SHORT COMMUNICATION

First report of *Oxysternon silenus* Castelnau (Scarabaeidae, Scarabaeinae, Phanaeini) in the Brazilian Atlantic Forest

Bruno K. C. Filgueiras[1], Luciana Iannuzzi[2] & Fernando Z. Vaz-de-Mello[3]

[1]Programa de Pós-Graduação em Biologia Animal, Departamento de Zoologia, Universidade Federal de Pernambuco, 50670–901 Recife-PE Brazil. bkcfilgueiras@gmail.com
[2]Departamento de Zoologia, Universidade Federal de Pernambuco 50670–901 Recife-PE, Brazil. iannuzzi@ufpe.br
[3]Departamento de Biologia e Zoologia, Universidade Federal de Mato Grosso, 78060–900 Cuiabá-MT, Brazil. CNPq fellow. vazdemello@gmail.com

ABSTRACT. First report of *Oxysternon silenus* Castelnau (Scarabaeidae, Scarabaeinae, Phanaeini) in the Brazilian Atlantic Forest. This is the first record of *Oxysternon silenus* in the Brazilian Atlantic Forest. Specimens were collected in the Serra Grande landscape, municipality of Ibateguara, in Alagoas State. The samples were done from August 17 to 19, 2007 with pitfall traps. Before the present study, *Oxysternon silenus* had been reported predominantly in Amazonian region. The finding of this species corroborates the hypothesis of the biogeographical relationships between the Amazon Rainforest and the Atlantic Forest.

KEYWORDS. Atlantic Forest; biogeographical relationships; dung beetles.

RESUMO. Primeiro relato de *Oxysternon silenus* Castelnau (Scarabaeidae, Scarabaeinae, Phanaeini) na Mata Atlântica brasileira. Esse é o primeiro registro de *Oxysternon silenus* na Mata Atlântica brasileira. Os espécimes foram coletados em Serra Grande, município de Ibateguara, Alagoas. As coletas foram realizadas de 17 a 19 de agosto de 2007 com a utilização de armadilhas do tipo *pitfall*. Antes do presente estudo, *Oxysternon silenus* tinha sido reportada apenas na região Amazônica. O encontro dessa espécie reforça a hipótese das relações biogeográficas entre a Amazônia e a Mata Atlântica.

PALAVRAS-CHAVE. Escaravelhos; Mata Atlântica; relações biogeográficas.

Oxysternon silenus Castelnau is a copro-necrophagous dung beetle species regarded as having Arnaud (2002) or not Edmonds & Zidek (2004) well defined subspecies linked to both color and geographical range. This species is widely distributed in northern and northwestern South America, extending into Central America (Edmonds & Zidek 2004). In South America it was recorded from Bolivia, Brazil, Colombia, Ecuador, French Guiana, Peru and Venezuela, being characteristic of the Amazonian, Guyanan and Chocoan rainforests, including some penetration into the Brazilian savannah (Cerrado) region via riparian forests (Edmonds & Zidek 2004).

The study was carried out at Usina Serra Grande, a large private sugar-cane landholding in the State of Alagoas in northeastern Brazil (8°30'S, 35°50'W). The Serra Grande landscape is located within the most threatened region of the Brazilian Atlantic Forest (Silva & Tabarelli 2000; Lopes *et al.* 2009). This landscape has approximately 9000 ha of forest with a total 109 forest remnants, ranging from 1.67 to 3500 ha – all entirely surrounded by a uniform, stable sugar-cane plantation matrix (Silva & Tabarelli 2000; Santos *et al.* 2008). Coimbra Forest (3500 ha) is the largest and best preserved patch of forest in the region and consists of a single, non-replicated tract of forest (Oliveira *et al.* 2004; Santos *et al.* 2008).

Four females of *O. silenus* were collected from pitfall traps in an Atlantic Forest fragment of northeastern Brazil (Coimbra forest, Alagoas State, 09°00'12,6"S/35°51'59"W, 300 m) from August 17 to 19, 2007. It is important to point out that all four collected specimens bear the color similar to specimens belonging to the *O. s. smaragdinum* Olsoufieff, being completely emerald green dorsally. Those populations are in different sides of the South American continent in its widest region (and separated by more than 4600 km). Populations more closely situated in relation to the newly recorded one are all much darker than the precedent one, generally very dark to black on elytra, and are distant from the population here recorded by at least 1500 km (*O. s. silenus*, *O. s. zagurii* Arnaud, *O. s. aeneum* Olsoufieff). Populations from Santarém (*O. s. jossi* Arnaud, more than 2000 km apart) bear some uniformly metallic individuals among other black ones, but those seen by us were never green, and always much less brightly than specimens from Alagoas.

Local species composition in the sampled area is highly influenced by Amazonian components, making it very distinctive from other sectors of the Atlantic Forest (Prance 1982,

1987, 1989). Phylogenetic studies focusing on endemic species have indicated this strong biogeographical connection between the Atlantic Forest of northeastern Brazil and Amazonia occurred in several periods of the Tertiary and Quaternary (Prance 1982; Willis 1992). The strong biogeographical connection between these forests is supported by Prance (1979), who pointed out that most of the Chrysobalanaceae species (*e.g.*, *Couepia rufa* Ducke, *Couepia pernambucencis* Prance) occurring in Atlantic Forest of northeastern Brazil have their closest relatives in Amazonia, as well as by Teixeira *et al.* (1986), who indicated that lowland sites in Atlantic Forest of northeastern Brazil have avifauna more closely related to Amazonian avifauna. Recently, Pinto *et al.* (2009) collected *Evandromyia* (*Aldamyia*) *sericea* (Floch & Abonnenc) (Diptera, Psychodidae, Phlebotominae) in Brazilian Atlantic Forest. The finding of this species, also found in Amazon Rainforest, corroborates the hypothesis of the phylogeographical proximity of the Amazon Rainforest and the Atlantic Forest (Pinto *et al.* 2009). Thus, the presence of *O. silenus* is more one indicator of association between these forests. We believe that the record of *O. silenus* in these forests can be resulted from the fragmentation of an ancestral biota that was once widely distributed in the region. Voucher specimens have been deposited at the Entomological Collection of Mato Grosso Federal University, in Cuiabá, Brazil (CEUFMT).

ACKNOWLEDGMENTS

We thank Luis Antônio Bezerra and José Clodoaldo Bakker for authorizing our fieldwork at the Usina Serra Grande. We are grateful to CAPES by post-graduate support to B.K.C.F. F.Z.V.M is grateful to CNPq (Process # 304925/2010–1). This work was partly granted by FAPEMAT (447441/2009).

REFERENCES

Arnaud, P. 2002. **Phanaeini. Les Coléoptères du Monde.** Canterbury, Hillside Books, 151 p.

Edmonds, W. E. & J. Zídec. 2004. Revision of Neotropical Dung Beetle Genus *Oxysternon* (Scarabaeidae: Scarabaeinae: Phanaeini). **Folia Heyrovskyana 11**: 1–58.

Lopes, A.V.; L. C. Girão; B. A. Santos; C. A. Peres & M. Tabarelli. 2009. Long-term erosion of tree reproductive trait diversity in edge–dominated Atlantic forest fragments. **Biological Conservation 142**: 1154–1165.

Oliveira, M. A.; A. A. Grillo & M. Tabarelli. 2004. Forest edge in the Brazilian Atlantic Forest: drastic changes in tree species assemblages. **Oryx 38**: 389–394.

Pinto, I. S.; C. B. Santos; A. L. Ferreira & A. Falqueto. 2009. Primeiro registro de *Evandromyia* (*Aldamyia*) *sericea* (Floch & Abonnenc) (Diptera, Psychodidae, Phlebotominae) para a região Sudeste do Brasil. **Revista Brasileira de Entomologia 53**: 487–489.

Prance, G. T. 1979. The taxonomy and phytogeography of the Chrysobalanaceae of the Atlantic coastal forests of Brazil. **Revista Brasileira de Botânica 2**: 19–39.

Prance, G. T. 1982. Forest refuges: evidence from woody angiosperms. *In*: G. T. Prance (ed.). **Biological diversification in the tropics.** New York, Columbia University Press, 158 p.

Prance, G. T. 1987. Biogeography of Neotropical plants. *In*: T.C. Whitmore & G. T. Prance (eds.). **Biogeography and Quaternary history in tropical America.** Oxford, Clarendon Press, 65 p.

Prance, G. T. 1989. Chrysobalanaceae. **Flora Neotropica 9**: 1–267.

Santos, B. A.; C. A. Peres; M. A. Oliveira; A. Grillo; C. P. Alves–Costa, & M. Tabarelli. 2008. Drastic erosion in functional attributes of tree assemblages in Atlantic forest fragments of Northeastern Brazil. **Biological Conservation 141**: 249–260.

Silva, J. M. C. & M. Tabarelli. 2000. Tree species impoverishment and the future flora of the Atlantic forest of northeast Brazil. **Nature 404**: 72–73.

Teixeira, D. M.; J. B. Nacinovic & M. S. Tavares. 1986. Notes on some birds of northeastern Brazil. **Bulletin of the British Ornithologists' Club 106**: 70–74.

Willis, E. O. 1992. Zoogeographical origins of Eastern Brazilian birds. **Ornitologia Neotropical 3**: 1–15.

Received 28/5/2010; accepted 14/4/2011
Editor: Marcela Laura Monné