



## A NEW SPECIES OF *ANGULOPIS* (LYCAENIDAE, EUMAEINI) FROM RELICT COASTAL FOREST IN EAST-CENTRAL ARGENTINA.

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**ABSTRACT.** *Angulopis puntalaraensis* is described from a single female specimen collected between 1950 and 1955 in the National Reserve Punta Lara, Buenos Aires Province, Argentina. This site is a relict of coastal gallery forest. No other specimens are known.

**Additional key words:** Unique tergite. *Angusta* species group

### INTRODUCTION

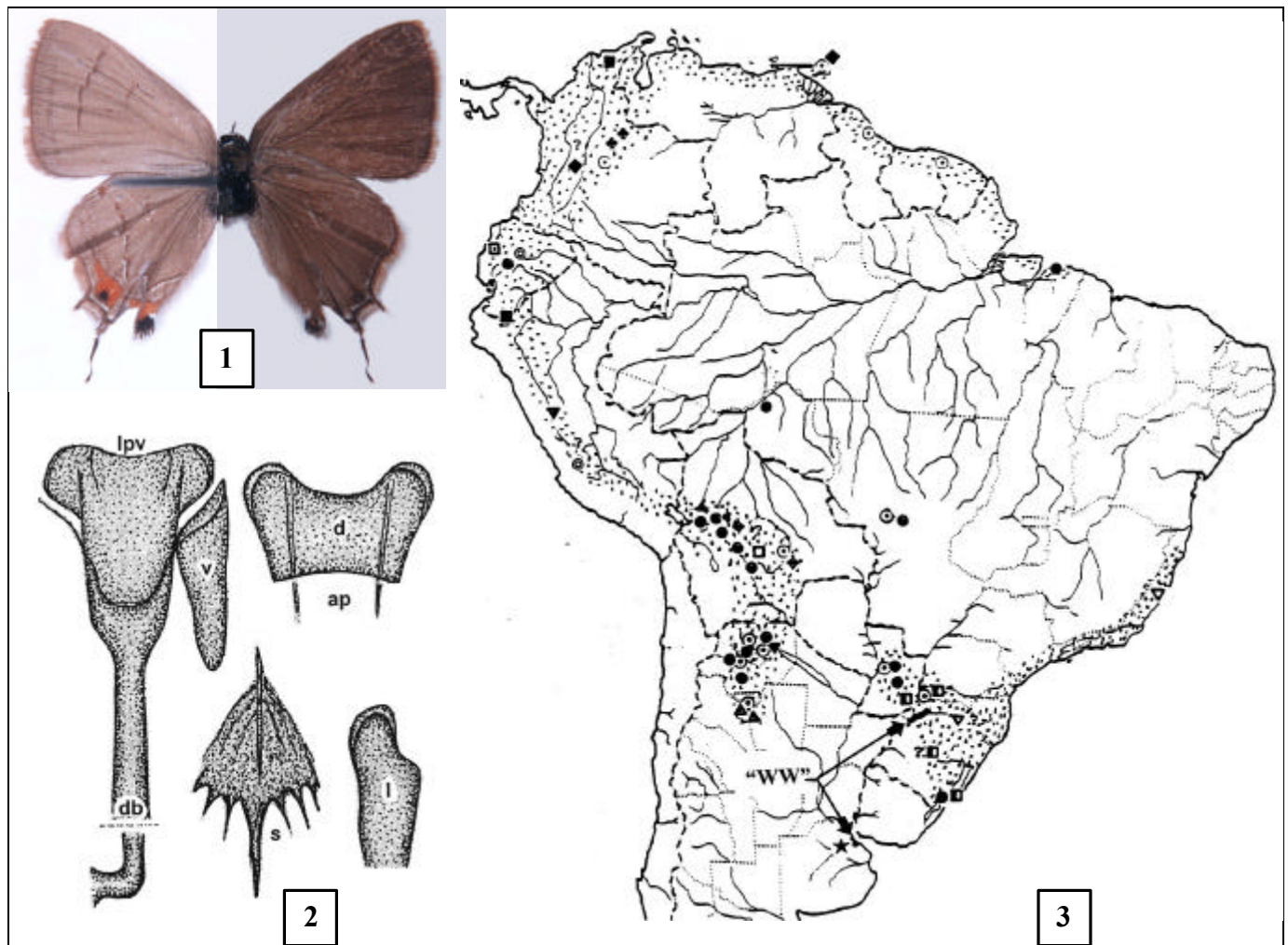
The genus *Angulopis* Johnson 1991, though relatively new, has been the subject of numerous studies – both locally and across the entire Neotropical Realm. The type species is the well known and widely distributed “Red Banded Hairstreak” *Thecla sangala* Hewitson (senior synonym of the type species by original description: *Thecla autoclea* Hewitson which occurs from Mexico to Argentina [Austin and Johnson, 1997]). In 1993, Johnson and Kroenlein elaborated the taxonomy and geographic ranges of twenty-six taxa of *Angulopis* represented in various European and American museum collections. Subsequently, Austin and Johnson (1997) studying voluminous collections from a lowland tropical rain forest locality in Rondônia, Brazil, differentiated further taxa.

Worldwide, it is common for species representing isolated distributions or unique habitats within the range of a genus to show “supralimital characters” (see Eliot, 1973; Shields 1996, and citations in this latter work). Briefly, in colloquial terms, it is not unusual to find unusual specimens from unusual places, especially in the Lycaenidae. Further, historical review of many lycaenid genera (especially from tropical regions) reveals a significant number of taxa known only from early collections and/or small samples (e.g., see Balint 1993, D’Abrera 1995). This creates a predicament for contemporary systematists: such specimens can either be ignored or described, depending on what one considers a “conservative” taxonomic approach (Schwartz 1989).

The senior author has been studying Lepidoptera, and other biota, from a disturbed relict of coastal gallery forest in Buenos Aires Province, Argentina, known since its inception in 1958 as the Natural

Reserve Punta Lara. Among old samples from this area was a specimen referable to *Angulopsis* which is unlike any known species in either wing pattern or genitalia. Considerable search of other material, from both the vicinity of Punta Lara and across Latin American has turned up no similar specimen. Given the breadth of previous work on *Angulopsis*, and the constantly degrading status of the habitats of the Punta Lara reserve, we have decided to describe the specimen here as a new species.

Terminology for wing pattern follows previously cited work on *Angulopsis*, including for brevity the abbreviations DFW, DHW (dorsal forewing, hindwing) and VFW, VHW (ventral forewing, hindwing) and other thecline-oriented wing marking terms like “scent brand” (a DFW secondary sexual character) and “Thecla-spot” (a large orb in the VHW limbal area typical of many hairstreaks). Morphological terms follow previous work on Argentine hairstreaks by Johnson, Eisele and MacPherson (1988) including terms for unique tergite and genitalic features not found in other *Angulopsis* species. Additional abbreviated terms include: OD (original description), TL (type locality), and regarding geography, N etc. (north, etc.), C (central), etc.



**Fig. 1. Holotype:** *Angulopsis puntalaraensis*: ventral (left) and dorsal (right). (Specimen is three times natural size.) **Fig. 2.** Genitalia (female) of holotype. Left, ventral view from terminus of lamella postvaginalis (“lpv”, top) to anterior end of ductus bursae (“db”, anterior one-third rotated to lateral view). Immediate right of lpv—ventral view of sipc (“v”), then dorsal (“d”, showing apophyses papillae anales “ap” within), and immediately below “d” the lateral view (“l”). Immediate right of “db”, ventral view of corpus bursae signum. **Fig. 3.** Map of South America showing generalized, circum-Amazonian, distribution of *Angulopsis* species (light stippling for widespread, common, species; various larger symbols for regionals, endemics, or poorly known taxa); compared to distributions of Argentine “White Wood” forests (black shading, marked with arrows at “WW”) and type locality of *A. puntalaraensis* (star to left of Natural Reserve Punta Lara). **Editors note:** The hindwings of this specimen are unnaturally mounted in that they are positioned on top of the forewings.

## GENUS *ANGULOPIS* JOHNSON

*Angulopis* Johnson 1991: 41.

Species Group. The new species appears to belong to the *angusta* Species Group of *Angulopis* (Johnson and Kroenlein 1993) although it is extreme in both wing and morphological features for that group.

### *Angulopis puntalaraensis* Canals and Johnson, new species

**DIAGNOSIS.** Currently known only from the female; DFW, DHW uniform medium brown (FW without androconial brand) and HW with two prominent tails. Distinguished from other generally similar *Angulopis* and/or *Gigantrorubra* species (see Remarks) by VHW showing (1) costal element of a white-edged black medial band orbiculate and distally disjunct from rest of band by a cell's width and (2) entire limbal area basad the Thecla-spot marked from anal margin to cells M3 and M2 with a clearly defined, brilliant bright red-orange patch. Female abdomen's terminal tergite forming a well-defined *sipc* (unique in genus), genitalia with (1) prominent, laterally lobate, lamellae postvaginalis membranously connected to adjacent *sipc*, (2) ductus bursae relatively short for genus, angled 90 degrees dorsad in its terminal one-third and (3) corpus bursae with two huge dendritic signa covering at least one-half of each bursal surface.

**DESCRIPTION.** (Fig. 1) DFW, DHW uniform medium brown (FW without androconial brand), HW with elongate tail at terminus of vein CuA2, shorter tail at terminus of vein CuA1, margin of cell between and cells adjacent to each tail lined light sky blue and with a small orange spot at anal angle and brown spot in cell CuA1. VFW, VHW ground beige, FW with vague blackish discal slash, more prominent black postmedial line, whitish distally (costa through cell CuA1), submargin with intercellular spaces showing black dashes; HW with vague blackish-brown discal slash, then prominent medial band (colored blackish-brown basally, white distally); band showing (1) a prominent blackish brown costal orb disjunct from rest of band by a cell's width and (2) rest of its length jagged and forming prominent W-shaped configuration between cell CuA1 and the anal margin. Margin of cell between and cells adjacent to each tail lined white. Limbal area distinctly marked with (1) Thecla-spot and surface adjacent to anal angle black and (2) rest of area from anal margin to cells M3 and M2 marked with a clearly defined, brilliant bright red-orange, patch. FW Length: 11 mm (base of wing to apex).

*Female Tergal Morphology and Genitalia* (Fig. 2). Abdomen with terminal tergite sclerotized into a prominent subchordate incised posterior cavity ("sipc") showing at each lateral margin a prominent and ridged lobe, this *sipc* strongly connected laterally to the lamellae postvaginalis of genitalia. Genitalia with robust and elongate lamellae postvaginalis (l.p.) terminating at a prominent antrum in the posterior one-half of the genital length caudad of corpus bursae; l.p. with short laterally protruding lobes in its terminal one-half, rest of robust terminal opening of ductus bursae strongly attached laterad to the *sipc* with membranous material; ductus bursae anterior to the antrum narrow and inclined 90 degrees in its anterior one-third, there connecting to the corpus bursae; corpus bursae with two extremely prominent dendritic signa, each covering at least one-half of the respective bursal surface.

**TYPE.** Holotype female (Fig. 1), Breyer Collection, Museo de La Plata (MLP) labelled 'Punta Lara' (which refers, in the Breyer Collection at (MLP) to the Natural Reserve Punta Lara near La Plata, 60 km S Buenos Aires). Although the collection date is not noted the specimen must have been collected between 1950-55 because the label is sky blue, the color Breyer used for material collected during that time period. The collector per se is not noted; sometimes similar labels include the additional data "Argentina, Prov. Bs. Aires, Breyer" but these are not attached to this particular specimen, suggesting it was collected by an employee or colleague.

## REMARKS

**Habitat at Type Locality.** Punta Lara is a small town located 12 km N of La Plata (capital of Buenos Aires Province). The climate is temperate, warm and wet (precipitation 1000 mm/year). Located nearby is the Natural Reserve Punta Lara (3500 hectares) created in 1958. Both the Reserve and the town are located in coastal lowlands along the Río de la Plata. The Reserve was established to protect declining forest areas, which here include gallery forest which occurs along the edges of adjacent rivers and streams. The gallery forests are locally known as "white woods" because their flora is similar to forests in the Misiones province of Argentina, of which they are considered the southernmost relict (Fig. 3). It also has a few little spots of xerophilous wood with Tala (*Celtis tala*) and Coronillo (*Scutia buxifolia*). Today the entire area around Punta Lara is very disturbed by invading non-native plants, including large areas covered with Lirio

amarillo (*Iris pseudacorus*), Caña india (*Pleioblastus simonii*), Zarzamora (*Rubus ulmifolius*), and Ligustro (*Ligustrum lucidum*); the latter two originally from China, Japan, and Korea. Today the Reserve has been reduced to an island left behind by man's environmental modifications (deforestation, introduction of non-native plants, hunting, fishing, etc.) which continued uncontrolled for many decades. Historically, the Reserve is known for significant biodiversity, including 770 species of vascular plants, 40 mammals, 300 birds, 25 reptiles and 23 amphibians. There is an ongoing effort to track the fate of these biota. About 75 species of butterflies have been recorded, representing 50 percent of the total butterfly fauna of Buenos Aires Province. The Reserve is known for many relict populations, among them are the larger more well-known butterflies, *Morpho epistrophus argentina* (the most austral Morphinae) and *Adelpha syma*, (Nymphalidae: Biblidinae: Limenitidini) which otherwise occur only northward in Misiones and Entre Ríos provinces. The butterflies of the grasslands in and surrounding the Reserve, however, include Hesperidae, Nymphalidae (*Vanessa*, *Anartia*, *Danaus*) and Riodinidae (*Audre*) species which differ little from other areas of the province. The only other area of distinctive habitat and biota in the Province is the Buenos Aires Hills, known historically from collecting localities like Ventana, Tandil, Azul, and Olavarria.

**Discovery of the Holotype.** There is no other specimen of *A. puntalaraensis* among the Breyer material or material from the Petrowsky and other local historical collections from the region. Further, the senior author recently curated an extensive local collection and no specimens were located therein either. Suspecting that the holotype specimen represented either extirpated species or a species of extremely limited modern occurrence, outside specialist opinion was consulted, resulting in the present paper.

***A. puntalaraensis* Congeners and Phylogenetic Position.** *A. puntalaraensis* only vaguely resembles disparate congeners. There is no other known *Angulopsis* with a large, well-defined, red-orange patch covering nearly the entire limbal area. Some members of the *angusta* Species Group from the Amazon region show suffusive red variously located in the limbal area but all these species have red VHW bands, not black ones. Of species with black VHW bands, the detached costal orb of *A. puntalaraensis* resembles only *A. suarezensis* Johnson and Kroenlein (TL Rio Suarez, Colombia) a species which is blue on the DFW, DHW and on which the costal mark is a detached oblique slash. That the VHW red-orange patch in *A. puntalaraensis* is most likely a unique supralimital character (sensu Eliot 1973) reflecting the isolation of the species is suggested by the occurrence of a DHW metallic orange patch in an extremely peculiar and isolated north Andean species *A. constantinoi* Johnson and Kroenlein (TL Remolinos, Meta, Colombia). Although these wing patterns in other *Angulopsis* species illustrate how supralimital characters occur in the genus, it is most likely that the closest phylogenetic relative of *A. puntalaraensis* is the poorly known SE coastal Brazil species *A. obscurus* Johnson and Kroenlein (TL Pelotas, Brazil). The latter species is bigger (FW alar 13.0 mm) with none of the spectacular VHW colors of *A. puntalaraensis*. However, one could generally attain the overall look of *A. puntalaraensis* by simply adding its colorful markings to *A. obscurus*. Unfortunately, genitalic comparison of the two species is not possible because *A. obscurus* is known only from the male. However, it is certain that *A. puntalaraensis* is not the female of *A. obscurus*. The latter is dorsally dull blue and in *Angulopsis* the general pattern of sexual dimorphism is for blue to occur in females only, or, when occurring in males, to have companion females even more expansively blue.

**Taxonomic Relation of *Angulopsis*.** With over thirty taxa now recognized in *Angulopsis*, it would seem unlikely that other taxonomists would want to combine *Angulopsis* with some other, previously described, genus. However, taxonomists emphasizing external similarity over morphology, or just seeking extremely simplified classification for complex and diverse groups like the Lycaenidae, may still refer this entire assemblage and *Gigantorubra* (see Johnson and Kroenlein 1993) to either *Electrostrymon* Clench (a "long shot" based on general external similarity) or the older genus *Lamprospilus* Geyer (based on some generality of wing pattern and structure but overlooking the extremely unique, and apparently apomorphic,

features found in the taxa traditionally associated with this name [Draudt 1920]). While D'Abrera (1995) placed some members in *Electrostrymon* and others in *Thecla* he also skipped over a number of drawers of *Angulopsis* in The Natural History Museum (London) including some type material, probably because the group is so problematic. This explains why so few *Angulopsis*-like taxa are figured in his book. We mention all the above simply to further orient the reader to *Angulopsis* in the context of the Eumaeini and current taxonomic literature.

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