

NEW *MEMPHIS* FROM VENEZUELA (LEPIDOPTERA: NYMPHALIDAE)

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ABSTRACT: *Memphis salinasi*, n. sp., is described from the Cordillera de Mérida, Venezuela.

KEY WORDS: *Anaea*, biogeography, Bolivia, Central America, Colombia, distribution, *Fountainea*, *Memphis salinasi* n. sp., Mexico, Neotropical, Peru, South America, Trinidad, Uruguay.

Memphis (Hübner, 1819) is one of the most numerous genera within the Nymphalidae family in the Neotropical region. It consists of about 100 species distributed from Mexico, through Central and South America (including the island of Trinidad) to Uruguay. *Memphis* was considered by Comstock (1961), Muysshondt (1974, 1975), Witt (1970, 1972) as a subgenus of the genus *Anaea* (Hübner, 1819) and by subsequent authors, DeVries (1987), D'Abbrera (1988) as a full genus. There are about 25 *Memphis* species in Venezuela (excluding those belonging to the genus *Fountainea* erected by Rydon, 1971).

Memphis salinasi Pyrcz, new sp.

DIAGNOSIS.— Size: 76-80mm. A large species showing a pronounced sexual dimorphism. Although very close in facies to related species, it can be distinguished by a series of comparative characters: *Memphis alberta* (Druce) — forewing apex less falcate; *Memphis iphis* (Latreille) — different underside pattern of the wings; *Memphis moeris* (Felder) — forewing apex slightly less falcate, wings slightly thinner, ground color of the upperside basal area in males darker blue (same as in *M. alberta*) without the greenish sheen, and in females, deeper sky blue, subapical blue patches better marked, basal blue (in male) not reaching the tornus incurvation. Additionally, male genital structure allows the recognition of this species.

DESCRIPTION.— **MALE.**— *Forewing:* 37mm. Apex and tornus falcate. *Dorsum:* basal and submedial area deep blue, extends to the junction of M3 and Cu1, on the anal margin does not reach the tornus incurvation; medial and marginal area black with six blue patches divided into two groups; the first group is composed of three larger patches in the R5, M1, M2 cells; the two upper patches usually touch the veins on their whole width, the third patch, narrower, touches the vein M3 only with a pointed extremity; the second group composed of three smaller patches between the cells M3 and Cu2; the widest middle patch usually touches the Cu1 and Cu2 veins, while the lower and upper patches are much smaller and reach only the middle of their respective cells; the blue pattern is somehow variable, however the patches are always better marked than in *M. moeris*. *Venter:* ground color chocolate brown, with whitish scales scattered on the whole surface, but especially along the veins of the discal cell; the wing is divided into a darker, brown area on the costal side and a lighter, maroon area on the distal side by a straight line which crosses the wing from the apex toward the anal margin in the

medial area; the maroon area is lighter on the apex and turns gradually darker toward the tornus; white spots aligned between the veins in the marginal area.

Hindwing.— *Dorsum:* the deep blue extends from the base to the middle of the medial area down from the radial vein and is suffused with darker scales toward the anal margin; the postmedial and marginal areas are blackish-blue; a few blue scales visible on the outer margin; 5 to 6 blue spots in the marginal area between the veins M3 and 1A; tail (7mm) is suffused with greyish scales and is slightly wider on the extremity. *Venter:* ground color chocolate brown; three black curved transversal lines bordered with maroon in the cells Sc, M1 and Cu1, in the medial area; whitish scales on the submedial and basal area, more numerous on the anal margin; white spots aligned between the veins in the marginal area; the spots on the base of the tail are doubled with additional black dots and pupiled with grey-greenish patch.

Male genitalia: structure is described and compared to the related species. Tegumen stout, sharply sclerotized at the top base, similar to *M. iphis*, otherwise, without further particular features in relation to other species of the "*iphis* group"; appendix angular sharp, long and thin, strongly curved, very much like that of *M. iphis*; uncus ended with a toothed process curved downward, similar to *M. iphis* and *M. alberta*, but shorter, same length as gnathos, similar to *M. moeris* but unlike other species of the "*iphis* group"; gnathos irregularly sclerotized along the inner surface; valva stout and about as long as the tegumen-uncus length, slightly thinner than that of *M. iphis*, otherwise similar; toothed process on the harpe - prominent and lifted, as well as the sclerotized ampulla very much alike those of *M. iphis*; on the other hand, the area where cucullus merge with saccus less rounded and the sclerotized structure on the costa single and more prominent than in *M. iphis* or *M. moeris*; aedeagus elongated, about the same length and shape as in *M. moeris* or *M. lorna*, but much thinner than in *M. iphis*.

FEMALE.— *Forewing:* 39mm. Apex less falcate than in *M. moeris*. *Dorsum:* sky blue basal and submedial area (seen from a sharp angle has a bluish-violet sheen) reaches the extremity of the discal cell and extends into the M1 cell, on the anal margin reaches the falcate tornus; medial, postmedial and marginal areas blackish with a light violet sheen; two blue patches in the R5 and M1 cells in the postmedial area, about 5mm wide, do not reach each other and slightly touch the veins; the upper patch is slightly wider than in *M. moeris* and displaced toward the costal margin. *Venter:* ground color chestnut, almost uniform, with a few slightly darker areas, well defined only three patches in the discal cell; whitish spots aligned between the veins in the marginal area.

Hindwing.— Wing shape (including the tail) very much alike *M. moeris*. *Dorsum:* blue basal and submedial area extends into the medial

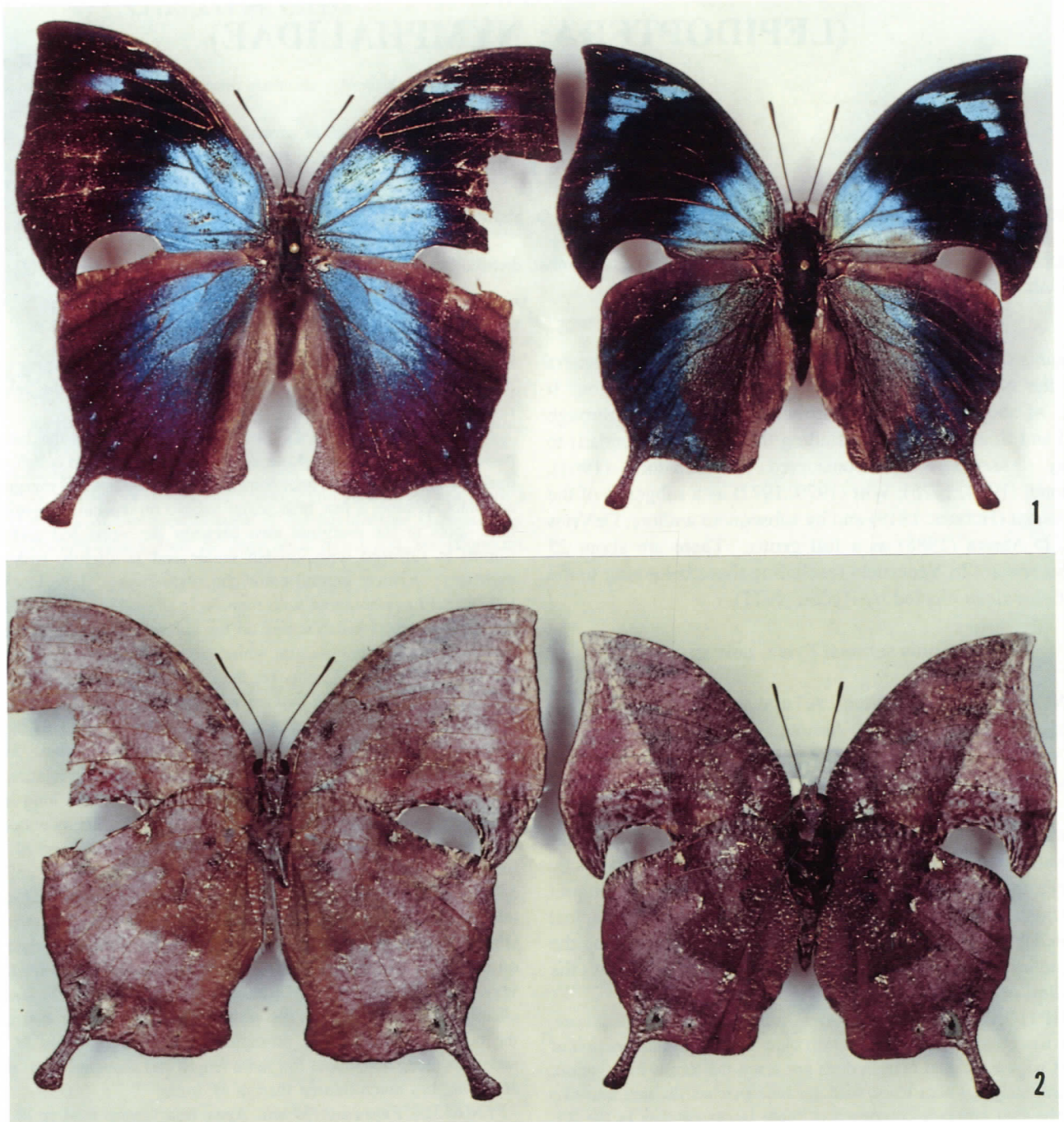


Fig. 1-2. *Memphis salinasi*, ♂ (right) and ♀ (left), Venezuela: 1. Dorsum. 2. Venter.

area, toward the tornus gradually turning bluish; a few blue scales visible as far as the postmedial area; blue spots aligned between the veins in the marginal area. *Venter*: ground color chestnut, almost uniform; 3 small black patches in the discal cell, a white irregular patch on the costal margin in the medial area, white scales numerous on the anal margin; white spots aligned between the veins in the marginal area; the spots on the base of the tail doubled with additional black dots and pupiled with grey-greenish patches.

IMMATURE STAGES.— Unknown.

HOSTS.— Unknown.

DISTRIBUTION.— Cordillera de Mérida (Venezuela), 1800–2800m.

FLIGHT PERIOD.— Throughout the year.

TYPES.— *Holotype* ♂: Venezuela, Cordillera de Mérida, Sierra de la Culata, Mucujún Valley, Quebrada La Cuesta, 2550m, 2



Fig. 3-6. *Memphis salinasi*: 3. Female in nature, Venezuela. 4. Type locality of *M. salinasi* (Qda. La Cuesta). 5. Pico Bolívar (5001m), seen from the third site of *M. salinasi* (Monte Zerpa). 6. Second site of *M. salinasi* (La Chorrera).

Sep 1991, T. Pyrcz, (to be deposited in Museo de Entomología, UCV, Maracay). *Allotype* ♀: locality and altitude as above, 6 Dec 1991, T. Pyrcz, (author's collection).

Paratypes (7♂, 1♀): VENEZUELA: Cordillera de Mérida, Sierra de la Culata, Chorrera de las Gonzales, 1900m, 13 Mar 1981 (1 ♂), D. Otero (UCV Maracay); as above, 16 May 1990 (1 ♂), R. Manrique (A. Orellana Coll.); as above, 14 Feb 1992 (1 ♀), T. Pyrcz (author's collection). Quebrada La Cuesta, 2550m, 25 Sep 1991 (♂), T. Pyrcz (F.

Romero Coll.). Monte Zerpa, 2200m, 10 Mar 1992 (♂), T. Pyrcz (author's collection); 2100-2250m, 15 May 1992 (1 ♂), R. Manrique (R. Manrique Coll.); as above, 19 May 1992 (1 ♂), T. Pyrcz (author's collection); as above 31 May 1992 (1 ♂), T. Pyrcz (Zoological Museum, Jagiellonian Univ.), Krakow, Poland.

This species is dedicated to Prof. Pedro Salinas, eminent Venezuelan entomologist and ecologist, from the Universidad de los Andes, Mérida.

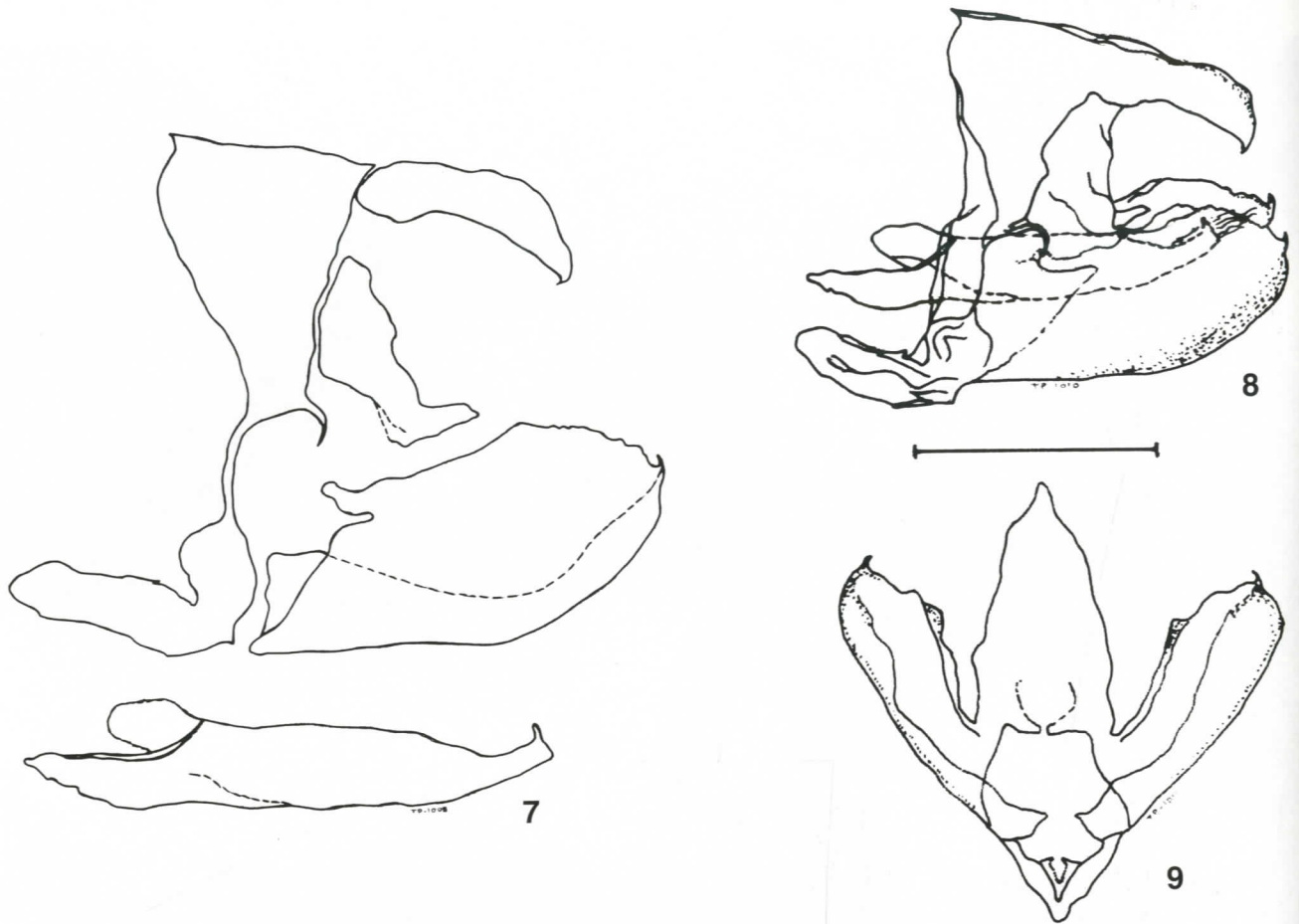


Fig. 7-9. *Memphis salinasi*, ♂ genitalia (holotype): 7. Lateral view (parts separated); 8. Lateral view (aedeagus in situ); 9. Ventral view (aedeagus excluded).

REMARKS.— Considering male genital structure, *M. salinasi* evidently belongs to the "iphis group" (Comstock, 1961), showing a mixture of features relating it to *M. iphis* (valva, appendix angular), *M. moeris* (aedeagus, gnathos) and to other species of the "iphis group". From among seven species placed in this group, two ought to be excluded: *Memphis boliviana* (Druce) and *Memphis cerealia* (Druce), as their morphological characters do not match with the diagnosis of the group established by Comstock. Obviously their wing shape, size and male genital structure (especially valvae) place them much closer to *M. morvus* (Fabricius).

Memphis salinasi belongs to a monophyletic assemblage composed of four species, as proved by their morphological affinities and habitat preferences: *Memphis alberta* (Druce) (Bolivia), *M. iphis* (Latreille) (Peru — exact distribution uncertain), and *M. moeris* (Felder) (Colombia, Venezuela-Sierra de Tamá). Male genital structure is highly homogenous within this group. On the other hand, intraspecific variations are not insignificant, considering that long series (when available) must be used in the comparison of secondary morphological characters. There are, however, morphological details suitable for taxonomic analysis. In the case of *M. salinasi* and *M. moeris*, the comparison of gnathos and harpe is the ultimate instance. Wing shape and color pattern differences become also evident when several specimens are compared.

Although the phenotypes of *M. cluvia* (Hoppfer) and *M. lorna* (Druce) are quite unusual, their general appearance, large size, strongly falcate forewing apex and tornus, as well as male genitalia, prove their close relationship with the remaining four species of the "iphis group."

Careful field observations have to be carried out to identify the hostplants, a rather difficult task in the case of the cloud forest *Memphis*, usually rare and discreet butterflies. As pointed out by DeVries (1987), rearing would be particularly useful to establish the relations between different *Memphis* populations.

Memphis salinasi and related species of the "iphis group" are restricted to cloud forest habitat, generally above 1800m. They are usually found higher in the mountains than any other *Memphis* species and most often are the sole representatives of this genus in their biotope. *Memphis salinasi* coexists only at the lower limit of its life zone with *M. pseudiphis* (up to 2100m) and *M. pasibula* (up to 1900m). The speciation in this group occurred probably similarly to that of the Pronophilini Satyridae (see Adams, 1983, 1985), through isolation in high altitude forest communities during the Pleistocene inter-glacial periods.

Memphis salinasi is known, for the time being, only from three stands in the Sierra de la Culata, part of the Cordillera de Mérida. Its range, most probably, extends north as far as the Páramo Cendé (Trujillo-Lara border) and south, as far as the Páramo Batallón (Táchira). It is replaced south of San Cristóbal valley

(maximum elevation 1000m) by *M. moeris*, known from the three Colombian cordilleras. *Memphis moeris* was first recorded in Venezuela by the author (a female taken at the edge of a chusquea bamboo cloud forest, near the locality of Betania, northern extremity of the Cordillera Oriental, Táchira State, at 2700m, August 1987).

Further south, *M. moeris* is replaced in turn by *M. iphis*, which is somewhat of a mysterious species. Its type locality as given by Comstock: forests of Orinoco, Casiquiare and Rio Negro, is either incorrect, or the species described by Latreille is not the one examined by Comstock (1961), and what he considered to represent *M. iphis*. Staudinger (1887) and Godman and Salvin (1884) considered *M. moeris* and *M. iphis* to be the same. Röber (1916) illustrated (in Seitz) a recto of a male specimen that matches with the description of *M. iphis*, however he claimed its origin as Colombia. Thus, Comstock considered it again as a misidentification. On the other hand, the female of "*M. iphis*" in Seitz is obviously misidentified. It looks suspiciously like *Memphis pseudiphis* (Staudinger). Still, the fact is that Comstock's *M. iphis* represents a species evidently closely related to *M. moeris*. *Memphis iphis* apparently occurs in Peru, but its exact distribution is uncertain. Comstock gives the northern Peruvian locality, Huancabamba (Pasco) and the central Peruvian locality Chanchamayo (Junín) and Pampas (Huancavelica). Baumann and Witt (1977) did not record this species in Chanchamayo. I believe that many Peruvian specimens may bear erroneous labels, as they are obtained often from local dealers, who usually do not attach any attention to the accuracy of their data.

This thesis could be backed by the analysis of origin of Comstock's specimens of *M. alberta*, the southernmost representative of the complex. We find, apart from acceptable localities such as Junín, a doubtful record from Piura, and an unacceptable record of *M. alberta* taken in Iquitos (Loreto), in a lowland forest far away from the Andean stem. Most of the data about *M. alberta* are for south Peruvian (Puno) and Bolivian localities, at around 2000m (Comstock, 1961; Witt, 1970). Females of *M. alberta* and *M. iphis* are not known to me. The ultimate status of the above four allopatric taxa might be subject to a revision after their entire life cycle is known and compared. It cannot be ruled out that they will eventually turn out as conspecific.

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