

# TWO NEW NYMPHALID SPECIES FROM WESTERN BRAZIL (LEPIDOPTERA: NYMPHALIDAE)

GEORGE T. AUSTIN AND OLAF H. H. MIELKE<sup>1</sup>

Nevada State Museum and Historical Society, 700 Twin Lakes Drive, Las Vegas, Nevada 89107, USA; and  
Departamento de Zoologia, Universidade Federal do Paraná, C.P. 19020, Curitiba, 81531-970 Paraná, Brazil

**ABSTRACT.**— Two new species of Nymphalidae, a *Castilia* (*Castilia schmitzorum* n. sp.) and an *Adelpha* (*Adelpha incomposita* n. sp.), are named and described from Rondônia, Brazil.

**KEY WORDS:** *Adelpha*, *Adelpha incomposita* n. sp., *Castilia*, *Castilia schmitzorum* n. sp., *Dagon*, Guyana, *Phyciodes*, Rondônia, *Telenassa*.

Rondônia in western Brazil has only been readily accessible for the study of biota for twenty years. The region was explored for butterflies by Brown (1976, 1984) who found high diversity in the central portion of the state. Subsequent studies have confirmed those observations (Emmel, 1989, Emmel and Austin, 1990) and over 1300 species have been recorded to date from the vicinity of Cacauplandia. Among these are a number of new taxa. We herein name and describe two new species of the family Nymphalidae.

## *Castilia schmitzorum* Austin & Mielke, new sp.

(Figs. 1-4)

**DESCRIPTION.**— MALE: forewing length = 13.9mm, 14.7mm (paratypes). Dorsum dark brown; central forewing with continuous broad white band from posterior margin of discal cell to anal margin; broad white bar distal to discal cell between veins  $R_5$  and  $M_3$  (broadest in cell  $M_1$ - $M_2$ ); small white dot anterior to bar in cell  $R_1$ - $R_2$ ; larger white spot in  $M_2$ - $M_3$  distal to bar; hindwing with relatively even width central white band from costal to anal margins, this with a small white point extending proximally in discal cell; fringes of both wings concolorous dark brown.

Ventral ground color yellow-brown (near Clay Color, color 123B in Smithe, 1981); white bands and spots of both wings repeated from dorsum, spots in  $R_1$ - $R_2$  and  $M_2$ - $M_3$  somewhat larger; forewing with brown scaling at apex, this extending proximally to white band and posteriorly as series of basally pointing chevrons to tornus with scattered brown scales at tornus (this brown more intensely represented on one paratype); line of brown scales proximal to white bar, very faint and incomplete brown lines on basal portion of wing; terminal line dark brown; hindwing with distal one-third dusted with dark brown, heaviest marginally; submargin with row of lunules of pure ground color, these distinctly outlined by dark brown; row of dark brown points between lunules and median white band, these largely obsolete on some specimens; basal portion of wing with indistinct brown lines as on forewing; terminal line dark brown.

Dorsal surface of head, thorax, and abdomen dark brown; antennae dark brown with narrow white annular rings, these slightly broader

ventrally, club dark brown with red-brown outer edge ventrally; palpi brown above, mixed white and brown below; ventral thorax white, legs white proximally and pale brown distally; ventral abdomen white, blending laterally with dark dorsum.

Genitalia of *Castilia* type as defined by Higgins (1981): scapial extension short without hooks or spines; saccus pointed and cleft; valvae relatively slender, straight, and untoothed; penis robust, posterior and anterior sections of equal length.

FEMALE: similar to male; wings broader.

**TYPES.**— Holotype ♂ with the following labels: white, printed and handprinted - 15 - XI - 1991, Faz. / RANCHO GRANDE, CACAUP- / LANDIA, ARIQUEMES, RO / Mielke leg.; white, printed - OM 27.583; and red, printed - HOLOTYPE / *Castilia schmitzorum* / Austin & Mielke.

**Paratypes:** BRAZIL: Rondônia, 62 km S Ariquemes, linha C-20, 7km E B-65, Fazenda Rancho Grande, 5 Nov 1989, G. T. Austin (1 ♂); same location, 11 Nov 1991, G. T. Austin (1 ♂); ca. 70km S Ariquemes, B-80 between lines C-10 & 15, 21 Nov 1991, E. Runquist (1 ♂); BRAZIL: Rondônia, Jaru, 4-12 Sep 1977, Gifford & Negrett (3 ♂); same location, 250m, 5-11 Oct. 1977, H. Ebert (6 ♂, 1 ♀).

Deposition of types. The holotype and eight paratypes will be deposited at the Universidade Federal do Paraná, Curitiba, Brazil. Two paratypes are retained by the senior author and the other is in the collection of Eric Runquist, Ashland, Oregon.

**TYPE LOCALITY.**— BRAZIL: Rondônia; 62km south of Ariquemes, linha C-20, 7km (by road) east of route B-65, Fazenda Rancho Grande, 180m. This is approximately 5km northeast of Cacauplandia in typical lowland tropical rainforest. One paratype was taken at wet sand along a stream and another was taken in a trap baited with putrid fish hung 3m above the ground at the edge of the forest.

**ETYMOLOGY.**— We take great pleasure in naming the first new species from Rancho Grande after its owner Harald Schmitz and his family, including wife Barbara, son Tomas and his wife Rozani, daughter Uta and her husband Giovanni Bongioiolo, and daughter Aike. These people have gone out of their way to make our Rancho Grande experiences most pleasant and fruitful.

**DISTRIBUTION AND PHENOLOGY.**— This species is known to date only from central Rondônia, Brazil, with specimens taken from September to November.

<sup>1</sup> contribution no. 735 of the Department of Zoology, Federal University of Paraná.



Fig. 1-4. *Castilia schmitzorom* Austin & Mielke: 1. Holotype ♂, dorsal surface (data in text). 2. Holotype ♂, ventral surface. 3. Paratype ♀, dorsal surface (BRAZIL: Rondonia; Jaru, Oct 1977, leg. H. Ebert). 4. Paratype ♀, ventral surface (same specimen as Fig. 3).

**REMARKS.**— Superficially, *Castilia schmitzorom* resembles two taxa which are represented by their single holotype males, *Phyciodes fontus* Hall from Guyana and *Phyciodes rima* Hall from Surinam. Higgins (1981) placed the former in the genus *Dagon* and thought the latter might be a *Telenassa* although he could not examine their genitalia. The present species clearly belongs to neither genus; the male genitalia place it in *Castilia*. Both *P. fontus* and *P. rima* were illustrated in color by D'Abreu (1987). The pale bands on those species are narrow (very narrow on *P. fontus*) and yellowish; these appear to be crossed by darker veins at least on the venter (the bands are broad and white on *C. schmitzorom* and the veins are also white-scaled). The lunules on the venter are more strongly angled than on *C. schmitzorom*, the dark spots proximal to the lunules on the hindwing are haloed with brown, and the basal lines are prominent unlike the unhaloed spots and very faintly marked wing bases on *C. schmitzorom*.

Additionally, there are two males from Jaru in the Museu Nacional, Rio de Janeiro, Brazil, determined as *Phyciodes calena* Hopffer by Miranda Ribeiro (1931). This name was considered a synonym of *Dagon pusillus* (Salvin) by Higgins (1981). That species has narrower pale bands and macules than *C. schmitzorom* and the ventral surface is much darker.

The sympatric *Castilia angusta* (Hewitson) has longer and narrower wings, the bands and spots are pale yellow and narrow, and the ventral surface has considerably more dark brown scaling. The male genitalia also differ somewhat: the harpe (terms after

Higgins, 1981) is roughly parallel with the valve on *C. angusta* but nearly perpendicular on *C. schmitzorom*.

#### *Adelpha incomposita* Austin & Mielke, new sp.

(Figs. 5, 6)

**DESCRIPTION.**— MALE: forewing length = 27.4mm (holotype), 29.5 mm (paratype). Dorsum dark brown; forewing with narrow black submarginal line; series of broader, disconnected black bars proximal to this and distal to a largely orange (some white scaling at anal margin) postmedian band, distal edge to band somewhat irregular and concave; cell  $CuA_2-2A$ , portion in  $M_2-M_3$  projecting slightly distally, then narrowed and angled towards costa anterior to  $M_2$ ; orange dot below costa disconnected above end of band; orange spot distally in cell  $R_5$  with orange dash anteriorly below costa and some orange scales posterior to it in cell  $M_1-M_2$ ; area between band and spots black; proximal edge of band more regular, convex proximally to lower end of discal cell, then angled at distal end of discal cell towards costa forming angled notch; discal cell with four black lines; three similar lines posterior to discal cell in  $CuA_2-2A$ ; fringe dark brown as ground color.

Hindwing with blackish margin; slightly crenulate submarginal line; series of broader, disconnected bars proximal to this (these roughly triangular-shaped with proximal orange at tornus); broader black band still more proximally; tornus with narrow white line proximal to submarginal line; median white band moderately broad, outer edge nearly straight and margined indistinctly with blackish, inner edge relatively straight from costa to discal cell, then offset distally to posterior of discal cell where offset proximally again, then angled

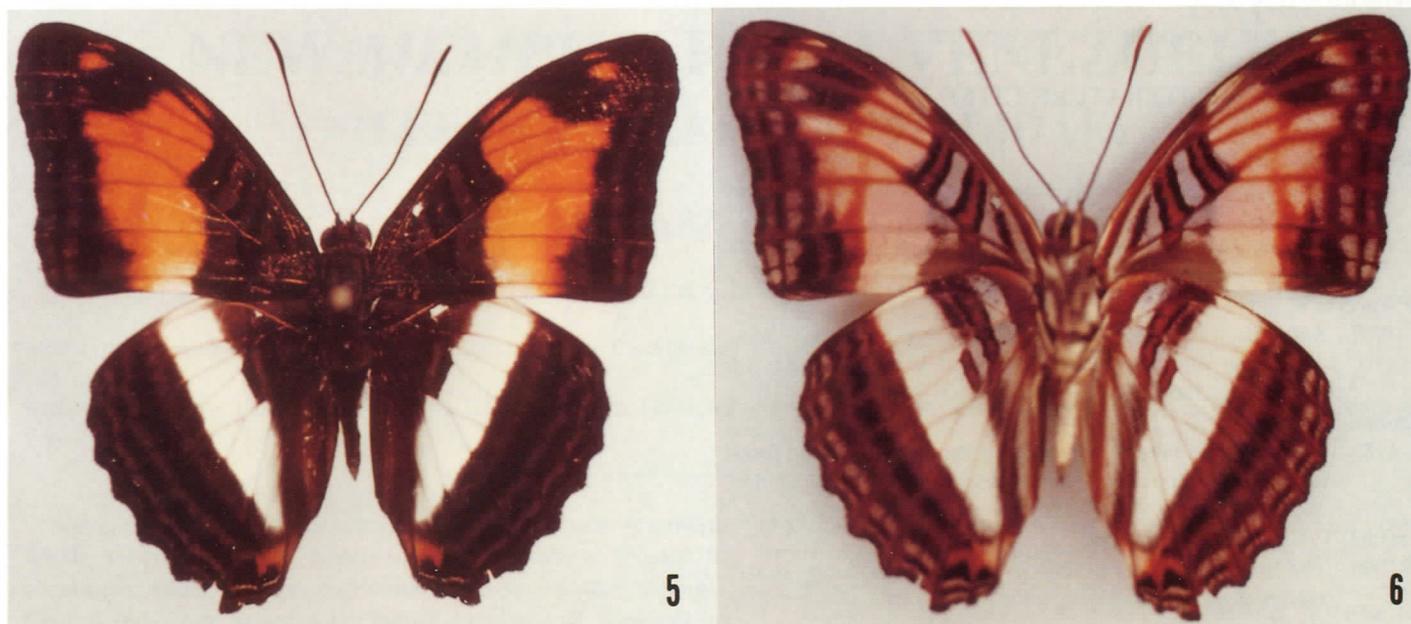


Fig. 5-6. *Adelpha incomposita* Austin & Mielke: 5. Holotype ♂, dorsal surface (data in text). 6. Holotype ♂, ventral surface.

wards distal edge of band above tornus; dark bar in discal cell where white band offset; wing base largely blackish; fringe dark brown, indistinctly white between veins.

Ventral surface reddish-purple with dark lines more-or-less repeated from dorsum, these largely dark gray-brown; orange of forewing band very pale, almost whitish, black line on distal edge of band posteriorly with similar width red-brown line connected to proximal side and continuing anteriorly, relatively straight to outer edge of band at vein  $M_2$ ; discal cell pale blue with two black-margined red-brown bars and a brown subbasal dash; base of wing posterior to discal cell gray brown; veins red-brown anteriorly.

Hindwing area distal to second dark line violaceous with red-brown spots at vein tips; white median band as on dorsum; end of discal cell with red-brown bar, this margined proximally by whitish; narrow subbasal bluish-white band margined on both sides by red-brown, the distal red-brown outlined by black anteriorly.

Head dark brown with orangish dorsally; palpi largely black, white ventral and dorso-lateral stripes; antennae black, vague white scaling on ventral surface proximally, club red-brown below; thorax dark brown dorsally, orangish scales anteriorly, white below; legs whitish proximally, brown distally; abdomen nearly black above, white below.

FEMALE: Unknown.

**TYPES.**— Holotype male with the following labels: white, printed - BRAZIL:Rondonia / 62km S Ariquemes / linea C-20, 7km E / B-65, Fazenda / Rancho Grande, 180m / 21 April 1991 / leg G. T. Austin and red, printed - HOLOTYPE / *Adelpha incomposita* / Austin & Mielke.

*Paratype*: same data as holotype except 19 April 1991.

The holotype will be deposited at the Universidade Federal do Paraná, Curitiba, Brazil. The paratype is retained by the senior author.

**TYPE LOCALITY.**— BRAZIL: Rondônia; 62km south of Ariquemes, linea C-20, 7km (by road) east of route B-65, Fazenda Rancho Grande, 180m. This is approximately 5km northeast of Cacaulandia in typical lowland tropical rainforest. The holotype and paratype were taken in traps baited with putrid

fish hung 2-3m above the ground in the forest interior

**ETYMOLOGY.**— The name means disordered or disjointed and refers to the irregular proximal outline of the white band on the hindwing.

**DISTRIBUTION AND PHENOLOGY.**— This species is known to date only from the two type specimens taken in April. Subsequent intensive trapping during November and December 1991 and April 1992 failed to produce additional specimens.

**REMARKS.**— The configuration of the white band on the hindwing of this species immediately distinguishes it from the myriad of other, often confusingly similar, taxa of *Adelpha*. No other species has the proximal margin of the band sharply truncated distally in the discal cell; this is particularly prominent on the ventral surface where there is a dark bar in this position bordered basally with a pale line. Among otherwise similar sympatric species of *Adelpha* (*A. cocala*, *A. thesprotia*, *A. aethalia*, *A. phylaca*, *A. erotia*, and *A. delphicola*), the inner margin of the forewing orange band is less clearly angled at the discal cell and all except *A. aethalia* have larger subapical spots. On the ventral forewing of *A. incomposita*, the course of the red-brown line across the median band is similar to that on *A. aethalia* but that species differs in numerous other ways (overall paler color, narrower forewing band, bluish at distal end of forewing discal cell).

The holotype, as illustrated, is nearly a perfect specimen. The paratype was retrieved from the bottom of a trap where it had become wet and had been partially consumed by insects; this specimen lacks the head and abdomen and the wings are glued to the remains of the thorax.

#### ACKNOWLEDGEMENTS

We thank the many museum curators who have assisted us in various ways but especially Lee D. and Jacqueline Y. Miller at

the Allyn Museum of Entomology, Sarasota, Florida. Eric Runquist kindly allowed us to examine his specimen of *Castilia schmitzorum* and to include it in the type series.

#### LITERATURE CITED

**Brown, K. S., Jr.**

1976. Season's summary: South America. *News Lepid. Soc.* (Los Angeles), 1976(2):17-18.  
1984. Species diversity and abundance in Jaru, Rondonia (Brazil). *News Lepid. Soc.* (Los Angeles), 1984(3):45-47.

**D'Abrera, B.**

1987. *Butterflies of the Neotropical Region. Part III. Brassolidae, Acraeidae, & Nymphalidae (partim).* Victoria, Aust.: Hill House. Pp. 386-525.

**Emmel, T. C.**

1989. The incredible butterfly diversity of the Rondonian rain forest in Brazil: a phenomenon soon to disappear. *News Lepid. Soc.* (Los Angeles), 1989(4):53-55.

**Emmel, T. C., and G. T. Austin.**

1990. The tropical rain forest butterfly fauna of Rondonia, Brazil: species diversity and conservation. *Trop. Lepid.* (Gainesville), 1:1-12.

**Higgins, L. G.**

1981. A revision of *Phyciodes* Hübner and related genera, with a review of the classification of the Melitaeinae (Lepidoptera: Nymphalidae). *Bull. Br. Mus. (Nat. Hist.), Ent. Ser.* (London), 43:77-243.

**Miranda Ribeiro, V.**

1931. Lepidopteros de Matto Grosso. *Bol. Mus. Nacional* (Rio de Janeiro), 7:31-52.

**Smithe, F. B.**

1981. *Naturalist's Color Guide. Part III.* New York: Amer. Mus. Nat. Hist.