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NOTES ON GEOGRAPHIC DISTRIBUTION

Mammalia, Chiroptera, Phyllostomidae, *Vampyrodes caraccioli* (Thomas, 1889): Range extension and revised distribution map

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ABSTRACT: The present note reports the first record of the bat *Vampyrodes caraccioli* (Thomas, 1889) for the state of São Paulo, southeastern Brazil, based on the collection of one adult specimen in Núcleo São Sebastião, Parque Estadual da Serra do Mar, at the Atlantic Forest domain.

Vampyrodes is a monotypic genus of leaf-nosed bats with two subspecies recognized: *V. caraccioli caraccioli* (Thomas, 1889) and *V. c. major* Allen, 1908. *V. c. caraccioli* occurs in Trinidad and Tobago and Venezuela, with its type locality in "Trinidad" (Thomas 1889; Gardner 2007). The other subspecies, *V. c. major*, is distributed from southern Mexico southward to Bolivia, Brazil, Colombia, Ecuador, French Guiana, Peru, Surinam, and Venezuela; the type locality for *major* is "San Pablo, Isthmus of Panama," Canal Zone, Panama (Allen 1908; Gardner 2007). Thomas (1924) described *Vampyrodes ornatus* using a specimen from "San Lorenzo, Rio Marañon, nearly opposite mouth of Huallaga. Alt. 500' Loreto, Peru, but Handley (1966) treated *ornatus* as a junior synonym of *major*.

Bats of the genus *Vampyrodes* are frugivores and are found mainly in moist and wet forests throughout its distribution (Handley 1967; Gardner 1977, 2007; Solari *et al.* 2006). In Brazil, *Vampyrodes* is rare, and has been reported only from a few localities in four states (Table 1; Figure 1). The Brazilian specimens are deposited in the following collections: Adriano Lúcio Peracchi collection at the Instituto de Biologia, Universidade Federal Rural do Rio de Janeiro, Rio de Janeiro, Brazil (ALP); Departamento de Zoologia, Universidade Estadual Paulista, São José do Rio Preto, São Paulo, Brazil (DZSJRP); Field Museum of Natural History, Chicago, USA (FMNH); Museu Nacional, Rio de Janeiro, Brazil (MN); Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZUSP); Universidade Estadual de Santa Cruz, Ilhéus, Bahia, Brazil (UESC); and United States National Museum, Smithsonian Institution, USA (USNM).

This monotypic genus is listed as Least Concern by the UICN (Miller *et al.* 2008), because it is widely dispersed, tolerant of a range of habitats and is unlikely to be declining at a rate which would include the species in a threatened category. Nonetheless, decades of continuous bat research in Brazil have produced few records of *Vampyrodes*, which suggests it may warrant inclusion in regional lists of threatened or vulnerable species. It seems to be rare in lower latitudes, therefore it is important to preserve its southernmost populations.

Vampyrodes caraccioli has not been recorded in the state of São Paulo (Zortéa 2007). Therefore, the goal of the present study is to report the first record of this species for the state of São Paulo, thereby extending southward its known geographical distribution (Figure 1).

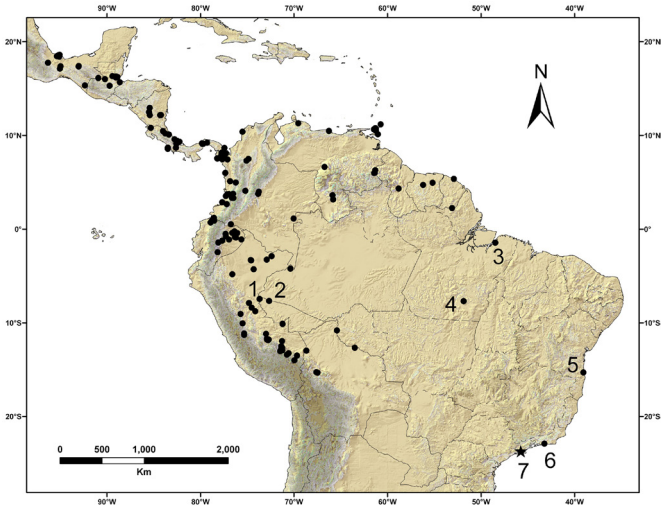

FIGURE 1. Geographic distribution of *Vampyrodes caraccioli* and the new record (star) in the state of São Paulo, southeastern Brazil. Numbers indicate Brazilian records presented in Table 1.

During a bat inventory at Núcleo São Sebastião, Parque Estadual da Serra do Mar, an Atlantic Forest area in São Paulo (23°43'32'' S, 45°45'11'' W, 411 m), one adult specimen of *V. caraccioli* was collected with a mist-net on the ground in a primary forest, classified as "Floresta Ombrófila Densa Submontana" (Veloso *et al.* 1991) on the slopes of the Serra do Mar mountain range. The specimen was deposited in the mammal collection of Museu de Zoologia, Universidade de São Paulo (MZUSP), in São Paulo, Brazil.

The Parque Estadual da Serra do Mar, one of the largest continuous areas of Atlantic forest, comprised of 315,000 ha, is located in the southeast of the state of São Paulo. The following species were also netted during this inventory in the same locality as the *Vampyrodes*: *Desmodus rotundus* (Geoffroy St.-Hilaire, 1810), *Anoura caudifer* (Geoffroy St.-Hilaire, 1818), *Glossophaga soricina* (Pallas, 1766), *Carollia perspicillata* (Linnaeus, 1758), *Chrotopterus auritus* (Peters, 1856), *Micronycteris megalotis* (Gray, 1842), *Glyphonycteris sylvestris* Thomas, 1896, *Mimon bennettii* (Gray, 1838), *Tonatia bidens* (Spix, 1823), *Trachops cirrhosus* (Spix, 1823), *Artibeus fimbriatus* Gray, 1838, *A. lituratus* (Olfers, 1818), *A. obscurus* (Schinz, 1821), *Dermanura cinerea* Gervais, 1856, *Platyrrhinus recifinus* (Thomas, 1901), *Sturnira lilium* (Geoffroy St.-Hilaire, 1810), and *S. tildae* de la Torre, 1959.

The specimen (MZUSP 34655; Figure 2), a female, 35 g, was captured on 12 March 2005, 2 meters from the ground. The identification of the individual was based on the characteristics described by Gardner (2007) and Velazco (2005): the forearm length (FA: 54.03 mm) is within the range of the species (46.8-56.7 mm, Gardner 2007); the dorsal pelage is pale to gray-brown; presence of a prominent white dorsal stripe and conspicuous white facial stripes; the supraorbital stripes extend from the lateral margin of the noseleaf to the top of the head between the ears; shorter white malar stripes extend from the corner of the mouth to the base of the ears; absence of a sulcus on the anterior face of P4, presence of two upper molars; absence of the lingual cingulum at the base of the metacones of M1 and M2; absence of the lingual cingulid of

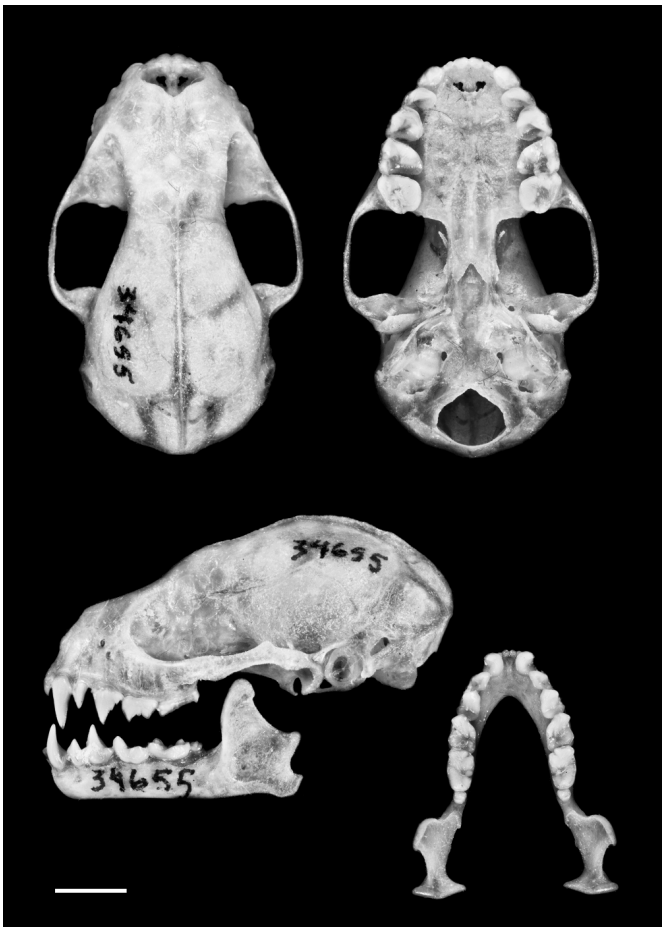

Figure 2. Dorsal, ventral, and lateral views of the skull and also dorsal and lateral views of the mandible of *Vampyrodes caraccioli* (MZUSP 34655). Picture: M.V. Brandão-Oliveira. See Table 2 for measurements. Scale bar = 5 mm.

Table 1. Locality records of *Vampyrodes caraccioli* in Brazil.

Specimen	Sex	Locality	Coordinates	Reference
ALP 7089, 7094, 7102	F	Acre: Parque Nacional da Serra do Divisor, foot of the Serra da Jaquirana [1]	7°27' S, 73°41' W	Nogueira *et al.* 1999, 2004
DZSJRP 13028	F	Acre: Seringal Lagoinha, Rio Juruá, approx. 30 km E of Cruzeiro do Sul [2]	7°40' S, 72°40' W	Taddei *et al.* 1990
UESC	F	Bahia: Una [5]	15°18' S, 39°04' W	Faria *et al.* 2006, Faria and Baumgarten 2007
FMNH 126599	F	Pará: Belém, Utinga [3]	1°27' S, 48°29' W	FMNH
FMNH 126598; ?	M	Pará: Belém, Utinga [3]	1°27' S, 48°29' W	FMNH; Thomas 1920
USNM 393019-20, 393024, 460114, 460116-17, 460120	F	Pará: Belém, Mocambo [3]	1°27' S, 48°30' W	USNM
USNM 393021-23, 460115, 460118-19, 460121, 460123	M	Pará: Belém, Mocambo [3]	1°27' S, 48°30' W	USNM
USNM 361711, 460122	M	Pará: Belém [3]	1°26' S, 48°28' W	USNM
USNM 390516	–	Pará: Belém [3]	1°26' S, 48°28' W	USNM
USNM 361712	M	Pará: Belém, Fazenda Velha [3]	1°26' S, 48°28' W	USNM
MZUSP 29149, 34709, 34710	F	Pará: Ourilândia do Norte, Área Indígena Kayapó [4]	7°41' S, 51°52' W	Peters *et al.* (2006)
MZUSP 34711	M	Pará: Ourilândia do Norte, Área Indígena Kayapó [4]	7°41' S, 51°52' W	Peters *et al.* (2006)
MN 43101-02	F	Rio de Janeiro: Rio de Janeiro [6]	22°54' S, 43°14' W	Bezerra *et al.* 2004; MN
MZUSP 34665	F	São Paulo: Parque Estadual da Serra do Mar, Núcleo São Sebastião [7]	23°43'32'' S, 45°45'11'' W	This study

m1; absence of a stylid cusp on the anterior face of the m1 protoconid. Measurement of this new record along with the measurements of the holotypes of *caraccioli*, *major* and *ornatus* are given in Table 2.

The specimen reported in this paper represents the first record of *V. caraccioli* in São Paulo and extends the known austral limit of the species distribution by 92 km (Figure 1). Thus, the bat diversity of the state of São Paulo is increased to 76 species (Tavares *et al.* 2008).

Table 2. Measurements of the new record of *Vampyrodes caraccioli* from the state of São Paulo, Brazil (MZUSP), and the holotypes of the named forms in the genus. All measurements in millimeters (mm), taken to the nearest 0.01 mm.

	MZUP 34655	***V. caraccioli* BMNH 89.6.10.2**	***V. major* MCZ 6756**	***V. ornatus* BMNH 24.3.1.63**
Characters	♀	-	♀	♀
FA	54.03	49.70	55.35	53.45
GLS	28.30	-	27.74	26.50
CIL	25.83	-	25.61	24.75
CCL	25.17	-	24.80	23.90
BB	10.98	-	12.00	11.30
ZB	17.79	-	18.36	16.65
PB	6.55	6.10	7.14	6.30
C-C	6.70	6.30	7.00	6.90
PL	14.14	12.45	14.25	13.25
MTRL	10.37	9.50	10.43	10.10
MLTRL	8.88	7.85	8.50	8.30
M1-M1	12.26	11.00	12.63	11.65
M2-M2	12.71	11.20	12.58	11.80
DENL	19.32	17.35	19.38	18.10
MANDL	11.45	10.50	11.44	-

FA = forearm length; GLS = distance from the posterior-most point of the occiput to the anterior-most point of the premaxilla (excluding incisors); CIL = distance between a line connecting the posterior-most margins of the occipital condyles and the anterior-most surface of the upper incisors; CCL = distance between a line connecting the posterior-most margins of the occipital condyles and a line connecting the anterior-most surface of the upper canines; BB = greatest breadth of the braincase, excluding mastoid and paraoccipital processes; ZB = greatest breadth across zygomatic arches; PB = breadth at the postorbital constriction; C-C = least width across palate between bases of upper canines; PL = distance between posterior palatal notch to anterior border of the incisive alveolus; MTRL = distance from the anterior-most edge of the upper canine crown to the posterior-most edge of the crown on M3; MLTRL = posterior border of M3 alveolus to anterior border of P3; M1-M1 = greatest width of palate across M1s; M2-M2 = greatest width of palate across M2s; DENL = midpoint of mandibular condyle to anterior-most point of dentary; MANDL = distance from the anterior-most surface of the lower canine to the posterior-most surface of m3.

Museum acronyms: British Museum of Natural History, London, UK (BMNH), Museum of Comparative Zoology, Cambridge, Massachusetts, USA (MCZ) and Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil (MZUSP).

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ERRATUM

On page 50, last line in Table 1 the specimen MZUSP 34655 was erroneously cited as MZUPS 34665.

On page 49 we cited Gardner 2007 for information in "*Mammals of South America, Volume 1. Marsupials, xenarthrans, shrews, and bats*", listed in the Literature Cited on page 51. The date 2007 is the copyright date listed in the book. Nonetheless, the publication was not available to the public until late March 2008. Because correctly citing the actual date of publication of any work that contains nomenclatural acts is extremely important, we correct the date for this book to 2008.

We regret these errors.

The authors.