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Occurrence of *Orotaygetis surui* Nakahara, Zacca & Lamas, 2018 in Venezuela (Lepidoptera: Nymphalidae, Satyrinae)

Presencia de *Orotaygetis surui* Nakahara, Zacca & Lamas, 2018 en Venezuela (Lepidoptera: Nymphalidae, Satyrinae)

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Orotaygetis Nakahara & Zacca (in Nakahara *et al.* 2018) is a monobasic genus of satyrine butterflies native to the Amazon biome in South America. The most recent and complete phylogeny of the subtribe Euptychiina clearly shows its genetic affinity with *Taygetina* Forster, 1964 (Espeland *et al*. 2023), but its external appearance can be confused with that of a species of *Harjesia* Forster, 1964 (Lamas 2004: 220), a genus from which it diverges significantly in genetics and morphological structure. The only known species within this genus, *Orotaygetis surui* Nakahara, Zacca & Lamas (2018: 11-12), was apparently discovered in the forests of the upper Arinos River in the state of Mato Grosso, Brazil, about fifty years ago. Until now it was known from only 28 individuals examined in collections, all from low to medium altitudes, in the south and southwest of the Amazon basin (300-972 m asl; Nakahara *et al*. 2018).

In this note, we report the discovery in Venezuela of two male individuals of *Orotaygetis surui* (Fig. 1, data and repositories in the legend), from a locality in the Serranía de La Neblina, very close to the border with Brazil (Fig. 4). The specimens were captured along a trail cut through pristine montane forest at 900 m asl, in January 2023, by a Piaroa student and collaborator in our Lepidoptera of the Pantepui Project (Instituto Venezolano de Investigaciones Científicas, IVIC / Museo del Instituto de Zoología Agrícola de la Universidad Central de Venezuela, MIZA), Mr. Hernando Camico, who ascended this remote mountain range on foot, following the Taboca Route, one of three trails —two on the Venezuelan side— that lead to illegal gold mines near the summits. The journey requires a river approach, navigating in a bongo from San Carlos de Río Negro, going up the Negro, Casiquiare and Pacimoni rivers, and finally the Baría, on whose southern bank is located the Puerto de Los Mineros, the last station for the boats. Two routes of ascent on foot depart from here, the Camello Route, which goes into the heart of the mountain range, and the Taboca, at whose intermediate point (Barriga Shella Camp) the *Orotaygetis* butterflies were found.

The Serranía de La Neblina (Fig. 4), in the southernmost tip of Venezuela, bordering Brazil, is one of the least known national mountain ranges in terms of its lepidopteran fauna. Very few scientific expeditions have been carried out in this region due to the difficulties of access. Undoubtedly, the most important was the multidisciplinary international expedition, organized, sponsored, and carried out by FUDECI in 1983–1987 (Brewer Carías 1988), which had valuable logistical support from several institutions, including air and river transport. It is very difficult, without the use of helicopters, to reach the

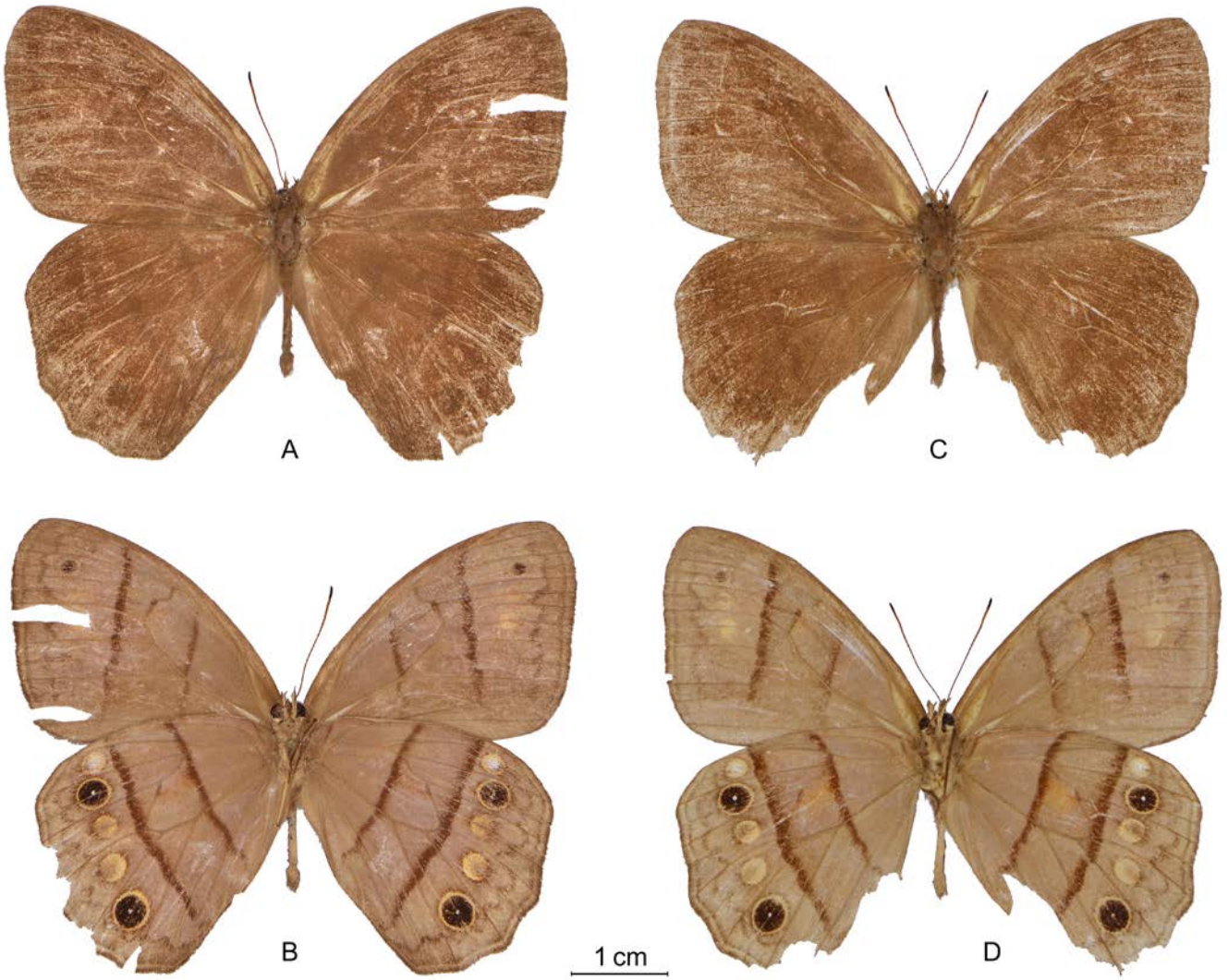

Figure 1. *Orotaygetis surui* Nakahara, Zacca & Lamas, 2018, new record for Venezuela. **A** (dorsal), **B** (ventral): ♂ VENEZUELA, Amazonas, Sierra de la Neblina, Ruta Taboca, 900 m, 13-I-2023. *Leg.* H. Camico (IVIC); **C** (dorsal), **B** (ventral): ♂ dorsal: same data except 18-I-2023 (MIZA) (photos & plate: M. Costa).

summits of this range, among which Pico de La Neblina stands out, on the binational borderline. Its summit at 2,995 m asl represents the highest point in Brazil and the entire Guiana Shield.

In a summary of butterfly studies in the Pantepui region, Viloria & Costa (2019) presented a list of endemic Pantepui taxa, several of which correspond to higher altitudes of the Serranía de La Neblina: *Pereute lindemannae lindemannae*, *Lieinix christa christa*, *Dismorphia crisia neblina* Reissinger (1970, Pieridae), *Pedaliodes demarmelsi* Viloria (1995, Nymphalidae, Satyrinae), *Greta clavijoi*, *Pteronymia alissa marjorieae*, *Pteronymia alicia* Neild (2008, Nymphalidae, Danainae, Ithomiini), *Eutresis hypereia imeriensis* Brown (1977a, Nymphalidae, Danainae, Ithomiini) and *Melinaea mnasias neblinae* Brown (1977b, Nymphalidae, Danainae, Ithomiini). *Pedaliodes chaconi* Viloria (1998, Nymphalidae, Satyrinae) was described and, so far, has been known exclusively from the Serranía de Tapirapecó, a mountain range running continuously east-northeast from La Neblina. These faunal elements, chiefly those with strictly montane habits, appear to have more affinities with the Andean fauna than with the butterfly genera that characterize the rainforests of the Amazonian plains. This also seems to be the case for *Orotaygetis*.

It is noteworthy that the previous geographical records of *Orotaygetis surui* come from sites very distant from the locality reported in this work, primarily in the south and southeast of the Amazon River basin, including the Andean foothills or mountains (Cuzco and Madre de Dios, in Peru) and slopes of some elevation in the headwaters of

Figure 2. Barriga Shella Camp, Taboca Route, Serranía de La Neblina, Amazonas State, Venezuela (photo: H. Camico).

Figure 3. Forest habitat of *Orotaygetis surui* in the Taboca Route, 900 m, Venezuelan side of the Serranía de La Neblina (photo: H. Camico).

Figure 4. Relative location of the new find of *Orotaygetis surui* in the northern Amazon region. The broad map depicts the northern part of South America. The yellow dashed line in the lower right enlargement represents the Taboca Route, one of the two pathways (in Venezuelan territory) to ascend Pico La Neblina on foot; the red circle indicates Barriga Shella Camp (900 m asl), where the two specimens were found.

several of the Amazon river tributaries in Rondônia and Mato Grosso (Brazil) (Nakahara *et al.* 2018: 38, fig. 16 distribution map of *O. surui*). On the other hand, intermediate regions in the vast Amazonian plain, from where many butterfly species are known, do not appear to be part of the natural distribution of this peculiar taxon.

Therefore, it is reasonable to conclude that *O. surui* is truly absent from the lowland rainforests of the Amazon and that it is a species typical of mid-altitudes on the edges of the Amazon basin. Its distribution, herein hypothetically inferred from five points in the map, could be described as **amphi-Amazonian** or perhaps **circum-Amazonian**. This is neither a frequent nor a random pattern of geographic distribution. It is still too early to speculate on this matter; however, this pattern is likely to be repeated not only by other butterfly species but also in plants. A comparative analysis of multiple biogeographical evidence may, in this case, rule out the classic dispersal-isolation-vicariance model proposed for Andean butterflies (Adams 1977, 1985), and instead align favorably with the mechanism of passive uplift of montane biotas (Heads 2017, 2019; Heads *et al*. in press).

Other Satyrinae species collected on the Taboca Route, between 400 and 1,000 m altitude, were *Bia actorion* ssp. nov., *Pierella astyoche bernhardina* Bryk, 1953, *Pierella lamia* (Sulzer, 1776), *Taygetis laches* (Fabricius, 1793) and *Zischkaia josti* Nakahara & Kleckner, 2020 (specimens deposited at IVIC). It is worth noting that very few specimens of satyrine butterflies are known from remote locations in the far south of the Venezuelan state of Amazonas. Lichy ([1984]) identified 45 species of Satyrinae (including six species of Brassolini and six of Morphini) collected in 1951 during the Franco-Venezuelan Expedition to the sources of the Orinoco River (Grelier 1954, Anduze 1960, Rísquez Iribarren 1962, Lichy 1979). The highest collecting points recorded by René Lichy during that memorable

expedition was at 300 m (confluence of the Orinoco and Ugueto rivers), while some Satyrinae species cited by him correspond only to two higher locations reached by Pablo J. Anduze (La Cumbre, at 470 m, and Horqueta-Minas, at 530 m). With the exception of *O. surui* and *Z. josti*, which were only more recently detected, Lichy cited for the upper Orinoco all the satyrids mentioned above for the Taboca Route.

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