Review of: "Listening to the Bats of Carajás: Applied Bioacoustics for Species Inventory and Environmental Use in a Mosaic of Forests, Savannas, and Industrial Mining in the Brazilian Amazonia"

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Potential competing interests: No potential competing interests to declare.

Thanks for the invitation to review this article about the species composition and richness of bats in the Carajás region based on acoustic samplings. I think the article is generally well-written and shows innovative findings that will help to foster the conservation of bat species in the region and add more information about the distribution and ecology of the already existing species. I have some comments that I am leaving below that I would like to see addressed in the paper.

- Substitute capture nets with mist nets in the abstract.
- “However, the available bat sampling for Carajás relied on mist nets and/or captures in caves”. It would be good to specify and be more clear about which kind of capture is being mentioned here, as mist nets are also one type of capture that can be conducted in caves.
- “which generated a biased sampling towards species of the Phyllostomidae family, whose capture is more frequent, but is poorly detected acoustically.”. Are they poorly detected or poorly identified using bioacoustics? It is rather the second option, no?
- “Such licensing can be improved by using applied bat bioacoustics.” Be more specific about how it can help to improve licensing by giving some examples.
- “The region of Carajás, in the southeast of Pará state,” “This study was conducted in the Carajás National Forest (FNC – Fig. 1). Created in 1998, FNC covers 411,948.87 hectares, and is in the southeast of the State of Pará (6°4’14.972” S, 50°4’6.886” W), in the Brazilian Amazonia”. I would also add here that it is located in the southeast portion of the Amazon to make it clearer for readers who are not familiar with Brazilian geography.
- Make a general review of the English in the article.
- It would be good to mention whether you sampled directly in front of any of the caves or just in a place where there were caves and the distance from the recorders to the caves.
- “The 11 species previously unrecorded for the Carajás region (*Cormura brevirostris, Diclidurus ingens, Peropteryx trinitatis, Saccopteryx bilineata, Pteronotus alitonus, Noctilio albiventris, Noctilio leporinus, Molossops neglectus, Molossus molossus, Molossus rufus and Promops centralis*) belong to four families (Emballonuridae, Mormoopidae, Noctilionidae, Molossidae).” So what is the new number of bat species recorded for Carajás? Which bat species are any expected species that occur there but are still missing from the current species list?

- I think this is a must-cite paper in your study to justify why your species list does not include phyllostomids: Yoh, N., Syme, P., Rocha, R., Meyer, C. F., & López-Baucells, A. (2020). Echolocation of Central Amazonian 'whispering' phyllostomid bats: call design and interspecific variation. *Mammal Research*, *65*(3), 583-597.
- "Mining is a high-impact activity that can be destructive to the environment in which it occurs." It would be good if you could provide some more specific examples of how mining can impact bat species more specifically.
- It would be good to see a paragraph also stating the limitations of recording bats with acoustic methods.
- "Sampling at the FNC was carried out in 10 environments:*canga*, caves, lakes, forest, river, urban, mining front (areas where mineral extraction was already underway), *canga* in areas planned for mining, cave in area planned for mining, and forest in areas planned for mining. The areas planned for mining were those where there was already a request for mineral activity that should begin soon. In total, 61 points were sampled (Fig. 1, Supplementary Table S1)." How was the sampling effort spread across the habitats? Were they all sampled equally in terms of recorded hours? You mention it further on in the manuscript in the statistical analysis, but it needs to be moved further up and mentioned that it is in Table 2.
- "We conducted our study between 2021 and 2023, with three field expeditions, from October 21st to November 17th, 2021, from June 26th to July 22nd, 2022, and from May 2nd to 28th, 2023." Were your sampling seasons conducted in the dry season or wet season? It would be good to clarify.
- It would be good to run an NMDS or a similar analysis to see how the different environments differ in terms of their bat species composition.
- What are the minimum distances between sampling points? Were they spatially independent? Did you test for that when comparing environments?
- On Figure 1, as the Carajás area is very small on the map, thus difficult to identify and visualize, it could be good to point out its position with an arrow.

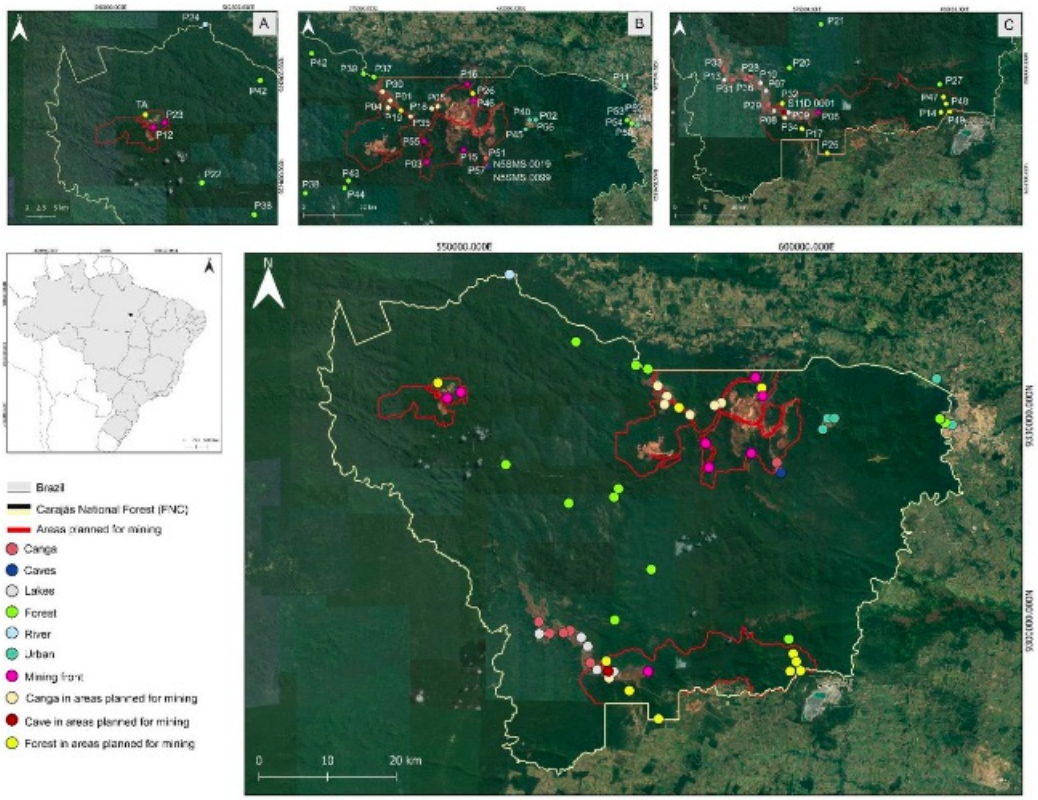

Figure 1. Satellite image of Carajás National Forest, in Pará state, Brazilian Amazonia, with 61 points in different environments sampled for bats between 2021 and 2022, based on the recording of their echolocation calls. Different colors represent different environments sampled, and the red lines mark areas under mining concessions. A) detail of Mina Igarapé Bahia; B) detail of Mina Norte e C) detail of Mina Sul.

- On Figure 2, you are missing one extrapolation curve for the whole region, including all habitat types.

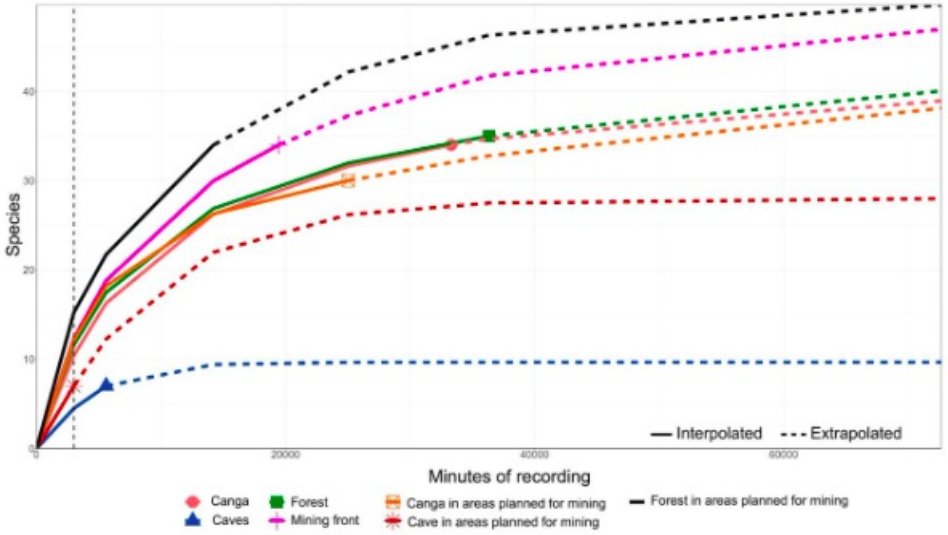

Figure 2. Rarefactions curves for bat species richness recorded in seven different environments at the Carajás National Forest, in Pará state, Brazilian Amazonia, based on the recording of their echolocation calls. We used interpolation and extrapolation of Hill numbers (see Methods) to verify the sampling effort required to reach the asymptote for each environment sampled. Sampling effort expressed in minutes of recording. The dashed vertical line presents the smallest sampling effort used.