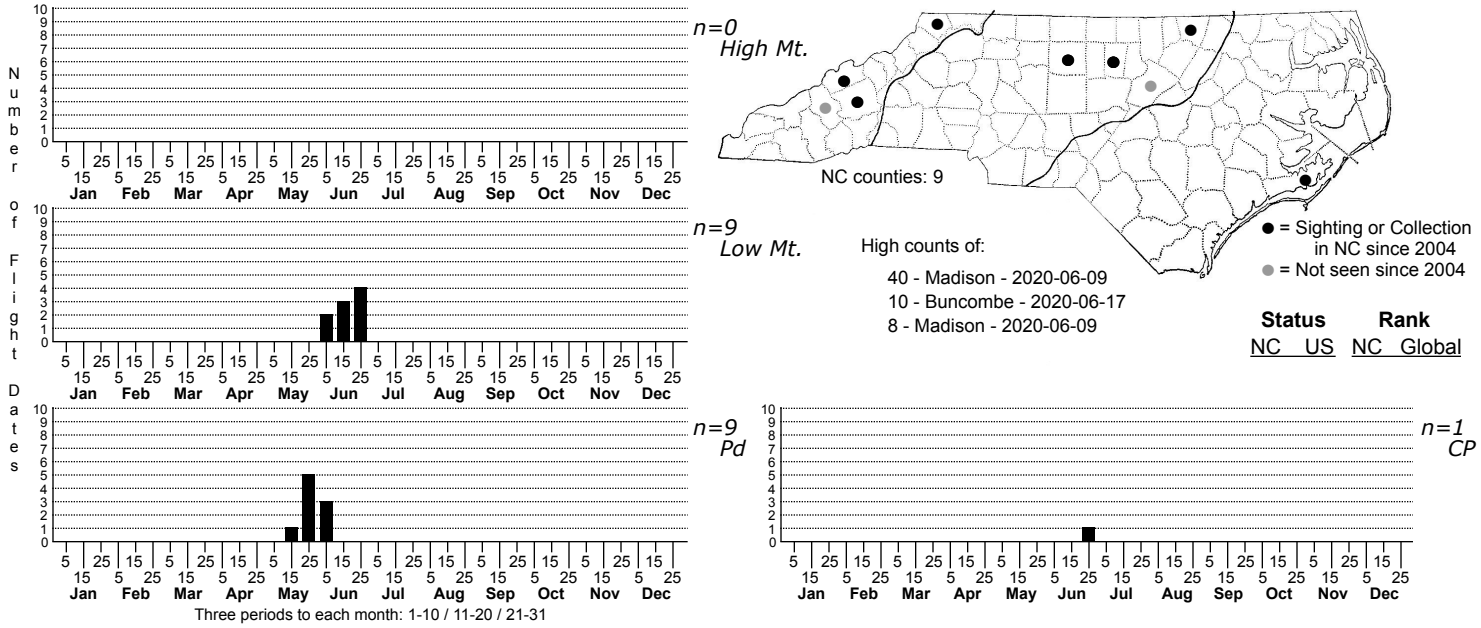
Prodoxus decipiens Bogus Yucca Moth



FAMILY: Prodoxidae SUBFAMILY: Prodoxinae TRIBE: [Prodoxini]
TAXONOMIC_COMMENTS: The genus Prodoxus contains 22 described species in North America. This genus is a sister group to the pollinating yucca moths (Tegeticula and Parategeticula) that have mutualistic relationships with yuccas. Althoff et al. (2001) split what was previously a single, wide-ranging species (P. quinquepunctella) into two species. The eastern form is now recognized as P. decipiens, while the western form is P. quinquepunctella (sensu stricto). Prodoxus decipiens is the only Prodoxus that is found east of the Mississippi River.

FIELD GUIDE DESCRIPTIONS: Leckie and Beadle (2018)
ONLINE PHOTOS:
TECHNICAL DESCRIPTION, ADULTS: Althoff et al., 2001.
TECHNICAL DESCRIPTION, IMMATURE STAGES:

ID COMMENTS: The following is based on Althoff et al.'s (2001) redescription of the species. The integument is amber to medium brown. The head and thorax have white scales. The maxillary palp is five-segmented and lacks a tentacle on the basal segment as is seen in Tegeticula. The labial palp is three-segmented with a prominent apical sensilla. The proboscis is tan-colored and relatively long, while the antenna is dark brown, with white scales on the basal half. The dorsal surface of the forewing is completely white, except for a dark frontal edge on the basal quarter of the costa. The underside is brown except for a yellowish white portion that overlaps the light to medium grayish brown hindwing. The underside of the hindwing is sparsely scaled in brownish gray, with a darker area along the fore edge where it overlaps with the forewing. The wing fringes are white. The abdomen has dorsal scaling that is white and light tan, with the last two segments with white linear semierect scales that form a brush. The underside is white to light tan in females, and light to medium tan and rarely white in males. The legs are whitish with rusty brown on the tarsi.

Our two yucca moths (P. decipiens and Tegeticula 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 the 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: Prodoxus decipiens occurs throughout much of the east-central and eastern US, from central Texas and Florida northward to Kansas, Illinois, Ohio, and Virginia (Althoff et al., 2001). Populations appear to be patchily distributed statewide, and are restricted to sites where the host plants occur.

FLIGHT COMMENT: Adults in local populations are in flight when yuccas are in bloom locally. This is typically from May through early July.

HABITAT: Prodoxus decipiens primarily uses Yucca filamentosa in North Carolina. It also uses Y. aloifolia, which is an introduced species that occurs on dunes along the coast and the Outer Banks (Groman and Pellmyr, 2000). Yuccas are found in relatively dry, open habitats such as open woods, the edges of granitic flatrocks, maritime forests, and dune systems along beaches. Yucca filamentosa has also been widely planted as an ornamental, and has escaped in most areas of the state.

FOOD: The known host include Spanish Dagger (Y. aloifolia), Soapweed Yucca (Y. glauca), Buckley Yucca (Y. constricta), Curlyleaf Yucca (Y. filamentosa) and Gulf Coast Yucca (Y. louisianensis; Althoff et al., 2012; Darwell et al., 2014). Populations in North Carolina are known to use Y. filamentosa and Y. aloifolia.

OBSERVATION_METHODS: The adults are on the wing for an hour or two after dark as they fly between flowers. They are attracted to lights, but are also easily collected by checking inside flowers during the day. The larvae can be located by splitting open Yucca stalks, including older, dried stalks from the previous year.

NATURAL HERITAGE PROGRAM RANKS: G4 S3S4

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

COMMENTS: Populations are entirely dependent on yucca populations and show evidence of local and regional genetic differentiation. Darwell et al. (2014) found that moth populations using Y. filamentosa and Y. aloifolia on the Outer Banks are genetically different from those on the mainland, as well from each other. The moth population at Nags Head clusters with the mainland populations, but those farther along the Outer Banks chain are distinctive from mainland populations. Groman and Pellmyr (2000) also found significant differences in female ovipositor morphology and moth emergence phenology between populations on the Outer Banks that use the two Yucca species. As such, effort should be expended to protect local yucca populations on the Outer Banks that may harbor genetically distinctive populations of P. decipiens.