

## Record of leucism in *Pseudoboa nigra* (Serpents: Dipsadidae) in southern Amazon, Brazil

Janaina da Costa de Noronha<sup>1,2,\*</sup>, Ana Bárbara Barros<sup>1,2</sup>, Robson Moreira de Miranda<sup>1,2</sup>, Everton José Almeida<sup>1,2,3</sup> and Domingos de Jesus Rodrigues<sup>1,2,3</sup>

Unusual coloration in vertebrates does not occur frequently in nature, yet it is recorded in a large variety of species (Bried et al., 2005; Franz and Fleck, 2009). Among the hereditary chromatic anomalies, albinism and leucism have already been recorded in fish (e.g. Veena et al., 2011), amphibians (e.g. Mitchell and Church, 2002), reptiles (e.g. Krecsák, 2008), birds (e.g. Nogueira and Alves, 2011) and mammals (e.g. Reisinger et al., 2009). Although there is great discrepancy in the use of these terms, and despite the fact that many authors consider leucism as partial albinism (Rodríguez-Pinilla and Gómez-Martínez, 2011; McCardle, 2012), the latter is traditionally defined as the total absence of tegument pigmentation coupled with presence of pinkish or reddish eyes (Sazima and Pombal-Júnior, 1986). Conversely, leucism is characterized by the normal pigmentation of eyes, legs and beak, while skin or feathers present lowered or absent coloration (Sage, 1962; Forrest and Naveen, 2000).

On May 13th, 2012, at 7:20 pm, in a rural community near the municipality of Sinop (11° 52' 23" S, 55° 29' 54" W), Mato Grosso, Brazil, a leucistic male of *Pseudoboa nigra* was found crossing a road near a corn plantation. The individual was photographed, collected and deposited in the Biologic Collection of the Meridional Amazon (Acervo Biológico da Amazônia Meridional - ABAM) under the identification number ABAM-H 1460. Measurements consist of snout-vent length of 731.14 mm, tail length of 320.00 mm, and head length

of 18.39 mm. Tissue samples have also been collected for DNA extraction.

*Pseudoboa nigra* exhibits terrestrial and nocturnal habits, and its diet is composed mainly of lizards (Alencar, 2010), and unlike its congeners, the species inhabits open-vegetation formations. It is widely distributed throughout the Caatinga, Cerrado, Chaco biomes (Orofino, Pizzatto and Marques, 2010) and Amazon areas (Bernarde et al., 2012, this study). Two different coloration patterns are displayed in adult individuals: uniformly black head and dorsum in individuals which were bright red when smaller, and black and white spots in adult individuals that hatched with (and preserved) this pattern (Zaher, Oliveira and Franco, 2008).

A number of reports on albinism/leucism have previously been recorded for this species in the Neotropical region, though little information was provided (Sazima and Di-Bernardo, 1991). Wild albino and leucistic animals are rare (Walter, 1938; Oliveira, 2009), mainly due to their low survival rates. Snakes presenting chromatic anomalies may hatch stillborn or with malformations and, if able to mature, are detected more easily by prey and predators, resulting in detrimental impacts on feeding and reproductive capabilities (Krecsák, 2008).

Research concerning the herpetofauna of the state of Mato Grosso is largely outdated and scarce (Ávila and Kawashita-Ribeiro, 2011). The present study is the first record of leucism for *P. nigra* from southern Amazon, a transition area between the Amazon forest and savannah enclaves constantly affected by deforestation. Therefore, additional information regarding the natural history of these wild populations is required for subsidization of future conservation strategies in this region (Rodrigues, Lima and Kawashita-Ribeiro, 2011).

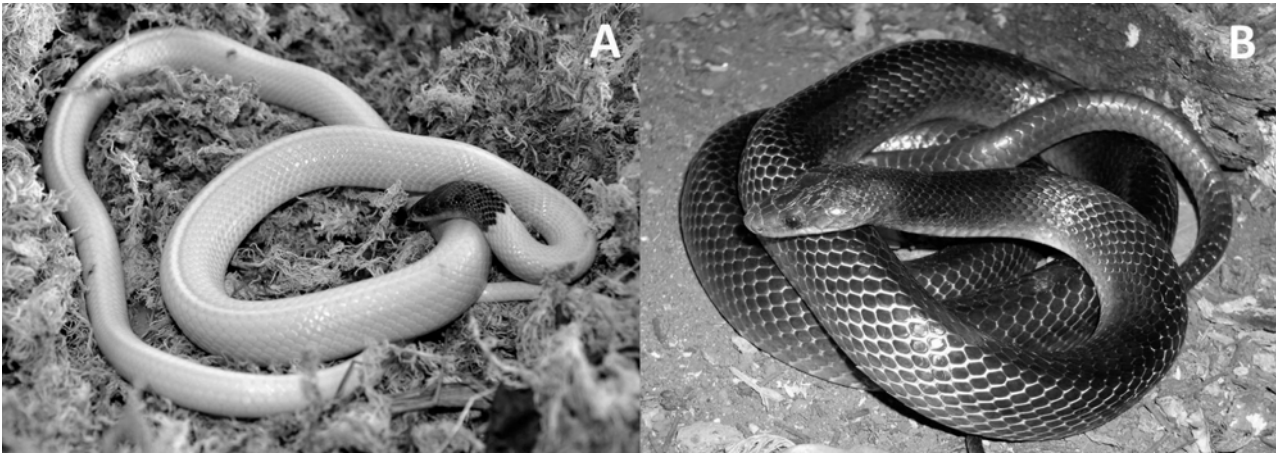
**Acknowledgments.** We would like to thank Lauro Dornelles de Noronha and Dirceu Adriel Oliveira for helping during the field work. Thanks to Paulo Sérgio Bernarde for pre-peer review and

1 Universidade Federal do Mato Grosso, Acervo Biológico da Amazônia Meridional, Avenida Alexandre Ferronato 1200, Setor Industrial, CEP 78577-267, Sinop, MT, Brasil.

2 Instituto Nacional de Ciências e Tecnologia de Estudos Integrados da Biodiversidade Amazônica – INCT-CENBAM/ CNPq/MCT.

3 Programa de Pós-Graduação em Ciências Ambientais/ UFMT Campus Universitário de Sinop, MT, Brasil.

\*Corresponding author; e-mail: jnnoronha@yahoo.com.br



**Figure 1.** (A) Leucistic male of *Pseudoboa nigra* (ABAM-H 1460, Sinop, MT, Brazil) and (B) Adult individual with normal coloration (UFMT-R 4251, Cuiabá, MT, Brazil). Photo A: Noronha, J.C and B: Kawashita Ribeiro, R.A.

Ricardo Alexandre Kawashita-Ribeiro for photo B: *Pseudoboa nigra* (UFMT-R 4251) from Cuiabá, Mato Grosso, Brazil. Dayana Schmidt Moore translated the manuscript. Thanks to Fundação de Amparo à Pesquisa do estado do Mato Grosso (FAPEMAT) (proc. n.º 300729/2010) and Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) (proc. n.º 569382/2008-4, 501408/2009-6, 558225/2009-8) for financial support. We would also like to thank the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis – (IBAMA) for allowing collection of specimens (n.º 10174-1). This is publication 27 in the NEBAM technical series.

## References

- Alencar, L.R.V. (2010): Ecomorfologia em serpentes neotropicais: um estudo de caso com a tribo Pseudoboini. Unpublished Master thesis, São Paulo University, São Paulo, 86 pp.
- Ávila, R.W., Kawashita-Ribeiro, R.A. (2011): Herpetofauna of São João da Barra Hydroelectric Plant, state of Mato Grosso, Brazil. *Check List* **7**: 750-755.
- Bernarde, P.S., Albuquerque, S., Barros, T.O., Turci, L.C.B. (2012): Serpentes do estado de Rondônia, Brasil. *Biota Neotropica* **12**: 1-29.
- Bried, J., Fraga, H., Calabuig-Miranda, P., Neves, V.C. (2005): First two cases of melanism in Cory's Shearwater *Calonectris diomedea*. *Marine Ornithology* **33**: 19-22.
- Forrest, S.C., Naveen, R. (2000): Prevalence of leucism in pygocelid Penguins of the Antarctic peninsula. *Waterbirds* **23**: 283-285.
- Franz, I., Fleck, R. (2009): Dois casos de leucismo em queroquero, *Vanellus chilensis* (Molina, 1782) no sul do Brasil. *Biotemas* **22**: 161-164.
- Krecsák, L. (2008): Albinism and leucism among European Viperinae: a review. *Russian Journal of Herpetology* **15**: 97-102.
- McCardle, H.B.S. (2012): Albinism in wild vertebrates. Unpublished Master thesis, Texas State University-San Marcos, Texas, 82 pp.
- Mitchell J.C., Church, D.R. (2002): Leucistic Marbled Salamanders (*Ambystoma opacum*) in Virginia. *Banisteria* **20**: 67-69.
- Nogueira, D.M., Alves, M.A.S. (2011): A case of leucism in the burrowing owl *Athene cucularia* (Aves: Strigiformes) with confirmation of species identity using cytogenetic analysis. *Zoologia* **28**: 53-57.
- Oliveira, S.V. (2009): Albinismo parcial em cutia *Dasyprocta azarae* (Lichtenstein, 1823) (Rodentia, Dasyproctidae) no sul do Brasil. *Biotemas* **22**: 243-246.
- Orofino, R.P., Pizzatto, L., Marques, O.A.V. (2010): Reproductive biology and food habits of *Pseudoboa nigra* (Serpentes: Dipsadidae) from the Brazilian Cerrado. *Phyllomedusa* **9**: 53-61.
- Reisinger, R.R., Mufanadzo, N.T., Bruyn P.J.N, Bester, M.N. (2009): Leucistic southern elephant seal at Marion Island. *Polar Biology* **32**: 509-511.
- Rodrigues, D.J., Lima, M.M., Kawashita-Ribeiro R.A. (2011): Amphibia, Anura, Hylidae, *Cruziohylla craspedopus* (Funkhouser, 1957): Distribution extension, new state record and distribution map in Brazil. *Check List* **7**: 149-150.
- Rodríguez-Pinilla, Gómez-Martínez, M.J. (2011): Leucismo incompleto en *Turdus fusca* (Passeriformes: Turdidae) en los andes colombianos. *Boletín Científico Museo Historia Natural* **15**: 63-67.
- Sage, B.L. (1962): Albinism and melanism in Birds. *British Birds* **55**: 201-225.
- Sazima, I., Di-Bernardo, M. (1991): Albinismo em serpentes neotropicais. *Memórias do Instituto Butantan* **53**: 167-73.
- Sazima, I., Pombal-Júnior, J.P. (1986): Um albino de *Rhamdella minuta*, com notas sobre comportamento (Osteichthyes, Pimelodidae). *Revista Brasileira de Biologia* **46**: 377-381.
- Veena, S., Thomas, S., Raje, S.G., Durgekar, N.R. (2011): Case of leucism in the spadenose shark, *Scoliodon laticaudus* (Müller and Henle, 1838) from Mangalore, Karnataka. *Indian Journal of Fisheries* **58**: 109-112.
- Walter, H.E. (1938): Genetics: And introduction of study of heredity, New York, Mac-Millan.
- Zaher, H., Oliveira, M.E., Franco, F.L. (2008): A new, brightly colored species of *Pseudoboa* Schneider, 1981 from the Amazon Basin (Serpentes: Xenodontinae). *Zootaxa* **1674**: 27-37.

*Accepted by Philip de Pous*