**A NEW CASE OF ALBINISM IN THE BAT *MICRONYCTERIS MINUTA* (CHIOPTERA: PHYLLOSTOMIDAE) FROM COSTA RICA**

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**INTRODUCTION**

Albinism is an anomaly characterized by a complete lack of color (melanin), and in its complete manifestation the skin is clear, the fur is white, and the eyes are red (Herreid & Davis 1960, Buchanan 1985). This anomaly is very rare in bats, although there are a few species that are completely white without being albinos, (e.g.) *Ectophylla alba* (H. Allen, 1892) and *Didelphis albula* (Wied, 1820). Some bats also present albino-like characteristics such as white fur, but have pigmented eyes. In yet other cases there are individuals with partially white-colored fur, e.g. in *Carollia sowelli* (two specimens in the collection of the National Museum of Costa Rica; MNCR1025 and MNCR962, white spots on 15% to 20% of the fur). The few cases of complete albinism that have been reported (28 individuals in the New World and 36 in the Old) are found in the families Pteropodidae, Rhinopomatidae, Nycteridae, Rhinolophidae, Mormoopidae, Phyllostomidae, Vespertilionidae, and Molossidae (Uieda 2000). Within the New World leaf-nosed bats (Phyllostomidae), complete albinism has been documented in seven species, namely *Macrotus waterhousii* (Gray, 1843), *Glossophaga longirostris* (Miller, 1898), *G. soricina* (Pallas, 1766), *Carollia breviceps* (Schrz, 1821), *Artibeus lituatus* (Olfers, 1818), *A. planirostris* (Spix, 1823), and *Desmodus rotundus* (Geoffroy, 1810) (Soriano et al. 1993, Uieda 2000).

I report here for the first time a case of complete albinism in *Micronycteris minuta* (Gervais, 1856).

This bat (Phyllostomidae: Phyllostominae) occurs from Nicaragua to South America, primarily in evergreen and deciduous tropical forests (Genoways & Williams 1979, Koopman 1993). Its diet is composed mainly of insects but there is evidence that it occasionally consumes fruit. The species is considered to be insecti-carnivorous as well as an insectivore foliage-gleaner (Goodwin & Greenhall 1961, Gardner 1977, LaVal & Fitch 1977, Patterson *et al.* 1996). It has been found roosting alone or in small groups in hollow trees (Fenton & Kunz 1977).

**METHODS**

Study site was at the Centro de Conservación Santa Ana, which encompasses an area of 51 hectares, with a mean annual precipitation of 2000 to 2500 mm. It is composed of scrubland and secondary dry forest and is seen as a relict of premontane dry forest in the Central Valley of Costa Rica. The study area is located next to the Urusa River, and still offers suitable habitat for many bat species in this area (Holdridge 1947, Vargas *et al.* 2001).

I captured the bats using four mist nets (Fa. Avinet, 2.5 m high x 12 m long). Length of the forearm was measured with a caliper (0.1mm. Swiss Precision Instruments, INC™) and body mass with a balance (Pesola®, max. 30 g, ± 0.3%). After recording these data, I released most bats in the area where they were captured.

**RESULTS AND DISCUSSION**

On February 14th, 2004, I caught in the Centro de Conservación Santa Ana (9°56’N, 84°12’W, 856 meters above sea level), province of San José, Costa Rica.
Rica, five individuals of *M. minuta*, which were identified based on Timm *et al.* (1999). One of them was a completely albinotic female, identified as an adult based on the absence of cartilaginous epiphyseal plates in the metacarpals and phalanges (Anthony 1988). This individual had white fur, clear skin (including the wing membranes), and red eyes. Its measurements were: head and body length 50 mm, tail 10 mm, hind foot 7 mm, ear 17 mm, tragus 7 mm, forearm 33 mm, and weight 5 g. It did not show any sign of lactation or pregnancy. The other individuals (three adult females and one adult male) exhibited the typical color patterns of this species, brown on the dorsum, and lighter, almost white, on the venter, as described in López-González (1998). The bat was collected and deposited in the National Museum of Costa Rica, catalog number MNCR 1550. There were no obvious differences in size between the albinotic bat and the other individuals; all had similar measurements within the range of the species.

This record of albinism is the first for Costa Rica, and provides additional evidence in understanding why this anomaly occurs. Individuals that are completely white are thought to be at a selective disadvantage, since predators are more likely to locate them (Feldhamer *et al.* 1999). However, the occurrence of white pelage in the absence of albinism in other bats suggests that perhaps this genetic mutation is not necessarily selected against in all species. Additional records of this phenomenon are thus important in investigating if, and why, albinism is common in some mammalian species, and whether it plays any role in natural selection and speciation.

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REFERENCES


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