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First U.S. records of *Amorbia concavana* (Zeller)
(Lepidoptera: Tortricidae)

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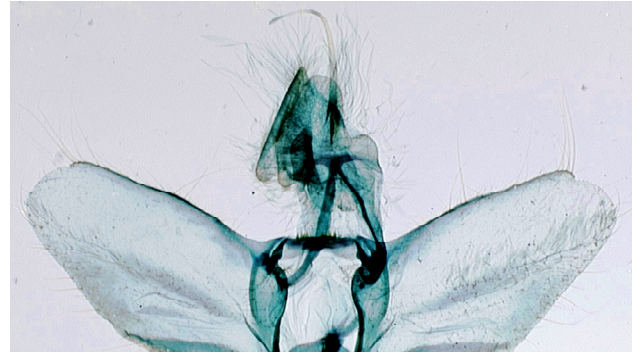
Clemens because of their small size. They differ from *Coelostathma* in lacking ocelli, having a costal fold, and having the sacculus with small ventral projections rather than elongate subbasal or distal processes. Among *Amorbia* species, both sexes key out to *A. emigratella* Busck or *A. vero* Powell and J. Brown (Powell and Brown 2012: 29). Those species differ in lacking a distinct saccular process, and *A. vero* has less strongly colored scales on the apex of the hind wing and a slightly narrower signum than other congeners. Besides *A. concavana*, only *A. vero* and *A. humerosana* Clemens are currently recorded in Florida (Powell and Brown 2012); the latter species is easily distinguished by its gray color and large size (forewing length 10–16 mm).

Descriptive notes. Males have beige forewings with scattered black and silver scales (Fig. 1–2). The hind wings are pale yellow-beige without a transparent area, and the apex is distinctly dark orange with black scales. Females are similar but have darker, rather orange forewings with less black scaling (Fig. 4–5). The quantity of black scales on the male forewing is variable among Florida specimens, but they are otherwise quite homogeneous. The male forewing length is 6.0–8.0 mm (mean = 7.1 mm, $n = 27$), and the female forewing length is 10.0–12.0 mm (mean = 11.0 mm, $n = 4$). The venation is as in other *Amorbia* species, with sexually dimorphic forewing radial veins. The male genitalia (Fig. 6; $n = 3$) have one short saccular spine that is consistent in length among examined material. The corpus bursae has a broad, band-shaped signum typical of *Amorbia* (Fig. 7).

Remarks. The male genitalia differ somewhat from those of Central American populations, represented by a Honduran specimen in Fig. 84 of Phillips-Rodríguez and Powell (2007). Those have a distinctly emarginate sacculus and a longer saccular process, whereas Floridian specimens have a nearly straight sacculus and short spine. However, they are more similar to the illustration of *A. phaseolana* Busck in Busck ([1934]: pl. 30 fig. 4), a Cuban species synonymized with *A. concavana* by Phillips-Rodríguez and Powell (2007). Lambert (1950) also illustrated a short saccular spine in *A. concavana*, but he did not state the dissection's provenance. The Cuban population may prove to be a distinct species from the Central American one, with the Floridian population conspecific with the former, but a decision on the status of *A. phaseolana* will depend on examination or sequencing of Cuban specimens.

The female was not available to Phillips-Rodríguez and Powell (2007), but Busck ([1934]: pl. 36 fig. 8) illustrated the female of *A. phaseolana* and noted that it was much larger than the male. Photographs of both sexes and larvae are available online in Janzen and Hallwachs (2012).

Phillips-Rodríguez and Powell (2007) suggested that *Amorbia effoetana* (Möschler), described from one female specimen from Puerto Rico, could be conspecific. The type specimen was not examined by Lambert (1950) nor by Phillips-Rodríguez and Powell (2007), and it is still absent from the Museum für Naturkunde (W. Mey, pers. comm. 2012). Although nomenclaturally unavailable, Lambert (1950) synonymized *A. phaseolana* with *A. effoetana* and illustrated male genitalia very similar to Fig. 6; it is unknown whether his figure represents Cuban or Puerto Rican populations. Möschler described the species as having “graubraun” (brownish gray) hind wings, so it may well be specifically distinct.



Figures 6–7. *Amorbia concavana* specimens from Florida. **6)** Male genitalia (same data, JEH slide 1475, NMNH). **7)** Female genitalia (same data, JEH slide 1473, FSCA).

Hosts. *Amorbia concavana* is polyphagous (Busck [1934]; Phillips-Rodríguez and Powell, 2007; Janzen and Hallwachs 2012) with some preference for Fabaceae. The records on *Rosa* L. sp. (Rosaceae) and *Mikania micrantha* Kunth (Asteraceae) are novel. The latter is a fast-growing weed that is invasive in Florida (Anderson et al. 2012).

Distribution. *Amorbia concavana* is distributed from northern Mexico (Tamaulipas) to Panama and also in Cuba (Phillips-Rodríguez and Powell 2007). Most of the Florida records are from Miami-Dade County around Homestead and Miami, but one specimen is known from Dania Beach, Broward County. Photograph vouchers posted on the Moth Photographers' Group (Patterson 2012) include specimens from near Florida City, February 2004 (J. Vargo); Davie, May 2006 (P. Ayick); and Anhinga Trail, in Everglades National Park near the main entrance, February 2012 (C. Wolf).

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