



Albinism in neotropical otter, *Lontra longicaudis* (Carnivora: Mustelidae)

GUSTAVO ALVES DA COSTA TOLEDO¹, NEWTON MOTA GURGEL FILHO¹, FABIANA CORRÊA ZERMIANI², JAIR CAMILO NEGROMONTE DE AZEVEDO² & ANDERSON FEIJÓ¹

¹Programa de Pós-graduação em Ciências Biológicas, Centro de Ciências Exatas e da Natureza, Universidade Federal da Paraíba, João Pessoa, Paraíba, Brasil. CEP 58059-900. Email: gustavoact@yahoo.com.br

²Parque Zoológico Arruda Câmara, João Pessoa, Paraíba. CEP 58020-100

Abstract: Here we describe the first record of albinism in *Lontra longicaudis*, a young male found at Camaratuba river (6°43'S, 35°10'W), Paraíba state, northeastern Brazil. Despite the unusual coloration the individual has external measures normally expected for the species indicating a normal development.

Resumo: Aqui descrevemos o primeiro registro de albinismo em *Lontra longicaudis*, um macho jovem encontrado no Rio Camaratuba (6°43'S, 35°10'W), Paraíba, nordeste do Brasil. Apesar da coloração incomum, o animal tem medidas externas esperadas para a espécie, indicando um desenvolvimento normal.

Albinism is a congenital and heritable disorder of the pigment-producing cells characterized by the total lack of melanins in hair, eyes and skin (Dorp 1987, Grouw 2012). The insufficiency of melanin production can also be caused by non-hereditary external factors such as food deficiency. In this case, the low consumption of foods with tyrosine interrupt melanin synthesis, however, its production returns to normal levels when the shortage is suppressed (Grouw 2012). In a recent review, Abreu et al. (2013) accounted 35 cases of neotropical mammals with disabilities in melanin production, however, according to Parsons & Bondrup-Nilsen (1995) these anomalies are rare to be observed in wild populations for allegedly resulting in lower life expectancy, since these animals would be more susceptible to predation (Sazima & Di-Bernardo 1991) and intraspecific conflicts (Holt et al. 1995). In albinism, these effects appear to be more severe and associated with pathologies of the optical (Pérez-Carpinell et al. 1992, Garipis & Hoffman 2003), immune (Manglani et al. 2004, Summers 2009) or physiological systems (Hain & Leatherwood 1982, Fertl & Rosel 2002), including the increasing risk of skin cancer (Nogueira & Alves 2011).

The neotropical otter, *Lontra longicaudis*, is a mid-sized carnivore, with a semi-aquatic habit and widely distributed in Neotropical region, occurring

from Mexico to the northeast of Buenos Aires province, in Argentina (Chebez 1999, Eisenberg & Redford 1999). The typical coloration is brown, uniform on the dorsum, limbs, tail and a slightly lighter venter, especially in the throat (Feijó & Lannguth 2013). The usually solitary and stealthy behavior hinders the records and research in the wild. This species receives the status of “data deficient” by the IUCN (Waldemarin & Alvarez 2008) and “near threatened” by the Chico Mendes Institute for Biodiversity Conservation (ICMBio) in Brazil. It is also considered the least known in relation to the Eurasian species (*Lutra lutra*), African (*Aonyx capensis*) and North American (*Lontra canadensis*) (Pardini & Trajano 1999). The aim of this study is to describe the first record of albinism in *Lontra longicaudis*.

A specimen was captured on the right side of the Camaratuba River, near the Biological Reserve Guaribas (RBG) (6°43'S, 35°10'W), municipality of Mamanguape, Paraíba state, Brazil (Figure 1). The RBG has 4029 ha with an estimated rainfall of 1512 mm/year, the climate is tropical and humid (IBAMA 2003). The temperature ranges between 24°C and 26°C, and elevation from 60 m to 204 m. The vegetation is predominantly constituted by remnants of seasonal semi-deciduous forest and savanna (Barbosa et al. 2011). In September 2013, local inhabitants of *Pepina* community donated the

individual to the administration of RBG and later transferred to the Zoo-Botanical Park Arruda Câmara (PZAC) where it received clinical follow-up. Despite the atypical coloration, external morphological characteristics confirm the identity of the individual as *L. longicaudis* (Feijó & Langguth 2013).

The specimen is a male cub, approximately eight months old (Figure 2 and 3; external measurements and weight on Table I). The fur is short, dense and lustrous. The general coloration of the body, limbs and the belly is yellowish white. The

tail is flattened and has the same coloration pattern as the body, but with a slightly darker distal third. The tip of the muzzle is pinkish. The ears are small, rounded and white colored. The eyes are reddish. The webbed hands and feet are also white. In spite of the unusual color, the individual presents the body dimensions expected for the specimens of young age, indicating a normal development. Moreover, the food supplies provided to the animal in the PZAC (mainly fish) rules out the possibility of the depigmentation being caused by dietary deficiency and reinforce the occurrence of hereditary albinism.

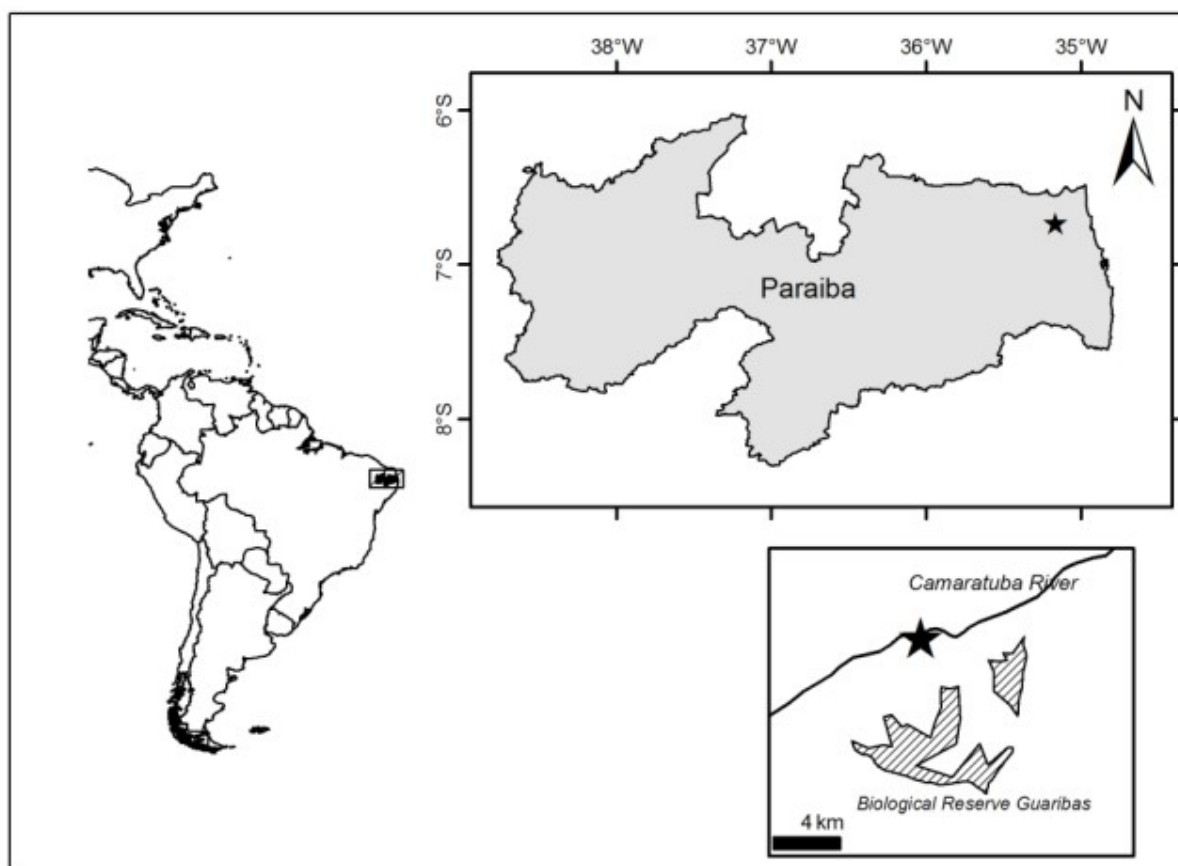


Figure 1. Locality record (star) of the albino neotropical otter, *Lontra longicaudis*, in Paraíba state, northeastern Brazil.

Table I. External measurements (cm) and weight (kg) of the albino neotropical otter, *Lontra longicaudis*, found in Paraíba state, northeastern Brazil.

Date	Head Length	Body Length	Tail Length	Weight
September 24 2013	13	34	26	7.2
December 15 2013	15	41	39	8.6

This study represents the first report of albinism in *L. longicaudis*. Another case of anomalous coloration in this species (unpublished),

involving an adult, was recorded between March and April of 2013 in Laguna Zoncho in Finca Cantaros, a private nature reserve near San Vito, Costa Rica



Figure 2. Young albino neotropical otter, *Lontra longicaudis*, found in Paraíba state, northeastern Brazil.



Figure 3. Young albino neotropical otter, *Lontra longicaudis*, highlighting the throat, nose, ears, eyelids and pink eyes, and the webbed feet.

(Harry Hull¹ *personal communication*). Although not formally described in the literature, the images provided by Harry Hull (access at: <http://fincacantaros.com/2013/04/13/an-unexpected-mammal/>) show an entirely white specimen developing normal foraging and resting activities.

Considering the various records of adult animals with depigmentation in both vertebrates (Fertl & Rosel 2002; Nogueira & Alves 2011; Abreu *et al.* 2013; Rocha *et al.* 2013) and invertebrates (Locket 1986), hypotheses related to reduced fitness become weak, especially for non-social species (Withgott & McMahon 1993, Fertl & Rosel 2002). Rocha *et al.* (2013) reported the capture of a bat with leucism in an advanced stage of pregnancy. Dubkin (1952) and Uieda (2001) found similar results in behavioral studies involving normal colored and albino animals. Therefore, the excessive exposure (loss of natural camouflage) and increased susceptibility to diseases seems to be the major risks for animals with disabilities in melanin production. Given the current lack of data, more accurate statistics and confirmation of these hypothesis depend on specific case studies, which should be highly encouraged (Abreu *et al.* 2013).

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References

- Abreu, M. S. L., Machado, R., Barbieri, F., Freitas, N. S. & Oliveira, L. R. 2013. Anomalous colour in Neotropical mammals: a review with new records for *Didelphis* sp. (Didelphidae, Didelphimorphia) and *Arctocephalus australis* (Otariidae, Carnivora). **Brazilian Journal of Biology**, 73(1): 185-194.
- Barbosa, M. R., Thomas, W. W., Zárate, E. L. P., Lima, R.B., Agra, M. F., Lima, I. B., Pessoa, M. C. R., Lourenço, A. R. L., Júnior, G. C. D., Pontes, R. A. S., Chagas, E. C. O., Viana, J. L., Neto, P. C. G., Araújo, C. M. L. R., Araújo, A. A. M., Freitas, G. B., Lima, J. R., Silva, F. O., Vieira, L. A. F., Pereira, L. A., Costa, R. M. T., Duré, R. C. & Sá, M. G. V. 2011. Checklist of the Vascular Plants of the Guaribas Biological Reserve, Paraíba, Brazil. **Revista Nordestina de Biologia**, 20(2): 79-106.
- Chebez, J. C. 1999. **Los que se van – Espécies argentinas em peligro**. Buenos Aires, Editorial Albatroz Saci.
- Dorp, D. B. 1987. Albinism, or the NOACH syndrome. **Clinical Genetics**, 31: 228-242.
- Dubkin, L. 1952. **The white lady**. London, MacMillan, 136p.
- Eisenberg, J. F. & Redford, K. H. 1999. **Mammals of the Neotropics. The Central Tropics: Ecuador, Peru, Bolivia, Brazil**. Chicago, University of Chicago Press, 609 p.
- Feijó, A. & Lannguth, A. 2013. Mamíferos de médio e grande porte do Nordeste do Brasil: Distribuição e taxonomia, com descrição de novas espécies. **Revista Nordestina de Biologia**, 22(1/2): 3-225.
- Fertl, D. & Rosel, P. 2002. Albinism. Pp. 16-18. In: Perrin, W. F., Würsig, B. & Thewissen, J. G. M. (Eds). **Encyclopedia of Marine Mammals**. Academic Press, San Diego, 1316 p.
- Garipis, N. & Hoffmann, K. P. 2003. Visual defects in albino ferrets (*Mustela putorius furo*). **Vision research**, 43: 793-800.
- Grouw, H. V. 2012. What Colour is that sparrow? A case study: colour aberrations in the house sparrow *Passer domesticus*. **Intern. Stud. Sparrows**, 36: 30-55.
- Hain, J. H. W. & Leatherwood, S. 1982. Two sighting of white pilot whales, *Globicephala melaena*, and summarized records of anomalously white cetaceans. **Journal of Mammalogy**, 63(2): 338-343.
- Holt, D. W., Robertson, M. W. & Ricks, J. T. 1995. Albino eastern screech-owl, *Otus asio*. **Canadian Field Naturalist**, 109(1): 121-122.
- IBAMA. 2003. **Plano de Manejo - Reserva Biológica de Guaribas**. Ministério do Meio Ambiente, Instituto Brasileiro do Meio Ambiente e Recursos Naturais Renováveis – IBAMA. Brasília, DF.
- Locket, N. A. 1986. Albinism and eye structure in an Australian scorpion, *Urodacus yaschenkoi* (Scorpiones, Scorpionidae). **Journal of Arachnology**, 14: 101-115.
- Manglani, M., Adhvaryu, K. & Seth, B. 2004. Griscelli syndrome – a case report. **Indian Pediatrics**, 41: 734-737.
- Nogueira, D. & Alves, M. A. S. 2011. A case of leucism in the burrowing owl *Athene cunicularia* (Aves: Strigiformes) with confirmation of species identity using cytogenetic analysis. **Zoologia** 28 (1): 53-57.
- Pardini, R. & Trajano, E. 1999. Use of shelters by

- the neotropical river otter (*Lontra longicaudis*) in an atlantic forest stream, southeastern Brazil. **Journal of Mammalogy**, 80(2): 600-610.
- Parsons, G. J. & Bondrup-Nielsen, S. 1995. Partial albinism in an island population of Meadow Voles, *Microtus pennsylvanicus*, from Nova Scotia. **The Canadian Field-Naturalist**, 109(2): 263-264.
- Pérez-Carpinell, J., Capilla, P., Illueca, C. & Morales, J. 1992. Vision defects in albinism. **Optometry and Vision Science**, 69(8): 623-628.
- Rocha, P. A., Feijó, J. A., Donato, C. R. & Ferrari, S. F. 2013. Leucism in Seba's short-tailed bat, *Carollia perspicillata* (Linnaeus, 1758), from a rock shelter in northeastern Brazil. **Chiroptera Neotropical**, 19(1): 1151-1153.
- Sazima, I. & Di-Bernardo, M. 1991. Albinismo em serpentes neotropicais. **Memórias do Instituto Butantan**, 53(2): 167-173.
- Summers, C. G. 2009. Albinism: classification, clinical characteristics, and recent findings. **Optometry and Vision Science**, 86(6): 659-662.
- Uieda, W. 2001. Behavior of an albino vampire bat, *Desmodus rotundus* (E. Geoffroy) (Chiroptera, Phyllostomidae), in captivity. **Revista Brasileira de Zoologia**, 18(2): 641-644.
- Waldemarin, H. F. & Alvarez, R. 2008. *Lontra longicaudis*. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.1. <www.iucnredlist.org>
- Withgott, J. H. & McMahon, J. A. 1993. Conspecific harassment of a leucistic Barn Swallow. **Bulletin of the Oklahoma Ornithological Society**, 26(4): 38-39.

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