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Fernanmorana, new genus of butterflies from the Amazon region (Lepidoptera: Nymphalidae, Satyrinae)

Fernanmorana, nuevo género de mariposas de la región amazónica (Lepidoptera: Nymphalidae, Satyridae)

Ángel L. Viloria[1,2] & Mauro Costa[3]

[1] *Centro de Ecología, Instituto Venezolano de Investigaciones Científicas (IVIC), km 11 carretera Panamericana, Altos de Pipe, estado Miranda, Venezuela.* https://orcid.org/0000-0002-5747-4747

[2] *Coordinación de Ciencia, Tecnología y Educación, Organización del Tratado de Cooperación Amazónica (OTCA), SEPN 510, Bloco A, 3° Andar, Asa Norte, CEP 70750-521, Brasilia, D. F., Brasil*

[3] *Museo del Instituto de Zoología Agrícola, Facultad de Agronomía, Universidad Central de Venezuela, Maracay, estado Aragua, Venezuela.* https://orcid.org/0009-0000- 7771-3904

Correspondence: sebastianviloriacarrizo@gmail.com

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ABSTRACT

Based on comparative morphological evidence and previously published phylogenetic hypotheses, a new genus of satyrine nymphalid butterflies, *Fernanmorana* Viloria & Costa, **gen. nov.**, is diagnosed and described. It is native to the lowlands of the Amazon region and so far known from Brazil and Venezuela. The taxonomy of the new genus is briefly discussed, and some bionomic data of its type species, *Fernanmorana insignis* (Butler, 1867), **comb. nov.**, are provided.

Keywords: Brazil, *Euptychia ordinata*, Maroa, Raudal del Danto, Serranía del Cuao, Tocantins, Venezuela, Yavita.

RESUMEN

Con base en evidencia morfológica comparativa e hipótesis filogenéticas previamente divulgadas, se diagnostica y describe un nuevo género de mariposas ninfálidas satirinas, *Fernanmorana* Viloria & Costa, **gen. nov.** El mismo es originario de las tierras bajas de la región amazónica y hasta la fecha se conoce en Brasil y Venezuela. Se discute brevemente la taxonomía del nuevo género y se proporcionan algunos datos bionómicos de su especie tipo, *Fernanmorana insignis* (Butler, 1867), **comb. nov.**

Palabras clave: Brasil, *Euptychia ordinata*, Maroa, Raudal del Danto, Serranía del Cuao, Tocantins, Venezuela, Yavita.

INTRODUCTION

In 1996, while one of the authors (ÁLV) was pursuing doctoral studies at the Natural History Museum in London, he presented to the Venezuelan diplomatic authorities in the United Kingdom an initiative by a group of postgraduate students (engineers) from the Imperial College London to undertake a recreational and scientific expedition to the rivers Negro, Casiquiare, and Orinoco in the Amazonas state of Venezuela. The main objective of this initiative, in addition to traveling by kayak and rowboat along the aforementioned waterways from San Carlos de Río Negro to Puerto Ayacucho, was to test, for the first time, internet communication from selected remote locations of the planet using the first commercially available laptops equipped with satellite antennas.

This initiative was called the Amazon Netspedition and took place between July and October 1996, under the

leadership of Anthony Heenan (Anonymous 1996). The group included the Venezuelan agronomist Jesús Camacho, professor of entomology and curator of the Arthropod Museum of the University of Zulia (MALUZ, Maracaibo, Venezuela), who made extensive insect collections during the expedition, particularly Lepidoptera and Coleoptera. Some of the information posted on the Netspedition website (http://sunsite.doc.ic.ac.uk/netspedition) referred to the discovery of unusual butterfly species, some of which were discussed in the first part of the work of A. F. E. Neild, published at the end of that year (Neild 1996). Due to bureaucratic delays in obtaining permits, the entomological material was confiscated by the authorities of the Fauna Division of the Ministry of the Environment and Natural Resources in Caracas, and unfortunately was not available for study until years later, when some of it was returned to MALUZ. In 2002, it became possible to display, mount, preserve, and examine these samples, which also allowed for the preliminary identification of most butterfly species (Lepidoptera, Papilionoidea). The nymphalid species of the subfamily Satyrinae were studied by Viloria & Camacho (2002), with several cases of provisional identifications, mainly based on the work of Butler (1867), Forster (1964), and D'Abrera (1988).

In the collection of Amazonian Satyrinae of the Netspedition 1996, a male specimen of '*Euptychia*' *insignis* Butler was identified, the first one known from the Venezuelan territory, which, due to its morphological peculiar aspect, especially wing color pattern, could not be placed within any of the genera of Euptychiina described by Forster (1964).

In more recent dates Lamas (2004) detected the impossibility of placing this butterfly species in any of the genera of Nymphalidae Satyrinae described for the American continent. Freitas *et al*. (2018), Marín Uribe *et al*. (2019), Nakahara *et al*. (2019) and Espeland *et al*. (2023) followed this opinion, adding important genetic evidence that reinforces the notion that this taxon should be placed in its own genus. Herein we proceed to diagnose and describe it.

MATERIALS AND METHODS

A comparative study has been carried out on the morphology of the venation and the design pattern and coloration of the wings, particularly the band system and ocelli formula, as well as the male genital chitinous structures of the taxon mentioned in the introduction. The unique combinations of characters were used as criteria for the definition of the new genus.

Description follow the nomenclature of wing venation (and cells) of the Comstock-Needham system (Miller 1970), and the modified terminology of Klots (1970) was used for the description of male genital structures.

Dry-preserved, pinned, and displayed specimens were examined. The observations, photographs and drawings were made with and without magnification (in the first case with manual magnifying glasses and stereoscopic microscopes of different models and brands, natural and artificial lighting and accessories such as the camera lucida and photographic camera), the lengths were taken with a drawing compass and ruler, manual and ocular microscales. Wing diaphanizations were performed using diluted commercial chlorine and immediate washing with distilled water, dehydration with ethanol and preservation by immersion in euparal between glass slides and covers. The softening and digestion of fleshy tissues and abdominal fat for the microdissection of the chitinous structures of the male genitalia of butterflies was carried out by controlled immersion in caustic solution and subsequent washing in water. Once these preparations were examined, they were stored in a solution of ethanol and glycerin. These technical procedures have been described in more detail by Viloria & Costa (2022) and Viloria (2022).

Acronyms: **IVIC**: Centro de Ecología, Instituto Venezolano de Investigaciones Científicas, Altos de Pipe, Venezuela; **MALUZ**: Museo de Artrópodos de la Universidad del Zulia, Facultad de Agronomía, Maracaibo, Venezuela; **MC**: Mauro Costa collection, Caracas, Venezuela; **MIZA**: Museo del Instituto de Zoología Agrícola, Facultad de Agronomía, Universidad Central de Venezuela, Maracay, Venezuela; **NHMUK**: The Natural History Museum, London, United Kingdom.

Material examined: BRAZIL: 1♀ Tonantins [*sic*], Amazons [white rectangular label, printed], Godman & Salvin Coll. 1904-1, Euptychia insignis Btl. [white rectangular labe, printedl] Type of species [white rectangular label, printed], B.M. Type Rh 3867, Euptychia insignis Butl. ♀ [white square label, part printed, part handwritten], Syn-type [small round label circled in light blue, printed], Type HT [small round label circled in red, printed], Euptychia insignis Butler Monog. [larger light blue rectangular label, handwritten]. This specimen corresponding well with the illustration of the original description (Butler 1867: pl. 40, fig. 12), herein designated LECTOTYPE of *Euptychia insignis* Butler, 1867 [NHMUK]; VENEZUELA: 1♂, Amazonas, Mcpio. Guainía, camino Yavita-Maroa, 2° 55' 16" N, 67° 26' 25" W, 300 m, 29-31.viii.1996, cols. J. Camacho, A. Heenan [wing prep. ALV062-19; genit. prep. ALV599-14] [MALUZ]; 1♀, Amazonas, Raudal del Danto [5° 2' 30" N; 67° 33' 30" W], 150 m, 13.i.2024, H. Camico [IVIC], 5 ♂♂ Amazonas, Raudal del Danto [5° 2' 30" N; 67° 33' 30" W], 150 m, 25.x.2024,

H. Camico [3 IVIC, 1 MIZA, 1 MC]; 2♂♂ Amazonas, Raudal del Danto [5° 2' 30" N; 67° 33' 30" W], 150 m, 30.x.2024, H. Camico [1 IVIC, 1 MALUZ].

RESULTS

Fernanmorana Viloria & Costa, **gen. nov.**
(Figs. 1 [type species, male wing venation], 2 [type species, male genitalia], 3 [type species, habitus, male and female])

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Type species: *Euptychia insignis* Butler, 1867: 501, pl. 40, fig. 12. Herein designated.

Diagnosis. *Wing pattern* (Fig. 3): dorsal: uniform dark brown, without ornamentation; ventral forewing without ocelli and lacking discal band or line; hindwing with a distinct, straight dark discal stripe or line, running from anterior margin, almost reaching anal margin; postdiscal line running parallel but only approximately to half wing width; hindwing distinctly patterned with a white postdical band NOT parallel to the line-stripe system, but instead crossing the wing approximately from the ápex to the middle of the anal margin. This feature is unlike that of most other white banded satyrid from the lowlands of Tropical America (*e. g., Argentaria* Huertas & Wilmott, 2023, *Cristalinaia* Freitas, Barbosa & Zacca, 2019, *Saurona* Huertas & Willmott, 2023) and only comparable to that of *Forsterinaria pronophila* (Butler, 1867) or the species of *Splendeuptychia* Forster, 1964, from which it diverges in their different system of postdiscal ocelli. They even belong to different clades (Espeland *et al.* 2023). Postdiscal ocellar elements well developed, inmerse in a diffuse cloud of yellow color, possibly resulting from the expansion and fusion of the "yellow rings" of the ocelli, which are usually 3 to 4, from M2 to Cu2 (notably larger and prominent in Cu1, often vestigial or absent in M2), black, with white pupils, triangular or v-shaped in M2

Description. *Eyes* glabrous. *Antennae* dark, with some white scales on the joints of their segments, threadlike (filiform), thin, barely reaching a third of the length of the wing costa; club faintly formed, barely perceptible. *Forewings* subtriangular, apex subtruncate, smooth, outer margin gently convex. *Hindwings* suboval, apex and anal angle rounded, anterior margin slightly angled at the end of Sc +R1, outer margin arched, with very slight crenulation, anal margin straight. *Venation* (Fig. 1, male). Forewing: Sc notably inflated in its basal two-fifths, ending at the anterior two-fifths of the costa length; independent R1 emerges midway through the discal cell and terminates approximately three-fifths of the costa length; R2 and R3-R5 emerge together from the anterior apex of the discal cell, R2 terminating at one-quarter of the costa length, R3 emerges one-third of the length of R4-R5 and terminates before the wing apex, R4 and R5 diverge approximately halfway along the radial axis of R3-R5, R4 terminating at the wing apex itself; free end of R5 short, terminating at the posterior limit of the wing apex; M1 long and completely independent, emerges posteriorly and distinctly separated from the origin of R2-R5 (between them a small, straight vein r5-m1, forming a very differentiated anterior extension of the discal cell); M2 runs parallel to M1 and is of the same length; m1-m2 runs between them at the end of the cell, strongly V-shaped, with its angle pointing towards the base of the wing, and in it a vestige of a recurrent veinlet within the cell; M3 divides equidistantly the anterior and posterior portions of the wing, runs approximately parallel to M2, between them m2-m3 is straight and approxi-

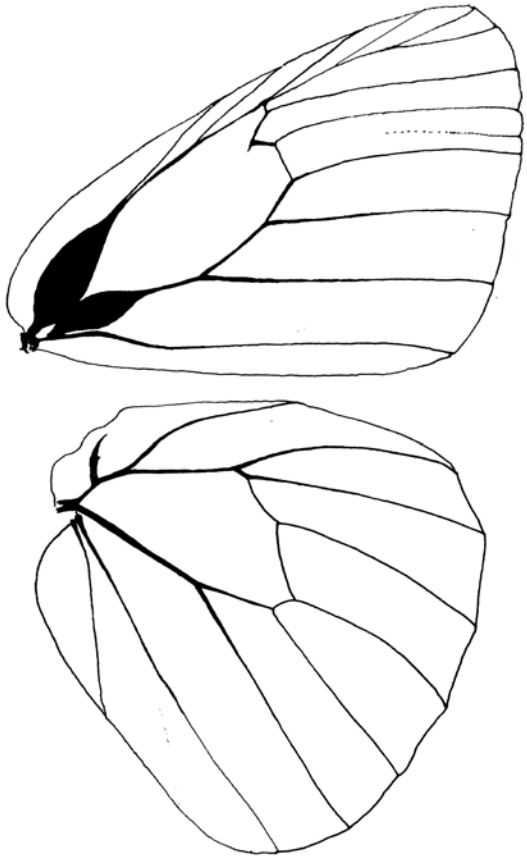

Figure 1. Wing venation of a male individual of *Fernanmorana insignis* (Butler, 1867) **comb. nov.**, type species of its genus (average forewing length, from base to apex: 23.8 mm, n=7). Venezuela, Amazonas, Mcpio. Guainía, camino Yavita-Maroa (wing prep. ALV062-19).

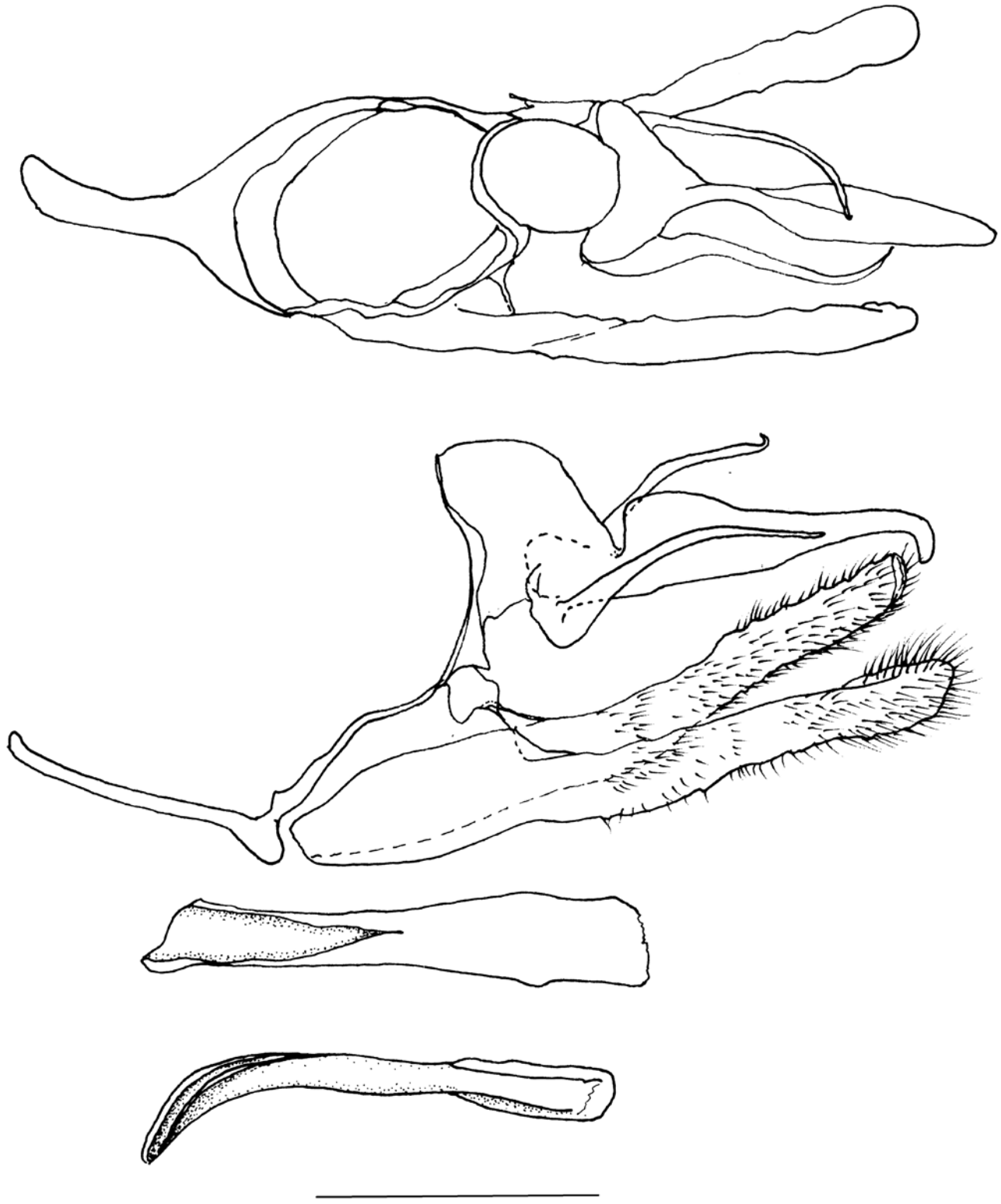

Figure 2. Genitalia of a male individual of *Fernanmorana insignis* (Butler, 1867) **comb. nov.**, type species of its genus. Venezuela, Amazonas, Mcpio. Guainía, camino Yavita-Maroa (wing prep. ALV599-14). Upper, dorsoventral view of genital armature (without aedeagus); lower, lateral view of genital armature (without aedeagus)n; below dorsal (upper) and lateral (lower) wiews of aedeagus. Illustrations produced at 40x magnification, horizontal line below drawings represents 1 mm.

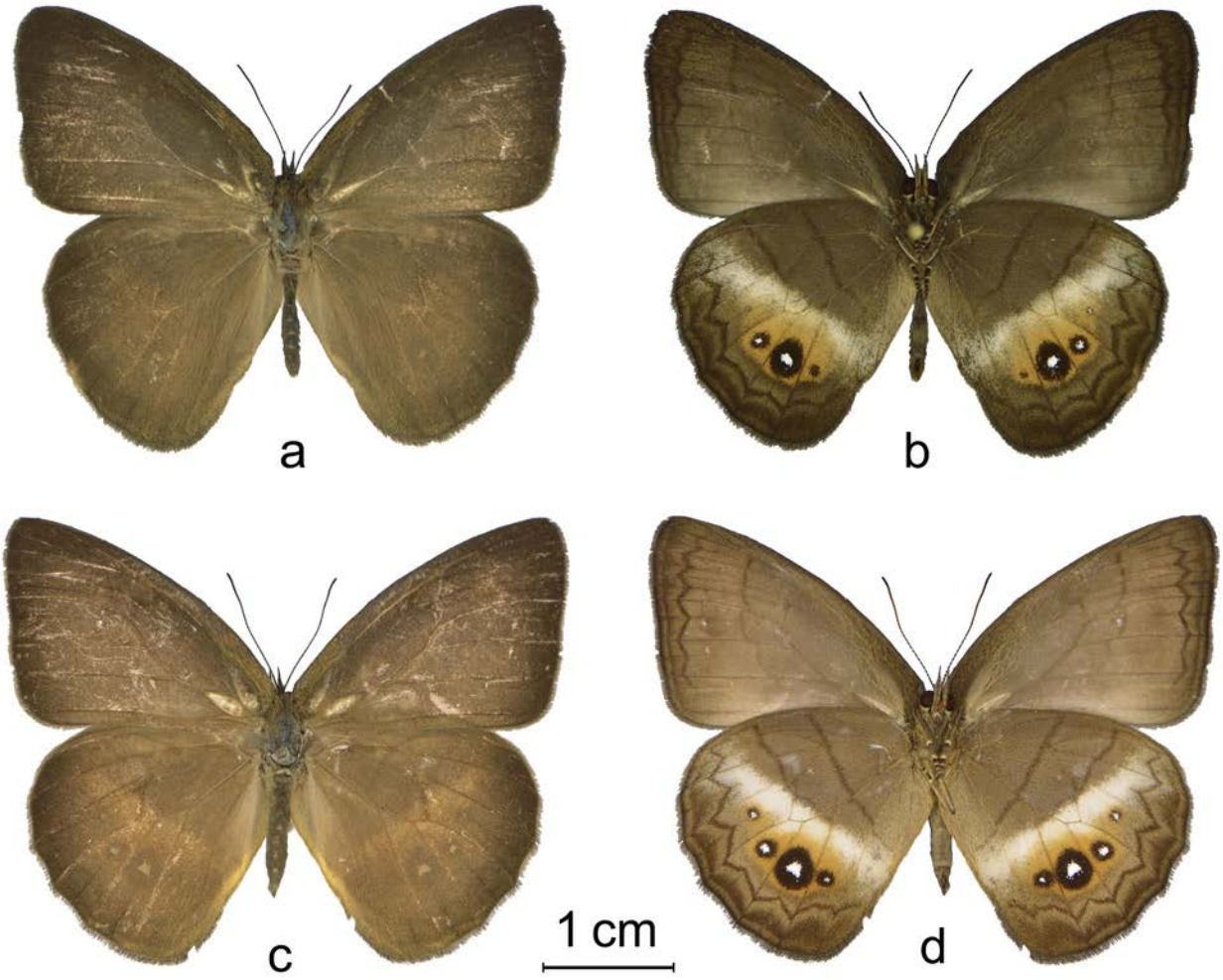

Figure 3. Habitus of male (**a** dorsal, **b** ventral) and female (**c** dorsal, **d** ventral) individuals of *Fernanmorana insignis* (Butler, 1867) **comb. nov.**, type species of its genus. Venezuela, Amazonas, Raudal del Danto, 150 m.

mately four times longer than r5-m1; Cu1, almost straight, parallel to M3, emerges in the distal quarter of the discal cell; Cu2, straight, parallel to Cu1, emerges approximately two-fifths of the cell length, measured from its base, as long as two-thirds of the distance from the base to the wing apex; A2, independent, slightly thickened at its basal sixth, runs parallel to the anal margin of the wing. The origin of the cubital veins is greatly inflated, between the base of the wing and halfway between this and the origin of Cu2 (but only half the thickness of the inflated base of the Sc). Hindwing: Hu present and simple, without apparent bifurcations, well developed on the anterior basal lobe of the wing base, curved distally; Sc+R1 well developed from the basal quarter of the anterior limit of discal cell, curved, ending on the anterior margin at a point equidistant between the wing base and the distal end of Rs; discal cell subtriangular; Rs emerging from the anterior angle of the cell, curved and distinct, ending at the rounded point of the wing apex; M1 emerging posterior to the anterior angle of the cell, not far from the origin of Rs, runs almost straight to the outer margin of the wing; two slightly convex transverse veins close the discal cell distally: m1-m2 and m2-m3, both approximately the same length; between them emerges M2, which measures approximately half the length between the base and the anal angle of the wing; independent M3, shorter and more curved than M2, arises at the most distal point of the cell; a little further towards the base emerges Cu1, straight; m2-m3 and m3-cu1 form a 90° angle; independent Cu2, a little longer than half the length of the wing, arises in the final third of the posterior vein of the cell; A2 runs completely independently from the base of the wing to the anal angle; independent A3,

Figure 4. Habitat of *Fernanmorana insignis* (Butler, 1867) **comb. nov.**, type species of its genus. Venezuela, Amazonas, Raudal del Danto, 150 m.

Figure 5. View of a trail used by the Piaroa indigenous people of the Cuao River region in Venezuela, inhabited by *Fernanmorana insignis* (Butler, 1867) **comb. nov.**

from the base of the wing to its anal margin, ending at a basal third of its length.

Male genitalia (Fig. 2). Armature well developed and stylized; tegumen small and distinctly dome-like, very well distinguished from the uncus, which is one and a half times wider than the tegumen at its base, but also much depressed dorsoventrally at that level, then immediately compressed laterally, with a prominent crest ("inflated at its base in lateral view" *sensu* Espeland *et al.* 2023). Uncus is also twice as long as tegumen, lanceolate, and ended in a tip curved downwards; subunci with long, stylized brachia, reaching beyond half the length of the uncus; saccus thin, flattened, as long as the brachia of subunci; valves sub-rectangular, very long, longer than length of tegumen + uncus; aedeagus flattened, wide, especially at distal extreme, basal extreme curved downwards.

Etymology: The name *Fernanmorana*, feminine, comes from the shortening, modification and arbitrary combina-

tion of the Spanish surnames Fernández and Morán, and is proposed here as a tribute to the distinguished Venezuelan physician, scientific researcher, and technologist, Humberto Avelino Fernández-Morán (Maracaibo, 1924 – Stockholm, 1999). His work and legacy had a global reach and have been of paramount importance to the development of modern science in Venezuela (Matos Romero 1986, Jiménez Maggiolo 1998, Rivas Cols 2005, Hernández Fonseca & Valbuena 2008, Requena 2011, Esparza & Padrón 2020, Carvalho Kassar 2025, Molina Vílchez & García Tamayo, in press). In his late years, H. Fernández-Morán developed a keen interest in the preservation of the Amazon river basin and its natural resources.

Distribution: Locally known in the lowlands of the Amazon region, from the Tocantins river area (type specimen) to the Amazonas state in southern Venezuela (material herein examined from Maroa-Yavita, Raudal del Danto, Cuao river, but also Siapa region [R. Mattei, *pers. comm*.]). It is probably widely distributed across the Amazon basin.

Bionomic data: The type species of *Fernanmorana* **gen. nov.** *Fermanmorana insignis* (Butler) **new. comb.**, is a natural dweller of the tropical forests of the Amazon region lowlands. It has been observed to be at least seasonally abundant in some Venezuelan localities, such as Raudal del Danto, in the río Cuao region (H. Camico, *pers. comm*.) and Siapa, río Negro region (R. Mattei, *pers. comm*.), mostly associated to thick undergrowth secondary vegetation (Figs. 4 &5) and flying together with other satyrines among thick intrincate bamboo aggregations (R. Mattei observations).

DISCUSSION AND CONCLUSION

Lamas (2004), Marín Uribe *et al*. (2019), Nakahara *et al*. (2019) and Espeland *et al*. (2023) considered classifying *Euptychia insignis* Butler and *Euptychia ordinata* Weymer, 1911, together within the same genus. We have had no access to specimens of *E. ordinata,* originally described from Bolivia, to test this hypothesis. Although both taxa look superficially similar, we noticed in the photograph of the type specimen of *E. ordinata*, once available publicly in the Butterflies of America website, that its ocelli bear a very excentric silvery pupilla. In our experience this character trend is not irrelevant for the generic classification of satyrine butterflies, therefore, we declined to classify *E. ordinata* under *Fernanmorana* **gen. nov.** Recently, two superficially identical Amazonian satyrine species, *Stephenympha pauliana* Viloria (2022) and *Xikrin ueharapradoi* Freitas & Barbosa (in Barbosa *et al.* 2023) were described in two different and very distinct genera.

Espeland *et al*. (2023) demonstrated and asserted that *E. ordinata* belongs in their *Amphidecta*-Clade, establishing not only some morphological likeness with some members of *Amphidecta* Butler, 1867, but also their genetic closeness.

Species belonging to *Fernanmorana*, **gen. nov.**:

Fernanmorana insignis (Butler, 1867), **comb. nov.**

Euptychia insignis Butler, 1867: 501, pl. 40, fig. 12.

Euptychia insignis Butler; Butler, 1868: 38; Kirby, 1871: 56; Weymer, 1911: 213; Gaede, 1931: 451; D'Abrera, 1988: 785 [figs. row 4, male habitus dorsal, ventral]; Lamas, 2004: 223; Freitas *et al*., 2018: 156; Marín Uribe *et al*., 2019: 97 [as *incertae sedis*, Barbosa *et al*., in prep.]; Nakahara *et al*., 2019: 14, 18; Espeland *et al*., 2023: 23, 59 [as a new genus, Nakahara *et al*., in prep.]

[*incertae sedis*] *insignis* Butler; Lamas, 2004: 223.

'*Euptychia*' *insignis* Butler; Espeland *et al*., 2023: 13,14, 25.

DISCLAIMER

The authors declare no conflicts of interest among themselves. ALV was responsible for the conceptualization, methodology, writing, and line drawings of this article. MC and ALV jointly provided the resources, and MC is the author of the photographic illustrations.

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REFERENCES

[Anonymous]. 1996. Netropolitan. *New Scientist* (London) 150(2036): 19.

Barbosa, E. P., R. R. Siewert, M. A. Marín, P. A. Machado, I. F. Oliveira, J. A. C. Filho & A. V. L. Freitas. 2023. Description of a new genus and species of Euptychiina (Lepidoptera: Nymphalidae) from the Brazilian Amazon rainforest. *Austral Entomology* 62: 310–322.

Butler, A. G. 1867. A monograph of the genus *Euptychia*, a numerous race of butterflies belonging to the family Satyridae; with descriptions of sixty species new to science, and notes

to their affinities, etc. *Proceedings of the Zoological Society of London* 1866(3): 458–504, pls. 39–40.

Butler, A. G. 1868. *Catalogue of diurnal Lepidoptera of the family Satyridae in the collection of the British Museum*. London: Taylor and Francis, vi + 211 pp. + [i], 5 pls.

Carvalho Kassar, G. G. 2025. *Descubrir lo invisible. Humberto Fernández-Morán, el tecnólogo atómico*. Caracas: Fondo Editorial Mincyt /Fonacit /Ministerio del Poder Popular para Ciencia y Tecnología, 324 pp.

D'Abrera, B. 1988. *Butterflies of the Neotropical Region. Part V. Nymphalidae (Conc.) & Satyridae*. Victoria, Black Rock: Hill House, [viii] + pp. 679–877.

Esparza, J. & R. Padrón. 2020. Un análisis de la obra científica de Humberto Fernández- Morán, a los veinte años de su muerte. *Gaceta Médica de Caracas* 126(4): 304–325.

Espeland, M., S. Nakahara, T. Zacca, E. P. Barbosa, B. Huertas, M. A. Marín, G. Lamas, M. Benmesbah, C. Brévignon, M. M. Casagrande, C. Fåhraeus, N. Grishin, A. Y. Kawahara, O. H. H. Mielke, J. Y. Miller, I. Nakamura, V. Navas, B. Patrusky, T. W. Pyrcz, L. Richards, D. Tan, S. Tyler, Á. L. Viloria, A. D. Warren, L. Xiao, A. V. L. Freitas & K. R. Willmott. 2023. Combining target enrichment and Sanger sequencing data to clarify the systematics of the diverse Neotropical butterfly subtribe Euptychiina (Nymphalidae, Satyrinae). *Systematic Entomology* 2023: 1–73.

Freitas, A. V. L., E. P. Barbosa, T. Zacca, M. A. Marín, M. V. Beirão, A. R. M. Silva, M. M. Casagrande, M. Espeland & K. R. Willmott. 2018. Before it is too late: description of a new genus and species of butterfly from a highly threatened Brazilian biome. *Revista Brasileira de Entomologia* 62: 148–158.

Hernández Fonseca, J. P. & H. Valbuena. 2008. *Humberto Fernández Morán: un científico marabino de la talla de un diamante*. Maracaibo: Ediciones del Vice Rectorado Académico de La Universidad del Zulia, Ediluz, 154 pp.

Jiménez Maggiolo, R. 1998. *Humberto Fernández Morán. Vida y pasión de un sabio venezolano*. Maracaibo: Fundacite-Zulia, [vi] + 151 pp. + [iii].

Kirby, W. F. 1871. *A synonymic catalogue of diurnal Lepidoptera*. London: John van Voorst, vii + 690 pp.

Klots, A. 1970. Lepidoptera. pp. 115–130. *In*: Tuxen, S. L. (ed.). *Taxonomist's glossary of genitalia of insects*. 2nd ed. Scandinavian University Books. Copenhagen / Oslo / Stockholm: Munksgaard / Universitetsforlaget / Läromedelsförlagen.

Lamas, G. 2004. Nymphalidae. Satyrinae. Tribe Satyrini. Subtribe Euptychiina. pp. 217–223. *In*: Lamas, G. (ed.). Checklist: Part 4A. Hesperioidea – Papilionoidea. *In*: Heppner, J. B. (ed.). *Atlas of Neotropical Lepidoptera. Volume 5A*. Gainesville: Association for Tropical Lepidoptera / Scientific Publishers.

Marín-Uribe, M. A., T. Zacca, S. Nakahara, E. P. Barbosa, M. Espeland, B. C. Huertas-Hernández, G. Lamas, K. R. Willmott & A. V. L. Freitas. 2019. An overview of the Euptychiina (Satyrinae) diversity. pp. 76–98. *In*: Guarín, J. H., C. E. Giraldo & J. L. Jaramillo (eds.). *Memorias & Resúmenes. Congreso Sociedad Colombiana de Entomología*. Medellín: Sociedad Colombiana de Entomología.

Matos Romero, M. 1986. *Semblanza del Profesor Dr. Humberto Fernández Morán, un sabio venezolano del siglo XX*. Caracas: Tipografía Unión, 206 pp.

Miller, L. D. 1970. Nomenclature of wing veins and cells. *Journal of Research on the Lepidoptera* 8(2): 37–48.

Molina Vílchez, R. & J. García Tamayo. [in press]. *Ciencia amarga*. Maracaibo: Mestizo Producciones.

Nakahara, S., T. Zacca, F. M. S. Dias, D. R. Dolibaina, L. Xiao, M. Espeland, M. M. Casagrande, O. H. H. Mielke, G. Lamas, B. Huertas, K. Kleckner & K. R. Willmott. 2019. Revision of the poorly known Neotropical butterfly genus *Zischkaia* Forster, 1964 (Lepidoptera, Nymphalidae, Satyrinae), with descriptions of nine new species. *European Journal of Taxonomy* 551: 1–67.

Neild, A. F. E. 1996. *The butterflies of Venezuela. Part I: Nymphalidae I (Limenitidinae, Apaturinae, Charaxinae). A comprehensive guide to the identification of adult Nymphalidae, Papilionidae, and Pieridae.* Greenwich, London: Meridian Publications, 144 pp., 32 pls.

Requena, J. 2011. *Humberto Fernández Morán (1924-1999).* Biblioteca Biográfica Venezolana, vol. 136. Caracas: C. A. Editora El Nacional, 113 pp. + [i].

Rivas Cols, C. 2005. *Humberto Fernández-Morán de frente y de perfil*. Caracas: Centro de Reproducción Copicentro, s. r. l. / [Instituto Venezolano de Investigaciones Científicas], 232 pp.

Viloria, Á. L. 2022. Two new satyrine butterflies from Venezuela (Insecta: Lepidoptera: Nymphalidae). *Anartia* 34: 28–42.

Viloria, Á. L. & J. Camacho. 2002. *Mariposas satirinas del estado Amazonas, Venezuela, obtenidas durante la Netspedition 1996 del Imperial College of Science and Technology, University of London*. [Maracaibo]: [Museo de Artrópodos de La Universidad del Zulia, MALUZ], [2] pp. [lista preliminar]

Viloria, Á. L. & M. Costa. 2022. A new subspecies of *Oxeoschistus puerta* (Westwood, 1851), from the Sierra de Perijá, western Venezuela (Lepidoptera: Nymphalidae: Satyrinae). *Anartia* 34: 18–27.

Weymer, G. 1910-1912. 4. Familie: Satyridae. *In:* Seitz, A. (ed.). *Die Gross-Schmetterlinge der Erde*. Stuttgart, A. Kernen. 5: 173–280, pls. 42–60.