

# Mammalia, Chiroptera, Phyllostomidae, *Vampyrum spectrum* (Linnaeus, 1758): First record for the Cerrado biome in the state of Mato Grosso, west central Brazil

Ricardo Firmino de Sousa<sup>1</sup>, Carlos Kreutz<sup>1</sup>, Sérgio Lopes de Oliveira<sup>2</sup> and Karina de Cassia Faria<sup>1,2\*</sup>

- 1 Universidade do Estado de Mato Grosso, Instituto de Ciências Naturais e Tecnológicas, Programa de Pós-Graduação em Ecologia e Conservação. BR 158, Km 148. CEP 78690-000. Nova Xavantina, MT, Brasil.  
2 Universidade do Estado de Mato Grosso, Instituto de Ciências Naturais e Tecnológicas, Departamento de Biologia. BR 158, Km 148. CEP 78690-000. Nova Xavantina, MT, Brasil.  
\* Corresponding author. E-mail: [karinafaria@unemat.br](mailto:karinafaria@unemat.br)

**ABSTRACT:** In Brazil, *Vampyrum spectrum* has been recorded in the Amazon forest, Caatinga, Pantanal, and in the Cerrado of Tocantins. The only previously known record for the Mato Grosso state is more than 50 years old, in a Pantanal area. This paper provides the first record of the species in a Cerrado area of this state, in the municipality of Nova Xavantina, west central Brazil.

*Vampyrum spectrum* is the largest species of bat found in the New World, with some individuals reaching body weights of up to 235 g and wingspans of up to 110 cm (Navarro and Wilson 1982; Nowak 1994). The species has a robust, long and narrow muzzle, and a well-developed nose leaf containing a cup-shaped fold (Navarro and Wilson 1982; Peracchi *et al.* 2010). The dorsal pelage of *V. spectrum* varies from dark brown to medium-brown and the ventral pelage is light-brown. This species is predominantly carnivorous, and preys include small vertebrates such as frogs, lizards, birds and even other bats (Gardner 1977; Nogueira *et al.* 2007).

The conservation status of *Vampyrum spectrum* has been currently classified as data deficient in Brazil due to the scarcity of data available for the species (Chiarello *et al.* 2008). *Vampyrum spectrum* is a monogamous species, forming small groups, and occurring in low densities (Navarro and Wilson 1982). These traits categorize *V. spectrum* as a locally scarce species with a general distribution, according to the criteria of Arita (1993).

*Vampyrum spectrum* is distributed over Mexico, North Guatemala, Guianas, Ecuador, Peru, North Bolivia and Brazil (Navarro and Wilson 1982; Koopman 1993; Emmons and Feer 1997; Reid 1997; Eisenberg and Redford 1999; Simmons 2005; Gardner 2007). In Brazil, there are records of *V. spectrum* in the states of Acre (Peracchi *et al.* 2010), Amazonas (Moratelli *et al.* 2010), Amapá (Peracchi *et al.* 1984), Piauí (Gregorin *et al.* 2008), Rondônia (Discher *et al.* 2009), Roraima (Taddei and Reis 1980), Tocantins (Nunes *et al.* 2005), Pará (Bernard 2001), Mato Grosso do Sul (Silveira *et al.* 2011) and Mato Grosso (Vieira 1955) (Figure 1); in the latter, the record occurred more than 50 years ago, in the Barra do Aricá region, characterized as Pantanal. The species distribution was therefore restricted to Amazonia, Caatinga and Pantanal (Peracchi *et al.* 2010). However, although most records in Brazil occurred in those areas, there is a record of the species in the Cerrado of the state of Tocantins (M. Guimarães pers. comm.),

and a record in a transitional area between Cerrado and Caatinga (Gregorin *et al.* 2008). This is the first record of *V. spectrum* in the Cerrado biome of the state of Mato Grosso (Figure 1), and the second record for that state.

An adult male specimen (Figure 2) was netted on 11 July 2010, at Nova Xavantina, in the eastern region of Mato Grosso (14°38'19" S, 52°21'39" W), around 22:30 h, during an inventory of bat species in different forest fragments of the location, under IBAMA (Brazilian Institute of



**FIGURE 1.** Geographical distribution of *Vampyrum spectrum* in Brazil. 1. Vieira 1955 (17°12'34" S, 57°22'26" W); 2. Taddei and Reis 1980 (3°24'59" N, 61°39'59" W); 3. Peracchi *et al.* 1984 (00°40' N, 51°10' W); 4. Bernard 2001 (2°24'52" S, 54°42'36" W); 5. Nunes *et al.* 2005 (07°52' S, 47°56' W) 6. Guimarães (personal communication) (12°23'51.4" S, 48°14'05.67" W); 7. Gregorin *et al.* 2008 (09°13'12" S, 43° 29'52" W); 8. Discher *et al.* 2009 (11°24'64" S, 61°22'55" W); 9. Moratelli *et al.* 2010 (00°58'31" N, 62°55'28" W); 10. Peracchi *et al.* 2010 (09°58'26" S, 67°48'27" W); 11. Silveira *et al.* 2011 (19°14'59.6" S, 57°01'45.6" W); 12. The new record (star) in the Cerrado biome, state of Mato Grosso (14°38'19" S, 52°21'39" W).

Environment and Renewable Natural Resources) permit No. 18276-1. The animal was preserved in alcohol and is deposited in the Chiroptera collection of the Universidade do Estado de Mato Grosso – UNEMAT, Campus of Nova Xavantina (collection number RM 123).

The specimen has dark grayish pelage, forearm 110.53 mm, wingspan 80 cm, body weight 175.2 g, first phalanx 73.71 mm, second phalanx 42.68 mm, third phalanx 48.15 mm, thumb 23.22 mm, braincase 13.13 mm, muzzle 25.14 mm, ear 36.26 mm, tragus 10.14 mm, nose leaf 15.03 mm, dental formula: i 2/2, c 1/1, pm 2/3 and m 3/3, totaling 34 teeth, femur 43.13 mm, tibia 55.59 mm, foot 28.65 mm, calcaneus 38.15 mm. The measurements are consistent with those reported by Navarro and Wilson (1982) for Mexico, Island of Trinidad, Central Brazil and Peru, and by Acosta and Azurduy (2006) for Peru.

The environment where the capture occurred is a transition area between gallery forest and cerrado (Ribeiro and Walter 2008). The net with which the capture was made was set at the end of a narrow corridor in the vegetation presenting dense canopy and trees about eight meters high. Other studies have also recorded *V. spectrum* in vegetations characterized as forests, shaded plantations and corridors between forests (Estrada and Coates-Estrada 2001).

At the moment of the capture, the bat was flying at approximately 1.5 m above the ground and was apparently attracted to the mist net by the distress calls of two specimens of *Artibeus lituratus* that had been captured in the net, as it was entangled close to one of the *A. lituratus* individuals.

The presence of *V. spectrum* have been contributing to the development of management plans and the establishment of permanent preservation areas, which in the long run may help conserve this species (Vargas-Espinoza et al. 2004).



**FIGURE 2.** *Vampyrum spectrum* individual (RM 123), captured in Nova Xavantina, state of Mato Grosso, Brazil (Photo by Sousa, R.F.).

**ACKNOWLEDGMENTS:** The authors wish to thank FAPEMAT (Fundação de Amparo à Pesquisa do Estado de Mato Grosso) and CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior) for financial support.

#### LITERATURE CITED

- Acosta, L. and H. Azurduy. 2006. Primeras colectas del Falso Vampiro *Vampyrum spectrum* (Phyllostomidae, Chiroptera) en el sector sur del Bosque Seco Chiquitano, Santa Cruz, Bolivia. *Kempffiana* 2(1): 119-126.
- Arita, H.T. 1993. Rarity in Neotropical Bats: Correlations with Phylogeny, Diet, and Body Mass. *Ecological Applications* 3(3): 506-517.
- Bernard, E. 2001. Vertical stratification of bats communities in primary forests of Central Amazon, Brazil. *Journal of Tropical Ecology* 17: 115-126
- Chiarello, A.G., L.M.S. Aguiar, R. Ciqueira, F.R. Melo, F.H.G. Rodrigues and V.M.F. Silva. 2008. Mamíferos Ameaçados de Extinção no Brasil; p. 680-883 In A.B.M. Machado, G.M. Drummond and A.P. Paglia (ed.). *Livro Vermelho da Fauna Brasileira Ameaçada de Extinção*. Brasília: MMA.
- Discher, D.S., Bernarde P.S. and K.G. Facure. 2009. Mammalia, Chiroptera, Phyllostomidae, *Vampyrum spectrum* (Linnaeus, 1758): First record for the state of Rondônia, Brazil, and new prey records. *Check List* 5(3): 394-395.
- Eisenberg, J.F. and K.H. Redford (ed.). 1999. *Mammals of the Neotropics: The Central Neotropics*. Chicago: University of Chicago Press. 609 p.
- Emmons, L.H. and F. Feer. 1997. *Neotropical rainforest mammals: a field guide*. 2.ed. Chicago: University of Chicago Press. 281 p.
- Estrada, A. and R. Coates-Estrada. 2001. Species composition and reproductive phenology of bats in a tropical landscape at Los Tuxtlas, Mexico. *Journal of Tropical Ecology* 17: 627-646.
- Gardner, A.L. 1977. Feeding habits; p. 293-350 In R.J. Baker, J.K. Jones and D.C. Carter (ed.). *Biology of bats of the New World*. Family Phyllostomatidae. Part II. *Special Publications Museum Texas Tech University* 13: 1-364.
- Gardner, A.L. 2007. *Mammals of South America: marsupials, xenarthrans, shrews, and bats*. Chicago: University of Chicago Press, 669 p.
- Gregorin, R., A.P. Carmignotto and A.R. Percequillo. 2008. Quirópteros do Parque Nacional da Serra das Confusões, Piauí. *Chiroptera Neotropical* 14(1): 366-383.
- Koopman, K.F. 1993. Order Chiroptera; p. 137-241 In D.E. Wilson and D.M. Reeder (ed.). *Mammals species of the world: a taxonomic and geographic reference*. 2.ed. Washington, D.C: Smithsonian Institution Press.
- Moratelli, R., D. Dias and C.R. Bonvicino. 2010. Estrutura e análise zoogeográfica de uma taxocenose de morcegos no norte do Estado do Amazonas, Brasil. *Chiroptera Neotropical* 16(1): 661-671.
- Navarro, D. and D.E. Wilson. 1982. *Vampyrum spectrum*. *Mammalian Species* 184: 1-4.
- Nogueira, M.R., A.L. Peracchi and R. Moratelli. 2007. Subfamília Phyllostominae; p. 61-98 In N.R. Reis, A.L. Peracchi, W.A. Pedro and I.P. Lima (ed.). *Morcegos do Brasil*. Londrina: Nélio R. dos Reis.
- Nowak, R.M. 1994. *Walker's Mammals of the world*. Baltimore: Johns Hopkins University Press. 287 p.
- Nunes, A., S. Marques-Aguiar, N. Saldanha, R.S. Silva and A. Bezerra. 2005. New records on the geographic distribution of bat species in the Brazilian Amazonia. *Mammalia* 69: 109-115.
- Peracchi, A.L., P.H. Gallo, D. Dias, I.P. Lima and N.R. Reis. 2010. Ordem Chiroptera; p. 293-461 In N.R. Reis, A.L. Peracchi, M.N. Fregonezi and B.K. Rossaneis. *Mamíferos do Brasil*. Rio de Janeiro: Technical Books.
- Peracchi, A.L., S.D.L. Raimundo and A.M. Tannure. 1984. Quirópteros do território Federal do Amapá, Brasil (Mammalia, Chiroptera). *Arquivos da Universidade Federal Rural do Rio de Janeiro, Seropédica* 7(2): 89-100.
- Reid, F. 1997. *A Field Guide to the Mammals of Central America and Southeast Mexico*. New York: Oxford University Press. 333 p.
- Ribeiro, J.F. and B.M.T. Walter. 2008. As principais fitofisionomias do Bioma Cerrado; p. 151-212 In S.M. Sano, S.P. Almeida and J.F. Ribeiro (ed.). *Cerrado: ecologia e flora*. Brasília: Embrapa Cerrados.
- Silveira, M., R.L. Munin, W.M. Tomás, E. Fischer, M.O. Bordignon, and G.A. Silveira. 2011. The distribution of the spectral bat, *Vampyrum spectrum*, reaches the southern Pantanal. *Biota Neotropica*. 11(1): 1-3.
- Simmons N.B. 2005. Order Chiroptera; p. 312-529 In D.E. Wilson and D.M. Reeder (ed.). *Mammals species of the world: a taxonomic and geographic reference*. Baltimore: The John Hopkins University Press.
- Taddei, V.A. and N.R. Reis. 1980. Notas sobre alguns morcegos da Ilha de Maracá, Território Federal de Roraima (Mammalia, Chiroptera). *Acta Amazonica* 10(2): 363-368.
- Vieira, C.O.C. 1955. Lista remissiva dos mamíferos do Brasil. *Arquivos de Zoologia* 8: 341-465.

RECEIVED: March 2011

LAST REVISED: June 2011

ACCEPTED: June 2011

PUBLISHED ONLINE: July 2011

EDITORIAL RESPONSIBILITY: Valéria da Cunha Tavares