

Scientific Note

First records of the Yucatán cracker butterfly, *Hamadryas julitta* (Fruhstorfer, 1914) (Lepidoptera: Nymphalidae: Biblidinae), from the Mayan Biosphere Reserve, Guatemala

Butterflies in the genus *Hamadryas* (Hübner, 1806) (Nymphalidae: Biblidinae: Ageroniini), commonly referred to as cracker butterflies, are named for the distinctive cracking sounds produced by the males of some species within the genus (Garzón-Orduña et al. 2017). It has been suggested that they produce these sounds during courtship, for defense, and to establish territoriality (Murillo-Hiller 2012).

Hamadryas butterflies range from the southern United States to northern Argentina and are abundant in the tropical rainforests of Central America (Garzón-Orduña et al. 2017, Murillo-Hiller 2012). Within this genus, *Hamadryas julitta* (Fruhstorfer, 1914) was first described as an endemic species from northern Belize and Yucatán, Mexico whereas its sister species, *H. glauconome* (Bates, 1864) is found from Mexico to Costa Rica (Prado-Cuellar et al. 2023). A project utilizing standardized survey methods in Tikal National Park, Guatemala, reported 535 species of diurnal butterflies (Austin et al. 1996), including six species of *Hamadryas*: *H. amphinome mexicana* (Lucas, 1853), *H. februa ferentina* (Godart, 1824), *H. feronia farinulenta* (Fruhstorfer, 1916), *H. guatemalena guatemalena* (Bates, 1864), *H. iphthime joannae* (Jenkins, 1983) and *H. laodamia saurites* (Fruhstorfer, 1916) (Austin et al. 1996). Notably, *H. julitta* was not observed in this study.

Salinas-Gutiérrez et al. (2009) presented the first checklist of diurnal butterflies from Guatemala and reported 761 species. This list included nine species of cracker butterflies, with three species being added to the country record: *H. atlantis atlantis* (Bates, 1864), *H. fornax fornacalia* (Fruhstorfer, 1907), and *H. glauconome glauconome* (Bates, 1864). Salinas-Gutiérrez et al. (2012) subsequently presented an updated list with 750 species of diurnal butterflies from Guatemala, without any change in the species of *Hamadryas* reported from the country.

Since then, several additional studies (Guevara & Barrios 2019, Nakahara et al. 2015, Yoshimoto et al. 2022) have been conducted that have expanded our knowledge of Guatemalan diurnal butterflies, but *H. julitta* remained unreported. The present study builds upon and contributes to this work, documenting the first record of *H. julitta* from northern Guatemala, thereby expanding its known geographic distribution southward.

The first record of *H. julitta* in Guatemala is a specimen (Fig. 1) which was photographed at the El Tintal archaeological site in northern Petén Department. The second is a specimen collected (Fig. 2) using a modified Van Someren-Rydon (Larsen 2016) butterfly trap baited with fermenting banana. This specimen has been deposited at the Universidad del Valle de Guatemala Arthropod Collection (UVGC) in Guatemala City. Figure 3 shows the locations of collecting sites for these two specimens. A third record was reported by Busquets-Reverte (via an observation on iNaturalist (Busquets-Reverte 2024). This record was found by a database query on iNaturalist, which revealed the specimen. An additional Global Biodiversity Information Facility (GBIF) query (GBIF 2025) was carried out, and the dataset was cured for obscured records and misidentified specimens.



Figure 1. *Hamadryas julitta* photographed at the El Tintal archaeological site in Petén Department, Guatemala, August 2009.

These records for *H. julitta* are from the Mayan Biosphere Reserve in northern Guatemala and represent the first country record for the species, bringing the total number of *Hamadryas* species in Guatemala to ten.

Specimens Examined. The first known record of *H. julitta* in Guatemala is a specimen with the following data: GUATEMALA, Petén, San Andrés, sitio arqueológico El Tintal, 20 AGOSTO 2009, 17.58050° –89.99645°, 4:40pm, José Monzón-Sierra (Fig. 1). The second is a specimen (Fig. 2) with the following data: GUATEMALA, Petén, San José, Biotopo Protegido Cerro Cahuí, 141m, 13 JULIO 2024, 17.00012° –89.70336°, A. C. Garcia y José Monzón. Colectado en cebo de: Banano fermentado con cerveza [Collected in bait of: Banana fermented with beer], deposited at UVGC [voucher code VS1.25, UVGC0010254]. The third specimen was retrieved from iNaturalist with the following data: GUATEMALA, Petén, San José, Biotopo Protegido Cerro Cahuí, 190 m, 18 NOVIEMBRE 2024, 16.99830° –89.71579°, Ricard Busquets (Busquets-Reverte 2024).

Hamadryas julitta was first described as a species with a restricted distribution to northern Yucatán and Belize (Prado-Cuellar et al. 2023). A GBIF query showed the same distribution with 1749 records of the species (GBIF 2024). Though one record placed a specimen of *H. julitta* in central Guatemala, this record was discarded after determining that it was actually a misidentified specimen likely representing *H. glauconome*. The information in this note extends the known geographic range of *H. julitta* south from Mexico and Belize into northern Guatemala. Figure 3 shows the two sites from which *H. julitta* was collected in Petén Department Guatemala and their geographic relationship to the remainder of Guatemala and the Yucatán Mexico.

Hamadryas julitta was considered a synonym of *H. glauconome* until Jenkins (1983) validated it as a separate species based on morphological and genitalic characters.



Figure 2. *Hamadryas julitta* specimen collected at Biotopo Protegido Cerro Cahui, Petén Department, Guatemala, July 2024.

Phylogenetic analysis has also shown that *H. grisea grisea*, *H. glauconome glauconome*, and *H. julitta* represent different lineages with overlapping distributions across Mexico and Central America (Prado-Cuellar et al. 2023). Though ecological niche models conducted by Prado-Cuellar et al. (2023) predicted a low probability for *H. julitta* occurring in Guatemala, the new country records presented here demonstrate that the species does occur in the northern part of the country.

Our GBIF query (GBIF 2024) had one record of *H. julitta* from Guatemala (2024) from a specimen in the Museum of Comparative Zoology at Harvard University. However, upon closer examination, the specimen appears to be misidentified and is likely *H. glauconome*. The record obtained from iNaturalist (Busquets-Reverte 2024) was an observation made in the same area of the Mayan Biosphere Reserve where the second specimen (above) was collected using Van-Someren Rydon traps.

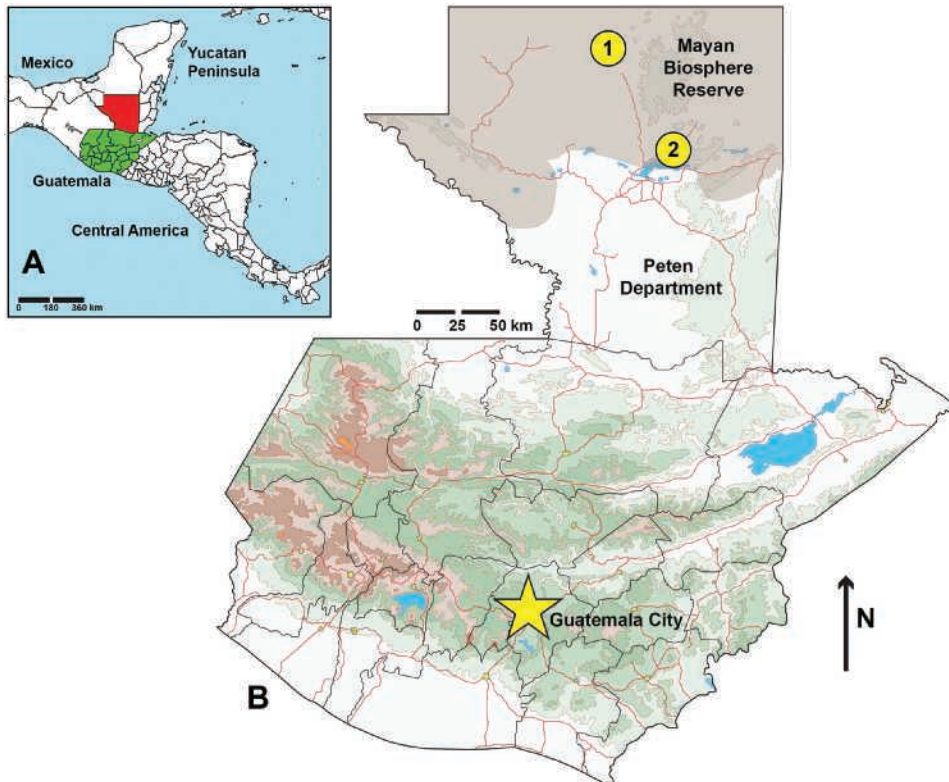


Figure 3. Location of collection sites of *Hamadryas julitta* in Petén Department, Guatemala. A) Petén Department (red) in relationship to the remainder of Guatemala (green) and the Yucatán Peninsula of México. B) Site 1, El Tintal archaeological site; Site 2, Biotopo Protegido Cerro Cahui.

Hamadryas butterflies are common in dry tropical and deciduous forests, where they likely use their coloration as camouflage of tree bark. The records of *H. julitta* presented here are from protected areas such as El Mirador National Park and Biotopo Protegido Cerro Cahui from the Mayan Biosphere Reserve. This suggests that the region may have a fauna previously thought to be restricted to the northern Yucatán Peninsula, highlighting the importance of protected areas for biodiversity conservation in Guatemala. This is especially noteworthy given ongoing habitat loss and species decline in the region (Bonebrake et al. 2010). Furthermore, these findings showcase the existence of undocumented Lepidoptera and other taxa in the region. This has been noted by Lamas (2004) who concluded that many species in the neotropics remain undiscovered and highlights the importance of continued research efforts.

Our study was limited to one collecting event, which may not adequately represent the species' abundance. Further research is crucial in understanding the distribution and ecology of *H. julitta*, and other species, in northern Guatemala. However, these reports contribute to a better understanding of the species biogeography in the Mesoamerican region. The work presented here also highlights the importance of Guatemala's ecosystems and provides relevant information for future conservation efforts and strategies.

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Ana Cristina GARCIA-CORDON, *Department of Entomology, Washington State University, Pullman, Washington 99164-6382, U.S.A.; e-mail: ana.garciacordon@wsu.edu*; Anna Rocío LEÓN-COLOMA, *Universidad del Valle de Guatemala, Guatemala City, Guatemala; e-mail: annarociolc@gmail.com*; Richard S. ZACK (*corresponding author*), *Department of Entomology, Washington State University, Pullman, Washington 99164-6382, U.S.A.; e-mail: zack@wsu.edu*; and José MONZÓN-SIERRA, *Centro de Estudios Ambientales y Biodiversidad, Universidad del Valle de Guatemala, Guatemala City, Guatemala; e-mail: jmonzon@uvg.edu.gt*.

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