# A new case of complete albinism in a bat from Brazil

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**Abstract**
Albinism has been observed in many vertebrate taxa, but is a rare phenomenon in bats. A recent review reports records of complete albinism in 38 species among the 1,045 bat species occurring in the world. We sampled the area of the Ecological Station of Águas Emendadas, in Planaltina, northeast of Brasília, Federal District of Brazil, in October of 2007 and January of 2008. Bats were captured using nine mist nets set at ground level, opened for six hours each night. Here we describe the first record of true albinism in an individual of *Artibeus cinereus* in the Brazilian Cerrado.
**Keywords:** *Artibeus cinereus*, Chiroptera, Cerrado, foliage-roosting, Mammalia, mist netting.

## Introduction

Although the fur of most bats is grey, brown or black, some Neotropical bats also are characterized by whitish colours that can occur in the dorsal and/or ventral regions (e.g., *Micronycteris minuta*), above and below the eyes (e.g., *Artibeus* spp.), as dorsal stripes (e.g., *Platyrrhinus* spp.) or shoulder patches (e.g., *Pygoderma bilabiatum*), or covering the entire body (e.g., *Ectophylla alba*). Albinism is a chromatic anomaly that has been observed in many vertebrate taxa (Buchanan 1985; Uieda 2000). Complete, or true, albinism is characterized by a complete lack of melanin, resulting in pale skin, white fur, and red eyes (Buchanan 1985). Albinism is a rare phenomenon in bats (Barquez et al. 2003). In a recent review, Uieda (2000) reported records of complete albinism in 38 species among the 1,045 bat species occurring in the world (Simmons 2005). One to five albino bats in each of these 38 species have been recorded, representing a total of 64 individuals (Uieda 2000). Here we describe the first record of true albinism in an individual of *Artibeus* (*Dermanura*) *cinereus* in the Brazilian Cerrado.

## Material and Methods

Águas Emendadas Ecological Station (ESECAE) is situated at 15º32'-15º38'S and 47º33'-47º37'W, in the town of Planaltina, northeast of Brasília, Federal District of Brazil, and covers approximately 10,500 ha (Figure 1). The protected area is surrounded by private properties, mainly farms and ranches.

Fieldwork was conducted in October 2007 and January 2008, in a total of four nights of sampling. Bats were captured using nine mist nets (mesh 36 mm, Avinet, Inc.) set at ground level, with eight nets measuring 12.0 x 2.6 m, and one measuring 6.0 x 2.6 m. Sampling began one hour after sunset and was conducted for six hours. Bats forearm length was measured using vernier calipers (to the nearest 0.1 mm) and body mass was measured using a Pesola© spring balance (to the nearest 0.5 g). Age was determined based on the degree of ossification of the phalangeal epiphysis, and bats species were identified using the keys and informations found in Handley (1987), Anderson (1997), Charles-Dominique et al. (2001) and Lim and Engstrom (2001).

## Results

On 6 January 2008, at 21:30 h, we captured an albino specimen of *Artibeus cinereus* in a mist net set in gallery forest (15º32.558' S 47º34.703' W); no other bats were netted at the time of capture. This was the only albino specimen of the twelve individuals of *Artibeus cinereus* captured during the two campaigns. The pelage of the entire body was white and the eyes were red (Figure 2). The individual was an adult male, with forearm length of 39 mm and body mass of 12 g. The bat was preserved as a voucher specimen in a 70% alcohol solution, and deposited in the Embrapa Cerrados Bat Collection (CMEC), Planaltina, DF, under the number 072.

## Discussion

Although considered a rare event, albinism has been recorded in bats of 22 countries (Aul and Marimuthu 2006). In Brazil, complete albinism has been observed in *Molossus molossus* (state of Rio Grande do Sul), *Eumops glacinus* (state of São Paulo), *Desmodus rotundus* (São Paulo, Paraná, and Piauí states) and *Artibeus planirostris*

(state of Ceará) (Veiga and Oliveira 1995; Uieda 2000; Sodré, Uieda and Baldim 2004). This is the first record of complete albinism in *Artibeus* (*Dermanura*) *cinereus* (Gervais, 1856), a small frugivorous, foliage-roosting bat that is distributed from Mexico to Bolivia (Simmons 2005). Although there is some information available regarding the chromosomal structure of *A. cinereus* (Santos et al. 2002), scant ecological data are available (Bernard and Fenton 2003; Rodriguez-Herrera et al. 2007).

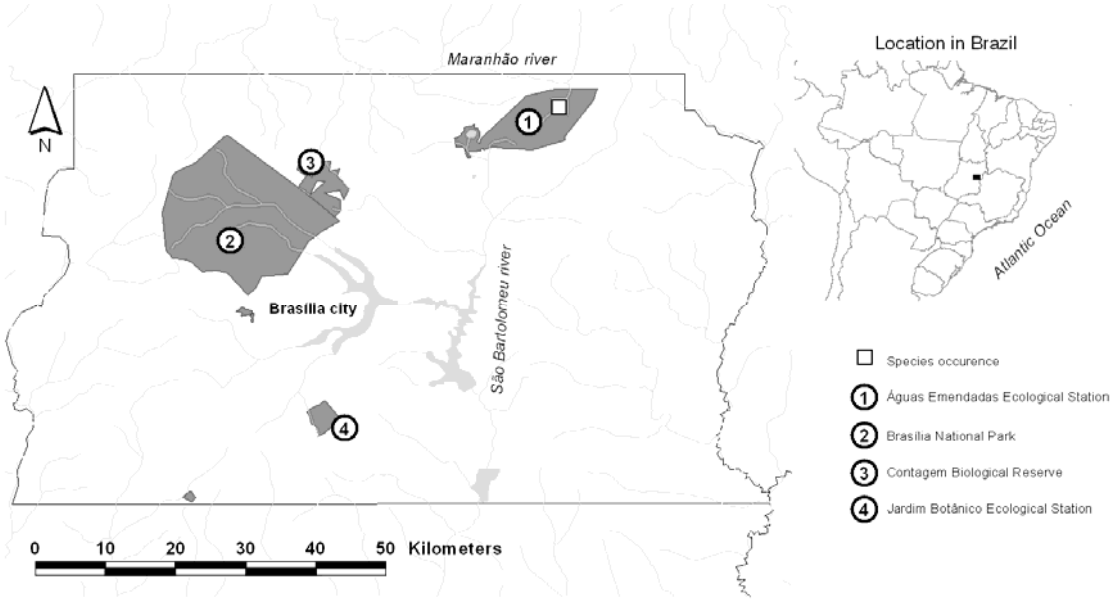


**Figure 1:** Location of Águas Emendadas Ecological Station.

**Figure 2:** An albino bat *A. cinereus* captured with a mist net in a gallery forest at the Águas Emendadas Ecological Station, Planaltina, Federal District of Brazil.

Most bat species in which albino individuals have been recorded are known to occupy sheltered roosts like caves, mines, galleries and buildings (Uieda 2000). Such roosts may be essential for the survival of albino bats, as they provide protection against sunlight, water loss, and predation by visually-orientating predators. However, it is not clear whether this represents a sampling bias that might be attributed to a relatively higher inspection frequency of these roost types (Buys et al. 2002).

Albinism is known to occur in *Rhinophylla pumilio* (Peters 1865) (Charles-Dominique et al. 2001), with an albino individual observed roosting with three non-albino individuals in foliage (*Astrocaryum sciophilum*); this represented the thirteenth recorded case of albinism within the Phyllostomidae, and the second one for a foliage-roosting species (Uieda 2000; Charles-Dominique et al. 2001). Like *R. pumilio*, which typically use foliage for roosts (Charles-Dominique et al. 2001), *A. cinereus* uses 11 kinds of foliage for roosts, sometimes modifying those to create tent roosts (Rodriguez-Herrera et al. 2007). Similarly, *Ectophylla alba*, a naturally white bat, modifies the leaves of *Heliconia* spp. into tents.

Although data presented by Uieda (2000) indicate that albinism has been found less frequently in foliage-roosting bats than in species that use sturdier, more permanent roost types, he argues that white fur is an advantage for foliage-roosting bats. During daytime, white fur appears to be pale green due to light filtering through the leaf, thus they are well camouflaged and less visible.

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