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Comentarios

ADDENDUM TO MARSH (2014): *Pithecia hirsuta* Spix, 1823 AND *Pithecia inusta* Spix, 1823 ARE SYNONYMS

José Eduardo SERRANO-VILLAVICENCIO[1,2], Guilherme SINICIATO TERRA GARBINO[3]

[1] Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos, Departamento de Mastozoología, Lima, Peru.

[2] Universidade de São Paulo, Museu de Zoologia, Mastozoologia, São Paulo, Brazil.

[3] Universidade Federal de Viçosa, Departamento de Biologia Animal, Museu de Zoologia João Moojen, Viçosa, Minas Gerais, Brazil.

* Correo electrónico: serranovillavicencio@gmail.com

ABSTRACT

The saki monkeys, genus *Pithecia* Desmarest, 1804, have undergone drastic taxonomic changes in a 2014 revision of the genus. In that revision, *Pithecia hirsuta* Spix, 1823, and *Pithecia inusta* Spix, 1823 were considered as valid species, although both have been widely considered synonymous with *Pithecia monachus* (É. Geoffroy Saint-Hilaire, 1812). Nonetheless, by reviewing the original descriptions of both species, we argue that *inusta* cannot be applied to the Peruvian populations of *Pithecia* inhabiting the Ucayali River watershed since the type locality is in a distinct geographic region from the species' distribution, as outlined in the 2014 revision. In fact, the area falls completely outside the expedition's itinerary that collected the holotype. Thus, to preserve stability until further evidence is furnished, the above-mentioned *Pithecia* populations should be regarded as *P. monachus*.

KEYWORDS: saki monkeys, taxonomy, classification, *Simiarum*, type locality.

ADDENDUM A MARSH (2014): Pithecia hirsuta Spix, 1823 Y Pithecia inusta Spix, 1823 SON SINÓNIMOS

RESUMEN

Los monos huapos, género *Pithecia* Desmarest, 1804, han sufrido cambios taxonómicos drásticos a partir de una revisión en 2014. En esa revisión *Pithecia hirsuta* Spix, 1823 y *Pithecia inusta* Spix, 1823 fueron consideradas especies válidas, aunque ambas han sido ampliamente consideradas como sinónimos de *Pithecia monachus* (É. Geoffroy Saint-Hilaire, 1812). Sin embargo, al revisar las descripciones originales de ambas especies, aquí argumentamos que *inusta* no puede aplicarse a las poblaciones peruanas de *Pithecia* que habitan principalmente en la cuenca del río Ucayali, ya que la localidad tipo se encuentra en una región geográfica distinta de la distribución de la especie delineada en la revisión de 2014. De hecho, la zona queda completamente fuera del itinerario de la expedición que recolectó el holotipo. Por lo tanto, para preservar la estabilidad hasta que se proporcionen más pruebas, las poblaciones de Pithecia antes mencionadas deben considerarse como *P. monachus.*

PALABRAS CLAVE: huapos negros, taxonomía, clasificación, *Simiarum*, localidad tipo.

The taxonomy of the South American saki monkeys, genus *Pithecia* Desmarest, 1804, was studied by Marsh (2014). Based on pelage coloration patterns, some morphological measurements, and considering the phylogenetic concept of species, she recognized 16 species, of which three were reinstated from synonyms, and five new species were described. Among the names revalidated is *Pithecia inusta* Spix, 1823, which, according to Marsh, would represent a species distributed south of Solimões River, along the Ucayali River in Peru (Departments of Huánuco, Pasco, Loreto, and Ucayali) and upper Juruá river in Brazil (states of Acre and Amazonas – see Map 6 in Marsh, 2014). However, based on the type locality of *P. inusta*, we contend that Marsh erroneously assigned the name to these populations to represent a distinct species in eastern Peruvian and western Brazilian Amazonia. This needs to be clarified as misuse of names may be detrimental to classification, conservation, and management actions (e.g., translocations, reintroductions) of saki species.

To expose the problem, here we summarize the taxonomic history of the taxa involved. Spix (1823), in his *Simiarum et vespertilionum brasiliensium species novae* (hereafter *Simiarum*), described *Pithecia hirsuta* (Figure 1A) and *Pithecia inusta* (Figure 1B) based on specimens that he and other members of the Bavarian expedition collected in the Brazilian Amazonia. The description of the species in Simiarum is given in French and Latin, and the information on the type locality in both languages is not identical, as we show here. In the French description of *Pithecia hirsuta*, Spix informed that this species was found along the Tonantins and Japurá rivers, both left-bank tributaries of Solimões river: "*Nous avons rencontré ces singes avant Tabatinga sur les bords de la rivière Tonantin et Japura, bras latérals de Solimoens*". Furthermore, Spix (1823:14) also reported the type locality of *P. hirsuta* in Latin as follows: "*Habitat in sylvis fluminis Solimöens et Negro interjacentibus*" (= Inhabits in the forests between the rivers Solimões and Negro – our translation). Regarding the collecting locality of the *Pithecia inusta* type specimen, Spix (1823:16) states in French that "*Il se trouve aux forêts de Tonantin, petite rivière de Solimoens près de Tabatinga*" (= It is located in the forests of Tonantin, small river of the Solimões near Tabatinga – our translation) (Figure 2).

In a preliminary revision of *Pithecia*, Hershkovitz (1979) recognized *P. hirsuta* as a valid species and *P. inusta* as a junior synonym of *P. monachus* since the types of both species were collected on the left margin of the Solimões, between this river and the Japurá River, and also by the lack of discernible traits to distinguish between both taxa. With a larger sample, Hershkovitz (1987) reconsidered his position regarding *P. hirsuta* and determined that this species would also be a synonym of *P. monachus*, because *P. hirsuta* type also fell within the variation of what he regarded as *P. monachus*. In turn, after her taxonomic revision based on fur coloration, Marsh (2014) concluded that *P. monachus* (*sensu* Hershkovitz, 1987) was a species complex containing three diagnosable taxa: *P. hirsuta, P. inusta*, and *P. monachus*; although she also mentions that the differences between adults of *P. inusta* and *P. monachus* would be imperceptible, and could only be differentiated when they were in the juvenile stage (Marsh, 2014:51). She also stated that "something is going on" between these two species and more research is needed. In addition, Marsh (2014:49) argued that the type locality of *P. inusta* had not been specified, not even by country, in Spix's *Simiarum*.

Marsh (2014) stated that the animal depicted in Spix's plate of the type of *P. inusta*, which is an adult animal, was morphologically similar to the

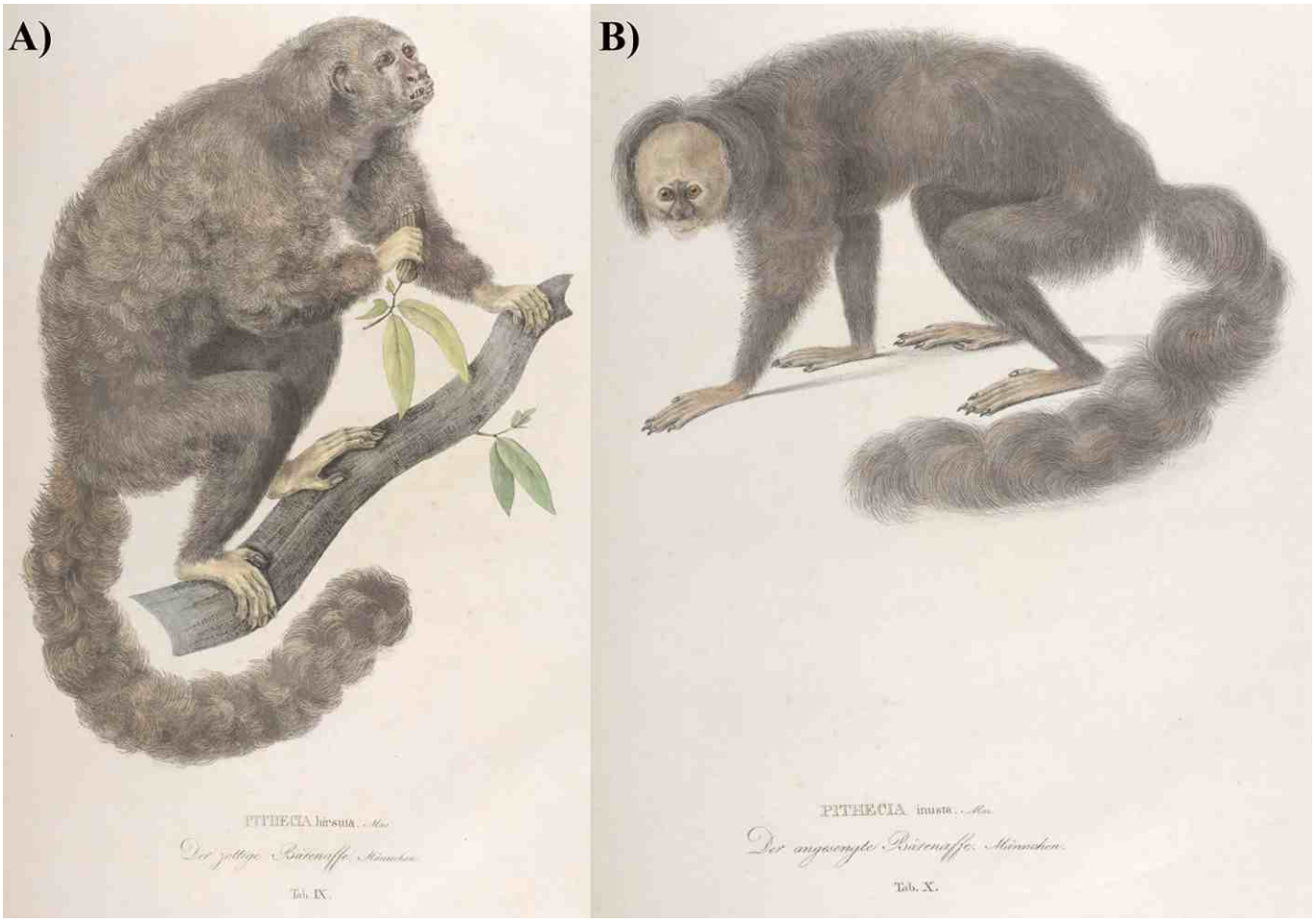

Figure 1. Original illustrations of *Pithecia hirsuta* (A) and *Pithecia inusta* (B) taken and modified from Spix (1823, Plates IX and X).

specimens of *Pithecia* occurring along the Ucayali River in Peru and the upper Juruá River in Brazil. Therefore, based on Spix's plate in the *Simiarum*, she assigned *P. inusta* to specimens collected in these areas. However, neither Spix nor any other member of the Bavarian expedition collected specimens from the region of the proposed distribution range of *P. inusta* sensu Marsh (2014) [see the expedition itinerary in Papavero (1971)].

A possible explanation for Marsh's omission regarding the type locality mentioned by Spix (1823) in the *Simiarum* is that Marsh (2014) only based her conclusions on the Latin description of *P. inusta* and overlooked the French description in which this information was provided. Moreover, previous authors already pointed out that the type of *P. inusta* came from Rio Tonantins. Hershkovitz (1979:15) informed the type locality of *P. inusta* as "Rio Solimõéns (sic) Amazonas, Brazil," which was corrected to "forest of Rio Tonatins" by Hershkovitz (1987:423). Therefore, Spix's *P. inusta* does not apply to the saki monkey populations from Peruvian and Western Brazilian Amazonia.

As the type specimens of both *P. hirsuta* and *P. inusta* were collected in the same region, and there are no morphological diagnostic characters to distinguish these two taxa, we consider that *P. inusta* should be a synonym of *P. hirsuta*, following previous authors (Hershkovitz, 1979, 1987; Cabrera, 1958; Groves, 2005).

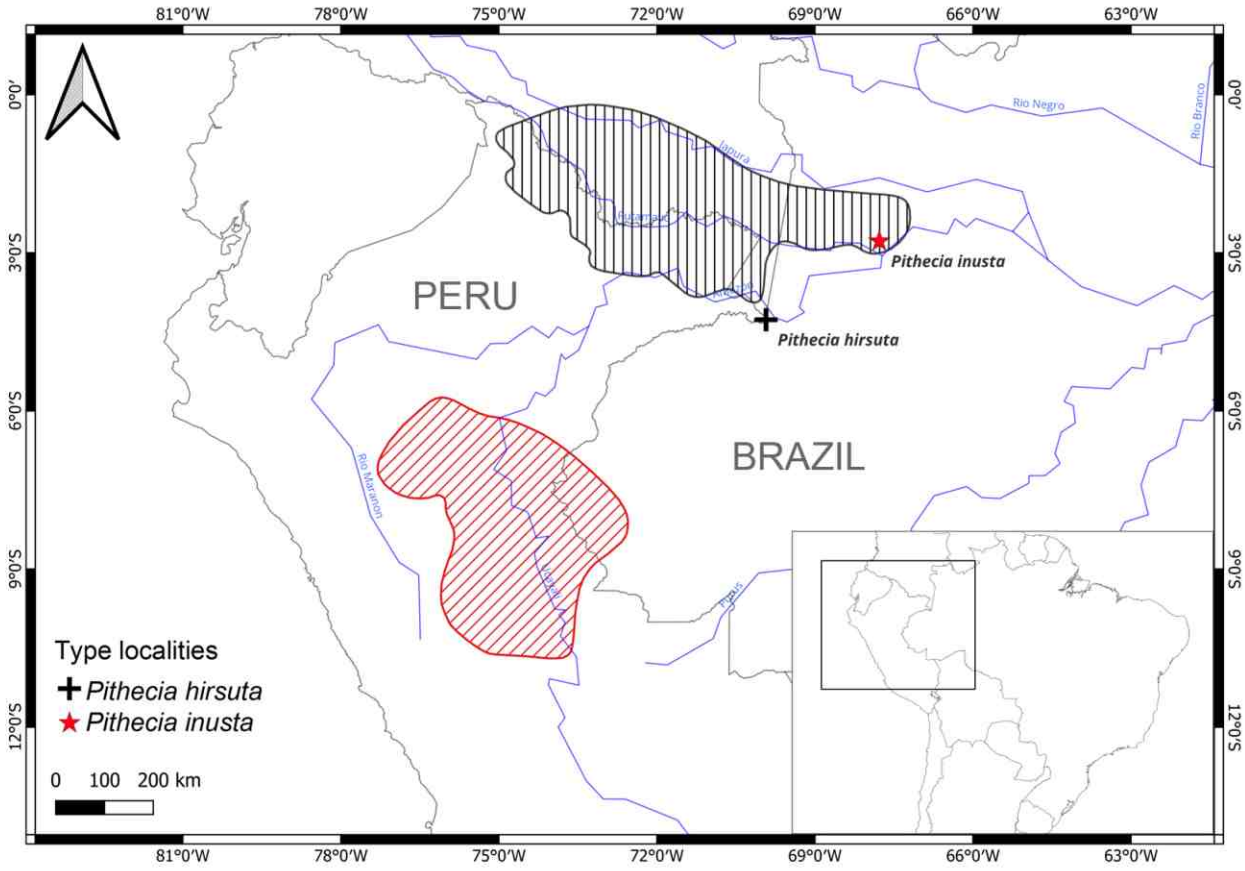

Figure 2. Distribution polygons of *Pithecia hirsuta* (black vertical stripes) and *Pithecia inusta* (red diagonal stripes), as proposed by Marsh (2014). Approximate type localities are indicated for *P. hirsuta* (black cross) and *P. inusta* (red star).

Given this scenario, the *Pithecia* populations occurring along the Ucayali and upper Juruá rivers can be taxonomically treated as 1) an unnamed form of *Pithecia* or 2) populations of *Pithecia monachus* if individuals in these populations fall into the variation observed in that species (see Marsh, 2014:52). Since the objective of this note is only to propose an appropriate taxonomic solution to the impossibility that the *Pithecia inusta* type came from the region proposed by Marsh (2014) for this species, we suggest considering the populations mentioned above conspecific to *P. monachus*, until further evidence shows that it represents a distinct taxon. If Marsh (2014) had checked the itinerary of the scientific expedition that collected the type of both *inusta* and *hirsuta*, it should be clear that the two named taxa are conspecific. Other studies have pointed out nomenclatural and taxonomic inconsistencies in Marsh's (2014) revision of *Pithecia* (Marsh *et al.*, 2015; Acevedo-Charry *et al.*, 2018; Serrano-Villavicencio *et al.*, 2019). Therefore, we recommend cautiously following Marsh's taxonomic arrangement until more evidence (phenotypic and genetic) is obtained.

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