

Project Update: April 2020

The first phase of field work was completed in late January and early February 2020. I went to visit four sites in the Brazilian Atlantic forest in three conservation units: 1) Serra dos Orgãos National Park (22° 27' 17" S, 42° 59' 58" W; Fig. 1a); 2) Serra da Bocaina National Park (22° 44' 50" S, 44° 36' 59" W; Fig. 1b); and 3) Serra do Mar State Park (PESM), with two sites visited: Núcleo Itutinga-Pilões (23° 54' 19.57" S; 46° 29' 22.50" W; Fig. 1c) and Núcleo Santa Virginia (23° 20' 31" S, 45° 08' 41" W; Fig. 1d). The Serra da Bocaina National Park was visited instead of the Serra da Mantiqueira Park, as initially proposed in the project. In three of the four sites, I found and collected individuals of the genus *Dendroceros* (Fig. 2a-b), as well as specimens of other hornwort species (Figure 2c-d) usually not recorded for these forest areas. Only in the Núcleo Itutinga-Pilões was I unable to register any *Dendroceros* or other hornwort species. The absence of the hornworts in this place may be evidence of the state of conservation and the degree of disturbance in this area (Fig. 1c).

We had planned to carry out field visits in Colombia in June 2020. Unfortunately, this trip was not possible due to the COVID-19 pandemic, which established a quarantine, with closure of borders and conservation units. Our schedule was affected, temporarily preventing the development of this activity. Now we must wait for the risk conditions related to this pandemic to decrease and when the activities return to normal, we will be able to carry out these field surveys.

In order to mitigate this problem and to satisfactorily develop our project, I evaluated the following possible solutions: postponing my trip to Colombia until November or December 2020; or to contact our collaborators in Colombia to carry out these field surveys. Additionally, we are studying other possible sites in Brazil for more surveys. It should be noted that the most important thing is to explore different collection locations in Colombia or Brazil, to expand the records of occurrence of *Dendroceros* and improve their conservation status.

Meanwhile, I have worked remotely on data analysis of the collected material, preparation of a conference for the rangers in the field sites we visited and selection of images for making edition of a conservation ecology of *Dendroceros* video. All of these are linked to this project and my PhD responsibilities.



Figure 1. Field sites of Brazilian Atlantic forest surveyed for *Dendroceros* spp. a) Serra dos Orgãos National Park; b) Serra da Bocaina National Park; c) PESH Núcleo Itutinga-Pilões; d) PESH Núcleo Santa Virginia.



Figure 2. Hornworts collected in different niches. a) *Dendroceros* sp. growing on tree trunk; b) *Dendroceros* sp. growing on aerial roots; c) *Anthoceros* sp. growing on land on the roadside; d) *Nothoceros* sp. growing on rock on the riverbank.