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Phylloderma stenops PETERS, 1865 (CHIROPTERA, PHYLLOSTOMIDAE): FIRST RECORD FOR THE STATE OF SERGIPE, BRAZIL

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ABSTRACT:
Phylloderma stenops is the only member of the genus *Phylloderma*. In Brazil, this species has been recorded in the Amazon Forest, Atlantic Forest, Cerrado and Pantanal. The present study provides the first record of this bat species for the state of Sergipe, north-eastern Brazil, based on a specimen captured in an area of Atlantic Forest. On January 30, 2016, an adult male *P. stenops* was captured in a mist net set at the of the forest canopy (15 m) in a fragment of Atlantic Forest in the municipality of Itaporanga D'Ajuda. The absence of records of *P. stenops* from the core areas of the Caatinga indicates that this species prefers more mesic habitats. The record from Sergipe fills a gap of approximately 900 km in the Atlantic Forest between southern Bahia and Pernambuco.
Keywords: Atlantic Forest; bats; Brazilian Northeast; Phyllostominae.

A representative of the family Phyllostomidae, *Phylloderma stenops* (Peters 1865) is the only member of the genus *Phylloderma* Peters (1865). *Phylloderma stenops* is a medium-sized bat (forearm: 65-74 mm) known to occur in Colombia, Venezuela, Guianas, Ecuador, Peru, Bolivia, Brazil, Central America and Mexico (Williams & Genoways 2007). In Brazil, this species has been recorded in the Amazon Forest, Atlantic Forest, Cerrado and Pantanal (Paglia *et al*. 2012), as well as in the humid forest enclaves of the Caatinga- Cerrado ecotone (Sá-Neto & Marinho Filho 2013).

Despite its ample distribution, *P. stenops* is relatively infrequent in mist net inventories, and has been recorded at only 24 localities in Brazil (Figure 1; Table 1). Consequently, there are still many gaps in its known distribution in this country. The present study provides the first record of this bat species for the state of Sergipe, north-eastern Brazil, based on a specimen captured in an area of Atlantic Forest.

On January 30, 2016, an adult male *P. stenops* was captured in a mist net set at the forest canopy (15 m) in a fragment of Atlantic Forest in the municipality of Itaporanga D'Ajuda. The study area encompasses the combined legal reserves of three farms - Itália, Rio Fundo and São José - (11º08'07"S, 37º18'43"W). The fragment has approximately 800 ha of native forest, located within a matrix of plantations of *Eucalyptus* sp. and bamboo, as well as pasture.

Three principal phytophysiognomies can be distinguished in the fragment: (1) plateau forest, characterized by a low (3 to 5 m) and discontinuous canopy, with a predominance of the herbaceous *Cyperus* sp.; (2) arboreal-shrub restinga, characterized by sandy soils and a low but continuous canopy (5 to 10 m); and (3) semi-deciduous seasonal forest, found mainly on slopes, with a tall canopy (> 20 m) and well-structured understory.

The specimen was handled according to the recommendations of Sikes *et al.* (2011), fixed in 10%

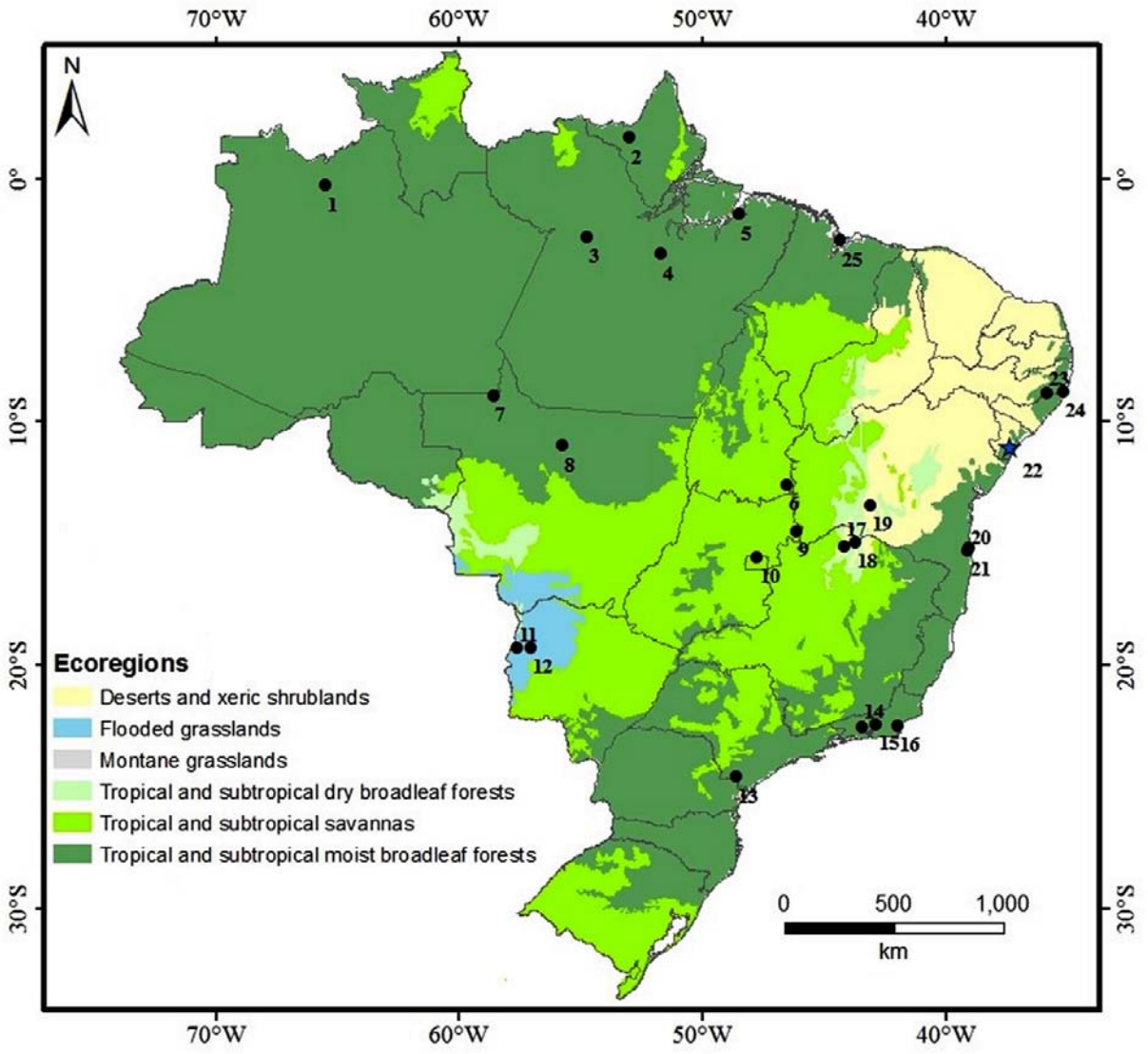

Figure 1: Records of *Phylloderma stenops* in Brazil. Sites numbered as in Table 1. The blue star represents the new locality in the State of Sergipe, Brazil.

formaldehyde and preserved in ethanol 70%, following which, the skull was extracted and prepared. After recording the basic external and cranial measurements (following Velazco *et al.* 2010), the specimen was deposited in the Mammal Collection of the Federal University of Sergipe (voucher number: CMUFS 262) at São Cristóvão, Sergipe, Brazil. These measurements are within the expected range for the species (Table 2).

Phylloderma stenops differs from the other members of the subfamily Phyllostominae by the following character set: two pairs of lower incisors; three lower premolars (Figure 2), rostrum shorter than braincase, and tips of wings whitish (Williams & Genoways 2007). It can be confused with species of the genus *Phyllostomus*. However, *P. stenops* is distinguished by the nasal leaf, fused to the upper lip and rectilinear at the base (Figure 3), that is free and semicircular in *Phyllostomus*; by the presence of three lower premolars (Figure 2) compared to the presence of two in *Phyllostomus*; and the presence of a bifid first lower incisor (Trujillo & Albuja 2005, Nogueira *et al.* 2007).

Little is known of the composition of the diet of *P. stenops*, which is generally considered to be omnivorous (Gardner 1977, Simmons & Voss 1998, Esbérard & Faria 2006), with occasional reports of fruit consumption (York 2008). The stomach of the specimen collected here contained only non-identifiable plant material (pulp and fibers).

Table 1. Locality records of *Phylloderma stenops* in the Brazil. Numbers (Code) refer to the points shown in Figure 1. *Datum SAD69.

Code	Coordinates*		State	Locality	Reference
	Latitude	Longitude			
1	0°16' S	65°28' O	Amazonas	Santa Isabel do Rio Negro	Moratelli *et al.* (2010)
2	1°42' N	52°58' O	Amapá	Parque Nacional Montanhas do Tucumaque	Martins *et al.* (2006)
3	2°23' S	54°42' O	Pará	Parque Nacional da Amazonia	Bernard (2001)
4	3° 4' S	51°40' O	Pará	Margem esquerda do Rio Xingu	Marques-Aguiar *et al.* (2009)
5	1°26' S	48°28' O	Pará	Utinga	Handley (1967)
6	12°34' S	46°30' O	Tocantins	Maciço dos Mouras	Almeida (2014)
7	8°55' S	58°34' O	Mato Grosso	Parque Nacional Juruena	Dalponte *et al.* (2016)
8	10°58' S	55°45' O	Mato Grosso	Médio Rio Teles Pires	Miranda *et al.* (2015)
9	14°28' S	46° 6' O	Goiás	Mambaí	Esbérard *et al.* (2005)
10	15°31' S	47°43' O	Distrito Federal	Gruta Água Rasa	Bredt *et al.* (1999)
11	19°18' S	57°36' O	Mato Grosso do Sul	Maciço do Urucum	Alho *et al.* (2011)
12	19°16' S	57° 2' O	Mato Grosso do Sul	Pantanal da Nhecolândia	Leite *et al.* (1998)
13	24°34' S	48°34' O	São Paulo	Iporanga	Trajano (1982)
14	22°34' S	43°25' O	Rio de Janeiro	Reserva Biológica do Tinguá	Lourenço *et al.* (2014)
15	22°25' S	42°49' O	Rio de Janeiro	Estação Ecológica Estadual Paraíso, Guapamirim	Esbérard & Faria (2006)
16	22°28' S	41°58' O	Rio de Janeiro	Faz. Reunidas, Morro de São João, Casemiro de Abreu	Esbérard & Faria (2006)
17	15° 7' S	44°10' O	Minas Gerais	Olhos d'Água Cave	Trajano & Gimenez (1998)
18	14°55' S	43°42' O	Minas Gerais	Matias Cardoso	De Vasconcelos *et al.* (2016)
19	13°25' S	43° 4' O	Bahia	Médio São Francisco	Sá-Neto & Marinho-Filho (2013)
20	15°10' S	39° 2' O	Bahia	Reserva Biológica Una	Esbérard & Faria (2006)
21	15°16' S	39° 4' O	Bahia	Reserva Biológica de Una	Faria *et al.* (2006)
22	11° 4' S	37°19' O	Sergipe	Faz. Rio Fundo, Itaporanga d'Ajuda	This study
23	8°48' S	35°49' O	Pernambuco	Reserva Particular do Patrimônio Natural Frei Caneca	Silva *et al.* (2010)
24	8°45' S	35°10' O	Pernambuco	Estação Florestal de Experimentação de Saltinho	Guerra (1980)
25	2°31' S	44°19' O	Maranhão	São Luiz	Dias *et al.* (2009)

The absence of records of *P. stenops* from the core areas of the Caatinga indicates that *P. stenops* prefers more mesic habitats. The record from Sergipe fills a gap of approximately 900 km in the Atlantic Forest between southern Bahia (Faria *et al.* 2006) and Pernambuco (Silva *et al*. 2010). This record also increases to 48 the number of bat species registered in the state of Sergipe. The fact that this single specimen was recorded only after a decade of research in the state may reflect the rarity of this species in the Atlantic Forest of Sergipe. However, increased sampling with canopy- level nets may reveal the presence of additional species, in particular those that are least susceptible to capture in mist nets at ground level, due to their patterns of vertical stratification in the forest.

Table 2. Measurements (in mm) of the *Phylloderma stenops* specimen collected during the present study and the specimens analyzed by Bárques & Ojeda (1979) and Salas *et al.* (2014). Mean ± Standard deviation (observed range).

Measurements*	**CMUFS 262**	**Bárques and Ojeda (1979)**	**Salas *et al*. 2014**
	(male)	**Trinidad (n = 2)**	**Ecuador (n = 6)**
Body length	80		
Hind foot length	15		
Ear length	23		
Forearm length	70		
Greatest length of skull	30.88	(29-29.3)	31.71 ± 0.59 (31-32.4)
Condylobasal length	27.02	(25.1-26.2)	26.85 ± 0.43 (26.3-27.3)
Mastoidal breadth	14.16		
Zygomatic breadth	15.88	(14.6-15)	15.08 ± 0.43 (15.4-16.6)
Breadth of braincase	13.08	(12.2-12.9)	12.46 ± 0.69 (11.5-13.4)
Palate length	13.06	(12-12.9)	13.63 ± 0.58 (13-14.4)
Postorbital constriction	9.3	(8.8-9)	
Breadth across upper canines	6.26		
Maxillary toothrow length	10.66		
Length of mandible	20.04		
Mandibular toothrow length	11.34		

Figure 2: Dorsal, ventral and lateral views of the skull and lateral view of the mandible (Scale bar = 10 mm) of *Phylloderma stenops* (CMUFS 262) from the municipality of Itaporanga d'Ajuda, Sergipe, Brazil.

Figure 3: Adult male of *Phylloderma stenops* (CMUFS 262) captured in the municipality of Itaporanga d'Ajuda, Sergipe, Brazil. Note the rectilinear base of the nasal leaf, which is fused to the upper lip.

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