

## Book Review: *Mariposas de Argentina: Guía de Identificación / Butterflies of Argentina: Identification Guide*, by Juan F. Klimaitis, Ezequiel O. Núñez Bustos, Cristian L. Klimaitis and Roberto M. Gueller (2018)

Vazquez Mazzini Editores, Buenos Aires, Argentina. 328 pp, ~1500 figs.

As a Brazilian *gaucho*<sup>1</sup> who is deeply interested in Argentinean culture and biodiversity, being the son of an Argentinean man<sup>2</sup> from the *Sierras de Cordoba*, it is a great pleasure to be invited to write this book review. The monumental bilingual Spanish-English book “*Mariposas de Argentina: Guía de Identificación / Butterflies of Argentina: Identification Guide*” is the result of 12 years of the authors’ work to compile information on the nearly 1200 butterfly species recorded in Argentina. This book is successful in presenting a synthesis of the taxonomic diversity of diurnal butterflies for this large South American country. To this end, the authors made an enormous effort in fieldwork and museum research, by visiting various public and private collections, reviewing the extensive literature and consulting specialists around the world from the main taxonomic groups.

Argentina is a biogeographic laboratory, harboring an extensive latitudinal and altitudinal gradient, marked by variations in sea level and climatic oscillations that have shaped its biodiversity. These biogeographical patterns leap to the eye when flipping through the pages of the book. The maps illustrate amazing cases of allopatric distribution of forest species with different subspecies in the Yungas and Paranaense forest, as seen in contrasting mimetic patterns of *Archonias brassolis negrita* (C. Felder & R. Felder, 1862) and *Archonias brassolis tereas* (Godart, 1819) (Pieridae). Due to the range of fauna contemplated in the book, this guide also serves to identify butterflies in neighboring countries, such as Bolivia, Paraguay, Uruguay, and southern Brazil. Many little-known species are illustrated for the first time in color, especially Hesperiiidae. Due to its ease of handling and the possibility of comparatively viewing many species at the same time, it is an excellent book for a quick first identification of specimens. At the end of each butterfly family section, the authors present a valuable list of taxonomic comments and decisions, and these comments point to still open questions about the taxonomic diversity of Argentine butterflies.

The book has a general introductory part on classification, morphology, biology, history of lepidopterology in Argentina and conservation, and all these sections are well illustrated by original photos of species, habitats and behavior. This introduction is very useful for people starting to observe and study butterflies. Some anecdotal comments about migrations and seasonality in *Danaus erippus* (Cramer, 1775) and size variation in *Vanessa carye* (Hübner, [1812]) (Nymphalidae) are interesting and deserve detailed studies. Among the

defense strategies in caterpillars, the authors could have mentioned the symbiotic interactions between caterpillars and ants (myrmecophily), described in the classic work by Carlos Bruch (1926), who was an eminent entomologist present in the historic photo of the Sociedad Entomológica Argentina meeting (page 39) and a pioneer in describing this type of interaction in riodinid caterpillars. In fact, it is a relevant topic because some genera with potential cases of endemism in Argentina such as *Pseudolucia* Nabokov, 1945 (Lycaenidae) and *Aricoris* Westwood, 1851 (Riodinidae) have myrmecophilous species (Bruch, 1926; Benyamini, 2013).

As highlighted by the authors, the study of Argentinean butterflies has historically oscillated, marked by a flourishing beginning of applied entomology carried out mainly by immigrants, going through an obscure period with little investment in basic research, to reaching a growth of interest in natural history and publication of excellent regional field guides (e.g., Canals, 2003; Núñez-Bustos, 2010; Volkmann & Núñez-Bustos, 2010). This book arrives in good time and constitutes a must-read for anyone interested in butterflies in Argentina. There are currently many Argentinean naturalists using citizen science platforms to record and identify butterflies and moths (see <https://www.inaturalist.org/projects/mariposas-y-polillas-de-argentina-lepidoptera-of-argentina>). These naturalists have already recorded new species of butterflies for Argentina, such as *Brangas moserorum* Bálint & Faynel, 2008 (Lycaenidae) (see Mantinian, 2020). Science advances, and certainly this book constitutes a benchmark for the restoration, monitoring, and conservation of South American biodiversity.

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<sup>1</sup>*Gaucho* in Brazil is the gentile of those born in the Rio Grande do Sul (RS) state. According to the dialectical frontier theory, it is a term that originated on the frontier zone between Spanish and Portuguese language, in the region among Argentina, Brazil and Uruguay (Rona, 1964).

<sup>2</sup>My biological father Jose Alfredo Bustos (1947-2020) is from Cosquín, Córdoba, Argentina.



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# MARIPOSAS BUTTERFLIES ARGENTINA

GUÍA DE IDENTIFICACIÓN • IDENTIFICATION GUIDE

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26) *Heracides androgeus* (Cramer, 1775)

**ANDROGEO** 85-115 mm. Yungas y selva paranaense. Matorrales en senderos y abras soleadas. Vuelo veloz a media altura, a menudo siguiendo cursos de agua. ♂ forma ensamblada con otros papilionidos. ♀ vuelo alto. ZS (alopátricas) a-**androgeus** (Cramer, 1775). ♂: **AP con ancha base amarillo-intenso y margen externo con hilera difuminada de manchas en U, amarillentas.** ♀: mayor, más escasa y base de **AA y mayor parte de AP azul.** Agua Blanca (Salta), (Guaymas a Bolivia). **b-ladocus** (Fabricius, 1793). ♂: **amarillo-pálido;** ♀: **AA negra con notable faja central amarilla; AP: faja central e hilera submarginal de manchas en U, celeste-azulinas.** Recuerda a ♀ de 12) pero **AP con margen dentado y larga y puntiaguda cola.** PP Unguá (Misiones), (Paraguay y sur de Brasil) III



27) *Heracides astyalus astyalus* (Godart, 1819)

**LIMONERA CHICA** 85-100 mm. Yungas, selvas paranaense y marginales, bosque ribereño. ♀ parecido a ♀ de 26) pero **AP con cola espatulada negra y borde menos dentado; notable hilera submarginal de grandes manchas amarillentas.** ♂: anita a ♀ de 14) pero mayor, con cola e hilera central de manchas rojas en AP. ♀ fenotipo **oebalus** parecido al ♂, pero **amplia base de ambas alas, amarillo-pálida.** ♀: vuelo alto en horas calurosas. Forma ensamblada. Llega nubes con tremolar de alas, apenas tocando tierra. ♀ en matorrales floridos. PP Finca Las Costas (Salta), (Bolivia, Paraguay, sur de Brasil y Uruguay) IV

**BROAD-BANDED SWALLOWTAIL.** 85-100 mm. Yungas, Paranaense and riparian forests, exotic river-side woods. ♀ similar to ♀ of 26) but **HW has black spatulate tail and less dented border; notable submarginal row of large yellowish spots.** ♂: anita ♀ of 14) but larger, with tail and central row of red spots on HW. phenotype: **oebalus** similar to ♂, but **wide pale yellow base on both wings.** ♀: flies high in hottest hours. Forms assemblies. Feeds on nutrients, hovering wing barely touching ground. ♀ on flowering shrubs. PH Finca Las Costas (Salta), (Bolivia, Paraguay, south of Brazil & Uruguay) IV



578) *Biateo naramia praegrans* (Fabricius, 1807)

**DUENDE NARAMIA** 70-90 mm. Selva paranaense. **Mitad basal anaranjado; 3-4 notables manchas subapicales blancas.** ♀ mayor, más pálida. Carrierverales densos y matorrales atractivos en caminos y abras. Territorial. Pasa en perchas y pastos altos. PP Salto Encantado (Misiones), (Paraguay y sur de Brasil) II

**BATEO OWL** 70-90 mm. Paranaense forest. **Orange basal half; 3-4 notable white subapical spots.** ♀ larger, paler. Dense stands of cane and shrubs, roads and glades. Territorial. Rests on perches and tall grass. PP Salto Encantado (Misiones), (Paraguay & south of Brazil) II



579) *Brassolis astyra philocala* Stichel, 1903

**PALMITERA PARDA** 70-110 mm. Selva paranaense. Pardo-oscuro. **AA: ancha e irregular faja anaranjado-amarillentas.** ♀ mayor y con menos oscuras en AP de IV. Capuceras y palmitales. ¿Misiones? (Brasil y Uruguay) I

**ASTYRA OWL** 70-110 mm. Paranaense forest. Dark brown. **FW: white, yellowish-orange, irregular stripe.** ♀ larger, less dark on HW of VS. Secondary forests and palm groves. ¿Misiones? (Brazil & Uruguay) I



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