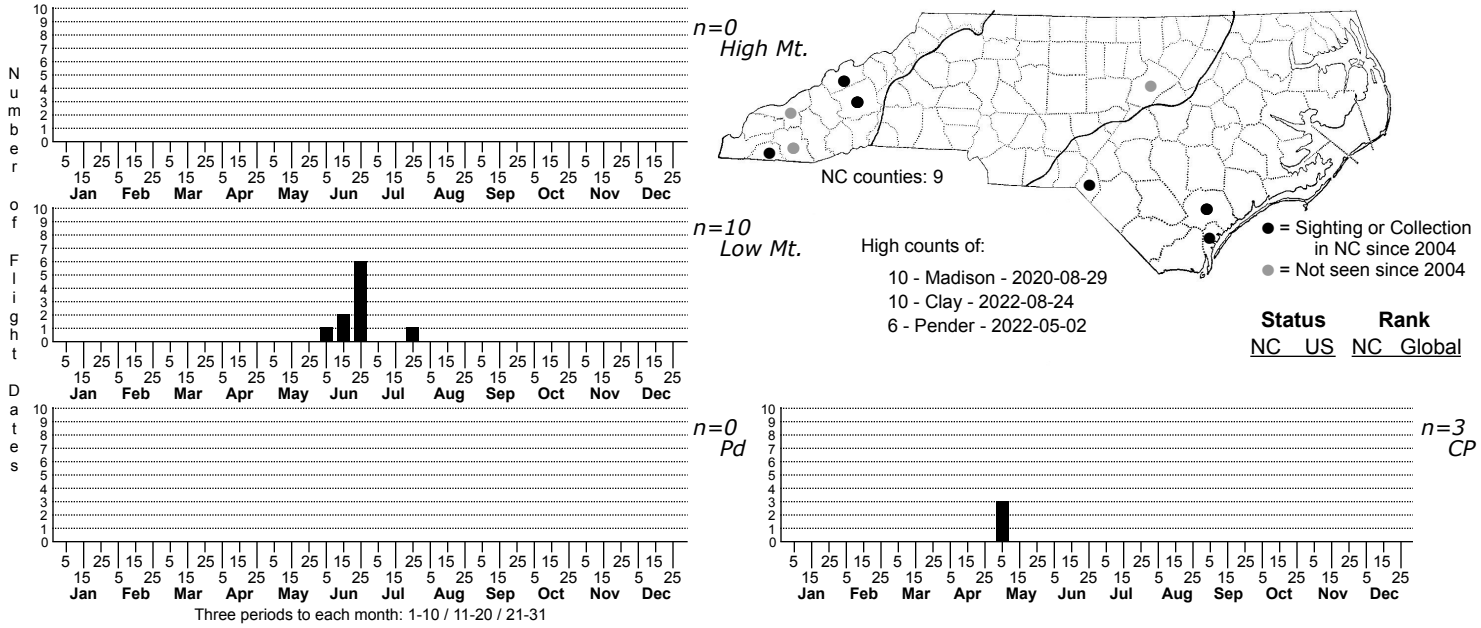
Tegeticula yuccasella Yucca Moth



FAMILY: Prodoxidae SUBFAMILY: Prodoxinae TRIBE: [Prodoxini]
TAXONOMIC_COMMENTS: Tegeticula yuccasella was the traditional name applied to a wide-ranging species that pollinates yuccas. Pellmyr (1999) subsequently split the North American forms north of Mexico into 13 species, and restricted the name T. yuccasella to populations that occur in the central and eastern US. It is the only Tegeticula that occurs in North Carolina. This and a second species (Prodoxus decipiens) are the only two yucca moths that are found in the state.

FIELD GUIDE DESCRIPTIONS: Covell (1984); Beadle and Leckie (2012)
ONLINE PHOTOS:
TECHNICAL DESCRIPTION, ADULTS: Pellmyr (1999)
TECHNICAL DESCRIPTION, IMMATURE STAGES: Riley (1892)

ID COMMENTS: The following is based on a redescription of the species by Pellmyr (1999). The head and thorax have white scales. The maxillary palp has a fully developed brown tentacle in the female, and sometimes a small trace of it in the male. The labial palp has brown scales on all of segment 1, dorsally on segment 2, while elsewhere it is white-scaled. The female has 30-40 sensory setae ventrally on the second segment, while the male has 1-3 setae near the basal bend of the second segment. The proboscis is yellow, and has the same brightness but is yellower than the maxillary palp. The antenna is 0.41-0.46 times the length of the forewing, with 42-50 segments. White scales cover the basal 17-21 segments, while the remainder are brown. The legs are brownish yellow with white scales, except for darker specimens that have brown scales anteriorly on the foreleg and mid tibia. The dorsal surface of the forewing is white, with dark brown scales on the costa from the base to 15-30% of the entire length. The underside of the forewing is dark brown except for the white costa beyond the dark scales, and a yellowish white portion that overlaps the hindwing. The forewing fringe is white. The hindwing is brownish gray. It is darkest by the apex, and gradually turns white toward the hind corner. The underside is light brown, often with a darker apical region that reaches M3. The hindwing fringe has the basal third brown, sometimes with a rusty tinge, and the remainder white. The abdomen is tan dorsally, with lighter linear scales along the posterior edge of each segment. In both sexes the last two segments have erect scales that form a brush. The underside of the abdomen is white.

Our two yucca moths (Prodoxus decipiens and T. yuccasella) often co-occur locally and can be found resting inside the same yucca flowers during the day. They are very similar externally and are best identified via genitalia or by examination of the head region. Female T. yuccasella have a conspicuous tentacle at the base of each maxillary palp that is used to pollinate flowers (Pellmyr and Krenn, 2002), while P. decipiens does not. The species also differ in size (Althoff et al., 2001, Pellmyr, 1999) as follows: T. yuccasella; wing length = 8.4-10.0 mm for males and 9.3- 11.7 mm for females, P. decipiens; 4.0–8.8 mm for males and 4.6–11.0 mm for females.

DISTRIBUTION: Tegeticula yuccasella occurs throughout the Great Plains from southernmost Canada to as far south as Texas. The range extends eastward from the Great Plains to cover most of the eastern US, from Florida and the Gulf Coast states northward to at least central Michigan, southern Ontario and Connecticut (Pellmyr, 1999). As of 2023, we have only 20 records from North Carolina. The species is patchily distributed statewide where local populations of yucca occur.

FLIGHT COMMENT: The flight season is strongly tied to the local flowering of yuccas. As of 2023, we have records from early May through July.

HABITAT: Tegeticula yuccasella primarily uses Yucca filamentosa as a host in North Carolina. This species grows in relatively dry, open habitats such as open woods, the edges of granitic flatrocks, maritime forests, and dunes near beaches. Yucca filamentosa has also been widely planted as an ornamental, and has escaped in most areas of the state. It often occurs around abandoned homesites and other disturbed habitats.

FOOD: Tegeticula yuccasella uses a variety of yucca species outside of North Carolina, including Curlyleaf Yucca (Y. filamentosa), Soapweed Yucca (Y. glauca), Buckley Yucca (Y. constricta), Twisted-leaf Yucca (Y. rupicola), Pale-leaf Yucca (Y. pallida), San Angelo Yucca (Y. reverchoni), and Spanish Dagger (Y. aloifolia). The only documented hosts in North Carolina is Y. filamentosa and Y. flaccida, which has traditionally been treated as a variety of Y. filamentosa.

OBSERVATION_METHODS: The adults are active on the wing for 3-4 hours after dark as they fly between flowers (Marr et al., 2000). They are attracted to lights, but are most easily collected by checking inside flowers during the day. They sometimes co-occur with Prodoxus decipiens on the same plant, so care should be taken to correctly identify the adults. Local populations can be documented by checking the seed pods for larval bore holes - a signal that this species is present at a site. The bright red larvae can also be found by breaking open developing seed capsules within a month or so after they form on the plant.

NATURAL HERITAGE PROGRAM RANKS: G4 S2S3

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

COMMENTS: This species is probably more widespread within the state than our records suggest. Additional effort is needed to survey flowers for adult moths, and fruits for the distinctive bore holes.