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# New record of *Atlides halesus* (Cramer) (Lepidoptera: Lycaenidae) in Pachuca, Hidalgo, Mexico

*Elsi Bertha Pérez-Jarillo[1], Ignacio Castellanos[1], and José Luis Salinas-Gutiérrez[2,]**

Today there are about 18,768 named species of butterflies (Papilionoidea and Hesperioidea) in the world (van Nieukerken et al. 2011). Ten percent of these species are in Mexico (Heppner 2002; Llorente-Bousquets et al. 2014), and 1,190 of them are Papilionoidea (Llorente-Bousquets et al. 2006). The state of Hidalgo has 349 recorded taxa of true butterflies that have been collected from 156 localities (Luis-Martínez et al. 2005; Llorente-Bousquets et al. 2014).

The family Lycaenidae is present in all biogeographic regions, from temperate to tropical zones (New 1993). It is recognized as the second richest family of true butterflies (Papilionoidea), but the richest family in the Neotropical region (Martins 2014). The family has 4 subfamilies: Miletinae, Lycaeninae, Polyommatinae, and Theclinae, with the last being the most diverse (Warren et al. 2012), whereas Polyommatinae and Lycaeninae have the fewest species (Martins 2014). Mexico has 252 taxa of Papilionoidea, with 74 of these reported in Hidalgo (Llorente-Bousquets et al. 2014).

The genus *Atlides* Hübner has 15 named and 5 unnamed species (Robbins 2004a, b); however, Martins (2014) mentions 20 species, and she includes the 15 Robbins species and the species of Bálint et al. (2003, 2006) and Johnson et al. (2004). *Atlides halesus* (Cramer) (Lepidoptera: Lycaenidae) is a widespread species that can be found from the mountains of Guatemala to the southern half of the USA (Llorente-Bousquets et al. 2006; Warren et al. 2012). However, other authors indicate occurrence in other countries, such as Nicaragua (Robbins et al. 2012) and Costa Rica (Atta 2018; http://atta.inbio.ac.cr/). This butterfly is characterized by a wide variation of patterns on its wings and in the number of tails (Robert K. Robbins, personal communication). The intraspecific relationships also are unclear; Warren et al. (2012) cited 3 subspecies, whereas Martins (2014) mentions 5. Clearly, this genus deserves more research.

We determined the distribution range of *A. halesus* by reviewing the sites where it has been recorded according to the following data sources: Global Biodiversity Information Facility (GBIF), Atta Biodiversity Information System [INBio], Costa Rica), and the Zoology Museum database (Science Faculty, Universidad Nacional Autónoma de México, Mexico City, Mexico). We found 870 records belonging to 3 categories: human observation (556 records), preserved specimen (302 records), and unknown basis for the record (12 records) (Fig. 1). The historical records for Mexico include the states of Aguascalientes, Baja California, Chiapas, Chihuahua, Mexico City, Coahuila de Zaragoza, Durango,

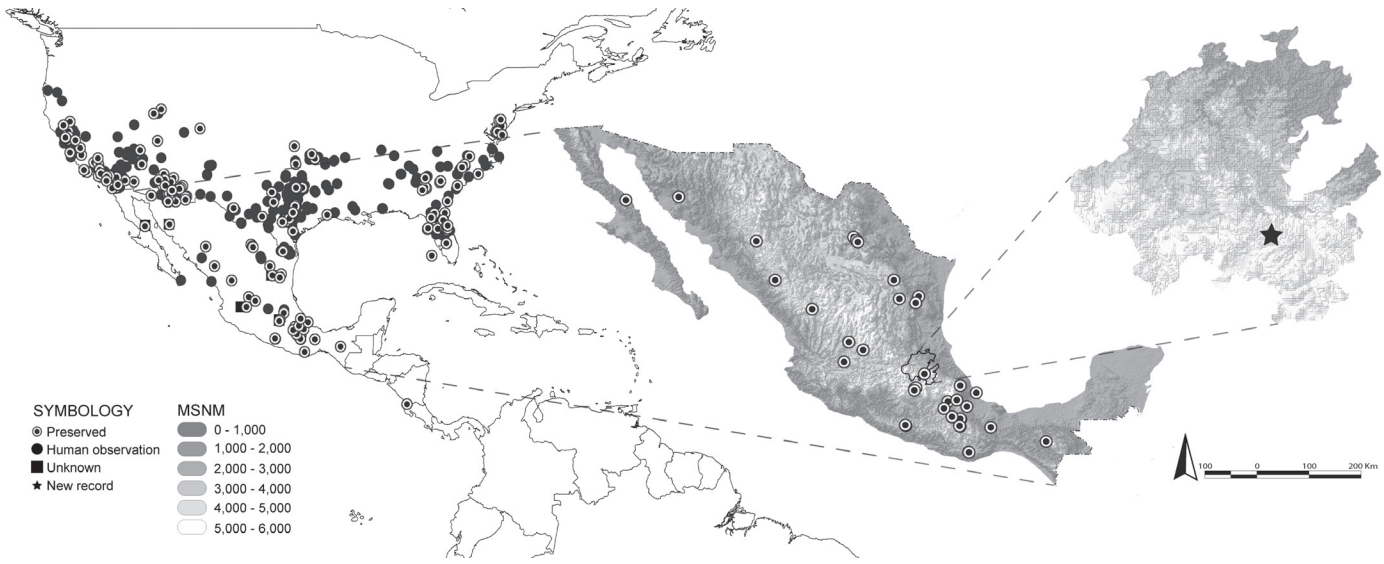



**Fig. 1.** (A) Distribution of *Atlides halesus* (Cramer) in America. (B) Distribution in Mexico and location of the first record for the state of Hidalgo. Symbols: black circle inside white circle (specimen), black circle (observation), black square (unknown), and black star (new record).

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**Fig. 2.** *Atlides halesus* (Cramer), Hidalgo, Mexico, collector Elsi Bertha Pérez-Jarillo. (A) Dorsal view (male), (B) Ventral view (male).

Guerrero, Jalisco, Nuevo Leon, Oaxaca, Puebla, Sonora, Tamaulipas, and Veracruz. No records were found for the state of Hidalgo. In this note we present a new record for this Mexican state.

New record: *Atlides halesus* (Cramer, 1777). Cristo Rey, Pachuca de Soto, Hidalgo, Mexico. One specimen: ♂ MZFC99424, 1-XI-2011, 20.131294°N, 98.714242°W; 2,580 masl. Vegetation xerophilous scrub. Collector Elsi Bertha Pérez-Jarillo. Specimen placed in Museo de Zoología "Alfonso L. Herrera," Facultad de Ciencias, Universidad Nacional Autónoma de México, Mexico City, Mexico (Fig. 2).

The butterfly was found in a periurban site, at the border of the municipality of Pachuca de Soto, near Real del Monte and Mineral del Chico. Xerophilous scrub is common in the area, but there is also ruderal vegetation. The locality is in an area with numerous mountains, near the Sierra de Pachuca mountain range, which is dominated by *Pinus* (Pinaceae) and *Quercus* (Fagales) trees.

We observed *A. halesus* on a cypress tree (Cypressaceae). Several individuals flew around it and rested on the top of the tree. Whittaker (1984) reported the same behavior for *A. dahnersi* Bálint, Constantino & Johnson (Lepidoptera: Lycaenidae) but in *Ficus* (Moraceae) trees, and he called it hill-topping behavior. According to Whittaker (1984) and Wagner (2005), *Atlides* caterpillars feed on plants of the family Loranthaceae, but *A. halesus* uses mistletoe (*Phoradendron* Nutt.; Santalaceae) as a host plant, which parasitizes *Quercus* (Rzedowski & Rzedowski 2005). The occurrence of *A. halesus* in this locality is probably related to availability of oviposition and mating sites.

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## Summary

We recorded the hairstreak butterfly, *Atlides halesus* (Cramer) (Lepidoptera: Lycaenidae), for the first time in the state of Hidalgo, Mexico. This species presents large morphological variations (wing patterns and number of tails) within its distribution range. The distribution range includes 870 records of occurrence, which are displayed on a map of Mexico. The range size includes 870 records in databases that include the previous records for the country (15 sites), and with this information we elaborated a distribution of the species in Mexico.

Key Words: distribution; database; specimens; hairstreak

## Sumario

Se registra por primera vez en el estado de Hidalgo, México, al licénido *Atlides halesus* (Cramer) (Lepidoptera: Lycaenidae). Esta especie tiene grandes variaciones morfológicas dentro de su área de distribución (patrón alar y número de prolongaciones en las alas). El análisis de la distribución incluye 870 registros de bases de datos que incluyen los registros previos para el país (15 estados) y con base en esa información elaboramos un mapa de distribución de la especie en México.

Palabras Clave: distribución; base de datos; ejemplares; licénido

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