

# TAXONOMIC NOTES ON ECUADORIAN ADELPHA, WITH THE DESCRIPTION OF TWO NEW SPECIES AND SEVEN NEW SUBSPECIES (LEPIDOPTERA: NYMPHALIDAE: LIMENITIDINAE)

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**ABSTRACT.**— Two new species and seven new subspecies of *Adelpha* Hübner, [1819], are described from Ecuador (*Adelpha attica hemileuca* n. ssp., *Adelpha hesterbergi* n. sp., *Adelpha hyas hewitsoni* n. ssp., *Adelpha iphicleola thessalita* n. ssp., *Adelpha iphicles estrecha* n. ssp., *Adelpha lamasi* n. sp., *Adelpha radiata aiellae* n. ssp., *Adelpha radiata explicator* n. ssp., *Adelpha salus emmeli* n. ssp.). The taxonomy and synonymy of *Adelpha serpa* (Boisduval, 1836) and related species, and *Adelpha iphicles* (Linnaeus, 1758) and *Adelpha iphicleola* (H. W. Bates, 1864), are discussed and a number of taxonomic changes made.

**KEY WORDS:** *Adelpha attica hemileuca* n. ssp., *Adelpha hesterbergi* n. sp., *Adelpha hyas hewitsoni* n. ssp., *Adelpha iphicleola thessalita* n. ssp., *Adelpha iphicles estrecha* n. ssp., *Adelpha lamasi* n. sp., *Adelpha radiata aiellae* n. ssp., *Adelpha radiata explicator* n. ssp., *Adelpha salus emmeli* n. ssp., bait trapping, Bolivia, Brazil, Canal Zone, Central America, Chocó, Colombia, Costa Rica, Ecuador, endemism, Mexico, mimicry, Neotropical, Panama, Paraguay, perching behavior, Peru, premontane rainforest, ridgetop, South America, taxonomy, Venezuela.

The genus *Adelpha* contains some of the most common and conspicuous species in the Neotropics, but also many that are localised and rare, and a number of taxa have remained undetected until relatively recent intensive faunal surveys (Beutelspacher, 1975, 1976; Steinhäuser and Miller, 1977; DeVries and Chacón, 1982; Orellana, 1996; Neild, 1996). In Ecuador to date, 56 species of *Adelpha* have been recorded out of a predicted total of 59, approximately two thirds of the genus and a number equalled only by Colombia. This great diversity of species, in combination with the country's range of habitats and the relative lack of historical collecting, has resulted in the discovery of a number of new *Adelpha* taxa by the authors (see also Willmott and Hall, 1995). In particular, many of these taxa inhabit the western slope of the Andes, an area of high butterfly species and subspecies endemism in both lowland and middle elevation habitats where a number of recent discoveries have been made in other butterfly families (Willmott and Hall, 1994; Hall and Willmott, 1995, 1996, 1998; Hall, 1998). This paper forms part of a larger study by the first author to revise the systematics of the genus *Adelpha*, in addition to a long term research project by both authors examining the diversity, ecology and biogeography of the true butterflies (Papilionoidea) of Ecuador.

Some of the historical confusion between species in *Adelpha* has arisen due to apparent mimicry between unrelated taxa (Aiello, 1984; Willmott, in prep.). In fact, although the genus exhibits a diversity of wing patterns, these are all simple modifications of the general *Adelpha* groundplan which can be readily recognised in all species. In order to facilitate comparisons between taxa, we use a standard terminology for various elements of the wing pattern groundplan in each description, as illustrated in Figure 1. It should be noted that according to the studies of the evolution of butterfly wing patterns of Schwanwitsch (1924) and Nijhout (1991), the majority of the pattern elements in Figure 1 actually represent the ground color of the wing, including the postdiscal band, and the postdiscal and submarginal series. True "pattern elements" (*sensu* Schwanwitsch and Nijhout) are the dark areas between these pale markings. However, it is much clearer to discuss the ventral wing pattern differences between *Adelpha* taxa in terms of the shape, orientation and expression of these pale areas of the wing, and we have therefore adopted an alternative terminology which allows this.

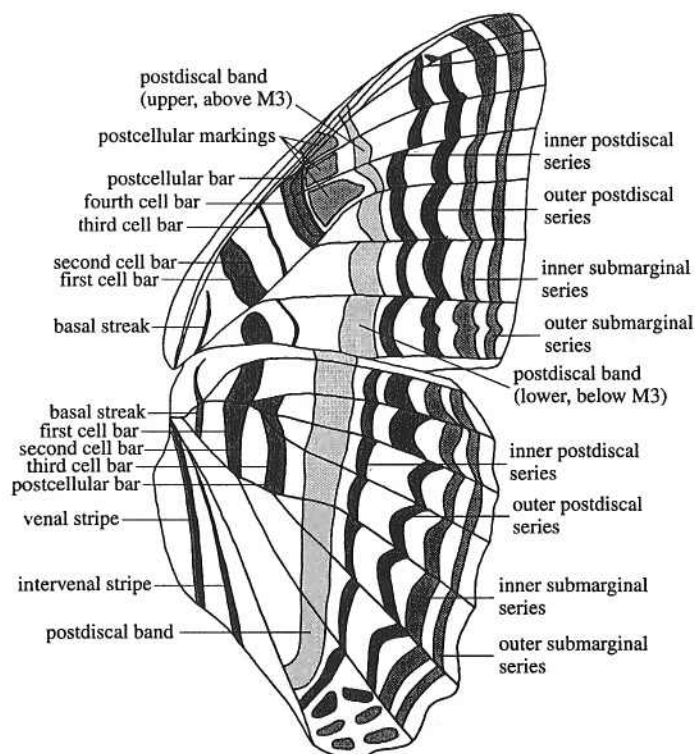


Fig. 1. A schematic drawing of the ventral wings of *Adelpha aricia* (Hewitson, 1847), illustrating the terminology used in this paper for elements of the *Adelpha* groundplan.

Most dorsal patterns are very simple and for the sake of clarity we describe them using more widespread terminology. For example, we refer to an orange "subapical marking" on the forewing as opposed to the inner and outer postdiscal series, which is actually what this marking represents. In all the species treated in this paper the inner and outer postdiscal series are not visibly separate on the ventral forewing in cells  $M_1$  and  $M_2$ , and only sometimes in cell  $M_3$ . We use the terms "concave" and "convex" with respect to the wing base.

