Macadamia integrifolia Maiden and Betche (Proteaceae), a New Host Plant Record for *Automeris zozine* (Druce 1886)[1] from a Cloud Forest at Veracruz State, Mexico

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Abstract. *Automeris zozine* (Druce) is a silk moth in the family Saturniidae whose larvae typically defoliate plants in the Fagaceae, Fabaceae, and Anacardiaceae families, but little is known about other host plants. We documented the species defoliating *Macadamia integrifolia* Maiden and Betche (Proteaceae) associated with a plantation of coffee (*Coffea* spp., Rubiaceae) in a mountainous mesophyll forest at Veracruz, Mexico.

Resumen. *Automeris zozine* (Druce) es una polilla de seda de la familia Saturniidae que en estado de larva es típica defoliadora de ciertas plantas de las familias Fagaceae, Fabaceae, y Anacardiaceae, pero se conoce poco sobre otras plantas utilizadas para alimentación. Aquí se documenta la defoliación de *Macadamia integrifolia* Maiden y Betche (Proteaceae) asociada a una plantación de café (*Coffea* spp., Rubiaceae) en el bosque mesófilo de montaña en Veracruz, México por parte de la mencionada polilla.

Introduction

Macadamia nut [*Macadamia integrifolia* Maiden and Betche (Proteaceae)] is an evergreen plant species indigenous to Australia (Ironside 1987). The plant was brought for cultivation to temperate and tropical regions of the Americas. In Mexico, and most specifically at Veracruz, the crop is grown in coffee (*Coffea* spp., Rubiaceae) plantations. Both crops provide revenue for the region. But, little information is available on arthropods associated with macadamia trees or parts. *Nezara viridula* (L.) (Hemiptera: Pentatomidae) and *Cryptophlebia ombrodelta* (Lower) (Lepidoptera: Tortricidae) damage the nuts in Hawaii and Australia (Sinclair and Sinclair 1980; Ironside 1981, 1987; Mitchel and Ironside 1981; Croix and Thiedman 1985; Jones and Caprio 1994; Jones et al. 2001). Immatures of Aphididae (Hemiptera: Sternorrhyncha) have been reported to feed on Macadamia inflorescences in Cuba (Pérez and Luis 2014), while larvae of Lycaenidae and

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Noctuidae (Lepidoptera) do the same in Australia (Braby 2004). Some borers, defoliators, miners, and inflorescence feeders in the orders Coleoptera, Hemiptera, Lepidoptera, and Thysanoptera have been reported in Costa Rica (Coto 1999).

MacGregor and Gutiérrez (1983), Cibrian et al. (1995), and Hernández-Baz (1999) mentioned lepidopterans of agricultural and silvicultural relevance at Veracruz without mentioning macadamia plants. Although several moth species might be relevant as pests in those habitats (Hernández-Baz 1999), immature stages and moth families that might be associated with macadamia plants are virtually unknown.

Of 145,565 registered species of Lepidoptera, 126,327 are moths (Heppner 1998). Among them is the Saturnidae, a well-studied family of macromoths with worldwide distribution (Lemaire 1988, Lampe 2010). Saturniidae is represented in Mexico by 193 species and 212 subspecies (Beutlespacher-Baigts and Balcázar-Lara 1994). Seventy-nine species including details on geographical distribution and seasonality have been reported in the State of Veracruz (Hernández-Baz and Iglesias-Andrew 2001). Host plants of the family were reported by Stone (1991) while Peigler (1994) presented data on parasitoids that attack them worldwide.

On 15 July 2016, we visited a coffee plantation (*Coffea arabica* L.) at La Herradura Ranch (19°30´58.38¨N / 96°56´34.39¨) 1,423 m above sea level, at the Municipality of Xalapa, Veracruz, Mexico. A caterpillar of *Automeris zozine* (Druce) (Saturniidae: Hemileucinae) was collected from a macadamia tree in the plantation (Maes 2007) (Fig. 1).

The moth species was reported previously from Mexico (including the locality of Xalapa), Central American countries, and northern South America (Druce 1881-1900, Beutelspacher-Baigts and Balcazar-Lara 1994, Racheli 1998, Miller et al. 2012, Lara-Perez et al. 2017), but details of its biology are basically unknown. Stone (1991) mentioned that *A. zozine* larvae feed on *Quercus robur* L. (Fagaceae),

Fig. 1. Larva of *Automeris zozine* (Druce) feeding on *Macadamia integrifolia* Maiden and Betche.

Rhus laurina Nutt. (Anacardiaceae), and *Robinia pseudoacacia* L. (Fabaceae). Robinson et al. (2010) mentioned *Acacia baileyana* (Mimosaceae), *Acalypha* sp. and *Ricinus communis* (Euphorbiaceae), *Gossypium herbaceaum* (Malvaceae), *Lonicera caprifolium* (Caprifoliaceae), and *Rosa* sp. (Rosaceae) as hosts of *A. zozine*. Coto (1999) and Braby (2004) registered a few phytophagous species in the Lepidoptera families Megalopygidae, Pyralidae, and Tortricidae that were associated with macadamia, but did not mention Saturniidae. As far as we know, Saturniidae and specifically *A. zozine* have not been previously reported feeding on macadamia plants. This seems to be a new host record for that silk moth species.

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