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Source: Florida Entomologist, 98(4) : 1252-1253

Published By: Florida Entomological Society

URL: https://doi.org/10.1653/024.098.0439

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First record of *Conotrachelus perseae* (Coleoptera: Curculionidae) in Comitán, Chiapas, Mexico

Miguel A. Vázquez, Leopoldo Cruz-López, and E. R. Chamé-Vázquez*

Mexico is the world leader in production and commercialization of 'Hass' avocado (*Persea americana* Miller; Laurales: Lauraceae) (García 2009; SIAP 2012). Of the 28 states of the republic where it is grown, Michoacán is the largest producer (Téliz & Mora 2007). For Chiapas, SIAP (2012) reported 2,736 ha of avocado groves distributed across the state.

The United States maintained an embargo against Mexican avocado for more than 85 years based on the rationale that certain pests associated with it endangered U.S. production (Martínez 1998; Fundación Produce 2003). Michoacán is currently the only state in Mexico authorized to export Hass avocados to the United States (SAGARPA-SENASICA 2011). Among the pests that have limited international avocado trade are the small avocado seed weevil *Conotrachelus perseae* Barber and the stem weevil *Conotrachelus aguacatae* Barber (Coleoptera: Curculionidae) (SENASICA 2010). *Conotrachelus* is one of the largest genera of Curculionidae comprising around 1,100 species (Fiedler 1940). In Mexico, 86 species of this genus are reported (O'Brien & Wibmer 1978). Damage to avocado fruits by *C. aguacatae* and *C. perseae* has been observed in several regions of the country including Michoacán, Puebla, Guanajuato, and Queretaro (Muñiz 1970; Llanderal & Ortega 1990; Martínez 1998; Teliz et al. 2000; Zamora 2000; CESAVEEM 2010).

Conotrachelus perseae adults are nocturnal. Damage symptoms are detected as small perforations and the presence of a white powder on the apical, middle, or basal part of the fruit (Téliz & Mora 2007). The larvae feed on the seed, whereas the pupae are found outside the fruit, mainly in the soil (Coria 1999).

To date, there is no published information available on the avocado seed weevil *C. perseae* in the avocado-producing regions of Chiapas. This paper is, therefore, the first report of *C. perseae* in Hass avocado in the Comitán Region of Chiapas, located in the southernmost region of Mexico (Fig. 1). Since 2011, Hass avocado producers of the Comitán Region have observed damage to fruits with the symptoms characteristic of attack by the avocado seed borer (M. S. Morales, pers. comm.).

In Oct 2013, Hass avocado fruits were collected in 3 Hass avocado orchards of the municipalities of Las Margaritas and Comitán, Chiapas. The coordinates of each sampling site were georeferenced with a GPS (Garmin, Etrex 20 CAN310, USA) (Fig. 1). The fruits were taken to the insectarium at the Colegio de la Frontera Sur at Tapachula, Mexico, placed in plastic containers covered with mesh, and kept at room temperature. When the weevil larvae emerged, they were placed in separate plastic receptacles containing 10 cm of soil from the study area. The containers were kept in a rearing chamber at 25 ± 2 °C, 70 ± 10% RH, and a 12:12 h L:D photoperiod until the adults emerged. The adults were preserved and deposited in the Southern Border Area Crop Associated Insects Collection (ECO-TAP-E) with SEMARNAT registration number CHIS-INV-133-09-02. Identification of adults was based on external morphology and male genitalia, taking into account the original description of Barber (1919) and the description of Muñiz (1970).

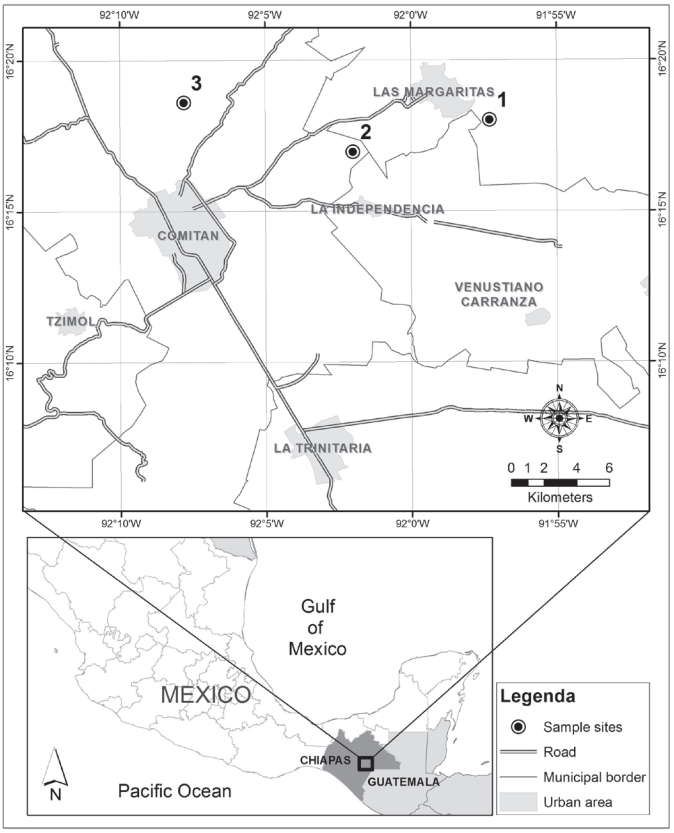


Fig. 1. Distribution of *Conotrachelus perseae* in the Hass avocado producing region of Comitán, Chiapas, Mexico. Sampling sites: 1 ⦿ (16°18'1''N, 91°57'18''W), 2 ⦿ (16°16'58.3''N, 92°1'59.7''W), 3 ⦿ (16°18'36.82''N, 92°7'48''W).

We observed that adult specimens were ochre red and almost black in the region of the pronotum (Fig. 2A). The entire body was covered with inter-mixed white and ochre hair-shaped scales. The traits that separate this species from others were the flat Y-shaped uncus anteriorly and hook-shaped uncus posteriorly, the conspicuously pubescent face in the basal two-thirds, and the elongated aedeagus with the apex widely truncate and projected perpendicularly toward its ventral side showing patches of small setae. The larvae were creamy yellow with a brown head (Fig. 2B). The presence of the prothoracic tergite,

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Fig. 2. Avocado seed weevil *Conotrachelus perseae* (A) adult and (B) larva.

with a semi-sclerotic appearance, was notable. Incomplete peritreme was visible at the anterior and dorsal parts of the spiracles. In most of the collected fruits, 1 or 2 larvae were found, but occasionally up to 16 larvae were counted in a single fruit. The larvae emerged from the fruit and buried themselves in the soil to pupate. After 40 d in the soil, the adults emerged. In the plots where damaged fruits were collected, the level of infestation was approximately 60% of the fruits, and the distribution of affected trees in the plots was aggregated. The above descriptions of both adults and larvae coincide with those previously described by Barber (1919), Muñiz (1970), and Llanderal & Ortega (1990).

In conclusion, *C. perseae* is an insect pest that causes direct damage to avocado in Chiapas, Mexico. The larvae feed on the seed causing the fruit to drop and thus diminish the yield. In the study region, insecticides are applied frequently in an attempt to control the pest, but this method has not been effective for the growers. It is necessary to conduct studies on the biological and ecological aspects of this weevil species and its natural enemies in order to establish an integrated pest management program for this serious pest.

We thank the avocado growers of the Comitán Region for allowing us to collect the avocado fruits in their groves. We also thank José Higinio López Urbina for constructing the map of collection sites.

Summary

The small avocado seed weevil *Conotrachelus perseae* Barber (Coleoptera: Curculionidae) is one of the major pests of avocado *Persea americana* Miller (Laurales: Lauraceae) that directly affects fruits. It is distributed in several avocado-producing regions of Mexico and causes severe damage to production. Here we report its presence in the Comitán Region, Chiapas, Mexico.

Key Words: damage symptoms; description; Hass avocado; quarantine pest

Sumario

El barrenador pequeño del hueso del aguacate *Conotrachelus perseae* Barber (Coleóptera: Curculionidae), es una de las principales plagas del aguacate *Persea americana* Miller (Laurales: Lauraceae) que afecta directamente a los frutos, y se encuentra distribuida en varias regiones aguacateras de México ocasionando severos daños a la producción. Aquí informamos sobre su presencia en la región de Comitán, Chiapas, México.

Palabras Clave: síntomas de daño; descripción; aguacate Hass; plagas cuarentenarias

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