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First record of *Platyrrhinus albericoi* (Chiroptera: Phyllostomidae) roosting in *Ficus americana* (Moraceae)

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ABSTRACT

We observed, between 13 October to 9 November 2021, a group of *Platyrrhinus albericoi* Velazco, 2005, using *Ficus americana* subsp. *andicola* as day roost. This hemiepiphyte fig tree was growing on an *Inga edulis* tree. Observations were made in Quindío, Colombia. During the observation period, group size ranged from nine to three individuals, with a mean of 6.16 individuals. These are the first records of day roost use by *P. albericoi*, and they confirm the supposition that large *Platyrrhinus* roost preferentially in dark recesses rather than in exposed foliage.

Keywords: Colombia, frugivorous bat, roosting ecology, Stenodermatinae, Vampyressina

RESUMEN - Primer registro de *Platyrrhinus albericoi* (Chiroptera: Phyllostomidae) refugiándose en *Ficus americana* (Moraceae)

Entre el 13 de octubre y el 9 de noviembre de 2021, observamos un grupo de *Platyrrhinus albericoi* Velazco, 2005, utilizando *Ficus americana* subsp. *andicola* como dormitorio diurno. Esta higuera hemiepífita crecía en un árbol *Inga edulis*. Las observaciones se realizaron en el departamento de Quindío, Colombia. Durante el período de observación, el tamaño del grupo varió de nueve a tres individuos, con una media de 6,16 individuos. Estos son los primeros registros del uso de dormitorios diurnos por *P. albericoi*, lo que confirma la suposición de que las especies grandes de *Platyrrhinus* usan preferentemente rincones oscuros en lugar de follaje expuesto.

Palabras clave: Colombia, ecología de refugios, murciélago frugívoro, Stenodermatinae, Vampyressina

Most of the frugivorous bats included in the subfamily Stenodermatinae (family Phyllostomidae) roost in foliage during the day, which may have driven the evolution of conspicuous pelage markings and yellow skin in these species (Santana et al. 2011;

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Garbino & Tavares 2018; Galván et al. 2020). However, some stenodermatines have secondarily evolved the habit to roost in cavities, such as tree hollows, and caves (Garbino & Tavares 2018). The pelage markings, such as facial and dorsal stripes, are less evident in these cavity-roosting frugivores. Species of *Platyrrhinus* Saussure, 1860, one of the most speciose genus of subfamily Stenodermatinae (Simmons & Cirranello 2022), roost either in foliage or in cavities, with foliage roosting common in the smaller species and cavity roosting widespread in the larger taxa (Voss et al. 2016; Garbino & Tavares 2018; Solari et al. 2019).

Alberico's broad-nosed bat, *Platyrrhinus albericoi* Velazco, 2005, the largest species of the genus (forearm length 57–63 mm), has an Andean distribution, occurring from northern Bolivia, Peru, Ecuador, north to Colombia and northern Venezuela (Velazco 2005; Velazco & Gardner 2009; Solari et al. 2019). *Platyrrhinus albericoi* is a frugivorous bat that consumes fruits and infructescences of three species of *Cecropia* (Urticaceae) and three *Ficus* (Moraceae): *F. americana*, *F. insipida*, and *F. tonduzii* (Castaño et al. 2018). Daytime roosts of *P. albericoi* are unknown but the closely related species, *Platyrrhinus vittatus* (Peters, 1859), has been recorded roosting in undercut earth banks, and under roots on canyon walls (Sanborn 1955). In fact, *P. vittatus* and *P. albericoi* are morphologically similar and some of the roosts reported for the former might have been based on specimens of *P. albericoi*, which was described later (Velazco 2005; Solari et al. 2019).

Here, we describe a roost used by a group of *P. albericoi* in the western Andes of Colombia. This is the first observation on daytime roost use for the species, and it agrees with the supposition that the large *Platyrrhinus* species roost in cavities or darker recesses instead of in more exposed foliage. Observations were made in the Jardín Botánico del Quindío, in the municipality of Calarcá, department of Quindío, Colombia (latitude 4.510833; longitude -75.650833). The altitude in the area is approximately 1,500 m a. s. l. and the vegetation is sub-montane tropical humid forest (Aguilar-Garavito et al. 2014).

From 13 October to 9 November 2021, a group of *P. albericoi* was observed roosting in a small dome-shaped cavity formed by the branches and roots of a strangler fig, *Ficus americana* subsp. *andicola* (Fig. 1A, B). As a hemiepiphyte, the fig was growing on an *Inga edulis* (Fabaceae) tree. At a height of approximately 5.9 m, there was a small dome-shaped recess formed by the branches of the fig and covered by dead leaves (Fig. 2). The group of *P. albericoi* was perched on this dark recess, on a thicker branch of the fig (Figs. 1 and 2). During the study period, there were no fruits in the fig.

Size of the group varied during the sampled period, from nine individuals (October 13th) to just three (November 3rd), with a mean of 6.16 ± 2.2 bats. On some days (e.g., October 18th and November 9th) no bats were observed in the roost. Notably, on all occasions, the group was perched at approximately the same place of the branch (Fig. 1A, B).

Identification of the observed bats was based on the external characters and comparison with voucher material in the Instituto Alexander von Humboldt (IAVH)



collection, Villa de Leyva, Colombia. The observed animals had a dark brown, almost black dorsal fur and paler ventral pelage, well-marked facial stripes, and a dorsal stripe brighter than the facial ones (Fig. 1). *Platyrrhinus albericoi* differs from the more common *Platyrrhinus lineatus* (É. Geoffroy, 1810) by a visibly darker pelage, and uniformly colored noseleaf (bicolored in *P. lineatus*). Reinforcing our identification, we examined a *P. albericoi* specimen (IAVH-M 7046) identified by Velazco and Gardner (2009) from Vereda San Juan d'Carolina, Armenia, approximately 4 km from our locality (Fig. 1C).

Ficus fruits are an important item of the diet of several Stenodermatinae bats, including species of *Platyrrhinus* (Bonaccorso 1979; Kalko et al. 1996; Castaño et al. 2018). Besides fruits, consumption of *Ficus* leaves have also been reported for *Artibeus* (Greenhall 1957; Ruiz-Ramoni et al. 2011). For some bats, such as *P. albericoi*, hemiepiphytic figs as well as other genera of epiphytic and hemiepiphytic plants whose thick branches form dark recesses, may have an additional importance of serving as day roosts. Most of the species of large *Platyrrhinus*, as *P. aurarius* (Handley & Ferris, 1972), *P. infuscus* (Peters, 1880), *P. umbratus* (Lyon, 1902), and *P. vitattus* are known to use dark shelters as day roost, including hollows in standing trees and rock crevices (Albuja 1999; Garbino & Tavares 2018; Velazco et al. 2021). The medium-sized *P. lineatus* uses both cavities and foliage, whereas the smaller species, such as *Platyrrhinus helleri* (Peters, 1866) and *Platyrrhinus incarum* (Thomas, 1912), roost exclusively in foliage (Fenton et al. 2001; Tello & Velazco 2003; Bastiani et al. 2012).

Our observations suggest that group cohesion and roost fidelity may be flexible in *P. albericoi*, as group size varied during the few days of observations. Although not a foliage roosting species, *P. albericoi* may use vines and tangles as shelter. We also highlight the need to actively search for bat roosts. We hope, by describing the characteristics of the observed roost, to encourage researchers to search for similar bat shelters, as they may yield information on poorly known species.

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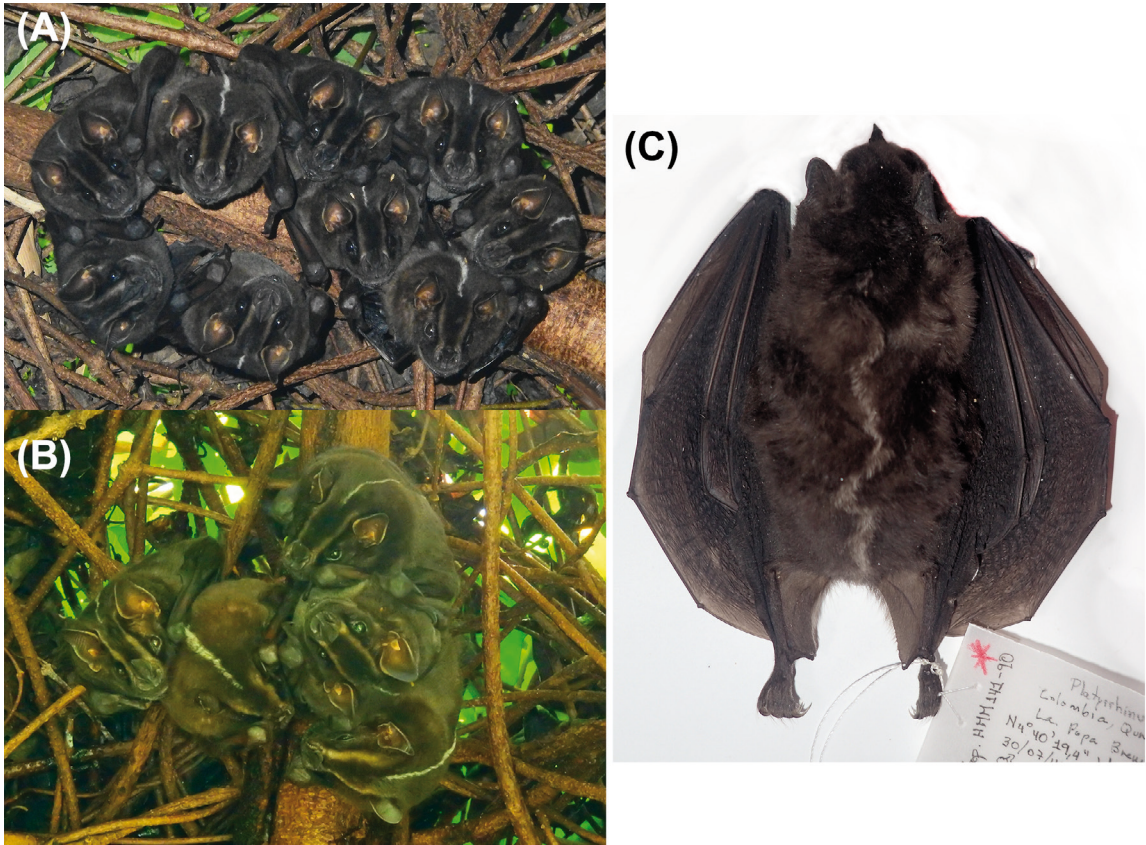


Figure 1. (A) Group of nine *Platyrrhinus albericoi* in a *Ficus americana* subsp. *andicola* branch, observed on October 13, 2021, in Calarcá, Quindío, Colombia; (B) Group of five *P. albericoi* observed on November 2, 2021 at the same site; (C) *P. albericoi* specimen IAVH-M 7046 from Armenia, Quindío, Colombia.

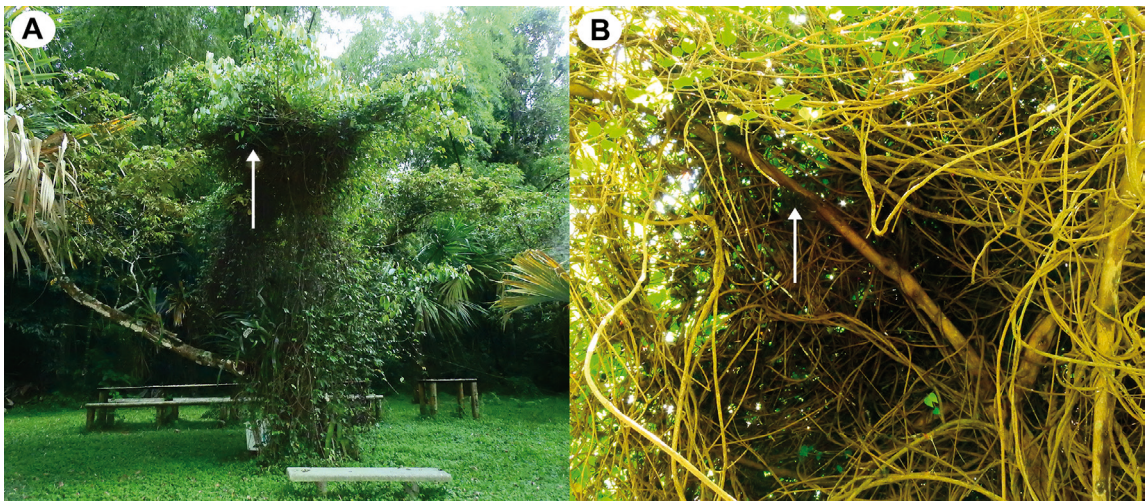


Figure 2. (A) Strangler fig (*Ficus americana* subsp. *andicola*) where the *Platyrrhinus albericoi* group was observed, in Calarcá, Quindío, Colombia. The arrow indicates the cavity formed by the vines and dead leaves, at a height of approximately 5.9 meters; (B) View from below the cavity formed by the strangler fig. The arrow shows the branch the group of *P. albericoi* was perched on.

LITERATURE CITED

- AGUILAR-GARAVITO, M., L. M. RENJIFO, & J. PÉREZ-TORRES. 2014. Seed dispersal by bats across four successional stages of a subandean landscape. *Biota Colombiana* 15:87–102.
- ALBUJA, L. (ED.). 1999. *Murciélagos del Ecuador*. 2nd edition. Cicetrónica Cía. Ltda. Offset, Quito.
- BASTIANI, C. E., N. N. RAMÍREZ, E. A. ALEGRE, & R. M. RUIZ. 2012. Identificación y caracterización de refugios de quirópteros en la Ciudad de Corrientes, Argentina. *Revista Veterinaria* 23:104–109.
- BONACCORSO, F. J. 1979. Foraging and reproductive ecology in a Panamanian bat community. *Bulletin of the Florida State Museum Biological Sciences* 24:359–408.
- CASTAÑO, H. J., A. J. CARRANZA, & J. PÉREZ-TORRES. 2018. Diet and trophic structure in assemblages of montane frugivorous phyllostomid bats. *Acta Oecologica* 91:81–90.
- FENTON, M. B., ET AL. 2001. The bat fauna of Lamanai, Belize: roosts and trophic roles. *Journal of Tropical Ecology* 17:511–524.
- GALVÁN, I., J. C. VARGAS-MENA, & B. RODRÍGUEZ-HERRERA. 2020. Tent-roosting may have driven the evolution of yellow skin coloration in Stenodermatinae bats. *Journal of Zoological Systematics and Evolutionary Research* 58:519–527.
- GARBINO, G. S. T., & V. C. TAVARES. 2018. Roosting ecology of Stenodermatinae bats (Phyllostomidae): Evolution of foliage roosting and correlated phenotypes. *Mammal Review* 48:75–89.
- GREENHALL, A. M. 1957. Food preferences of Trinidad fruit bats. *Journal of Mammalogy* 38:409–410.
- KALKO, E. K. V., E. A. HERRE, & C. O. HANDLEY JR. 1996. Relation of fig fruit characteristics to fruit-eating bats in the New and Old World tropics. *Journal of Biogeography* 23:565–576.
- RUIZ-RAMONI, D., M. MUÑOZ-ROMO, P. RAMONI-PERAZZI, Y. ARANGUREN, & G. FERMIN. 2011. Folivory in the giant fruit-eating bat *Artibeus amplus* (Phyllostomidae): a non-seasonal phenomenon. *Acta Chiropterologica* 13:195–199.
- SANBORN, C. C. 1955. Remarks on the Bats of the Genus *Vampyrops*. *Fieldiana Zoology* 37:403–413.
- SANTANA, S. E., T. O. DIAL, T. P. EITING, & M. E. ALFARO. 2011. Roosting ecology and the evolution of pelage markings in bats. *PLoS ONE* 6:e25845. <https://doi.org/10.1371/journal.pone.0025845>
- SIMMONS, N. B., & A. L. CIRRANELLO. 2022. Bat species of the World: A taxonomic and geographic reference. < <https://batnames.org> >.
- SOLARI, S., ET AL. 2019. Family Phyllostomidae (New World Leaf-nosed Bats). *Handbook of the Mammals of the World, Bats*, Vol. 9 (D. E. Wilson, & R. A. Mittermeier, eds.). Lynx Edicions, Barcelona.
- TELLO, J. G., & P. M. VELAZCO. 2003. First description of a tent used by *Platyrrhinus helleri* (Chiroptera: Phyllostomidae). *Acta Chiropterologica* 5:269–276.
- VELAZCO, P. M. 2005. Morphological phylogeny of the bat genus *Platyrrhinus* Saussure, 1860 (Chiroptera: Phyllostomidae) with the description of four new species. *Fieldiana Zoology, New Series* 105:1–54.
- VELAZCO, P. M., & A. L. GARDNER. 2009. A new species of *Platyrrhinus* (Chiroptera: Phyllostomidae) from western Colombia and Ecuador, with emended diagnoses of *P. aquilus*, *P. dorsalis*, and *P. umbratus*. *Proceedings of the Biological Society of Washington* 122:249–281.
- VELAZCO, P. M., R. S. VOSS, D. W. FLECK, & N. B. SIMMONS. 2021. Mammalian diversity and Matses ethnomammalogy in Amazonian Peru. *Bulletin of the American Museum of Natural History* 451:1–199.
- VOSS, R. S., D. W. FLECK, R. E. STRAUSS, P. M. VELAZCO, & N. B. SIMMONS. 2016. Roosting ecology of Amazonian bats: evidence for guild structure in hyperdiverse mammalian communities. *American Museum Novitates* 3870:1–43.

