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Syngamia florella (Stoll), the orange-spotted flower moth (Lepidoptera: Crambidae: Spilomelinae)

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INTRODUCTION

Syngamia florella (Stoll) is a common moth native to Florida and the Southeastern United States. Specimens are frequently submitted as regulatory samples, probably because of the attractive wing pattern. The Florida Department of Agriculture and Consumer Services, Division of Plant Industry (FDACS-DPI) received 134 samples of adult moths between the years 2007–2018, only two of which were reared; most are caught in various fruit-fly traps. The caterpillars feed on low-growing plants in the family Rubiaceae, and the immature stages are seldom collected. *Syngamia florella* is related to several other spilomeline crambids, such as *Desmia* Westwood and *Mecyna* Doubleday, that also feed on Rubiaceae. Plants of the Rubiaceae family are predicted to be the normal hosts.

IDENTIFICATION

Adult: The forewing length is 8–9 mm and dark brown to black with three pale orange bands in the antemedial, medial, and postmedial areas, the latter two being rounded (Figs 1–3). The hindwing has two similarly colored areas (Brou 2002). The abdomen is orange, and the terminal segment is black and white in the male (Fig. 1) and black in the female (Fig. 2). Heppner (2010) described pattern variation including melanism. The male genitalia have a slightly bifid uncus (Fig. 4: *u*) and a double fibula with a straight ventral process and an S-curved dorsal process (Fig. 4: *f*). The female genitalia have a broadly arched, denticulate signum (Fig. 5: *s*). These structures show almost no variation across the wide range of the species.

Larva: The live caterpillar is green with dark brown pigmentation (Fig. 6); the green is lost in preservation (Fig. 7). The caterpillar keys out to Couplet 21 in Allyson (1984). The SV group of A1 is trisetose, the SD1 pinaculum is not reduced on A2 and A7, and the D1 seta is posterodorsal of D2 on T2 and T3. The prothoracic shield has a longitudinal pigmented stripe on each side running ventral of the D setae and dorsal of the SD setae, posterior of XD2. The D and SD pinacula of T2 and T3, and the SD pinaculum of A1 and A8 are pigmented posteriorly.

Pupa: The pupa is 8–9 mm long (Fig. 8). The pupa is a normal spilomeline pupa without processes or many modifications. The mesothoracic spiracle is lined with dense hairs. The cremaster is elongated, rounded, without furrows or wrinkles and has six setae.

SIMILAR SPECIES

Species of *Desmia* have white rather than yellow-orange spots, and most of them are larger in size. The larva of *S. florella* keys out near *Desmia tages* (Cramer), which also feeds on Rubiaceae, especially *Psychotria nervosa* Swartz. *Desmia* species do not have fibulae and signa like those of *S. florella*.

OCCURRENCE

The moth is widely distributed in the Neotropics, from southern Mexico to Paraguay and on many Caribbean islands (Heppner 2010; Florida State Collection of Arthropods). In the United States, the moth occurs in Florida and the Southeastern Coastal Plain from the Carolinas to Texas. Generations breed continuously in tropical areas. In Florida, the abundance of adult moths is least in May and greatest in October and November. Their abundance also peaks in the fall in Louisiana (Brou 2002).

BEHAVIOR AND HOSTS

The moths fly by day as well as night (Heppner 2010). The larvae are leaf-feeders stripping the epidermis, leaving small windows (Figs 9, 10). Larvae may also infest flowers (Figs 11, 12). Pupation occurs in a rolled leaf (Fig. 13). Most host records are on *Spermacoce* L., including *Spermacoce laevis* Lam., *S. tetraquetra* A. Rich., *Spermacoce verticillata* L., and *Richardia grandiflora* (Cham. & Schltdl.) Steud. (Ogilvie 1928; DPI records). Figures 9–13 depict an exceptional infestation of *Pentas lanceolata* (Forssk.) Deflers in a greenhouse. Host plants other than Rubiaceae would be anomalous and should be vouchered.

ACKNOWLEDGMENTS

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Fig 1. Male habitus. Florida, Marion Co., leg. T.S. Dickel. Scale = 1 mm.
Photo credit: James Hayden, DPI.

Fig 2. Female habitus. Florida, Marion Co., leg. T.S. Dickel. Scale = 1 mm.
Photo credit: James Hayden, DPI.

Fig 3. Live moth. Photo credit: James Hayden, DPI.

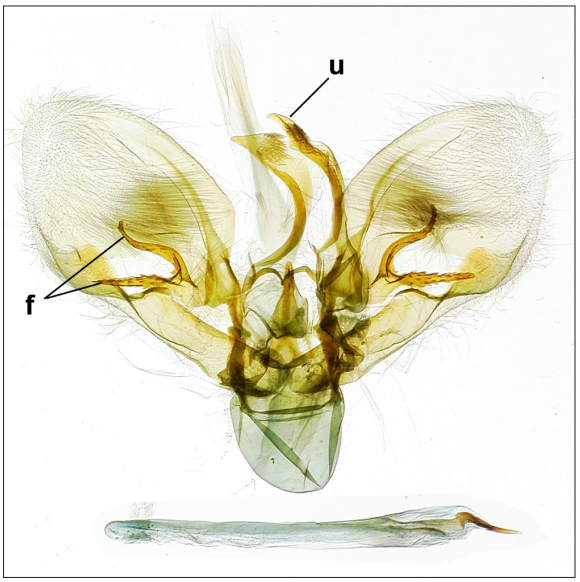

Fig. 4. Male genitalia. *f,* fibula; *u*, uncus. Photo credit: James Hayden, DPI.

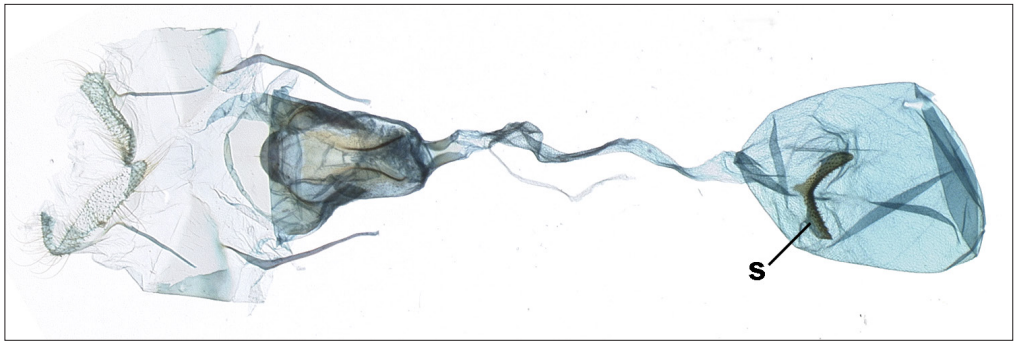

Fig 5. Female genitalia. *s*, signum. Photo credit: James Hayden, DPI.

Fig 6. Live larva on *Pentas lanceolata*. Scale = 1 mm. Photo credit: James Hayden, DPI.

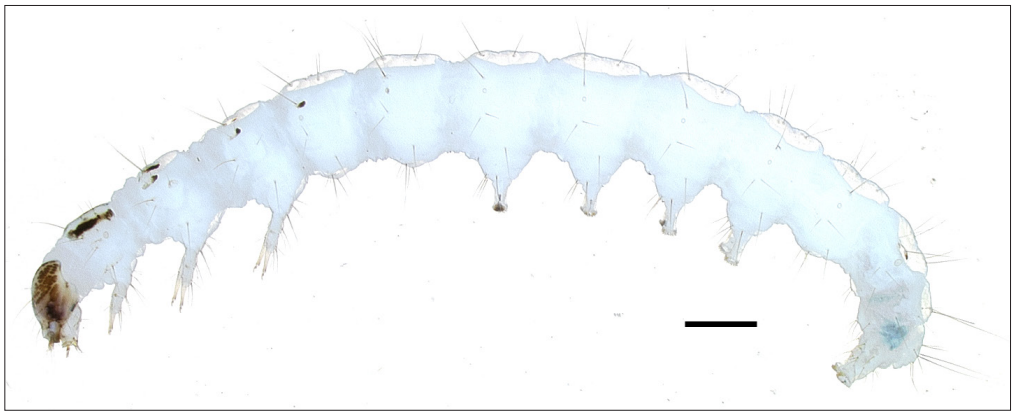

Fig 7. Preserved larva. Scale = 1 mm. Photo credit: James Hayden, DPI.

Fig 8. Pupa: A, dorsal aspect; B, lateral; C, ventral. Photo credit: James Hayden, DPI.

Fig 9. Leaf damage on *Pentas lanceolata* with middle-instar larva. Photo credit: James Hayden, DPI.

Fig 10. Extensively damaged *P. lanceolata*. Photo credit: James Hayden, DPI.

Fig 11. Flower damage on *P. lanceolata* with specks of frass. Photo credit: James Hayden, DPI.

Fig 12. Larva on *P. lanceolata* inflorescence. Photo credit: James Hayden, DPI.

Fig 13. Pupa in leaf of *P. lanceolata*. Scale = 1 mm. Photo credit: James Hayden, DPI.