

SCIENTIFIC NOTE

SYMPATRY OF TWO SPECIES OF *HEILIPUS* GERMAR, 1824 (COLEOPTERA: CURCULIONIDAE) INFESTING AVOCADO (*PERSEA AMERICANA* MILL.) IN CENTRAL MEXICO

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Mexico is cited as the center of origin and diversification of the avocado, *Persea americana* Mill. (Lauraceae). This assertion is supported by the notable genetic diversity of *P. americana* in Mexico, which has given rise to three of the main botanical races: *Persea americana* var. *drymifolia* (Mexican or “criollo” avocado), *P. americana* var. *guatemalensis* (Guatemalan avocado), and *P. americana* var. *americana* (West Indian or “pahua” avocado). These are well known among horticulturists and valued by plant breeders (Galindo-Tovar *et al.* 2008).

Avocado trees are attacked by many species of phytophagous insects, including the stalk-, fruit-, and branch-boring curculionid weevils of the genera *Heilipus* Germar, *Conotrachelus* Dejean, and *Copturus* Schönherr. These insects have apparently evolved with avocado in the center of diversification of this plant (Equihua-Martínez 2001) and have now come to be designated as quarantined pests in the commercial cultivation of avocado, constituting a limiting factor for local and international commercialization (SAGARPA 2002; Peterson and Orden 2008). This situation has required the implementation of diverse pest control strategies in avocado orchards, which have successfully excluded the big avocado seed weevil, *Heilipus lauri* Boheman, and the small avocado seed weevil, *Conotrachelus perseae* Barber, from Michoacán, Mexico’s main avocado-producing

state. However, the species are present in more remote agroecosystems where management programs are virtually nonexistent, converting these areas into natural reservoirs of these weevil pests of avocado.

In Mexico, there are reports of the presence of two species of *Heilipus* that cause damage to avocado: *H. lauri* and the avocado stem weevil borer, *Heilipus albopictus* Champion (Castañeda-Vildózola *et al.* 2013b). However, there is no evidence of interaction between these species or other *Heilipus* species within the same agroecosystem in the Americas. Recently, in Mexico *H. lauri* has been reported interacting in the same agroecosystem with other avocado fruit-boring insects such as *C. perseae* (Castañeda-Vildózola *et al.* 2013a).

In October 2003, we recorded two *Heilipus* species in a backyard orchard of “criollo” avocado trees with no phytosanitary management in the community of El Salitre (18°49'28.1"N, 99°39'50.2"W, 1,685 m elevation), municipality Ixtapan de la Sal, Estado de México. Three specimens of *Heilipus* sp. 1 were boring into stems, and five specimens of *Heilipus* sp. 2 were perforating fruits; both species were attacking the same avocado trees. These beetles were later identified as *H. albopictus* (Figs. 1 and 2) and *H. lauri* (Figs. 3 and 4), using characteristics given in Champion (1902), Barber (1919), and Castañeda-Vildózola *et al.* (2013b).