

To Editor-in-Chief and Staff of the Oecologia Australis

Dear Editor-in-Chief Dr. Maíra Benchimol,

We appreciate the suggestions provided by the reviewers and made the suggested changes in the manuscript. All modifications are shown below.

We are grateful to the editors and reviewers for all the contributions that brought greater quality to the manuscript.

Sincerely your,
Leonardo Cotts, PhD

Changes made:

Reviewer A

1. Reviewer: The reviewer suggests changing the title from "FIRST REPORT AND DESCRIPTION OF MELANISM AND ALBINISM IN GIANT ANTEATER, *MYRMECOPHAGA TRIDACTYLA* (MAMMALIA, XENARTHRA, PILOSA)" to "FIRST REPORT AND DESCRIPTION OF MELANISM AND ALBINISM IN MYRMECOPHAGA TRIDACTYLA (XENARTHRA, PILOSA) IN BRAZIL".

Authors' response: The description of these chromatic disorders for the first time is not limited to Brazil, since there is no previous report in the literature about these anomalous conditions in *Myrmecophaga tridactyla*. Thus, adding "in Brazil" to the title would be restrictive and would also reduce the impact of the publication.

We have agreed to the removal of "Mammalia" from the title. The new version is: "FIRST REPORT AND DESCRIPTION OF MELANISM AND ALBINISM IN GIANT ANTEATER, *MYRMECOPHAGA TRIDACTYLA* (XENARTHRA, PILOSA)".

2. Reviewer: The reviewer suggests changing the keywords to others not included in the title.

Authors' response: Ok, done.

3. Reviewer: The reviewer suggests adding as a reference the book: "Mamíferos do Brasil".

Authors' response: Ok, done.

4. Reviewer: The reviewer suggests adding a citation to this sentence: "Studies on color variation in *M. tridactyla* are scarce and chromatic disorders, as far as we are aware, are unknown for this species".

Authors' response: Due to the scarcity of works with chromatic disorders in anteaters, there is no adequate citation for this phrase. The authors are responsible for the affirmation.

5. Reviewer: The reviewer comments: "I missed a paragraph mentioning cases of mammals in Brazil with color anomalies. A paragraph like this would be important to tie your first case to the species under study."

Authors' response: Ok, paragraph added (Lines 39-45).

6. Reviewer: The reviewer comments on albinism: "I recommend supplementing the information for the reader, such as: how is the coloring of the mutant individual, will the hairs depigment to a whitish to colorless color? (all over the body or just a part?) can they also change color? (in birds, yes, and mammals?); can naked parts in mammals also become depigmented? Ears, etc.

Authors' response: Ok, informations added (Lines 48-53).

7. Reviewer: The reviewer comments on an inbreeding study in *M. tridactyla* and suggests its inclusion in the manuscript (article: Evidence of high inbreeding in a population of the endangered giant anteater, *Myrmecophaga tridactyla* (Myrmecophagidae), from Emas National Park, Brazil).

Authors' response: Ok, article added and discussion performed (Lines 106-114)

8. Reviewer: The reviewer requests that the exemple of wildfire melanism in mammals be added.

Authors' response: Ok, informations added (Lines 121-123)

Reviewer B

1. Reviewer: The reviewer suggests changing the running title to: "Melanism and albinism in *Myrmecophaga tridactyla*".

Authors' response: Ok, done.

2. Reviewer: The reviewer suggests changing the Keywords.

Authors' response: Ok, done.

3. Reviewer: The reviewer request to remove italics of “genus”

Authors' response: Ok, done.

4. Reviewer: The reviewer suggests adding part of the legend information on the map and adding coordinate grid on map B.

Authors' response: Ok, done.

Final considerations of the *reviewer B*:

“According to the image (1A and 1B), the individual treated here as an albino, presents yellowish pigmentation in some portions of the body. This characterizes him as a carrier of the syndrome called flavism and not albino. Therefore, I suggest reading the following articles: - First record of a flavistic black striped field mouse (*Apodemus agrarius*) in Slovakia - Canady, Alexander - Turkish Journal of Zoology, 2016. - Flavism in *Apodemus sylvaticus* and albinism in *Microtus arvalis*, with notes on colour anomalies in mammals (mammalia) - Joseph M. Stusak - Lynx, 1987.

Flavism is even rarer than albinism and very little talked about and portrayed by the scientific community. Therefore, this report is extremely important for science, including to bring to popular knowledge the existence of this syndrome. So I suggest you make this change to the correct syndrome and post it.”

Authors' response:

We appreciate the suggestion of the reviewer, but respectfully disagree of this observation. "Flavism" is a nomenclature that classically groups animals with yellow to red color patterns (including orange and pink colorations), as can be exemplified in the articles below:

Canády A (2016) First record of a flavistic black-striped field mouse (*Apodemus agrarius*) in Slovakia. Turkish Journal of Zoology 40(4):637-40.

Holcová-Gazárková A, Kryštufek B, Adamík P (2017) Anomalous coat color in the fat dormouse (*Glis glis*): a review with new records. Mammalia 81(6):595-600.

Scorer (1980) also comments on the concepts of "flavism" and "erythrism" as disorders only separated by the pigmentation gradient in the tissues:

"Erythrism is the effect which results when the eumelanin (darker) pigment is low in concentration and at very low concentrations flavism is the result." - Scorer (1980)

"Flavism" is currently considered an ambiguous nomenclature, being recommende the use of "Erythrism" for reddish animals and "Xanthochromism" (syn. Xanthism) for yellowish animals. In fact, we can observe in some cases of erythristic mammals that the light red coloration is perfectly suitable for the morphological

description attributed to "flavism" (such as Leopardos; Pirie et al. 2016). Furthermore, considering that the amount of pigment (eumelanin) can vary in its deposition in tissues, it is expected that there are less reddish and more reddish tones in the coat of erythristic animals. Laacke (2006) comments on variations in tones of red in erythristic specimens of *Taxidea taxus*.

Erythrism is currently defined as an anomaly of reddish or reddish-brown coloration in the hair or feathers animals generated by a recessive mutation in the extension gene that causes increased production of red pigments (pheomelanin) in areas of the body and coat where black pigments (eumelanin) are typically present (Majerus and Mundy 2003; Peterschmitt et al. 2009; Pirie et al. 2017, van Grouw, 2021). Xanthochromism, in turn, is defined as an anomaly characterized by an atypical predominance of yellow pigments (e.g., xanthine, pheomelanin) in the skin, scales, hair, or feathers of vertebrates producing a yellow or orange coloration in their tissues (Romero- Briceño 2018). Xanthochromism is rarely recognized in mammals and is better documented in other vertebrates, including fish and "reptiles" (Quigley et al. 2017, Romero-Briceño 2018). Ge et al. (2012) report a possible case of xanthochromism (referred to by the author as xanthism) in a museum specimen of plateau pika (*Ochotona curzoniae*).

Finally, even if we consider the concept of flavism as proposed by the reviewer, the animal in question has a very evident white coat and reddish eyes, characteristics only attributed to albino animals and not presented in other chromatic disorders (individuals with piebaldism and leucism do not present Red eyes; see van Grouw, 2013). Thus, we reaffirm that the chromatic disorder (albinism) is correctly described in our study.

Literature mentioned:

- Ge D., Lissovsky A.A., Xia L., Cheng C., Smith A.T., Yang Q. (2012) Reevaluation of several taxa of Chinese lagomorphs (Mammalia: Lagomorpha) described on the basis of pelage phenotype variation. *Mammalian Biology* 77(2):113-23.
- Majerus M.E., Mundy N. (2003). Mammalian melanism: Natural selection in black and white. *Trends in Genetics* 19(11): 585–588.
- Peterschmitt M., Grain F., Arnaud B., Deléage G., Lambert V. (2009). Mutation in the melanocortin 1 receptor is associated with amber colour in the Norwegian Forest Cat. *Animal genetics* 40(4):547-52.
- Pirie T.J., Thomas R.L., Fellowes M.D. (2017). Increasing game prices may alter farmers' behaviours towards leopards (*Panthera pardus*) and other carnivores in South Africa. *PeerJ* 30; 5: e3369.
- Quigley D.T., Lord R., MacGabhann D., Flannery K. (2017) First records of xanthochromism in three-bearded rockling *Gaidropsarus vulgaris* (Cloquet 1824) and pollack *Pollachius pollachius* (Linnaeus 1758). *Journal of Applied Ichthyology* 33(6):1208-10.
- Romero Briceño, J.C. (2018). Un caso de xantismo en *Chelonoidis carbonaria* (Spix, 1824) (Testudines: Testudinidae) en los Llanos centrales de Venezuela.
- Scorer, J. (1980). Some factors affecting the feeding ecology and socio-biology of the samango monkey, *Cercopithecus albogularis schwarzi* Roberts, 1931 (Doctoral dissertation, University of Pretoria).
- van Grouw H (2013) What colour is that bird. *British birds* 106:17-29.
- van Grouw H. (2021). What's in a name? Nomenclature for colour aberrations in birds reviewed. *Bulletin of the British Ornithologists' Club* 141(3):276-99.