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FIRST RECORD OF *NOCTILIO ALBIVENTRIS* DESMAREST, 1818 (MAMMALIA: CHIROPTERA) TO THE STATE OF PARAÍBA, NORTHEASTERN BRAZIL

Edson Silva Barbosa Leal [1*], Paulo de Barros Passos Filho [1], Wallace Rodrigues Telino-Júnior [1,2], Deoclécio de Queiroz Guerra [3], Fátima Verônica Pereira Vila Nova [4] and Severino Mendes de Azevêdo-Júnior [1,3].

1 Federal Rural University of Pernambuco, Department of Biology, Program of Post-Graduation in Ecology (PPGE). Campus Dois Irmãos. Rua Dom Manoel de Medeiros, s/n. CEP 52171-900. Recife, PE, Brazil.
2 Federal Rural University of Pernambuco, Garanhuns Academic Unity. Av. Bom Pastor s/n, CEP 55292-270, Boa Vista, Garanhuns, PE, Brazil.
3 Federal University of Pernambuco, Department of Zoology, Center of Biological Sciences. Campus Cidade Universitária. Rua Nelson Chaves, s/n, Cidade Universitária, CEP. 50670-420, Recife, PE, Brazil.
4 Federal University of Pernambuco, Department of Geographical Sciences, Program of Post-Graduation in Geography (PPGEO). Center of Filosofy and Human Sciences – 6th floor, Department of Geographical Sciences, Rua Acadêmico Hélio Ramos, s/n, Cidade Universitária 50670-901 Recife, PE, Brazil. Fellow of the National Council for Scientific and Technological Development (CNPq).

*Corresponding Author: edsonsbl@yahoo.com.br

Abstract: The aim of this paper is report the first record of bat *Noctilio albiventris* for the Paraíba state, Northeastern Brazil. Two specimens were collected at the Pé Branco Farm, municipality of Coremas (07º 00' 50'' S, 37º 56' 45''; altitude of 220 m), Paraíba-Brazil. External and cranial measurements were taken following the usual methods in the taxonomic studies of Chiroptera and compared with the literature. The present record expands to 57 the number of bat species listed for the Paraíba, and to emphasize that the increment of surveys directed to noctilionids in this state, may probably result not only in new records, but also in obtaining data to help to infer about its conservation status this species considered a bio-indicator of water quality and water pollution. its distribution and, abundance, may be strongly related to physical and chemical qualities of the habitat.
Key Words: "Caatinga", distribution, Noctilionidae, Paraiba, Brazil.

Resumo: O objetivo desse trabalho é reportar o primeiro registro do morcego *Noctilio albiventris* para o Estado da Paraíba, Nordeste do Brasil. Dois espécimes foram coletados na Fazenda Pé Branco, município de Coremas (07º 00' 50'' S, 37º 56' 45''; altitude of 220 m), Paraíba-Brasil. Medidas externas e craniais foram tomadas seguindo os métodos usuais em estudos taxonômicos de Chiroptera e, comparados com a literatura. O presente registro expande para 57 o número de espécies listadas para a Paraíba, e enfatiza que o incremento de levantamentos direcionados aos noctilionídeos nesse estado, deve resultar não apenas em novos registros, mas também na obtenção de dados que ajudem a inferir sobre o status de conservação dessa espécie considerada uma bio-indicadora de qualidade de água e poluição aquática. Cuja distribuição, e abundância, pode estar fortemente relacionada a qualidade física e química do habitat.
Palavras Chave: Caatinga, distribuição, Noctilionidae, Paraíba, Brasil.

INTRODUCTION

Noctilionids differ from the bats of other zoogeographical regions by being medium sized (forearm 54-92 mm), the nostrils opening up before a well developed, projected and truncated rhinarium, with the general appearance of a bulldog (bulldog bats) (Gardner, 2007). Upper lip divided by two deep vertical grooves located on each side of a prominent medial ridge, that extends from the rhinarium to the mouth, like a hare; lower lip with three well-developed transverse dermal folds (Taddei ,1983; Gardner, 2007), its color varies from shades of yellow, and a strong smell of musk (Peracchi *et al.*,2011). Ears are slim, sharp, long and pointed (Taddei, 1983; Peracchi *et al.*, 2011). Wings are big and slim (Peracchi *et al.*, 2011). Calcaneus are ossified and greater than the tibia, supporting an interfemoral membrane, that when extended goes beyond the end of the legs (Taddei, 1983), whose dorsal side is perforated in its proximal third by a prominent tail, almost as long as the femur (Vizotto and Taddei, 1973; Gardner, 2007; Peracchi *et al.*, 2011). Robust and broad skull, with strongly developed sagittal crest in adults, prejaws fused with the jaws and palate completely closed (Gardner, 2007).

Noctilio albiventris Desmarest, 1818 is a medium sized bat (maximum 40g) with an insectivorous diet, belonging to the Noctilionidae family (Hood and Pitocchelli, 1983). Exclusively Neotropical, this family, consists of a single genus, *Noctilio* Linnaeus, 1766, with two living representatives, it occurs in the plains of Latin America (Hood and Jones, 1984) from Mexico to northern Argentina, Paraguay and southern Brazil (Taddei *et al.*, 1986).

The geographical distribution of *N. albiventris* begins in southern Mexico, at the Pacific coast of Honduras, Guatemala and Nicaragua in Central America, and extending to the south of South America, from Guyana, passing through French Guiana, Paraguay, Peru, Bolivia, northern Argentina and in the east coast of Brazil (Hood and Pitocchelli, 1983; Simmons, 2005).

In Brazil, it occurs both in continental and coastal area, occurring in the Amazon, Cerrado, Pantanal, Atlantic Forest and Caatinga (Marinho-Filho and Sazima, 1998; Silva and Nascimento, 2008; Astúa and Guerra, 2008) and has been checked in the states of Acre, Amazonas, Roraima, Amapá, Mato Grosso, Pará, Bahia, Ceará, Mato Grosso do Sul, Tocantins, Piauí, São Paulo, Paraná, Minas Gerais (Reis *et al.*, 2007; Tavares *et al.*, 2008; Peracchi *et al.*, 2011; Bernard *et al.*, 2011), Goiás (Zórtea and Alho, 2008), Rio de Janeiro (Peracchi and Nogueira, 2010), Rio Grande do Sul (Tavares *et al.*, 2008), Santa Catarina (Tavares *et al.*, 2008), Pernambuco (Cruz *et al.*, 2005; Guerra, 2007; Astúa and Guerra, 2008), Maranhão (Dias *et al.*, 2009), Sergipe (Rocha *et al.*, 2010).

In this paper we report a new record of *N. albiventris* in the state of Paraíba, northeastern Brazil.

MATERIAL AND METHODS

Two bats was captured in a Caatinga area at Pé Branco Farm (07º 00’ 50’’ S, 37º 56’ 45’’; altitude of 220 m), west side of Paraíba, during fieldwork survey of bats on January 20th of 2009 (during the dry season) in the municipality of Coremas, Paraiba state, Brazil.

Coremas is located 387.8 km from the capital João Pessoa (Mascarenhas *et al.*, 2005) and occupies an area of 461.2 km² inserted in the Ecoregion of Northern Backland Depression (Velloso *et al.*, 2002), in the

middle of "Backland Lowland" and in "Drought Polygon".

The climate of the region is BSh, semi-arid warm and dry, according to Köppen, with the temperature ranging from 23° to 30° C, and the cumulative rainfall is 882.3 mm per year (Minimum: 342.7 mm and Maximum: 1,837.7 mm) (Mascarenhas *et al.*, 2005). The soils, mostly red-yellow podzolic type, with restricted located latosoils and restricted portions of alluvial soils, are the result of the disintegration and decomposition of the crystalline basement rocks (Mascarenhas *et al.*, 2005). The hydrograph is distinguished by the presence of streams and intermittent water bodies, tributaries of the sub-basin of the Piancó River, which is integrated into the Piranhas River Basin (Mascarenhas *et al.*, 2005). The main watercourse is the Piancó River. Among the bodies of accumulation, the water reservoirs Coremas or Mãe d'água, which constitutes the largest dam in the state of Paraíba, with a capacity of 1,358,000,000 m³ of water, and Lagoa das Éguas, are de most prominent (Mascarenhas *et al.*, 2005).

The mist-nets ware set in the bed of a temporary water body, near a human habitation at the basis of the Serra de Santa Catarina, Coremas-Paraíba, and the specimens were captured after 6 p.m. It was collected, sacrificed e taxidermized under the criteria of Vizotto and Taddei (1973) and Monteiro (1982). Subsequently, they were deposited in the Scientific Mammals Collection of the Department of Zoology, Federal University of Pernambuco (DZ-UFPE).

Measurements of specimens were taken according to the criteria indicated by Vizotto and Taddei (1973) and Taddei *et al.* (1998) and compared with literature data. Field measurements: head and body length (Hb), tail length (Ta), foot length (Fo), ear height (Ea), forearm length (Fo) and, skull measurements: total length of the skull (Tls), basal condyle length (Bc), canine condyle length (Cc), skull basal length (B), length of upper tooth row (C-M), length of lower tooth row (c-m), jaw length (Jl), post-orbital width (Po), zygomatic width (Zg), width of braincase (Wbr), mastoid width (Mt). Body and cranial measurements were determined using a Mitutoyo® caliper with a precision of 0.05 mm.

For plotting and layout of the distribution map of *N. albiventris* in the northeastern Brazil (Fig. 2), the coordinates of the records contained in the literature and in the present study were converted to decimal degrees and then plotted in the software ArcGis 9.3, with license provided by the Laboratory of Remote Sensing and Geoprocessing (SERGEO) in partnership with the Study Group on Biogeography and Environment (BIOME), Department of Geographical Sciences of the Federal University of Pernambuco (UFPE).

RESULTS AND DISCUSSION

Our specimens (one male and one female), collected in Coremas-Paraíba (Figure 1) and deposited in the Scientific Mammals Collection of the Department of Zoology, Federal University of Pernambuco (DZ-UFPE) with the numbers: UFPE DZ-2516 and 2517 (Figure 2), presents the diagnostic characters indicates by Hood and Pitocchelli (1983), Gardner (2007) and Smith (2008), such as: short hair, wingspan reaching up to 400 mm, feet less robust, with a length less than 27.0 mm, forearm length less than 70.0 mm, basal condyle length less than 21.0 mm, length of the upper tooth row rarely greater than 8.0 mm, and the first and second molars with no distinct separation. These specimens differ from the other species of the same genus, *Noctilio leporinus* (Linnaeus, 1758), to

which are similar in most external and cranial morphology, due to its smaller size and body measurements (Hood and Pitocchelli, 1983; Gardner, 2007; Smith, 2008).

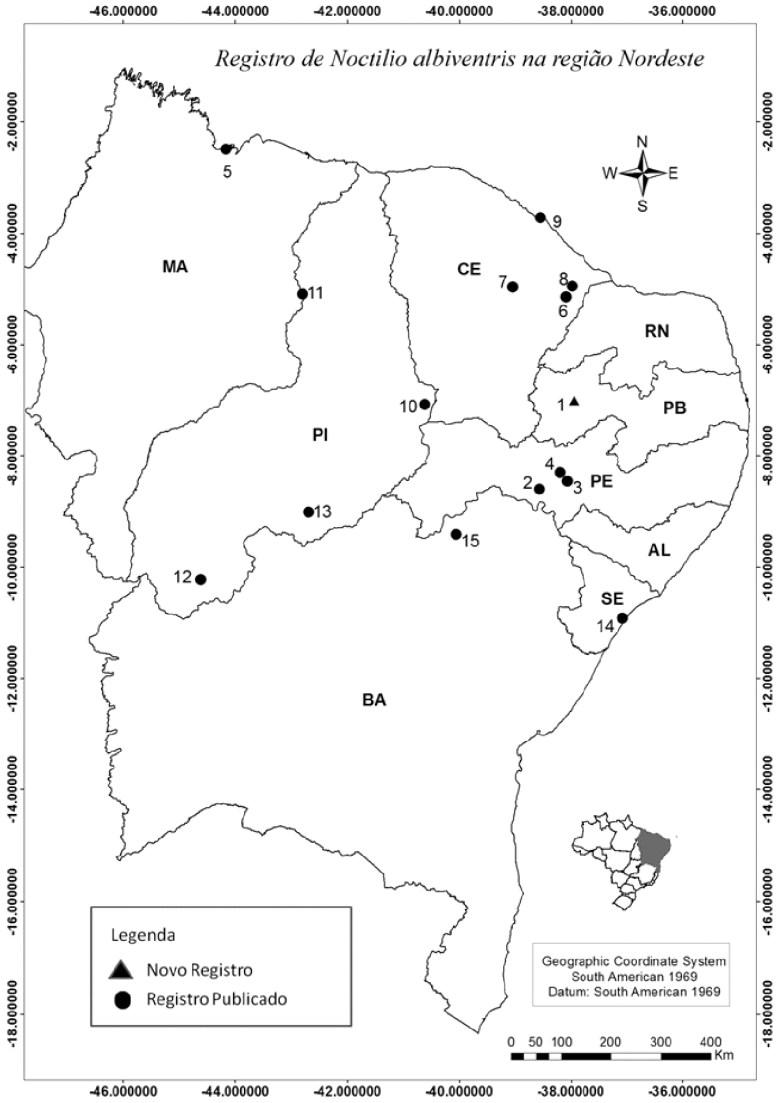

Figure 1. Records of *Noctilio albiventris* in northeastern Brazil: 1. Coremas, PB (this paper); 2. Floresta, PE (Astúa and Guerra, 2008); 3. Betânia, PE (Cruz *et al.*, 2005); 4. Aracajú/São Cristóvão, SE (Rocha *et al.*, 2010); 5. São Raimundo Nonato, PI (Oliveira *et al*,. 2003, Silva & Nascimento, 2008); 6. Fronteiras, PI (Taddei *et al.*, 1986); 7. Teresina, Parque Zoobotânico, PI (Taddei *et al*,. 1986); 8. Paranaguá, PI (Taddei *et al*,. 1986); 9. Fortaleza, CE (Piccinini, 1971; 1974); 10. Limoeiro do Norte, CE (Taddei *et al.*, 1986, Fabián, 1991; 2008); 11. Quixadá, CE (Taddei *et al.*, 1986, Fabián, 1991; 2008); 12. Russas, CE (Taddei *et al.*, 1986; Fabián, 2008); 13. Fortaleza, CE (Piccinini, 1974); 14. Bacabeira, MA (Dias *et al.*, 2009); 15. Juazeiro, BA (Vieira 1942; 1955).

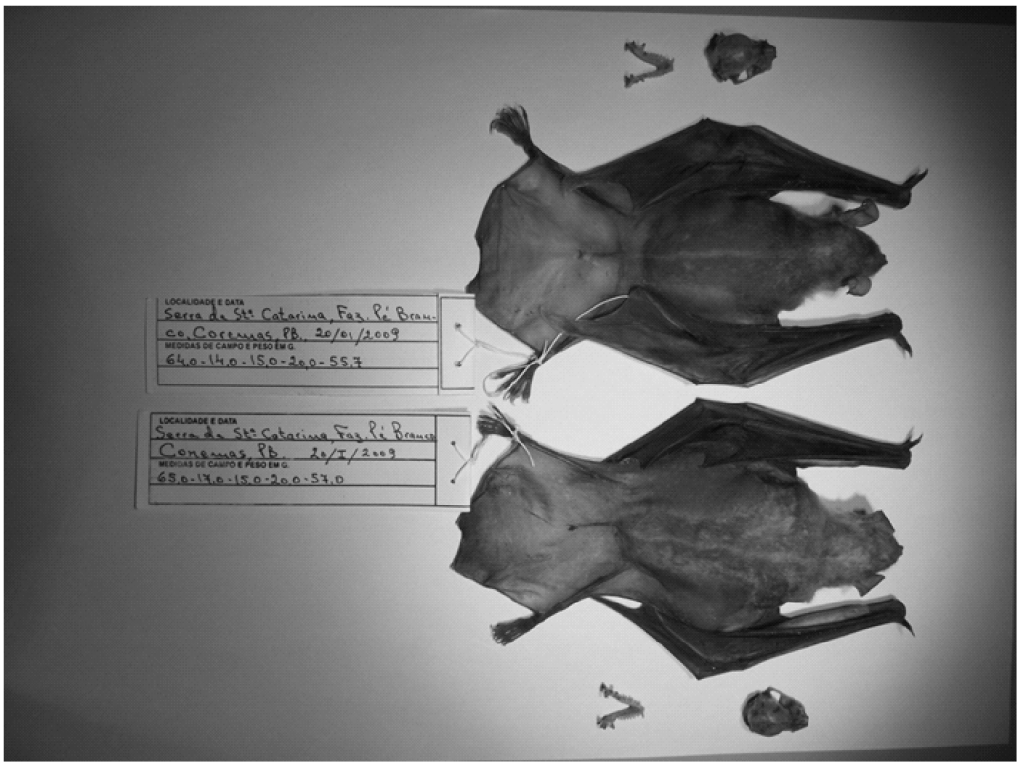

Figure 2. Specimens of *Noctilio albiventris* collecteds in Serra de Santa Catarina, Pé Branco Farm, Coremas, Paraíba, in 01/20/2009, and placed in the Scientific Mammals Collection, Department of Zoology, UFPE, in Recife (Photo: MSc. Paulo de Barros Passos Filho).

The measures found in the analyzed individuals are similar to those found by Taddei *et al.* (1986) and Peracchi and Nogueira (2010) (Table 1) for individuals collected in São Paulo and Rio de Janeiro, respectively, southeast of the country. The measurements of the male specimen found here also concur with these authors, since according to Smith (2008) males are larger in all measures than females.

Although *Platyrrhinus recifinus* (Thomas, 1901) (UFPB 31), *Pteronotus personatus* (Wagner, 1843) (UFPB 3891) (Miretski, 2005) e *Histiotus velatus* (I. Geoffroy,1824) (UFPB 6014, 6015) (Fracasso *et al.*, 2010) appear to Paraíba, acording to Feijó and Lagguth (2011), these species are not included in the list of Chiroptera to the state. So, this record of *N. albiventris* expands to 57 the number of bat species listed to the state of Paraíba and to 39 that registered in this Caatinga (LEAL, 2012). It emphasizes, as done by Peracchi and Nogueira (2010) by conducting the first record of this species in the state of Rio de Janeiro, that the increment of surveys directed to noctilionids in this state, especially along the streams, wetlands and rivers, foraging habitats (Gardner, 2007; Smith, 2008), may probably result not only in new records, but also in obtaining data to help to infer about its conservation status, as *N. albiventris* is considered a bio-indicator of water quality and water pollution in the Ecuadorian Amazon (Tirira, 1999). Its distribution and, specially, abundance, may be strongly related to physical and chemical qualities of the habitat, as reported for the other species of the same genus by Beviglieri and Pedro (2008), who found only five specimens of *N. leporinus* in a fragment of Riparian Forest in the state of São Paulo

after an effort of annual catch of 25,200 m²h.net (Straube and Bianconi, 2002).

Table 1. Morphometrical data of the specimens of *Noctilio albiventris* collected in Serra de Santa Catarina, Pé Branco Farm, Coremas, PB, in 01/20/2009 and compared with literature data (see text for the used abbreviation)

Measurements	**Present Study (PB)**		**Taddei *et al.* (1986) (SP)**		**Peracchi & Nogueira (2010) (RJ)**
	Male	**Female**	**Male**	**Female**	**Inderteminate sex**
Fo	55.7	57.0	-	-	58,34
Tls	18.4	18.3	21,76	20,07	19,45
Hb	17.0	16.1	18.02	16.95	17,23
Bc	17.8	17.4	19.05	18.01	-
B	14.9	14.0	16,56	15,75	-
C-M	7.1	6.9	-	-	7,43
c-m	7.7	7.3	-	-	8,10
Jl	14.1	13.1	13.88	12.87	13,33
	-	-	19,05	18,01	-
Po	6.0	5.5	6.05	5.89	5,72
Zg	14.0	13.4	15.20	14.21	14,27
Wbr	10.5	10.5	11,37	11,12	10,54
Mt	9.9	8.7	14.72	13.21	14,13

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