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NOTAS SOBRE
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Use of *Mauritia flexuosa* (Arecaceae) leaves as day roost by the Dwarf Little Fruit bat *Rhinophylla pumilio* (Phyllostomidae) in Mato Grosso, Brazil

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ABSTRACT
We describe a group of Dwarf Little Fruit bats (*Rhinophylla pumilio*) using the Buriti palm (*Mauritia flexuosa*) as day roost in a Cerrado area in Cuiabá, Mato Grosso, Brazil. With ten individuals roosting under a dry Buriti palm leaf, we estimate that the group was composed of five females and their young. This is the first record of *R. pumilio* using leaves of *M. flexuosa,* and the third publication reporting the use of leaves of this palm as shelter by Phyllostomidae fruit bats.

RESUMO
Neste estudo, descrevemos um grupo de morcegos da espécie *Rhinophylla pumilio* utilizando a palmeira buriti (*Mauritia flexuosa*) como abrigo diurno em uma área de Cerrado em Cuiabá, Mato Grosso, Brasil. Com dez indivíduos empoleirados em uma folha seca de buriti, nós estimamos que este grupo era composto de cinco fêmeas e seus filhotes. Este é o primeiro registro do uso de folhas de *M. flexuosa* por *R. pumilio* e é a terceira publicação a reportar o uso de folhas de buriti como abrigo para morcegos Phyllostomidae.

The Dwarf Little Fruit bat, *Rhinophylla pumilio* Peters, 1865, is a small phyllostomid that lives in the humid forests of cis-Andean South America, from Colombia and Venezuela to southeastern Brazil. This frugivorous bat uses leaf tents and unmodified foliage as day roosts, but it may occasionally roost in culverts and inside buildings. In this note, we report the first case of *R. pumilio* using leaves of the Buriti palm (*Mauritia flexuosa*) as day roost in a Cerrado vegetation area. Based on the observed roosting group, we also comment on group behavior and reproduction of this bat species.

On December 11, 2019, while setting mist nets for birds, we found a group of *R. pumilio* roosting under a dry leaf of a *Mauritia flexuosa* (Arecaceae) palm. The leaf did not appear to have any modification, nor did it show signs of biting (Figure 1). The observation site is a riverine forest within a Cerrado vegetation type at Ecoville da Chapada, Cuiabá, Mato Grosso (Brazil), bordering Parque Nacional da Chapada dos Guimarães (15° 11’ 21.0” S; 55° 56’ 19.4” W; ca. 290 m above sea level).

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A total of 10 bats were observed, but an individual flew away before the photograph was taken (Fig. 1). We identified the species as *R. pumilio* based on the central chin protuberance bordered by elongated fleshy pads, uniformly-colored noseleaf, brownish ears with whitish inner base, and olive-brown pelage. Our assumption that the photographed bats were *R. pumilio* is reinforced by the capture of an adult male on December 10, 2019, in the same area that the roosting group was recorded, which showed the same external characteristics described above. The collected specimen was captured using ground-level mist-nets, and handled following the guidelines of the American Society of Mammalogists (Sikes et al. 2016). It was deposited as a fluid-preserved specimen in the mammal collection of the Coleção Zoológica da Universidade Federal de Mato Grosso, Cuiabá, under the number UFMT 4890. The forearm length of the captured specimen is 34.2 mm, there is no diastema between I2 and C, the I1 has a cingular style, and the uropatagium is not conspicuously hairy, allowing us to determine it as *R. pumilio*. Additionally, *R. pumilio* is the only non-Stenodermatinae phyllostomid known to regularly use foliage as roosts.

Because parental care in *Rhinophylla pumilio* is carried out exclusively by the mother, we assumed that the larger animals with olive-brown pelage were females, and the smaller individuals with grayish pelage were their young. If the individual that flew away is accounted for, the roosting group consisted of ten bats, of which five were adult females and five were juveniles (we discard the possibility of the animal that escaped being a male because the group was left with five juveniles and four adults). The bats were huddled in a central position relative to the leaf lamina, and close to the leaf's petiole (Fig. 1).

Day roosts of *R. pumilio* in unmodified foliage are documented in at least 16 plant species, of which four are palm trees (Arecaceae): *Astrocaryum sciophilum, Attalea attaleoides, Jessenia bataua*, and *Mauritia flexuosa* (Table 1). We only found two other mentions of *Mauritia* leaves used as roosts by frugivorous leaf-nosed bats in the literature: an observation of *Artibeus lituratus* roosting under *Mauritia* sp. leaves in an urban area in southeastern Brazil, and records of unoccupied umbrella tents in *M. flexuosa* leaves on the island of Trinidad.

Considering adult individuals only, the size of the group recorded here is within the expected for *R. pumilio*. In French Guiana, group sizes ranged from 2 to 7 individuals, and in southeastern Brazil limited observations have recorded only roosting pairs.

Reproductive data for the Dwarf Little Fruit bat is scarce, and no clear pattern can be defined for the species. We assume that the females reported in this study were lactating due to the presence of younger animals attached to them. The lactating females of this study were recorded in the rainy season (early December), therefore births must have occurred by November/December.

In the Amazon of south-western Colombia, pregnant individuals have been recorded in May and July, and lactating individuals were captured in April, June, and December. In the Amazon of southern Venezuela, pregnant or lactating *R. pumilio* were found in December. Both in the Colombian and Venezuelan localities, there is a fairly constant rainfall volume throughout the year, so reproduction would not be correlated with the climatic season. In the Amazon of Brazil, pregnancies have been recorded in March and June, and lactating females in the dry season in August. In Espírito Santo, southeastern

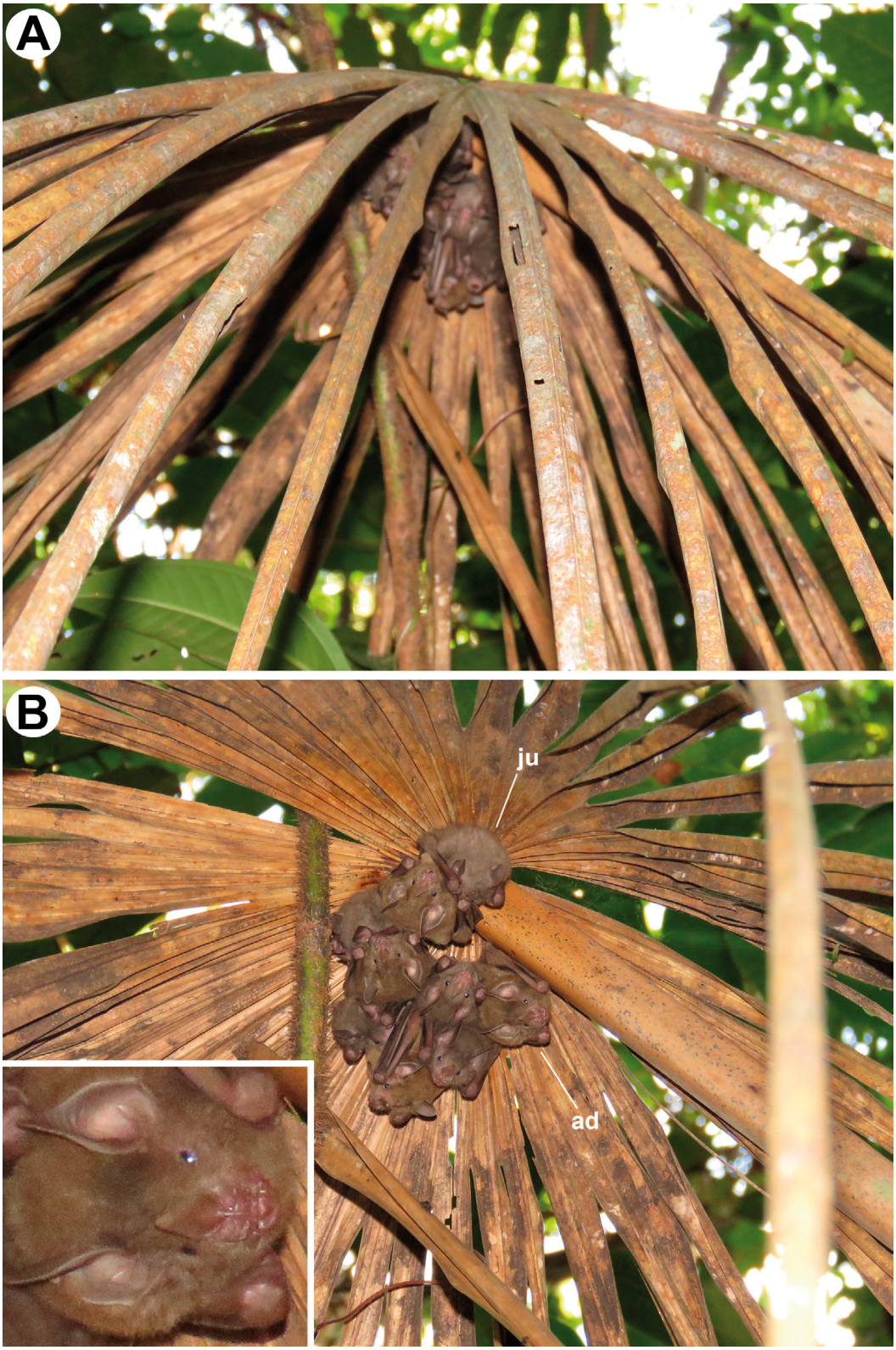

Figure 1. Groupof Dwarf Little Fruit bats (*Rhinophylla pumilio*) roosting under a Buriti palm (*Mauritia flexuosa*) dry leaf. A) lateral view of the leaf; B) ventral view of the leaf showing the group of R. pumilio with four adults (ad) and five juveniles (ju), and a detail of the face of one of the adult bats.

Brazil, pregnant females were captured during the rainy season between December and January. Our reproductive data suggests a pattern in central Brazil similar to what has been observed in southeastern Brazil, with births occurring in the rainy season when fruits are most abundant.

Most of what is known about the ecology of the Dwarf Little Fruit bat is from rainforest areas. As fruit seasonality is an important factor in determining the reproductive patterns of tropical bats, more studies on the ecology of frugivorous bats from

Table 1. Foliage roosts used by *Rhinophylla pumilio* throughout its distribution, with the case reported herein marked in bold.

Plant species	Family	Roost type	Locality	Reference
Philodendron fragrantissimum	Araceae	leaf tent	French Guiana, Nouragues	Henry and Kalko (2007)
P. melionii	Araceae	leaf tent	French Guiana, Nouragues and St. Elie	Charles-Dominique (1993)
P. ornatum	Araceae	leaf tent	French Guiana, Nouragues	Henry and Kalko (2007)
P. ornatum	Araceae	leaf tent	French Guiana, St. Elie and Nouragues	Charles-Dominique (1993)
Rhodospatha latifolia	Araceae	leaf tent	French Guiana, Nouragues	Charles-Dominique (1993)
Attalea attaleoides	Arecaceae	unmodified leaf	French Guiana, St. Elie	Charles-Dominique (1993)
A. attaleoides	Arecaceae	leaf tent	French Guiana, St. Elie	Charles-Dominique (1993)
Atrocaryum sciophilum	Arecaceae	leaf tent	French Guiana, Paracou, Nouragues, and St. Elie	Charles-Dominique (1993); Simmons and Voss (1998)
A. sciophilum	Arecaceae	unmodified leaf	French Guiana, Nouragues	Henry and Kalko (2007)
Jessenia bataua	Arecaceae	unmodified young leaf	French Guiana, Nouragues	Henry and Kalko (2007)
Mauritia flexuosa	**Arecaceae**	**unmodified dry leaf**	**Brazil, Mato Grosso, Cuiabá**	**This study**
Bromeliaceae sp. indet.*	Bromeliaceae	unmodified leaf	French Guiana, Nouragues	Charles-Dominique (1993)
Cyclanthaceae sp. indet.*	Cyclanthaceae	unmodified leaf	French Guiana, Nouragues	Charles-Dominique (1993)
Heliconia sp.	Heliconiaceae	leaf tent	Brazil, Espírito Santo	Zortéa (1995)
Sterculia sp.	Malvaceae	leaf tent	French Guiana, Nouragues	Charles-Dominique (1993)
Musa sp.	Musaceae	leaf tent	Brazil, Espírito Santo	Zortéa (1995)
Phenakospermum guyannense	Strelitziaceae	leaf tent	French Guiana, Paracou	Simmons and Voss (1998)
P. guyannense	Strelitziaceae	unmodified leaf	French Guiana, Paracou	Simmons and Voss (1998)
*Cecropia obtusa**	Urticaceae	unmodified dry leaf	French Guiana, Nouragues	Charles-Dominique (1993)
C. sciadophylla	Urticaceae	unmodified dry leaf	French Guiana, Nouragues	Henry and Kalko (2007)

* used as roost after experimental removal of leaf tents (Charles-Dominique 1993).

the drier and more seasonal Cerrado habitats are necessary, to verify the existence of intraspecific differences between populations living in areas with different climates.

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