



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

Authors: Pérez-Jarillo, Elsi Bertha, Castellanos, Ignacio, and Salinas-Gutiérrez, José Luis

Source: Florida Entomologist, 102(2) : 444-446

Published By: Florida Entomological Society

URL: <https://doi.org/10.1653/024.102.0226>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

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

Elsi Bertha Pérez-Jarillo¹, Ignacio Castellanos¹, 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, Polyommatainae, and Theclinae, with the last being the most diverse (Warren et al. 2012), whereas Polyommatainae 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) (Lepi-

doptera: 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,

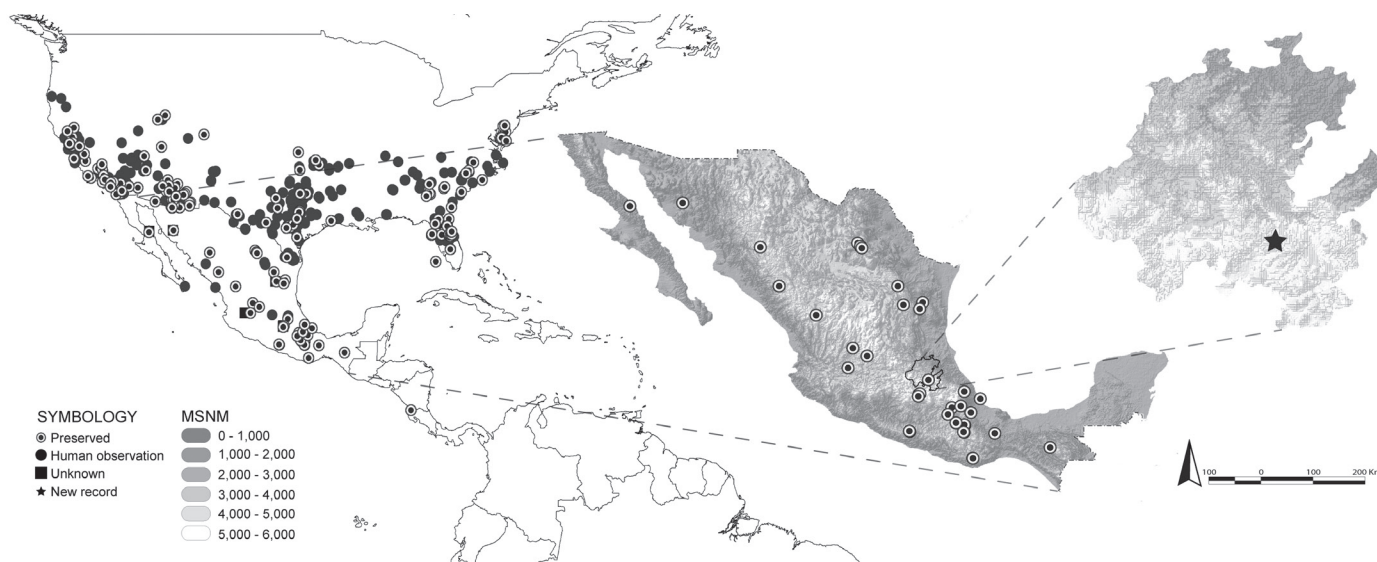


Fig. 1. (A) Distribution of *Atlides halesus* (Cramer) in America. (B) Distribution in Mexico and location of the first record for the state of Hidalgo. Symbols: black circle inside white circle (specimen), black circle (observation), black square (unknown), and black star (new record).

¹Laboratorio de Interacciones Biológicas. Centro de Investigaciones Biológicas, Universidad Autónoma del Estado de Hidalgo, Ciudad del Conocimiento, Carretera Pachuca - Tulancingo Km 4.5, CP 42184, Mineral de la Reforma, Hidalgo, Mexico; E-mail: eber.jarillo@gmail.com (E. B. P. J.); ignacioe@uaeh.edu.mx (I. C.)

²Colegio de Postgraduados, Campus Montecillo, Km 36.5, Carretera Mexico - Texcoco, C.P. 56230, Montecillo, Texcoco, Estado de Mexico, Mexico; E-mail: salinasgtez@colpos.mx (J. L. S. G.)

*Corresponding author; E-mail: salinasgtez@colpos.mx

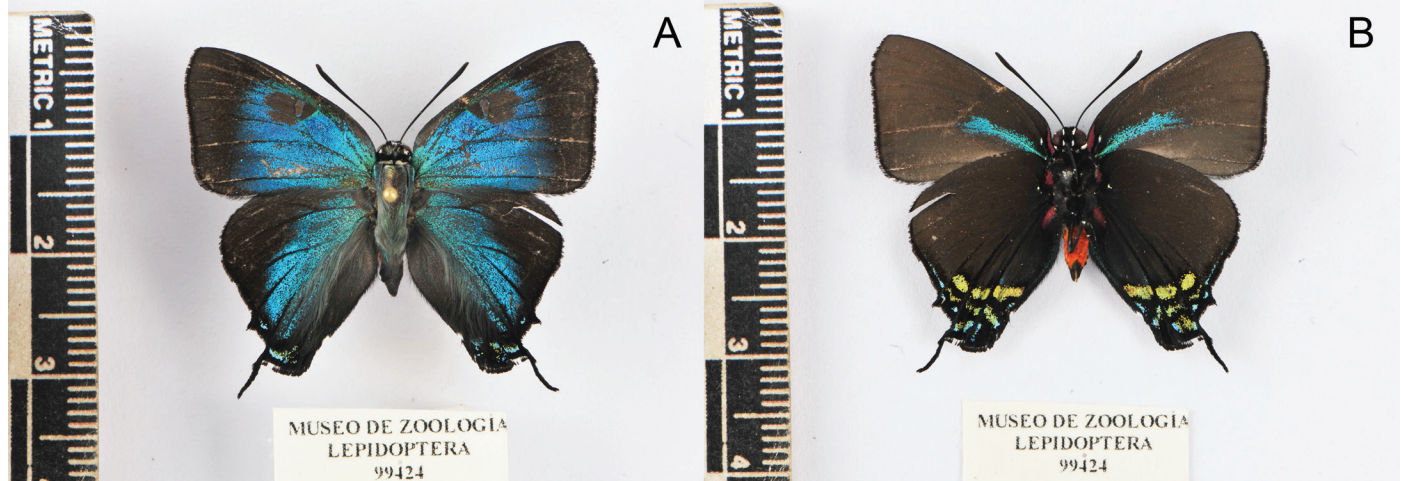


Fig. 2. *Atlides halesus* (Cramer), Hidalgo, Mexico, collector Elsi Bertha Pérez-Jarillo. (A) Dorsal view (male), (B) Ventral view (male).

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.

We are grateful to Robert K. Robbins (Smithsonian Institution, National Museum of Natural History, Washington, DC, USA) for his support and for verifying our identification. We thank Armando Luis Martínez for sharing information and allowing us access to the database, and Arturo Arellano Covarrubias (Facultad de Ciencias, Universidad Nacional Autónoma de México, Mexico City, Mexico) for the pictures in Figure 2.

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

References Cited

- Atta. 2018. Sistema de Información sobre Biodiversidad Instituto Nacional de Biodiversidad (InBio). <http://atta.inbio.ac.cr/> (last accessed 19 Jan 2019).
- Bálint Z, Constantino LM, Johnson K. 2003. *Atlides dahnersi* sp. n. from Colombia (Lepidoptera: Lycaenidae). Folia Entomologica Hungarica 64: 251–266.
- Bálint Z, Kertész K, Wojtusiak J. 2006. The description of *Atlides halljasoni* n. sp. from Ecuador and its spectrographic characterization with some notes on the genus (Lepidoptera: Lycaenidae: Eumaeini). Genus 17: 409–415.
- Heppner JB. 2002. Mexican Lepidoptera biodiversity. Insecta Mundi 16: 171–190.
- Johnson KE, Salazar E JA, Vargas Chica JI, Henao ER. 2004. Nuevas especies y subespecies de Rhopalocera para Colombia (Insecta, Lepidoptera: Lycaenidae, Riodinidae, Satyridae). Boletín Científico Museo de Historia Natural Universidad de Caldas 8: 303–316.
- Llorente-Bousquets J, Luis-Martínez A, Vargas IF. 2006. Apéndice general de Papilionoidea: Lista sistemática, distribución estatal y provincias biogeográficas, pp.733–797 En Morrone JJ, Llorente-Bousquets J [eds.], Componentes Bióticos Principales de la Entomofauna Mexicana. Las Pressas de Ciencias, Universidad Nacional Autónoma de México, Mexico City, Mexico.
- Llorente-Bousquets J, Vargas-Fernández I, Luis-Martínez A, Trujano-Ortega M, Hernández-Mejía BC, Warren AD. 2014. Biodiversidad de Lepidoptera en México. Revista Mexicana de Biodiversidad 85: 353–371.
- Luis-Martínez A, Llorente-Bousquets J, Vargas-Fernandez I. 2005. Una megabase de datos de mariposas y la regionalización biogeográfica de México, pp. 269–294 En Llorente J, Morrone JJ [eds.], Regionalización Geográfica en Iberoamérica y Tópicos Afines: Primeras Jornadas Biogeográficas de la Red Iberoamericana de Biogeografía y Entomología Sistemática (RIBES XII.–CYTED), Universidad Nacional Autónoma de México, Mexico City, Mexico.

- Martins ARP. 2014. Sistemática da seção de *Atlides* sensu Robbins Lepidoptera: Lycaenidae, Theclinae, Eumaeinae. Dissertação (Mestrado), Programa de Pós-Graduação em Sistemática, Taxonomia Animal, Biodiversidade, Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil.
- New TR. 1993. Conservation Biology of Lycaenidae (Butterflies). International Union for Conservation of Nature and Natural Resources (IUCN), Gland, Switzerland.
- Robbins RK. 2004a. Introduction to the checklist of *Eumaeini* (Lycaenidae), pp. 24–30 In Lamas G [ed.], Checklist: Part 4A. Hesperioidea – Papilionoidea In Heppner JB [ed.], Atlas of Neotropical Lepidoptera. Vol. 5A. Association for Tropical Lepidoptera. Scientific Publishers, Gainesville, Florida, USA.
- Robbins RK. 2004b. Lycaenidae. Theclinae. Tribe Eumaeini, pp. 118–137 In Lamas G [ed.], Checklist: Part 4A. Hesperioidea – Papilionoidea In Heppner JB [ed.], Atlas of Neotropical Lepidoptera. Vol. 5A. Association for Tropical Lepidoptera. Scientific Publishers, Gainesville, Florida, USA.
- Robbins RK, Anderson RA, Sullivan JB. 2012. The Nicaraguan hairstreak butterfly fauna (Theclinae: Eumaeini), its biogeography, and the history of Nicaraguan collectors. *Journal of the Lepidopterists' Society* 66: 61–75.
- Rzedowski GC, Rzedowski J. 2005. Flora Fanerogámica del Valle de México. Second edition. Instituto de Ecología A.C. y Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Xalapa, Veracruz, Mexico.
- Van Nieukerken EJ, Kaila L, Kitching IJ, Kristensen NP, Lees DC, Minet J, Mitter C, Mutanen M, Regier JC, Simonsen TJ, Wahlberg N, Yen S-H, Zahiri R, Adamski D, Baixeras J, Bartsch D, Bengtsson BÅ, Brown JW, Bucheli SR, Davis DR, De Prins J, De Prins W, Epstein ME, Gentili-Poole P, Gielis C, Hättenschwiler P, Hausmann A, Holloway JD, Kallies A, Karsholt O, Kawahara A, Koster SJC, Kozlov M, Lafontaine JD, Lamas G, Landry J-F, Lee S, Nuss M, Park KT, Penz C, Rota J, Schmidt BC, Schintlmeister A, Sohn JC, Solis MA, Tarmann GM, Warren AD, Weller S, Yakovlev RV, Zolotuhin VV, Zwick A. 2011. Order Lepidoptera Linnaeus, 1758, pp. 212–221 In Zhang Z-Q [eds.], *Animal Biodiversity: An Outline of Higher-level Classification and Survey of Taxonomic Richness*. Magnolia Press, Auckland, New Zealand.
- Wagner DL. 2005. Caterpillars of Eastern North America. Princeton University Press, Princeton, New Jersey, USA.
- Warren AD, Davis KJ, Grishin NV, Pelham JP, Stangeland EM. 2012. Butterflies of America. <http://www.butterfliesofamerica.com/> (last accessed 19 Jan 2019).
- Whittaker PL. 1984. The insect fauna of mistletoe (*Phoradendron tomentosum*; Loranthaceae) in southern Texas. *The Southwestern Naturalist* 29: 435–444.