

## Final Evaluation Report

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| Your Details               |   |
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| <b>Full Name</b>           | Vanessa de Paula Guimarães Lopes  |
| <b>Project Title</b>       | Ecology, Conservation and Interference of the Exotic Species to <i>Callithrix aurita</i> , one of the World's 25 Most Endangered Primates |
| <b>Application ID</b>      | 31597-1   |
| <b>Date of this Report</b> | 06/16/2023  |

**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   |
|---|--------------|--------------------|----------------|--|
| <p>Field registration of the identification, occupancy rates, composition, and relative abundance of the callitrichids, and current distribution in areas with potential occurrence of <i>Callithrix</i> species present in Rio Doce State Park.</p>  |              |                    |                | <p>In the Rio Doce State Park (RDSP) we estimated 139 individuals, all being hybrids, and only four individuals of the native species (<i>Callithrix aurita</i>), one of which was observed in a group of hybrids.</p> <p>The observed groups were predominantly comprised hybrid individuals that contained phenotypic characters between <i>Callithrix aurita</i> x <i>Callithrix penicillata</i>. However, hybrid individuals between <i>Callithrix penicillata</i> x <i>Callithrix geoffroyi</i> were also seen.</p>   |
| <p>Capture of the <i>Callithrix</i> species to analyse phenotypic characters and collect biological samples for genetic analysis of these species in order to characterize the hybridization processes of <i>C. aurita</i> with exotic marmosets.</p> |              |                    |                | <p>For this capture, we initially performed the marmoset habituation phase, which lasted 3 months, in order to make the individuals get used to our presence. Two different areas of the RDSP were selected after frequently detecting callitrichids. In these areas, wooden platforms were built on which fruits were placed once a day, for a period of 2 months. In the last month of habituation, Tomahawk traps were placed, suitable for capturing <i>Callithrix</i> spp. These traps were placed on wooden platforms, on suspended platforms, and on top of trees, along with baits (fruits), this time so that the animals got used to the presence of these traps. Subsequently, the capture phase was carried out, in which 10 traps were set at the same time and in each area per day for 15 days. The traps were opened and baited, initially with fruits, then with fruits and a food supplement based on cod liver oil. The opening period was in the morning (6 am), and in the afternoon (1 pm) the</p> |

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|  |  |  | traps were checked in order to verify the presence of marmosets in the cages. All traps were closed at the end of the day (6 pm), preventing the capture of other animals during the night. After 15 days of attempted capture, no marmoset was captured.  |
| Molecular analysis of the biological samples collected.  |  |  | Even performing the entire process of capturing the marmosets, unfortunately, no marmoset was captured.  |
| To create georeferenced maps with the occurrence of the <i>Callithrix</i> species and consolidate database about the analysis of impacts of exotic species on <i>C. aurita</i> in order to propose management strategies and control invasive species, and conservation actions for <i>C. aurita</i> . |  |  | These activities were carried out and are present in the paper that we are trying to publish in The American Journal of Primatology.   |
| To conduct environmental education actions in the park to environmental awareness and mitigation of man-made damage.   |  |  | Environmental education actions were contemplated in order to sensitise the communities around the RDSP, as well as park visitors and employees. In the local communities, face-to-face and virtual lectures were held, in addition to publications in local newspapers, television, and print. These activities were aimed at publicising the project carried out with <i>C. aurita</i> in the park, publicising the species locally, the problem of biological invasions, and the impacts caused. In addition, we created a social network (Instagram) to disseminate our actions, both to the communities around the park and to other audiences in general. Other environmental education activities were carried out at RDSP with employees, visitors, and the local community, in which we developed environmental workshops. These workshops had interactive activities, such as "Prose with the little skull", |

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|  |  |  | <p>whose objective was to present, through photos, vocalisations, and a map, the existing <i>Callithrix</i> species and the original distribution of each one. Based on this, we introduce a conversation about biological invasions and the resulting impacts, especially the hybridisation process, highlighting the phenotypic differences between <i>C. aurita</i> and a hybrid individual, through taxidermied animals. Another activity was the art workshop "Paint Your little skull", designed for children to paint <i>C. aurita</i> with some recyclable materials. We also carried out the "Telling stories", which told the story of <i>C. aurita</i> and the problem of biological invasions. In order to publicise the action and interact on social networks with the workshop participants, we carried out the activity "Selfie with the monkeys", created for the photographic record of the participants of the event in a thematic panel, which included all the species of primates that occur in the RDSP. Finally, information on the main characteristics of <i>C. aurita</i> was displayed at the main tourist attractions in the park, to help us obtain, through people, more records of the native species inside of the RDSP and in fragments around it. During the workshops, pamphlets and stickers were handed out in support of the importance of conserving <i>C. aurita</i>, and a banner with relevant information about the species and candies with the following message were displayed: "Just as you were attracted by candies, the monkeys are also attracted for human food. #Don'tFeedtheMonkeys!" This information was intended to make those involved aware of the problem of interaction between humans and non-human primates. During our study, we noticed the difficulty of stakeholders, especially the local community and park staff, in differentiating <i>C. aurita</i> from other <i>Callithrix</i> individuals. In this</p> |
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|  |  |  | <p>way, we created products that had the illustration of the native species. These created products included caps, shirts, and mugs, and were delivered to the main stakeholders who acted directly in the construction and implementation of this project. The intention of this activity was to make those involved in the region able to memorise the main phenotypic characteristics of the species, and thus, we could obtain more records of <i>C. aurita</i> in a more effective way. <i>Callithrix aurita</i> is the scientific name of the species and the common name is "little skull marmoset" or "sagui-caveirinha" in Portuguese.</p> |
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**2. Describe the three most important outcomes of your project.**

- a) After years without records of *Callithrix aurita* in Rio Doce State Park, four individuals were observed.
- b) The presence of pure groups of the endangered native species *Callithrix aurita* is rare in the largest fragment of Atlantic Forest in Minas Gerais/Brazil.
- c) The population viability of *Callithrix aurita* is threatened by hybridisation and competition with invasive species.

**3. Explain any unforeseen difficulties that arose during the project and how these were tackled.**

One of the biggest difficulties was the danger of meeting hunters in the forest, mainly because I am a woman, so we used devices such as radio communicators and the presence of three people on the team. We also had difficulty capturing marmosets in the forest, requiring more time for this method.

**4. Describe the involvement of local communities and how they have benefited from the project.**

We noticed that the community was very happy and involved with the project. We saw the effective participation of people, aware of the impacts of biological invasions. The community helped us identify new groups of *Callithrix* and helped publicise the native species, which was previously unknown to the population, demonstrating the value of the natural heritage of *Callithrix aurita*. The community felt important for having one of the world's most endangered primates in their backyard, and they saw the opportunity to make handicrafts based on the native species to generate income.

**5. Are there any plans to continue this work?**

Yes. We want to use the same methodology for the other endangered species in the area, *Brachyteles hypoxanthus*, the largest ape in the Americas.

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

We are trying to publish the results in the journal "The American Journal of Primatology".

We have already shared some of the results with the Rio Doce State Park team and with the communities surrounding the park.

We also publish abstracts and disseminate results at scientific events, such as the Brazilian Congress of Primatology.

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

Given this current scenario, it is assumed that the native species *Callithrix aurita* has experienced a large reduction in population size, while hybrid populations have increased considerably, mainly in the southern region of RDSP but also spreading to the central and northern regions. Considering the seriousness of the situation of biological invasions for the native *C. aurita* of RDSP, as well as its low detectability, we suggest implementing measures, such as managing the population of *C. aurita*, with the translocation of the few remaining individuals to conservation centres with the aim of ensuring genetic integrity and increasing ex-situ population viability.

Actions for the management, control, and eradication of allochthonous and hybrid marmosets, identified as priorities due to these animals being in a protected area, must be carefully evaluated. As the RDSP has large areas with restricted access, it can make it more difficult to find the last individuals of a population, until there is a guarantee that the last individual has been captured and that there is no chance of re-invasion. Furthermore, the financial costs for these activities are relatively high and must be considered to determine the success of the eradication and control programme. Allied to this, environmental education measures and training of environmental public agents must be undertaken to prevent the inappropriate release of allochthonous marmosets.

**8. 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 the Rufford Foundation logo in lectures, videos, and in all actions carried out.

**9. Provide a full list of all the members of your team and their role in the project.**

**Natasha Grosch Loureiro**, assisted in field activities and data analysis.

**Júlia Simões Damo**, assisted in field activities and data analysis.

**Fabiano Rodrigues de Melo**, assisted in the data analysis.

**Flávio Henrique Guimarães Rodrigues**, assisted in the data analysis.

**Rodrigo Lima Massara**, assisted in the data analysis.

### 10. Any other comments?

I appreciate the opportunity that The Rufford Foundation has given me to contribute to the conservation of one of the rarest and most endangered species in the world. The results of this project are very important for planning actions that can reverse the population decline of *Callithrix aurita*. Professionals of excellence in the area are recognizing this work.

I am sending some photos of the activities carried out during the project work.



Figure 1 – Extra active search carried out in the Parque Estadual do Rio Doce (RDSP), state of Minas Gerais, southeastern Brazil. (A) Individual of *Callithrix aurita*. (B) Hybrid individual with *C. aurita* x *C. penicillata* phenotype. © Vanessa Guimarães-Lopes.

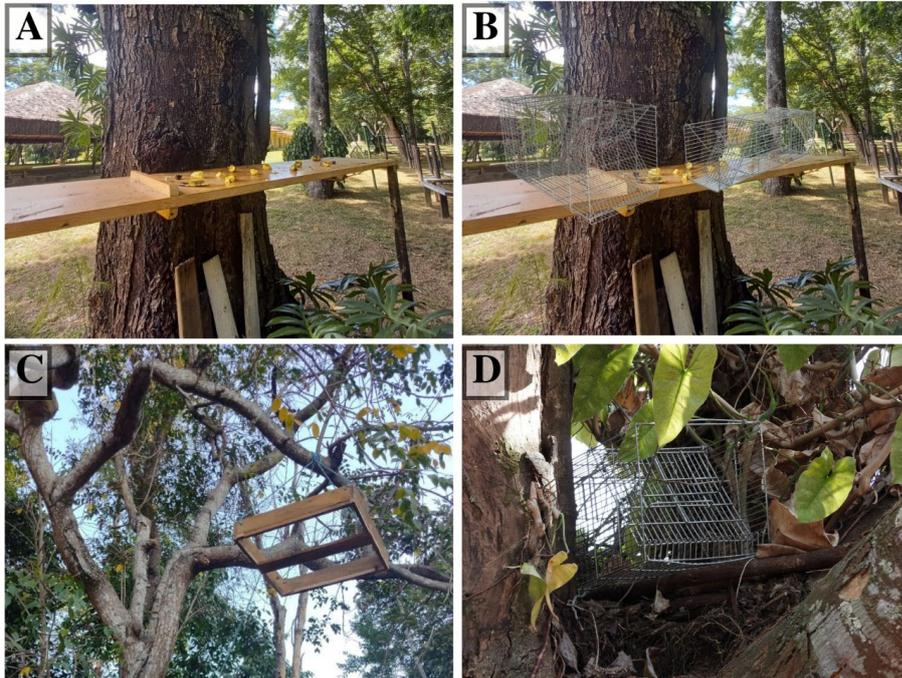


Figure 2 - Habituation process to capture *Callithrix* spp. in Rio Doce State Park (RDSP), state of Minas Gerais, southeastern Brazil. (A) Wooden platform with baits (fruits). (B) Wooden platform with Tomahawk traps. (C) Suspended wooden platform with Tomahawk traps. (D) Tomahawk trap over trees. © Vanessa Guimarães-Lopes.



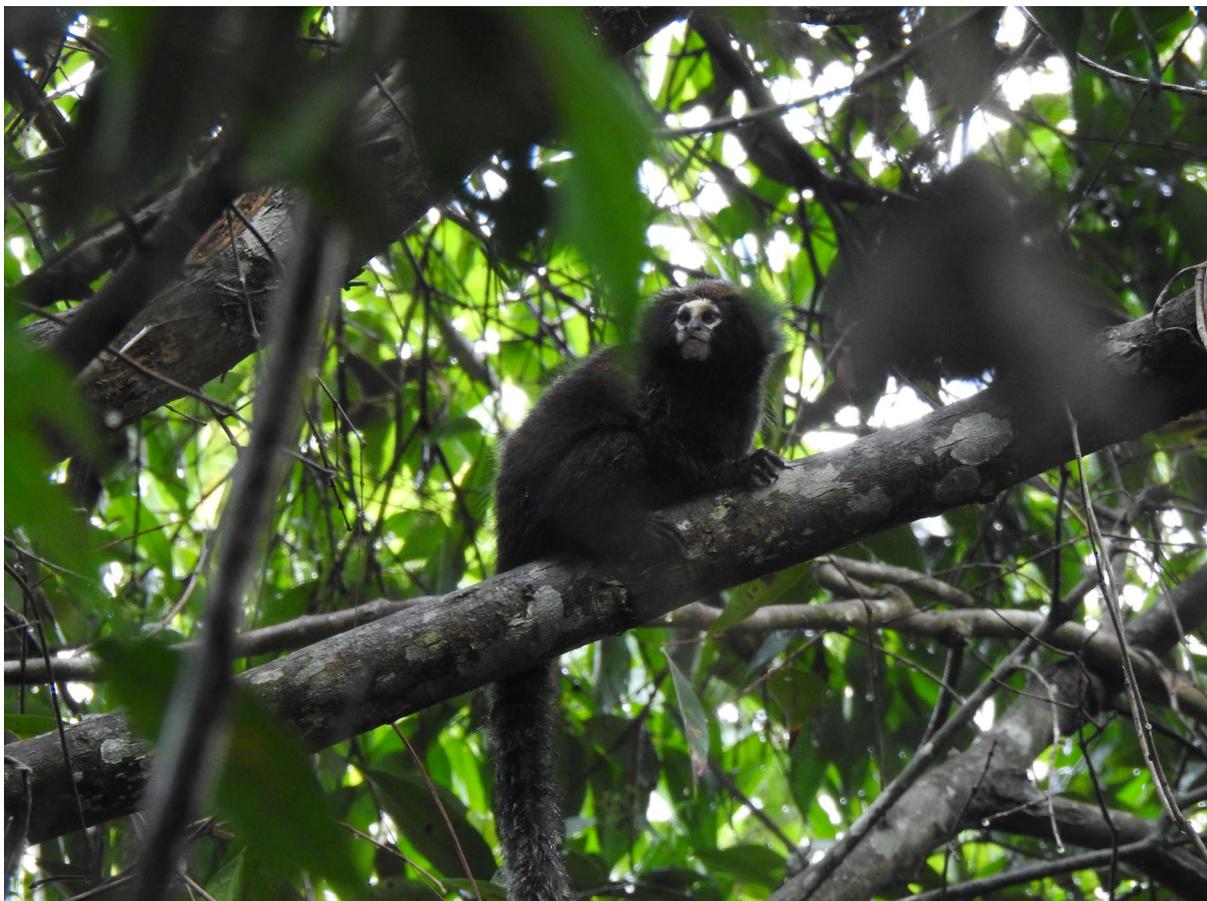
Figure 3 – Environmental education actions in the Rio Doce State Park (RDSP) and in the surrounding communities, state of Minas Gerais, southeastern Brazil. (A) In-person lectures held to sensitize researchers, employees, and local residents. (B) Virtual lecture held for the community. Dissemination of the project in a local television newspaper (C) and in a printed newspaper (D). © Vanessa Guimarães-Lopes, Natasha Grosch and Guto Akasaki.



Figure 4 – Environmental education workshops for employees and visitors at Rio Doce State Park. (A) Interactive activity “Prose with the little skull”, with exhibition of photos and vocalizations of each species of *Callithrix*. (B) Taxidermied animals, to show the phenotypic differences between *Callithrix aurita* and a hybrid individual. (C) Arts activity “Mount your little skull”, designed for children to paint the native species. (D) *Callithrix aurita* made through children. (E) Story about *C. aurita* and biological invasions through the “Telling Stories”. (F) “Selfie with the monkey” for interaction with the participants. (G) Information about the main characteristics of *C. aurita* scattered around tourist spots. (H) Candies to attract and sensitize those involved in the workshops. © Vanessa Guimarães-Lopes, Lucas Barreto, Guto Akasaki and Guilherme Lisbeni.



Figure 5 - Products created with the illustration of *Callithrix aurita* for the main stakeholders who acted directly on the project. (A) Shirt and mug. (B) Cap. Photo: Vanessa Guimarães-Lopes and Lucas Barreto.









# DESAPARECIDO

VOCÊ JÁ O VIU EM ALGUMA MATA DA REGIÃO?



## PROCURA ★ SE SAGUI-CAVEIRINHA

Possui uma mancha branca na face que lembra uma caveira  
e coloração do corpo negra com tufo branco

HÁ 30 ANOS QUE NÃO VIAMOS  
ESTE ANIMAL NO PARQUE



SE ENCONTRAR NOS AVISE EM:  
@primatasperdidos



