

# NOTES ON THE GENUS *MEMPHIS*: HITHERTO UNKNOWN FEMALES, NEW RECORDS FROM VENEZUELA AND COMMENTS ON *M. WELLINGI* (LEPIDOPTERA: NYMPHALIDAE: CHARAXINAE)

ANDRÉS M. ORELLANA B.<sup>1</sup>

Universidad de los Andes, Facultad de Ciencias, Laboratorio de Química Ecológica,  
La Hechicera 5101-A, Mérida, Venezuela

**ABSTRACT.**— The females of *Memphis mora* (Druce, 1874) (= *M. memphis* C. & R. Felder, 1867) and *M. basilia* (Cramer, 1780) are described for the first time with brief diagnoses. Conspecificity of recognized species with the latter two are outlined, but are not formally proposed. Three species are added to the Venezuelan fauna, with provenance from the southern half of the country, elevating the total number in the genus to 28. Finally, the original proposed relationship of *M. wellingi* Miller & Miller, 1976, is discussed, leading to a reconsideration in the structuring of the genus.

**KEY WORDS:** Amazonas, Andes, biogeography, Bolívar, Colombia, *Cymatogramma*, distribution, *Fountainea*, Guyana, Mexico, Neotropical, Orinoco, sexual dimorphism, South America, taxonomy, Venezuela.

The Neotropical charaxine genus *Memphis* Hübner, 1819, is large, with approximately 80 species (Comstock, 1961) and, although quite well known, specimens are often difficult to curate (DeVries, 1987; Pyrcz and Neild, 1996). The purpose of this paper is threefold. First, illustrations and diagnoses for the females of two species where only the males were known are given, namely *M. mora* (Druce, 1874), previously known as *M. memphis* (Felder & Felder, 1867) and *M. basilia* (Cramer, 1780). Secondly, three further species are added to the Venezuelan fauna, and third, a reconsideration of the proposed relationship of *M. wellingi* (Miller & Miller, 1976) within the genus is discussed.

## HITHERTO UNKNOWN *MEMPHIS* FEMALES

Males and females of sexually dimorphic species in *Memphis* are often hard to match. Furthermore, some of the rarest species in this genus are solely known by their male gender, except in the newly described *M. viloriae* Pyrcz & Neild, 1996, known by a single female specimen. In recent decades, females of *M. phoebe* (Druce, 1877), *M. hirta* (Weymer, 1907) (Witt, 1966, 1970) and *M. dia* (Godman & Salvin, 1884) (Maza and Díaz, 1982) were described or illustrated for the first time while those of *M. pasibula* (Doubleday, 1849) and *M. aureola* (Bates, 1866) (Witt, 1980) were confirmed. The females of nearly a dozen more species still remains to be disclosed. Many authorities mismatch specimens and many are mingled in museums. Criteria for matching includes dorsal and ventral wing pattern, wing shape and contour. However, the variability of these patterns often confuse identification, hence series of the more abundant male sex from a single locality help in the diagnosis of species level characters. By a process of elimination, females can then be matched with certainty to their partners. The few rearing records include well-known species whose females are well known, so this criteria is not useful until problem species are reared.

### *Memphis mora* (Druce, 1874) (Fig. 1-3)

A single female specimen from southwestern Venezuela, in the Río Frío area, near the Colombian border, was curated in the Ro-

mero collection (CFR, Maracay) beside a series of *M. mora* males, all from the same region. The handwritten label reads: "Río Frío 600m / Jun 1983. cfr / Edo. Táchira".

This specimen is more or less the size of males (forewing length 33mm), resembling a dwarf *M. pseudiphis* (Staudinger, 1887), which is only occasionally caught in the area, but is distinguishable from this species on the following characters. As quoted, it is smaller; the forewings have a straight outer margin rather unlike the convex one of *M. pseudiphis* at the third median vein. The tornal invagination is shallower. The blue coloration on the dorsal surface is bordered by a purple sheen, never occurring in *M. pseudiphis*. The preapical spots are very faint (as occurs in males), whereas in the latter species these are slightly more pronounced. On the underside it is very similar to *M. pseudiphis*. However, it matches very well with the underside of *mora* males, which are constant in the markings, but variable in tones. The median area, which is diagnostic, consists of a wavy dark pattern flanking both sides of a lighter patch, which is constricted to form a "Z" or a "7" (Fig. 2-3). Altogether, the female is nothing but a modified version of a male.

Andrew Neild informs me (pers. comm.) that he has seen a second female specimen in Museo de Artrópodos de La Universidad del Zulia (MALUZ, Maracaibo) from the Guaramacal area in Trujillo state (Laguna Aguas Negras, 1740m, May 1996). This specimen extends the known range some 300 Kms NE and ascending at least 240m in elevation.

This species is known from western Venezuela south to Bolivia along the Andes into southern Brasil. The specimens from Perú southward are said to belong to subspecies *montana* (Röber, 1916). Perhaps the Central American *M. orthesia* (Godman & Salvin, 1884) is conspecific, a fact already suggested by Druce (1877) even before its description.

### *Memphis basilia* (Cramer, 1780) (Fig. 4-5)

In Venezuela, males of this species can at times be very common in the field, especially around Puerto Ayacucho in the southern state of Amazonas (Pyrcz and Neild, 1996). Females are most probably common as well, perhaps somewhat more elusive but indeed, they have been collected. However, no one seems to have properly matched the female, and it has regularly been curated as *M. arachne* (Cramer, 1775), *M. morvus* (Fabricius, 1775), *M. oenomais*

1. Current address: Fundación Andígena A, Aptdo. 210, Mérida 5101-A, Venezuela.





Fig. 1-3. Female *Memphis mora*, from Tachira state: 1) Dorsal side; 2) Venter; 3) Selected male showing the venter as to compare with female. Specimens in CFR. Fig. 4-5. Female *Memphis basilia* from Puerto Ayacucho, Amazonas state: 4) Dorsal side; 5) Venter. Specimen in CAG. (photos by Andrew Neild)

(Boisduval, 1870) or as many others, especially as sympatric species occurring in the Amazonian and Guyanan area in South America, many of which have similar looking females.

Females of this species can be distinguished from its relatives both on the dorsal and ventral surfaces. The wing shape of female *M. basilia* has a straight outer margin in the forewings, not the evenly convex or the sinuous one. The restricted deep blue area is bordered externally with a purple sheen, and the white postdiscal spots have straight angle scalloping on its basal side. A few white markings are always seen on the postmedian area, which may be homologous to the blue spots found in males. On the underside, and on the proximal side of the tornal invagination of the inner margin, there is a wide faint dark streak that does not go further than the Cubital veins. It lacks the orange fringe on the dorsal side as seen in *M. polycarmes* (Fabricius, 1775).

Specimen number 1039 (as *M. polycarmes*) in Pycz and Neild (1996: plate 25) in fact is a *M. basilia* and was included in the

plates because the authors believed to be a good example of the variability within *M. polycarmes* (Neild, pers. comm.). The true identity of this specimen was realized a short time after publication and during a simultaneous examination with Andrew Neild of Mr. Albert Gross' collection in Maracay (CAG) in 1998, where a fair number of males and females were found in a synchronic series from a single locality.

It is possible that the species described as *M. bella* Comstock, 1961, may represent an Andean subspecies recorded from northern Colombia, as the species is widespread in the Amazonian and Guyanan regions. Furthermore, both males and females of Peruvian and Ecuadorian *M. florita* (Druce, 1877) resembles *M. basilia*. This statement is only supported from examination of Comstock's illustrations, as the author has not seen any specimen. A variation of possible clinal nature is observed in individuals from the Guyanas to central Amazonas (Pycz and Neild, 1996) and *M. florita* would thus represent the western extreme if proven conspecific.



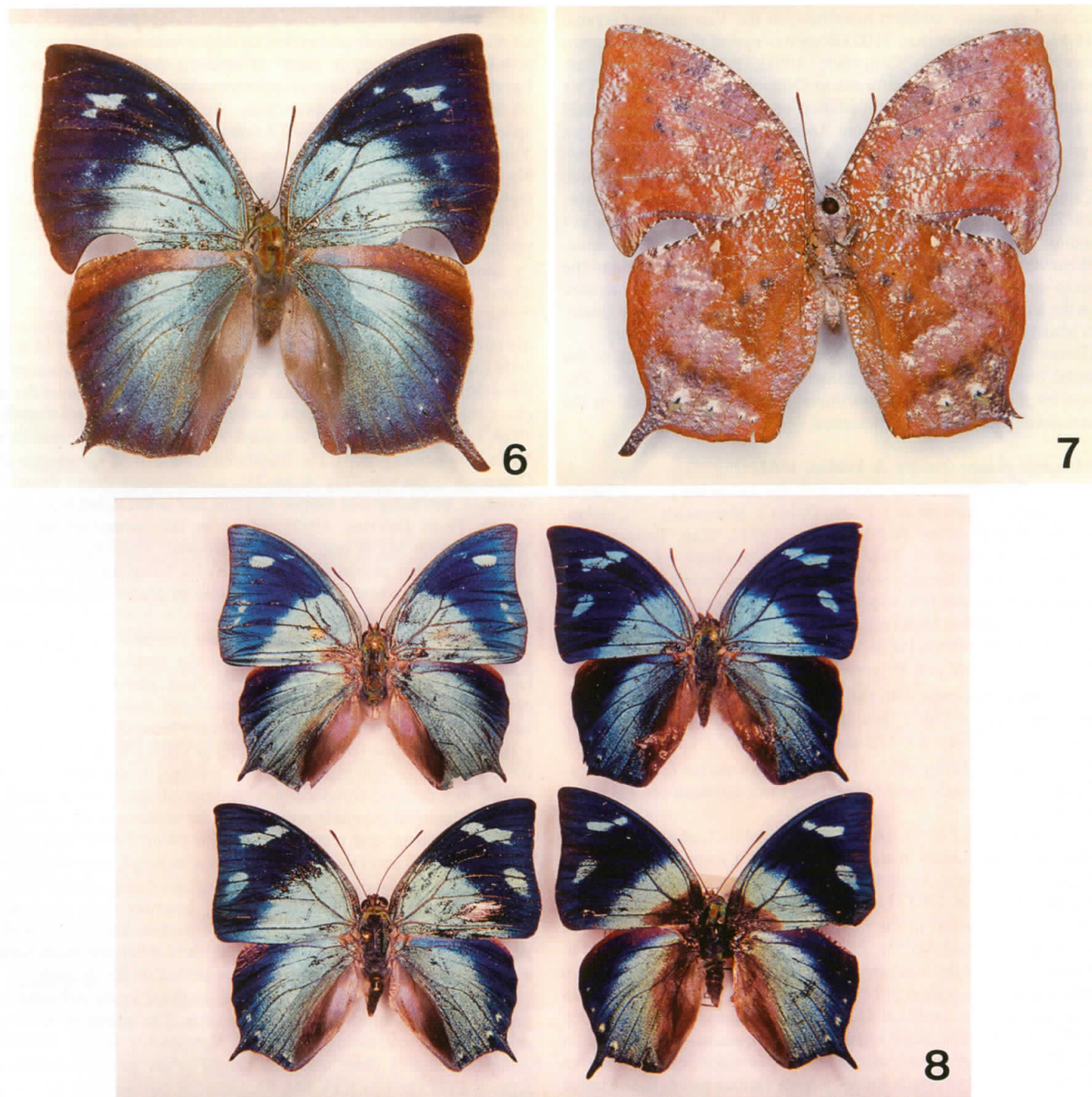


Fig. 6-7. Female *Memphis offa* from Cerro Guaiquinima, Bolívar state: 6) Dorsal side; 7) Venter. MIZA.

Fig. 8. Dorsal sides of male specimens of: upper left, *Memphis cicla*; bottom left, *M. glauca*; top right, *M. glaucone* from Santa Elena de Uairén, Southeast Bolívar; bottom right, *M. glaucone* from the Orinoco headwaters, Amazonas (specimen referred to in Lichy (1979, 1984); specimens in MIZA).

#### NEW RECORDS FOR THE VENEZUELAN FAUNA

On the recent comprehensive guide of Venezuelan Charaxinae, Pyrcz and Neild (1996) enumerated 44 species in the tribe Anaeni (Neild, 1996). Within these, 25 belong to the genus *Memphis*, placing Venezuela in the 4th position in species richness in the Neotropics, following Colombia, Ecuador and Perú (Comstock, 1961). On a visit to the Museo del Instituto de Zoología Agrícola (MIZA) in Maracay in 1998, the author had the opportunity to identify three specimens that were not included in that work. These

records elevate the country to the third position in the Neotropics for *Memphis* diversity (although a comprehensive revision from most countries, especially in the Andean area, must be accomplished). These findings are reported herein.

#### *Memphis offa* (Druce, 1877) (Fig. 6-7)

The labels attached to a fresh female read: "EXP. FUDECI / J. DeMarmels / A. Chacón", "Cerro Guaiqui- / nima. 1000m / 5°53'N 63°30'W / 7-22 Feb 1990", "Venezuela / Bolívar". This specimen was collected in the humid forest of a remote tepui (Precambrian



l sandstone tabletop mountain) in the Venezuelan Guyana. The locality is more than 1100 kilometers east of the nearest known locality (according to Comstock, 1961), surmounting the vast lowlands and lowland rainforests in Orinoquia and Amazonia. This species is a montane inhabitant and is recorded from central Guyana to Bolivia in piedmont Andes. The finding of this species in Venezuelan Guyana is thus surprising. It is not known from the Venezuelan Andes where it was more likely expected. A re-reading of the original description and illustration (Druce, 1877) and the type re-illustrated in Comstock (1961), does not justify a subspecific nomination for this isolated specimen. However, it has a much more extended basal blue coloration in the hindwings and a reflective purple sheen in the black area not seen in the original illustration, and not mentioned by Comstock nor Druce. It lacks the intensity of the "row of minute white spots . . ." (Druce, 1877) of the hindwings, perhaps by the overlapping of the blue. Specimens from elsewhere have not been seen. The species is perhaps widely distributed in the Guyana shield in the north and south, with possible scattered tepuis abroad.

#### *Memphis glauca* (Felder & Felder, 1862) (Fig. 8)

A male specimen was found with the following printed labels: "Venezuela / Amazonas / P. N. Duida / Marahuaca", "Culebra. 3°14'N 65°46'W / 14-26 Ene 1992", "Exp. Terramar / J. A. Chacón". This is the only specimen of *M. glauca* found, but the species surely has been collected regularly by various expeditions to the Amazonas state. The specimen perhaps has been tagged under series of related and common species, or else released if damaged specimens are caught, confused with the very common *M. xenocles* (Westwood, 1850). Another specimen with the labels: "Anaëa ♂ / *glauca* Fld. / f. *glauca* [sic] / Fld.", "Isla del / Esfuerzo TFA / ex-1.21 Sep 1951 / Alto Orinoco / Altitud: / Lat N 2°15' / Long O 64°15' / R. Lichy col.", "Long ♂ / ala anterior / 31mm", "ex-Imago totalmente / fermentado / reconstituido con / algodón / lana."

Recently, this is the sole specimen cited by Lichy (1979, 1984) as an expeditionary managed to rear on *Croton* sp. during the Belgian-French expedition that discovered the headwaters of the Orinoco River in 1951. Lichy (1979) also states the fate of this specimen, as quoted in the labels. According to the identification Lichy considered "*M. glaucone*" (a misspelling attributed to Druce, 1916), to be a subspecies of *M. glauca*. However, the two are actually considered bona fide species, and the specimen in question is referable as *M. glaucone glaucone* (Felder & Felder, 1862) (Fig. 8). The latter is previously known in Venezuela from the Tepui, Amazonas state and from Imataca (extreme eastern Venezuela); and in South America from various places in the entire Amazonian basin and the Guyanas.

These species, *M. glaucone* and the next are closely related, and are referable to the genus (or subgenus, see below) *Cymatogramma* Westwood, 1850. The three species were carefully studied by Comstock (1961), who offers a table summarizing the distinctive characters for males of these. The specimens studied in this work and the dorsal characters of the wing patterns are also reliable. On the venter, *M. glauca* has a uniform patterning, lacking the dark longitudinal line on the median area. All three are Amazonian dwellers and the presence of these species is not a surprise, but they seem to be rare in Venezuela or else ignored.

#### *Memphis cicla* (Möschler, 1877) (Fig. 8)

A single specimen of this species was located in MIZA, bearing the following label:

"Venezuela. T. F. / Amazonas, Merey / 10 Ago 1982".

The exact whereabouts of this locality is unknown, but it clearly is not a mislabeling. A party of students from the Agronomy Faculty of Universidad Central de Venezuela collected this specimen on an expedition to Amazonas State. According to the labels of a specimen of *Heliconius erato* (Linnaeus, 1758) cited in Brown and Yépez (1984), the same party was collecting near San Carlos de Río Negro, in the southern extreme of Venezuela (25 Aug 1982). A lagoon known as Merey is located at the left bank of the Guainía River (2°17'N 67°10'W), a few kilometers north from San Carlos, presumably the locality of capture for *M. cicla*.

#### COMMENTS ON *MEMPHIS WELLINGI*

The original description of this rare south Mexican species notes the tailless conditions of the males and females (Miller and Miller, 1976), adding that this trait is only shared with *M. cleomestra* (Hewitson, 1869). This situation led the descriptors to consider a close resemblance between *M. wellingi* and *M. gudrun* Niepelt, 1924, females of which are yet unknown (all belong to Comstock's *Villa polycarmes* group). The illustrated female of *M. cleomestra* in Comstock is the type (Fig. 8, pl. 23), which clearly shows the tails detached, but today it is known that this sex is the tailed type (Fig. 15, pl. 19 in DeVries, 1987). Males in this group are tailless, otherwise vein M3 is only slightly produced, whereas females in this and all other groups (where known) are tailed, except in the *pasibula* group, where *M. wellingi* should be placed as a proposal. A few comparisons can support this idea.

The illustration of *M. wellingi* male genitalia in Miller and Miller (1976) is rather crude, showing the gnathos fused to the tegumen. Obviously this is an error done perhaps during the elaboration of the figure. The shape of the valva is somewhat triangular, leading the Millers to point out a resemblance to species related to *M. xenica* (Bates, 1864) (group VIIIB). In this respect, a reexamination of the genitalia of *M. wellingi* is required, with a review to a detailed comparison with those of species in group II.

Females of *M. pasibula* are very similar to those of *M. wellingi*, both in the shape and recto wing pattern (Witt, 1966). The latter species is much less falcate, but has a similar broad transverse blue band and the bodies in both sexes are more or less equally stout. Males also have similar recto patterns, however both sexes are dissimilar in the verso, lacking the dark median line found in *M. pasibula* and *M. falcata* (Hopffer, 1874) which renders them such a good resemblance to a dry leaf when settled on the ground.

It seems unlikely one can retain *M. wellingi* in the *polycarmes* group, or even within the genus *Memphis*. The genus is actually recognized as containing species in Comstock's II, III, VI-VIII groups, excluding those currently placed in the genus *Fountainea* Rydon, 1971 (groups I, IV and V). Group II *pasibula* and possibly also the III *aureola* group, may in fact represent a different lineage within *Memphis*. Their generic relationship is unquestionable, but some notable differences exist that break with the strong homogeneity shown in the remaining dozens of species. This discontinuity is comparable to that observed in species placed in the little recognized taxon *Cymatogramma* (conformed by groups VI and VII; Rydon, 1971). Further evidence can be found in the immatures of species in *Memphis* and *Cymatogramma* (unpublished personal notes) summarized by the snail-like pupae in the former and the lycaenid-like in the latter (see also DeVries, 1987; and personal comments in Pyrcz and Neild, 1996). No species in the *pasibula* or *aureola* groups have been reared to date, but evident differences are expected. This hypothesis would further restrict the genus *Memphis* to species assigned to group VIII (in turn composed of four subgroups: *polycarmes*, *morvus*, *eribotes* and *iphis*). Nonetheless, a

more conservative position is to rank all three "genera" as subgenera in *Memphis*. Readers should bear in mind the debatable nature in the usefulness of rank in taxa, which in the ultimate case should only reflect relationships among species.

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