

TWO NEW SPECIES OF *ADELPHA* FROM EASTERN ECUADOR (LEPIDOPTERA: NYMPHALIDAE)

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ABSTRACT.— Two new species of *Adelpha* Hübner, [1819], are named and described from eastern Ecuador, with additional observations on behavior and distribution.

KEY WORDS.— *Adelpha argentea* n. sp., *Adelpha shuara* n. sp., cloudforest, endemism, Neotropical, Peru, South America, taxonomy.

The genus *Adelpha* contains approximately 80 species (Lamas, pers. comm.), of which all except one (*A. bredowii* Geyer, 1837) are confined to the Neotropics. The only attempt to treat the entire genus was that of Fruhstorfer (1915), who introduced a large number of new names into the literature, many of which referred only to forms and further served to confuse the taxonomy of this difficult group. Recently, several workers studying the fauna of restricted geographical areas have discovered and described a number of new taxa (Beutelspacher, 1975, 1976; Steinhäuser and Miller, 1977; DeVries and Chacón, 1982; Austin and Mielke, 1993). We have been working on the butterfly fauna of Ecuador for the past four years, during which time we have also discovered new species in this genus, two of which are described here. This paper forms part of a larger research project currently being undertaken by the first author to revise the taxonomy, ecology and biogeography of the whole genus.

Adelpha shuara Willmott & Hall, new sp.

Fig. 1a-b, 3

Description.— MALE: forewing length 23mm. *Recto*: ground color dark brown; forewing with an orange, transverse post-discal band of even width, running from anal margin to M_2 ; between M_2 and costa band reduced to half original width; two subapical orange spots in R_5 - M_1 and M_1 - M_2 . Hindwing with a white discal band that begins at costa and tapers at tornus, not quite reaching the anal margin. *Verso*: forewing ground color dark grey/brown; transverse, very pale orange post-discal band, bordered distally by a thinner, even, orange band, stretching from anal margin to costa; two pale orange spots in M_2 - M_3 , M_3 - Cu_1 , distal to transverse orange band; two pale orange subapical and two pale grey apical spots in R_5 - M_1 and M_1 - M_2 ; costal and outer margin orange; four tiny grey spots in tornus; interior of cell orange with two purple/grey bands, one basal, one subdiscal. Hindwing ground color orange/brown; white discal transverse band reflecting recto band, bordered distally and proximally by thin lines of dark grey/brown; post basal transverse purple/grey band extending from costa to anal margin; submarginal dark grey/brown band with diffuse, broken distal pale grey band; four white dashes surrounded by black in the tornus. Labial palpi white with a black medial stripe. Eyes brown and hairy. Antennae black. Thorax and abdomen recto dark brown, verso whitish grey. Genitalia (Fig. 3): valvae

blunt, with 5-6 short "teeth" at the distal tip; clunacula oblong, short and not visible in lateral view.

FEMALE: unknown.

Types.— *Holotype* ♂: ECUADOR.— Pastaza Prov., km 25 Puyo-Tena, Río Llandia, San José, 950m, 26 Aug 93 (K. R. Willmott); to be deposited in the Natural History Museum, London, England (BMNH).

Paratypes: ECUADOR.— 1 ♂: same data as above. 1 ♂: Napo Prov., Río Jatunyacu, Pimpilala, 600m, 17 Apr 95 (J. P. W. Hall); collection of the authors. 1 ♂: Tungurahua Prov., Río Topo, 1300m, 7 Jul 93 (J. P. W. Hall); to be deposited in the United States National Museum, Washington, DC (USNM). 3 ♂: "Pastaza Province, Río Tigre, 1200m, Aug 70 (R. de Lafebre);" "Tungurahua Province, La Mascota, 1200m, Aug 70 (R. de Lafebre);" "Topo, Aug.;" Allyn Museum of Entomology, Sarasota, Florida (AME).

Etymology.— This species is named for the Shuar Indians who inhabit the forests around the type locality, and who on a number of occasions relieved us of several of our bait traps and indefinitely borrowed countless rolls of trap string.

Diagnosis.— This species is superficially most similar to *Adelpha attica* (Felder and Felder, 1867), but is easily distinguished by its smaller size, and on the verso surface by the purplish/grey color of the postbasal transverse band (in *A. attica* it is white), the straight orange line distal to the pale orange transverse band on the forewing, and the orange-bordered distal margin of the hindwing, which lacks white dashes between the veins. In addition, the valvae of *A. shuara* n. sp. differ from those of *A. attica* by possessing short teeth at the tip, and appear closer to those of *Adelpha cocala* (Cramer, 1780). In fact, *A. shuara* appears to be most closely related to *A. argentea* n. sp. which we describe below, and its outward resemblance to *A. attica* probably does not indicate any close phylogenetic relationship. Indeed, Aiello (1984) demonstrated that attempting to group species of *Adelpha* on the basis of adult wing pattern often proves to be a very hazardous process.

Discussion.— This species is so far only known from central eastern Ecuador, where it is restricted to a small altitudinal range, between 650m (Río Jatunyacu) and 1300m (Río Topo). This limited range probably explains why the species has remained undescribed until now. We have recorded this species at four

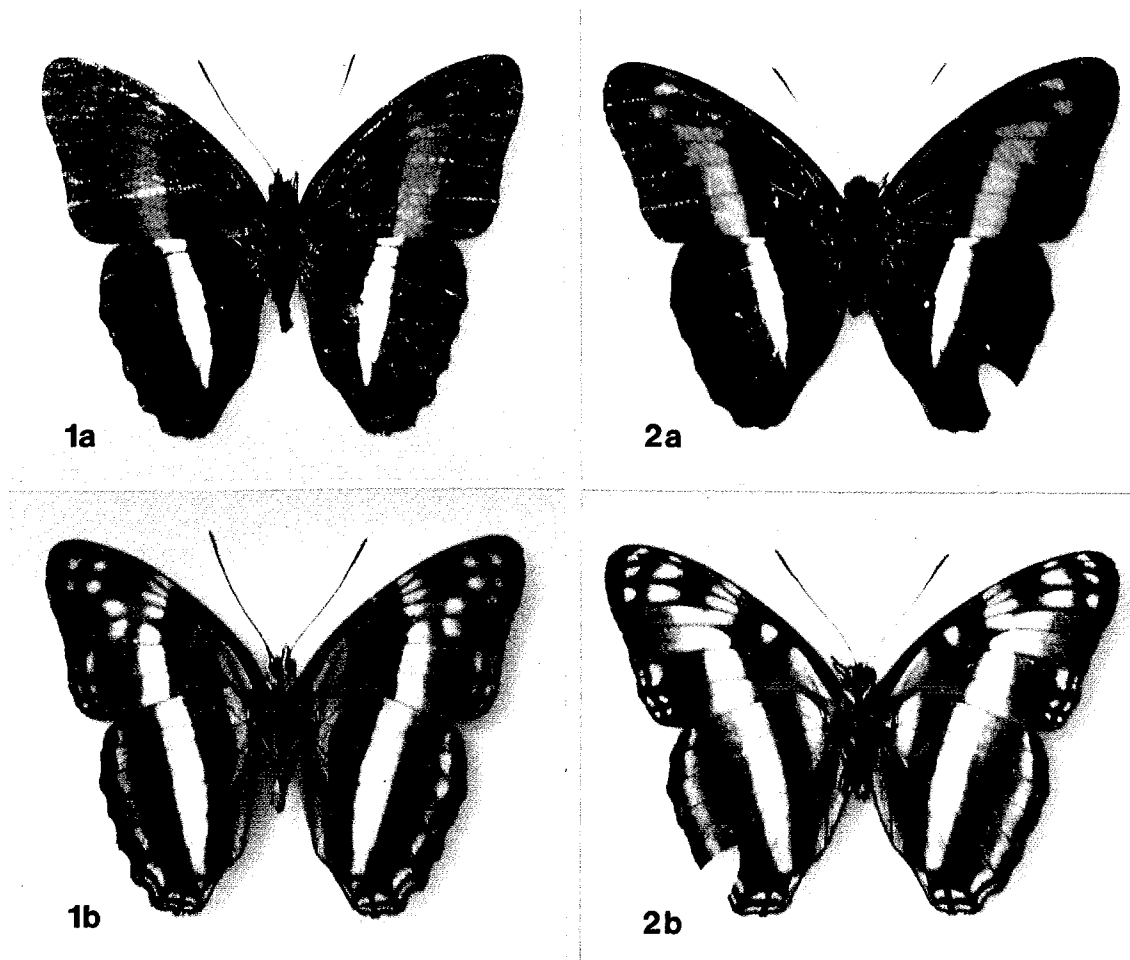


Fig. 1-2. Adults: 1) *Adelpha shuara* n. sp.: a) Holotype male, recto surface; b) Holotype male, verso surface. 2) *Adelpha argentea* n. sp.: a) Holotype male, recto surface; b) Holotype male, verso surface.

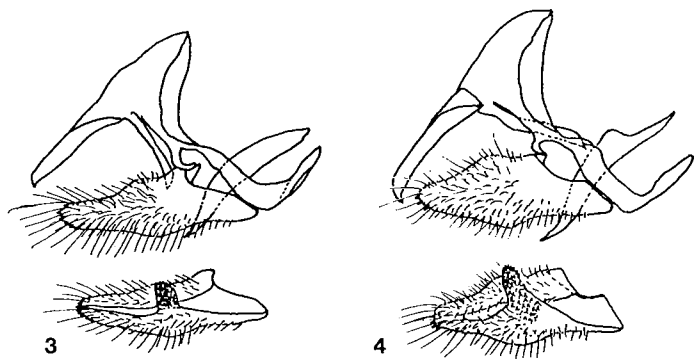


Fig. 3-4. Male genitalia (lateral view, and inside lateral view of right valve): 3) *Adelpha shuara* n. sp. 4) *Adelpha argentea* n. sp.

localities, where males were always observed perching on bushes along the edges of streams, often with more than one individual on the same bush. It is of interest to note that the vast majority of the 51 species of *Adelpha* recorded by us from Ecuador are attracted to rotting carrion baits, but despite extensive trapping in sites where this species occurs, we have never found it to respond to this type of bait. This is also the case with *A. argentea* n. sp. Perhaps this is another factor which helps to explain the rarity of these species in collections.

Adelpha argentea Willmott & Hall, new sp.

Fig. 2a-b, 4

Description.— MALE: forewing length 23mm. *Recto*: ground color dark brown; forewing with an orange, transverse postdiscal band running from anal margin to M_1 , of even width to Cu_1 , slightly thicker between Cu_1 and M_2 ; two subapical orange spots in R_5-M_1 and M_1-M_2 . Hindwing with a thin white discal band that begins at costa and tapers at tornus, not quite reaching the anal margin. *Verso*: forewing ground color silver-grey; transverse, very pale orange postdiscal band, stretching from anal margin to costa, almost twice as broad between Cu_1 and M_2 ; this postdiscal band bordered distally by a thin, red-brown line between anal margin and Cu_1 ; two large pale orange subapical spots in R_5-M_1 and M_1-M_2 , and four white apical spots in R_5-M_2 ; six small white spots in tornus; interior of cell black with silver-grey base and silver-grey spot at cell end. Hindwing ground color silver-grey; white discal transverse band reflecting recto band, bordered distally by a thin red-brown line running from anal margin to M_2 ; very thin postdiscal red-brown line from costa to anal margin; thin red-brown line extending from wing base to anal margin near tornus; distal margin red-brown from apex to Cu_2 ; four white dashes surrounded by black in the tornus. Labial palpi white with a black medial stripe. Eyes brown and hairy. Antennae black. Thorax and abdomen recto dark brown, verso white. Genitalia (Fig. 4): valvae short and broad, with 3 short "teeth" at the distal tip; clunícula rounded and projecting above recto edge of valvae.

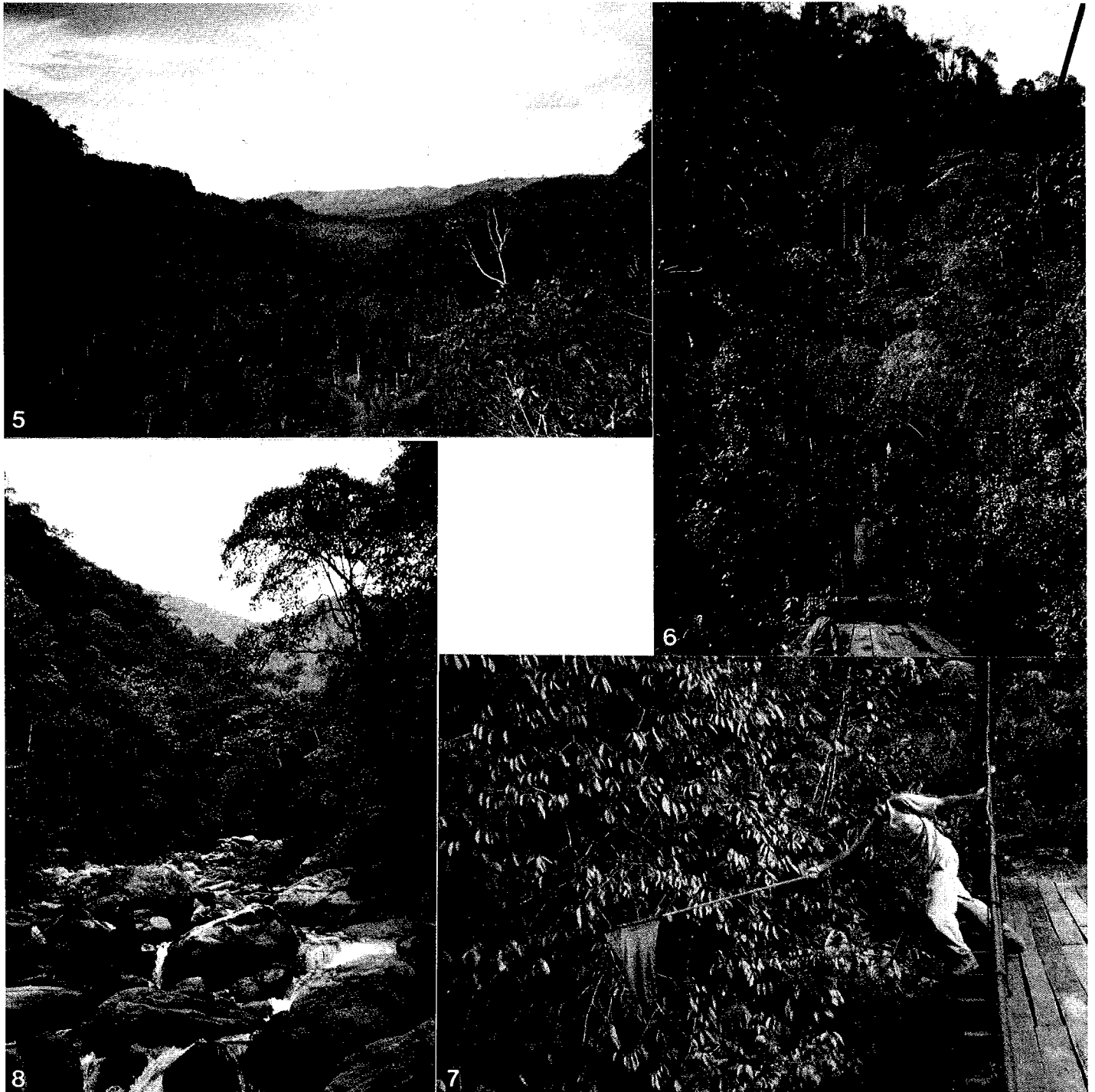


Fig. 5-8. Type localities, Ecuador: 5) The Río Llandia valley. 6) Suspension bridge across Río Llandia. 7) J. P. W. Hall collecting *Adelpha shuara* from a riverside bush. 8) Cloudforest at Río Machay.

FEMALE: not seen by the authors, but see discussion below.

Types.— *Holotype* ♂: ECUADOR.— Tungurahua Prov., Río Machay, 1650m, 20 Apr 95 (J. P. W. Hall); to be deposited in the BMNH.

Paratypes: 1 ♂: same data as above; collection of the authors.

Etymology.— This species is named for the silver-grey appearance of the verso surface, after the Latin for "silver."

Diagnosis.— The distinctive silver-grey and red-brown verso surface of this species is quite unlike that of any other, but shares many pattern elements with *Adelpha shuara* n. sp. The genitalia of the two species are also close in appearance, both bearing "teeth" on the distal end of the valvae, but the shapes of the

clunicula differ, that of *A. argentea* being longer and more pointed.

Discussion.— This species is only known to us in Ecuador from two specimens collected on the same day at the type locality. These males were found perching on two different bushes above the river from 1000-1200h. Despite numerous visits to this site since 1993, we have only just discovered this species occurring along a single 20m stretch of path. Dr. Gerardo Lamas (pers. comm.) informs us that there is 1♂ and 1♀ in the collection of the Museo de Historia Natural, Lima, Peru, from the departments

of Junín and Cuzco, Peru, respectively. The rarity of this species even at the type locality, and its apparently very localised distribution within seldom-collected cloudforest habitats, explains why it has not been described previously.

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