NOTES ON *CROCIDOSEMA UNICA* (HEINRICH; EUCOSMINI)

BY

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This paper is an attempt to document the occurrence and identifying characteristics of a poorly known Tortricid moth occurring in the United States. The authors collaborated on collecting several specimens and attempting to research and identify the species.

Royal Tyler was responsible for the collection and photography of live specimens, and Michael Sabourin conducted the dissection and taxonomic research.

The study site is The Royal Hills farm, a 153 acre tree farm located in Caddo Parish, Louisiana. This is the NW corner of the state, not far south of Texarkana, AR. It is approximately 120 acres of upland shortleaf pine (*Pinus echinata*) and loblolly pine (*Pinus taeda*) ecosystems, with about 25 acres of creek bottoms of hardwoods and cypress, and 2-3 miles of pipelines and woods roads providing good access and openings. Soils are predominately deep, sandy to sandy loam soils.

Fig. 1. August 31, 2017 (♀)

On August 31, 2017, the first specimen of interest was collected (see Figures 1 and 2). The adult was photographed at a standard light bulb at 9:58 pm at the study location. The adult female was then collected and sent to Michael Sabourin for analysis. Initial dissection showed a moth near *Crocidosema perplexana*, but it would be necessary to collect additional specimens, preferably including a male, to be more specific in species determination.

On August 16, 2018, an additional female was collected (see Figure 3). Two more additional specimens were collected on August 30 (a male, Figures 4 and 5) and September 9 (a female, Figures 6 and 7). All were collected at low intensity, standard light bulbs. Large lights were run a few nights during the collection periods, but we speculate that the small size of these Tortricids, as well as the black dots being easily lost with worn specimens, were probably a reason they were not seen more frequently amongst all the much larger moths attracted to lights.

Fig. 2. August 31, 2017 (♀)

Fig. 3. August 16, 2018 (♀)

Fig. 4. August 30, 2017 (♂)

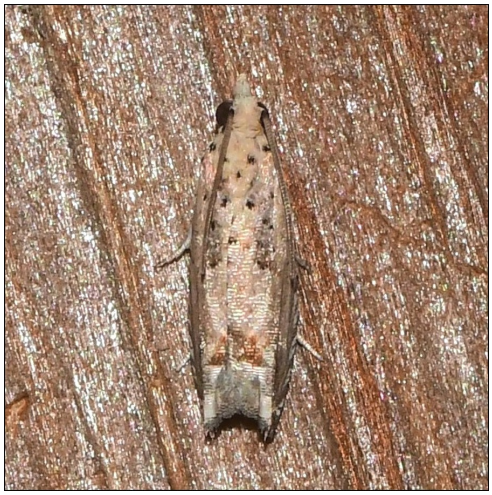

Fig. 5. August 30, 2017 (♂)

Fig. 6. September 9, 2018 (♀)

Fig. 7. September 9, 2018 (♀)

In addition we were able to examine photos of 3 male specimens from N. Carolina that were likewise collected over the past year by J. Bolling Sullivan.

Crocidosema unica (Spotted Butterfly Pea Moth) was described by Heinrich (1923) as *Epinotia unica*. The species is currently placed in *Crocidosema* (Brown, 2005). Adult specimens in good condition can be identified from other Eucosmini by the black spots on the thorax and base of the forewing. The species is unique among its congeners in lacking male secondary sexual characters such as a costal fold on forewing or a sexual scale patch on the base of the hindwing.

Heinrich (1923) gives distinguishing characters as two distinct black dots on the upper side of the second joint of the labial palpi and the unique male genitalia. The adult head and forewing ground color tend to be varying degrees of brownish white. The forewing length is 4.5 to 6.5mm, the markings are either dark brown or fuscous in color. Typical of *Crocidosema* the moths have a basal patch to some degree, a dark pre-tornal patch along hind margin, and a brow line along the upper and distal edges of the forewing ocelli.

The male genitalia (Figure 8) have been previously illustrated in Heinrich (1923, Figure 376). They are diagnostic in having a medial dentate spur along the costal margin of the valva.

The female genitalia are illustrated here (Figure 9) for the first time. The ovipositor lobes are flat, narrow, and subreniform in shape; the seventh sternite is dome shaped with a circular ostium medially along the posterior margin, and a pair of diagnostic lateral dentate spurs along the anterior margin; the ductus bursae is moderate in length, approximate in size to the corpus bursae, with short sclerotized patches posteriorly (antrum) and medially (colliculum); the ductus bursae widens anteriorly coalescing with the pyriform shaped corpus bursae, the corpus bursae with a pair of horn shaped signa approximate in size.

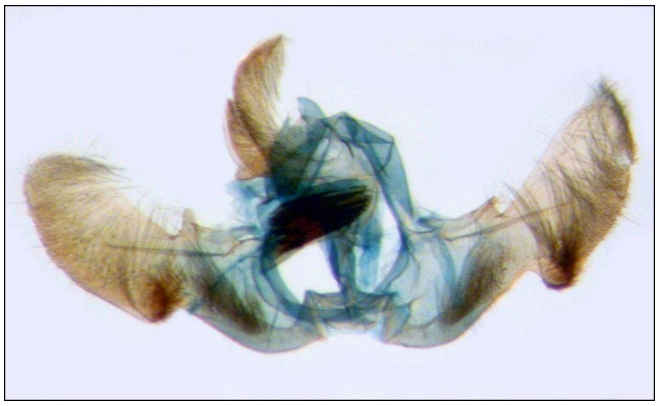

Fig. 8. Male genitalia

Fig 9. Female genitalia

Current records for *Crocidosema unica* are confined to the southeastern United States and Puerto Rico (MPG, 2018) within the known distribution of its recorded food plant; *Bradburya* (*Centrosema*) *virginiana* (Heinrich, 1923). *Crocidosema unica* may also have habitat preferences as Sullivan (2018) reported the species from a longleaf pine (*Pinus palustris*) savanna along the North Carolina coastal plain and the Tyler study site contains shortleaf (*Pinus echinata*) and loblolly pine (*Pinus taeda*) upland forest ecosystem. The May and August collection dates for *C. unica* suggest that it may be bi-voltine.

Centrosema virginiana, commonly known as spurred butterfly pea, is distributed in the southeast United States and ranges into the neotropics (USDA, Wikipedia). Other congeners of *C. unica* such as *C. plebejana* are known to be polyphagous with cosmopolitan distributions (Razowski, 2003)

Sabourin genitalic dissections were consistent with that described in Sabourin et al (2002). Lepidoptera terminology is consisted with that of Horak (2006).

Material Examined:

TN: Knoxville, Holotype ♂ (photo, Gilligan et al, 2018) [USNM]. **LA:** ♀ Vivian, 13302 Mailbox Rd., 31 Aug. 2017, Royal Tyler, gen. prep. #17238 [MS], ♀ Caddo Parish, 16 Aug. 2018, Royal Tyler, gen. prep. #18616 [MS], ♂ Caddo Parish, 30 Aug. 2018, Royal Tyler, gen. prep. #18607 [MS], ♀ Caddo Parish, 9 Sept. 2018, Royal Tyler, gen. prep. #18618 [MS]; **NC:** ♂ Jones Co., Croatan National Forest, Haywood Landing, N34 49.073; W-77 10.787, May 14 2018, 16 wt. uv trap, J. B. Sullivan, gen. prep #8564 (photo)[JBS], ♂ Pender Co., Holly Shelter Game Land, Trumpet Rd. Savannas, N 34.431131; W-77.721827, 22 June 2017, uv trap, J. B. Sullivan, gen. prep #8417 (photo)[JBS], ♂ same data, gen. prep. #8114 (photo)[JBS].

Collection abbreviations:

JBS - J. Boling Sullivan Collection
MS - M. Sabourin collection
USNM - US National Museum of Natural History

References

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