

A SOUTHERN RANGE EXTENSION FOR *MORPHO AMATHONTE* DEYROLLE, 1860 (NYMPHALIDAE, MORPHINAE) IN WESTERN ECUADOR AND THE DESCRIPTION OF A NEW SUBSPECIES

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Abstract- We report here a record of *Morpho amathonte* from La Troncal, Cañar, in western Ecuador, representing the southernmost known locality for the species in the country. The Cañar specimens are phenotypically different to those from north-western Ecuador, which are known as *Morpho amathonte ecuadorensis* Le Moult and Réal, 1962. We therefore describe a new subspecies, *Morpho amathonte canyarensis* ssp. nov., for the Cañar population.

INTRODUCTION

The geographical distribution of the nymphalid butterfly *Morpho amathonte* Deyrolle, 1860, extends from Nicaragua (Chontales and Zelaya provinces) through Central America to the lowlands of north-western Ecuador, and encompasses 4 subspecies (Blandin, 2007a,b). Until recently, the southern limit for this species west of the Andes was Río Palenque, Los Ríos, Ecuador, as reported for *M. amathonte ecuadorensis* Le Moult and Réal, 1962, in an unpublished list for the Río Palenque Research Station compiled by Tom Dodson (K. Willmott, personal communication). During a survey trip to south-western Ecuador by the first author (SN) in August 2008, three males and one female of this species were collected at La Troncal, Cañar, extending the known range southwards by approximately 120 km. A comparison of the wing patterns and coloration of the specimens from Cañar with those from further north revealed consistent and significant differences, and we therefore describe a new subspecies for the Cañar population.

Morpho amathonte canyarensis Nakahara & Blandin,
ssp. nov. (Figs. 1A-1D)

Material examined (3♂, 1♀): Holotype ♂, ECUADOR, Cañar, La Troncal 2°32'31.46"S 79°22'19.36"W alt 200m, 17. viii. 2008, S. Nakahara (in S. Nakahara collection, to be deposited in the Research Institute of Evolutionary Biology, Setagaya-ku, Tokyo, Japan). Paratypes: 2♂, 1♀ same data as holotype.

Description and Diagnosis

MALE: Wingspan 125mm to 135mm. Forewing apex slightly protruding, as in *M. a. ecuadorensis*. On the dorsal surface, the metallic color has a slightly brighter reflection than in *M. a. ecuadorensis* and the reflective blue area extends towards the apex in space R5-M1, as in *M. a. amathonte* Deyrolle, 1860. The ventral surface is light brown and is easily distinguished from that of *M. a. ecuadorensis*, which is much darker. Ocelli are sometimes present in cell M2-M3 of the forewing, but usually only a trace (these do not appear in *ecuadorensis* according to Blandin 2007a). Ocelli tend to be smaller than *M. a. ecuadorensis*.

FEMALE: Wingspan 134mm. The dorsal surface is paler and the metallic blue is less extensive than *M. a. ecuadorensis*.

Costal area is white and is covered, in sectors M2-M3 in metallic reflections. Pupillary marks are small. The submarginal white spots on both ventral and dorsal surface are smaller than those of *M. a. ecuadorensis*. Premarginal marks tinted with ochre and unclear. Extent of the marginal dark area at the top of the cell and adjacent white area is wider than *M. a. ecuadorensis*. The ventral surface is paler than that of *M. a. ecuadorensis*, as in the male. Ocelli tend to be smaller than *M. a. ecuadorensis*.

DISCUSSION

The most obvious differences between the new subspecies *M. a. canyarensis* and the neighboring subspecies *M. a. ecuadorensis* (Figs. 2A-2D) is the color of the ventral surface and wing pattern. The specimens that we examined of *M. a. ecuadorensis* from three Ecuadorian localities (including holotype) are consistently darker brown than the examined specimens of *M. a. canyarensis*. Furthermore, the same kind of color difference also distinguishes *M. a. ecuadorensis* and *M. a. centralis* from Central America, suggesting that this is a character which differs among, rather than within, subspecies. The record of the *M. a. canyarensis* from Cañar indicates that the southwest Ecuadorian butterfly fauna certainly contains a Central American element. The type locality is one of the few patches of tropical rainforest remaining in western Ecuador, perhaps explaining why this subspecies has not formerly been collected. Of course it is possible that the observed variation in ventral wing color pattern may be broadly clinal. However, the fact that specimens of *M. a. ecuadorensis* from three localities show little difference suggests that ventral color is relatively stable. The more important fact is the existence of *M. amathonte* in far south-western Ecuador. This species is found only in relatively intact humid rainforests. At the type locality, in addition to *M. amathonte*, SN also collected specimens of *M. helenor* and observed *M. theseus*, the latter presumably representing *M. t. triangulifera* (Le Moult & Réal, 1962), which is already known from Cañar (Blandin, 2007a,b). These observations suggest that the La Troncal rainforest fragments, which form islands in the dry area of south-western Ecuador, probably conserve a relatively rich biodiversity. It is interesting to note that *M. helenor* from La Troncal clearly represents *M. h. maculata* (Röber, 1903), known from the Guayaquil area and northward in Chimborazo, Bolívar and Cotopaxi (Blandin,



1A



2A



1B



2B



1C



2C

Fig. 1. *Morpho amathonte canyarensis* **ssp. nov.** from Ecuador, Cañar, La Troncal: 1A. Holotype male, dorsal surface; 1B. Holotype male, ventral surface; 1C. Paratype female, dorsal surface.

Fig. 2. *Morpho amathonte ecuadorensis*: 2A-2B. Male, dorsal and ventral surface (Ecuador, Pichincha, Pacto, alt 900m, 7. iii. 2006, S. Nakahara, leg.); 2C. Female, dorsal surface (Ecuador, Pichincha, Pacto, alt 900m, viii 2003, Patrick Blandin coll. (Paris Museum)).



Fig. 1D. *Morpho amathonte canyarensis* ssp. nov. from Ecuador, Cañar, La Troncal: 1D. Paratype female, ventral surface.



Fig. 2D. *Morpho amathonte ecuadorensis*, female, dorsal surface (Ecuador, Pichincha, Pacto, alt 900m, viii. 2003, Patrick Blandin coll. (Paris Museum)).

2007a,b). La Troncal thus appears to represent the southern limit of *M. h. maculata*, since in El Oro to the south, in drier forest, *M. helenor* is represented by the subspecies *cormieri* (Blandin, 2007a,b).

Examined specimens

M. a. ecuadorensis: Holotype ♂, ECUADOR, Pichincha, St domingo de los colorados, V, 1935, Paris Museum coll., 1♂, ECUADOR, Esmeraldas, Lita alt 600m, v. 2000, Paris Museum coll.

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REFERENCES CITED

Blandin, P.

2007a. The systematics of the Genus *Morpho* Fabricius, 1807 (Lepidoptera, Nymphalidae, Morphinae). Canterbury, Hillside Books. 277 pp., 3 figs., 47 tabs., 16 maps.

2007b. The Genus *Morpho*, Lepidoptera, Nymphalidae. Part 3. Addenda to Part 1 and Part 2 & The Subgenera *Pessonina*, *Grasseia*, and *Morpho*. Canterbury, Hillside Books. Pp. i-xi, 99-237, figs. 11-455, tabs. 7-12.

Deyrolle, E.

1860. Notice sur cinq *Morpho* nouveaux. *Annales de la Société entomologique de France* (3)8:207-214.

Le Moult, E. and Réal, P.

1962-63. *Les Morpho d'Amérique du Sud et Centrale*. Editions du cabinet entomologique E. Le Moult. 1: xiv 296pp., 21pls., maps; 2: 16pp., 92 pls.

Röber, J. K. M.

1903. Zwei neue Morphiden. *Societas entomologica* 17(20):153-154.