

Final Evaluation Report

Your Details	
Full Name	Héctor E. Ramírez-Chaves
Project Title	The status of some highly hunted endemic rodents and deer of Colombia
Application ID	29491-2
Grant Amount	£6000
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Date of this Report	20 February 2022

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Provide information on the taxonomic status of five subspecies of agouties (<i>Dasyprocta</i>)				We have submitted a manuscript about the distribution of South American <i>Dasyprocta</i> but is still under review. We are currently working on a second manuscript that helps to clarify the taxonomic position of the <i>Dasyprocta</i> from Colombia
Evaluate the taxonomic status of the Colombian populations of Quichua porcupine (<i>Coendou quichua</i>).				We have strong evidence that the inter-Andean populations of <i>C. quichua</i> are a different species. However, there is a lack of information of the population assigned to <i>C. quichua</i> from the Biogeographic Chocó from Panama to Ecuador that we need to fulfil. For other species of <i>Coendou</i> of Colombia, we provided key information to update the threatened category (https://doi.org/10.1017/S0030605319001029)
Clarification of the taxonomic status of all the taxa involve is necessary to suggest conservation actions since some of the distributional ranges of the taxa to evaluate are restricted to small areas of Colombia				We obtained interesting results of several mammal species from Colombia, that together with the results of the previous Rufford Grant were totally useful for introduce new and first records from Colombia, describe new species and provide information on the ecology and natural history of several species. We also provided information on mammals is protected areas of Colombia such as the Selva de Florencia National Park (https://doi.org/10.12933/therya-21-1101)
Evaluate the taxonomic status of the endemic brocket deer subspecies and provide additional information on other deer species from Colombia				We managed to obtain key genetic data and morphological information for several deer species of Colombia. As a result, we extended the distribution of <i>Mazama temana</i> south to the border between Colombia and Ecuador (https://doi.org/10.15560/17.4.1095) and presented a systematic clarification of additional samples from Ecuador. We also

				provided new natural history information of the Vulnerable dwarf red brocket deer, <i>Mazama rufina</i> (https://doi.org/10.3897/neotropical.16.57932)
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

We have several difficulties to access to natural history collections and to obtain some data in the field due to the COVID 19 pandemic. Some natural history collections were closed most of the time.

3. Briefly describe the three most important outcomes of your project.

- 12 scientific publications providing new information on rodents, deer, bats, Andean bear, and shrews of Colombia.
- The involvement of Colombian researchers and students in the development of this project that increased the relevance of this endemic species.
- The discovery of three new bat species from Colombia and Bolivia, and the detection of cryptic diversity in rodents of Colombia.

4. What do you consider to be the most significant achievement of this work?

5. Briefly describe the involvement of local communities and how they have benefited from the project.

Our work was important to support the training of young biologists that were involved in the publications. We also worked together with the National Natural Parks of Colombia staff, and produced a collaboration network to obtain information by means of Citizen Science (see <https://doi.org/10.3897/neotropical.16.57932>)

6. Are there any plans to continue this work?

Yes, our results were positive and contributed to the knowledge of little studied mammal species in Colombia such as the red brocket deer and the dwarf brown hairy porcupine. Furthermore, we have detected some possible new species and gathered information on endangered mammals of the country that will be shared to the national red list mammal assessment.

7. How do you plan to share the results of your work with others?

We presented part of our results at the IV Colombian Mammalogical Congress held virtually in 2021 (<http://aczcolombia.org/?event=v-congreso-colombiano-de-zoologia>). This is the largest Mammalogical Congress in Colombia, attended by

around 400 people from Colombia and overseas. We are planning to attend several mammalogical congresses during 2022.

We also published the following papers:

Torres-Martínez, M.M., Ramírez-Chaves, H. E., Noguera-Urbano, E.A., Passos F.C. 2021. Assessment on the rarity and conservation status of the Colombian endemic Brown Hairy Dwarf Porcupine *Coendou vestitus*. *Oryx* 55(5): 765–770. doi:10.1017/S0030605319001029

Torres-Martínez, M.M., Aya-Cuero, C.A., Noguera-Urbano, E.A., Passos F.C. & Ramírez-Chaves, H. E. 2021. *Coendou vestitus* (Mammalia: Erethizontidae). *Mammalian Species* 53 (1003): 43-50. <https://doi.org/10.1093/mspecies/seab005>

Terán-Sánchez, S., Díaz-Arango, A., Arias-Monsalve, H. F., & Ramírez-Chaves, H. E. 2021. New records of mammals of the Coffee Region, Central Andes of Colombia using citizen science. *Neotropical Biology and Conservation* 16(1): 27-43. doi: 10.3897/neotropical.16.57932

Ramírez-Chaves, H. E., Ossa-López, P. A., Lasso-Lasso, L., Rivera-Páez, F.A., Roncancio Duque, N., Escobedo-Morales, L. A., & Maldonado, J. E. 2021. Range extension of the Central American Red Brocket, *Mazama temama* (Kerr, 1792) (Artiodactyla, Cervidae) in Colombia. *Check List* 17 (4):1095–1102. <https://doi.org/10.15560/17.4.1095>

Ramírez-Chaves, H. E., Velásquez-Guarín, D., Ocampo-Velásquez, J. D., Mejía-Fontecha, I. Y., Acosta, A. E., Colmenares-Pinzón, J. E., Castaño, J. H., Roncancio Duque, N. 2021. Mammals of the Natural National Park Selva de Florencia, Caldas, Colombia. *Therya* 12(3): 461-475. DOI:10.12933/therya-21-1101

Ramírez-Chaves, H. E., Morales-Martínez, D.M., Pérez, W.A., Velásquez-Guarín, D., Mejía-Fontecha, I.Y., Ortiz-Giraldo, M., Ossa-López, P. A., & Rivera Páez, F.A. 2021. A new species of small *Eptesicus* Rafinesque (Chiroptera: Vespertilionidae) from northern South America. *Zootaxa* 5020 (3): 489–520. <https://doi.org/10.11646/zootaxa.5020.3.4>

Pisso-Florez, G. A., Gómez-Lora I., Vela-Vargas, M., Pizo, H., Bedoya Dorado, I., & Ramírez-Chaves, H. E. 2021. What's on the menu? A presumed attack of Andean bear on a Mountain tapir at the Puracé National Natural Park, Colombia. *Neotropical Biology and Conservation* 16(1): 19-25. <https://doi.org/10.3897/neotropical.16.e57140>

Morales-Martínez, D.M., Rodríguez-Posada, M.E., Ramírez-Chaves, H. E. 2021. A new cryptic species of the yellow-eared bat *Vampyressa melissa* species complex (Chiroptera: Phyllostomidae) from Colombia. *Journal of Mammalogy* 102(1):90–100. DOI:10.1093/jmammal/gyaa137

Mejía-Fontecha, I. Y., Pérez Tapie, K.D., Velásquez-Guarín, D., Ossa-López, P. A., Rivera-Páez, F. A., Ramírez-Chaves, H. E. 2021. First record of the Northern

Ecuadorian Shrew, *Cryptotis niausa* Moreno Cárdenas & Albuja, 2014 (Eulipotyphla, Soricidae), in Colombia. Check List 17 (5): 1345–1352. <https://doi.org/10.15560/17.5.1>

Cortés-Suárez, J. E., Peña, F., Sanchez-Ojeda, F., Amaya-Villabona, D., Laverde-Bohórquez, N., Torres-Martínez, M. M., & Ramírez-Chaves, H.E. 2021. Nuevos registros y observaciones sobre la historia natural del puercoespín pardo, *Coendou vestitus* (Rodentia: Erethizontidae). *Biota Colombiana* 22(2):155-162.

Chacón Pacheco, J., Avendaño Maldonado, L.J., Agamez López, C., Mejía-Fontecha, I.Y., Velásquez-Guarín, D., Ossa López, P.A., Rivera Páez, F.A., Morales-Martínez, D. M. & Ramírez-Chaves, H. E. 2021. Distribution of the dwarf dog-faced bat *Molossops temminckii* (Chiroptera: Molossidae) in Colombia and comments on its morphometry in South America. *Mammalia* 85(2):182-188. <https://doi.org/10.1515/mammalia-2020-0051>

Acosta S. L.H., Poma Urey, J. L., Ossa-López, P.A., Rivera-Páez, F., & Ramírez-Chaves, H. E. 2021. A new species of *Eptesicus* Rafinesque, 1820 (Mammalia: Chiroptera: Vespertilionidae), from the sub-Andean Forest of Santa Cruz, Bolivia. *Therya* 12(3):391-409. DOI:10.12933/therya-21-1119

8. Timescale: Over what period was the grant used? How does this compare to the anticipated or actual length of the project?

We started working in the project since the grant obtention and we hope to finish a couple of manuscripts with additional results in the following months.

9. Budget: Provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Memory cards	165	165		
DNA sequencing	600	600		
Food and lodging during field work	628	628		
Visit to international collections	1100	500	-600	600 were paid as overhead to the conservation NGO
Visit to national collections	220	220		
Laboratory consumable kits and for DNA extractions and	1500	1500		

amplifications, and lab consumables				
Field work trips	637	637		
Camera traps	1150	1150		
Overhead		600	+600	
TOTAL	6000	6000		

10. Looking ahead, what do you feel are the important next steps?

We would like to apply for a new Rufford Grant to obtain funding to gather additional data that can be useful to describe new rodent species that we have detected. In addition, we worked in national parks in the country and would be amazing to work in other protected areas that still lack of key information of native mammals.

11. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

Yes, we used in the acknowledgements in all the presentations and talks we did during the time of the project. Furthermore, we included in the acknowledgement of all the published papers (a total of 14) to the Rufford Small Grants (Grant 29491-2).

12. Please provide a full list of all the members of your team and briefly what was their role in the project.

Héctor E. Ramírez-Chaves: Field and laboratory data collection. Morphological analyses.

Gustavo Adolfo Pisso Florez: Field data collection.

Alexandra Cardona: Contributed with the Geographic Information Systems and analyses.

Paula A. Ossa-López: Contributed with the molecular lab procedures and genetic analyses.

13. Any other comments?

We are deeply thankful to Rufford for the support that was totally useful for discovering new mammal species in the country and to provide relevant information that will result in the conservation status update for rodents and deer in Colombia.