Research Note

ATHELOCA SUBRUFELLA *(HULST) (LEPIDOPTERA: PYRALIDAE: PHYCITINAE): THE COCONUT MOTH IN PUERTO RICO*[1,2]

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This is the first report of the palm bud moth or coconut moth, *Atheloca subrufella* (Hulst, 1887), in Puerto Rico (Figure 1A). Ferreira et al. (2002) mentioned that *A. subrufella* is one of the most important coconut pests in coconut cropping systems. This moth was observed in San Germán, on buds and flowers of *Cocos nucifera* (L.) (Aracaceae). Severe damage to buds and flowers was observed in samples (Figure 1C) with larvae of *A. subrufella* present (Figure 1B). Dra Alma Solis from SEL-ARS, Smithsonian Institution, National Museum of Natural History, Washington, DC 20013-7012, identified the adult specimens as *A. subrufella*. The specimen's voucher Acc.no. 952-2023 is deposited at the Entomology Laboratory of the Agricultural Experiment Substation at Juana Díaz, and two specimens are in the Smithsonian Institution, National Museum of Natural History, Washington, DC, with voucher numbers USNMENT01462963 and USNMENT01462958.

The main morphological characteristics to differentiate specimens placed in the genus *Atheloca* are the venation of the wing and its genitalia. In *A. subrufella,* the first wing HM vein 4 is present, hind wing smoky white, translucent; the veins darkened and a distinct dark shade along termen; alar expanse, 12 to 19 mm. In the male, the base of the antenna flagellum is unmodified and segment eight of the abdomen has unpaired ventral tufts; midtibia has strong hair tufts at the base on inner side and the hind tibia of the male lacks appreciable hair tufts. Male genitalia are the given for the genus; the female genitalia show a sclerotized portion of ductus bursae, very narrow (Heinrich, 1956).

Larvae of *A. subrufella* are voracious and feed on the carpels and petals, and they bore the buds and immature coconuts, feeding on the mesocarp, leaving several galleries in the process (Bento et al., 2006). While they feed, they leave frass, and with their feces they leave silk strands in all the destroyed matter (Bento et al., 2006).

Seven 10-cm long raquis were collected from each of five *C. nucifera* inflorescences to determine the number of larvae present as affected by the number of flowers.In the collected samples of *C. nucifera*, we observed a significant relationship between the total number of flowers and number of larvae on flowers per each 10 cm of inflorescence (Figure 2). This relationship tells us how abundant the species is on this host and why

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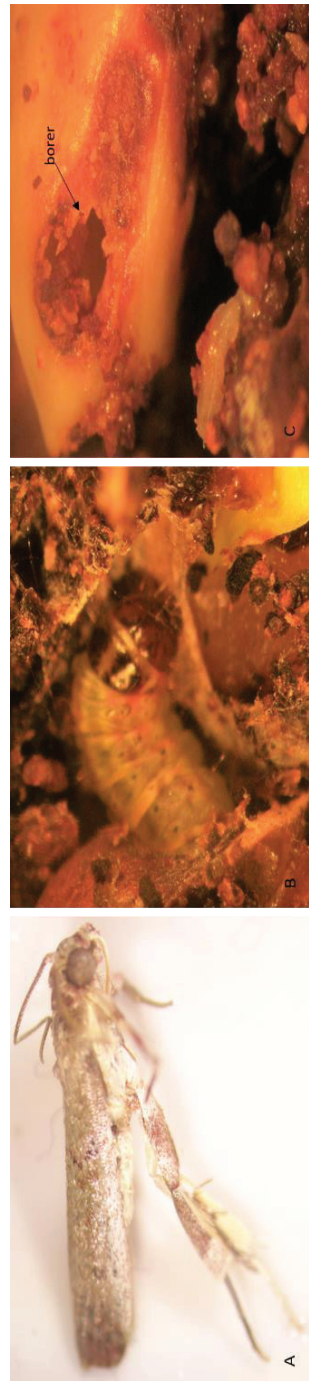

FIGURE 1. Palm bud moth: A) *Atheloca subrufella* adult, B) Larva of *A. subrufella*, C) Damages to bud of *Cocos nucifera*.

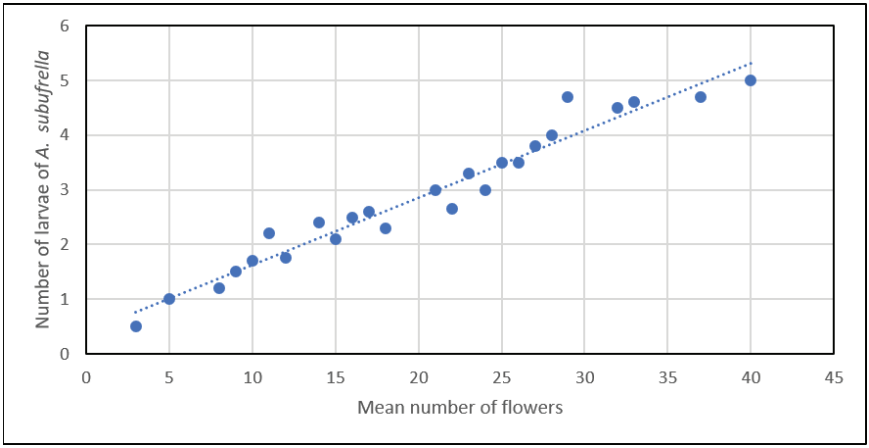

FIGURE 2. Ordinary Least Squares Regression: y= 0.8196x + 0.9659; R^2=0.8805, p=0.0001, of the mean number of larvae of *Atheloca subrufella* as affected by the mean number of flowers in the inflorescences of *Cocos nucifera*.

it is a very severe pest of *C. nucifera*. Our findings agree with the literature indicating that this pest is very prolific, able to lay about 216 eggs during its life, which is about 28.5 days (Bento et al., 2006).

In Brazil, the coconut moth is reported to be the pest that causes the most shedding of flowers and fruit in coconut cropping systems (Bento et al., 2006). This pest has been reported in USA (Georgia and Florida), Mexico (Habeck and Nickerson 1982; Hodges et al., 1983), Cuba, the US Virgin Islands and Costa Rica (Bondar, 1940; Heinrich, 1956; Kimbal, 1965). Beside *Cocos nucifera*, this insect can also attack other Aracaceae, such as the palms *Sabal palmetto* and *Serenoa repens* (Habeck and Nickerson, 1982; Kimbal, 1965; Cock and Burris, 2013). It is possible that this species was in Puerto Rico long ago but was not detected or reported.

Because of the abundance of this species in coconut, it would be advisable to evaluate other palm species that may be affected by the coconut moth on the island. We also need to evaluate its abundance and determine the damage to different hosts. In addition, new management practices to control this insect pest should be evaluated too, and this will benefit growers of coconut palm, since recommended practices are scarce in the literature.

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