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FIRST RECORD OF *ERYTHMELUS KLOPOMOR* (HYMENOPTERA: MYMARIDAE) AS A PARASITOID OF THE AVOCADO LACE BUG, *PSEUDACYSTA PERSEAE* (HETEROPTERA: TINGIDAE)

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The avocado lace bug, *Pseudacysta perseae* (Heidemann) (Hemiptera: Tingidae), is a secondary pest of avocado and other Lauraceae in Florida and other states within the continental USA (Peña et al. 1998; Wysoki et al. 2002; Hoddle et al. 2005). Due to a resurgence of *P. perseae* in Florida in the 1990s, a survey for natural enemies was conducted from 1995 to 1997 (Peña et al. 1998). During this survey, an unidentified mymarid (Hymenoptera: Mymaridae) was reared from parasitized eggs of *P. perseae* together with *Oligosita* sp. (Hymenoptera: Trichogrammatidae) (Identified by M. Schauff, USDA, Beltsville, MD). That study, however, did not include the extent of parasitization caused by both natural enemies. Eggs of *P. perseae* are deposited as clusters in the adaxial surface of avocado leaves, and they hatch within 9 to 19 d, depending on the temperature (Morales, 2000). At temperatures above 30°C, which are common in much of Florida, especially in the avocado growing season in summer. Therefore, any egg parasitoid must discover the *P. perseae* egg mass within the shorter part of the range. According to the literature, no other egg parasitoids have been reported from *P. perseae* (Aboud-Antun 1991; Medina-Gaud et al. 1991; Morales 2000; Sandoval 2004; Streito & Morival 2005).

An additional survey for parasitoids of *P. perseae* was initiated from Jan 2006 through Jun 2007. The survey consisted of monthly collection of 20 avocado leaves infested with *P. perseae,* from 3 sites within Miami-Dade County (USDA, Miami Research Station, latitude 25.64194 and longitude -80.29038; Princeton, FL, latitude 25°30' 49.99N and longitude 80°26' 18.71W, and the University of Florida, Tropical Research and Education Center, Homestead, FL, latitude 25°30' 37.64N and longitude 80°30' 11.02W). All sites were avocado groves of different the West Indian cultivars Dunedin, Simmonds, Gottfried, and Booth, and all were insecticide free throughout the study. Leaves were placed in individual plastic bags in an ice chest and transferred to the laboratory. Eggs were counted, and the section of the leaf containing them was placed inside individual test tubes (12 × 75 mm) and sealed with a Kimwipes tissue. These were held for 30 d at 25°C and 75% RH and 12:12 L:D and then inspected for the presence of any parasitoid. Emerged parasitoids were placed in 5-mL vials with 75% ETOH.

Pseudcaysta perseae egg densities increased from 48.5 ± 5.0 eggs per leaf during Jan 2006 to 95.3 ± 7.0 eggs per leaf during Apr and decreased thereafter. Egg densities during 2007 increased from 29.0 ± 0.1 in Jan to 37.7 ± 3.2 during Mar 2007. Two species of parasitoids emerged from *P. perseae* eggs: the mymarid, *Erythmelus (Erythmelus) klopomor* S. Triapitsyn (Triapitsyn et al. 2007) was the more common one, while probably a new species of Trichogrammatidae (J. D. Pinto, pers. comm.) was the less common (only 1 specimen emerging from 1 egg throughout the survey). This is the first record of *E. klopomor* parasitizing *P. perseae*. Previously, *E. klopomor* was known as a parasitoid of *Corythucha* spp. (Tingidae) eggs in the eastern USA (Triapitsyn et al. 2007). Evidence of parasitism of *P. perseae* was considered low because of our collecting technique. For instance, the highest number of *E. klopomor* parasitoids emerging from an egg mass was 0.36 ± 0.2, which translates as 1.71% parasitism per cluster of 20 eggs. These numbers however, can be misleading. For instance, since the parasitoid emerges through a circular hole (Fig. 1) in the operculum in the same manner as *P. perseae*, those collected eggs with a circular hole through the operculum could have been either parasitized or not. The importance of egg parasitism or other egg mortality factor needs to be further studied. For instance, during an evaluation of egg mortality factors in Homestead, during 2007, emergence of the tingid nymphs from eggs exposed to biotic and abiotic mortality factors was reduced 67% compared to a 20% reduction of nymphal emergence from eggs where these mortality factors were excluded (Peña et al. unpublished). Only these 2 parasitoids and the predator, *Paracarniella cubana* (Peña et al. 1998) have been observed as mortality factors for *P. perseae* eggs in Florida.

Fig. 1. *Erythmelus klopomor* emerging from eggs of *P. perseae*. Credits. D. Long.

Summary

The mymarid, *Erythmelus (Erythmelus) klopomor* S. Triapitsyn was found as an egg parasitoid of the avocado lace bug, *Pseudacysta perseae* (Heteroptera: Tingidae) for the first time in Miami-Dade County, Florida, USA.

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