

Project Update: January 2021

We are monitoring reproductive phenology and recording frugivores through focal observations and camera traps. We recorded the seed dispersal of the endangered globose cactus *Melocactus lanssensianus* by lizards. We are experimentally evaluating the lizards' effectiveness as dispersal agents by determining the effect of passage through its digestive tract regarding the germination of seeds. Until now, we collected 60 seeds of *Melocactus lanssensianus* in 10 faecal samples of lizards. The germination experiment is composed of three treatments: germination of seeds consumed by lizards, germination of seeds manually washed in the laboratory for the removal of funicular pulp and seeds that were not washed or consumed (control). We started the monitoring of germination, which will last 30 days. Germination tests are also being conducted with *M. conoideus* seeds. For the species *M. ferreophilus* we have not yet obtained a sufficient number of seeds. At the end of the germination experiments, germinability (%), mean germination time (MGT), emergence rate index (ERI) and synchronization index (SI) will be calculated based on Ranal and Santana (2006). Differences in germination parameters among treatments will be tested for statistical significance using a one-way ANOVA followed by a Tukey's honestly significant difference test.

We collected fruits from cacti species both in the field and the cactarium. The seeds were removed and subjected to asepsis conditions. After such procedure, seeds were stored in the Seed Collection of Brazilian Semiarid Cacti, according specialised methodology already described in the literature. Currently, the Seed Collection includes 3.762 seeds from 16 cacti species maintained in a freezer at the Molecular Biology Laboratory.

The memory card game *Cactos do Semiárido* was completed and printed. Five hundred units were printed. The publication was highlighted in the social media of the National Institute of Semiarid and the Ministry of Science, Technology and Innovations of Brazil. We have received numerous requests from teachers and school directors from different states in the Brazilian semiarid region. This didactic tool can be used in workshops and other activities promoted at the institute or schools and institutions partners, as well as distributed in scientific events. The distribution will take place as soon as possible due to the limitations imposed by the COVID 19 pandemic.

Ultimately, we published the paper: "*Ex situ* conservation in the Brazilian semiarid Cactaceae housed in the collection of the Guimarães Duque Cactarium" in the Brazil Journal of Development. In this study, we compiled information from the database obtained through the cacti collection and donations over 6 years (2014-2019). Our aims were: (i) to document the cacti samples preserved in the collection; (ii) identify the most representative genera and species and iii) discuss the main challenges and perspectives of the cactarium supporting *ex situ* conservation actions for Cactaceae in the Brazilian semiarid region.

The figures below show some steps of the work.

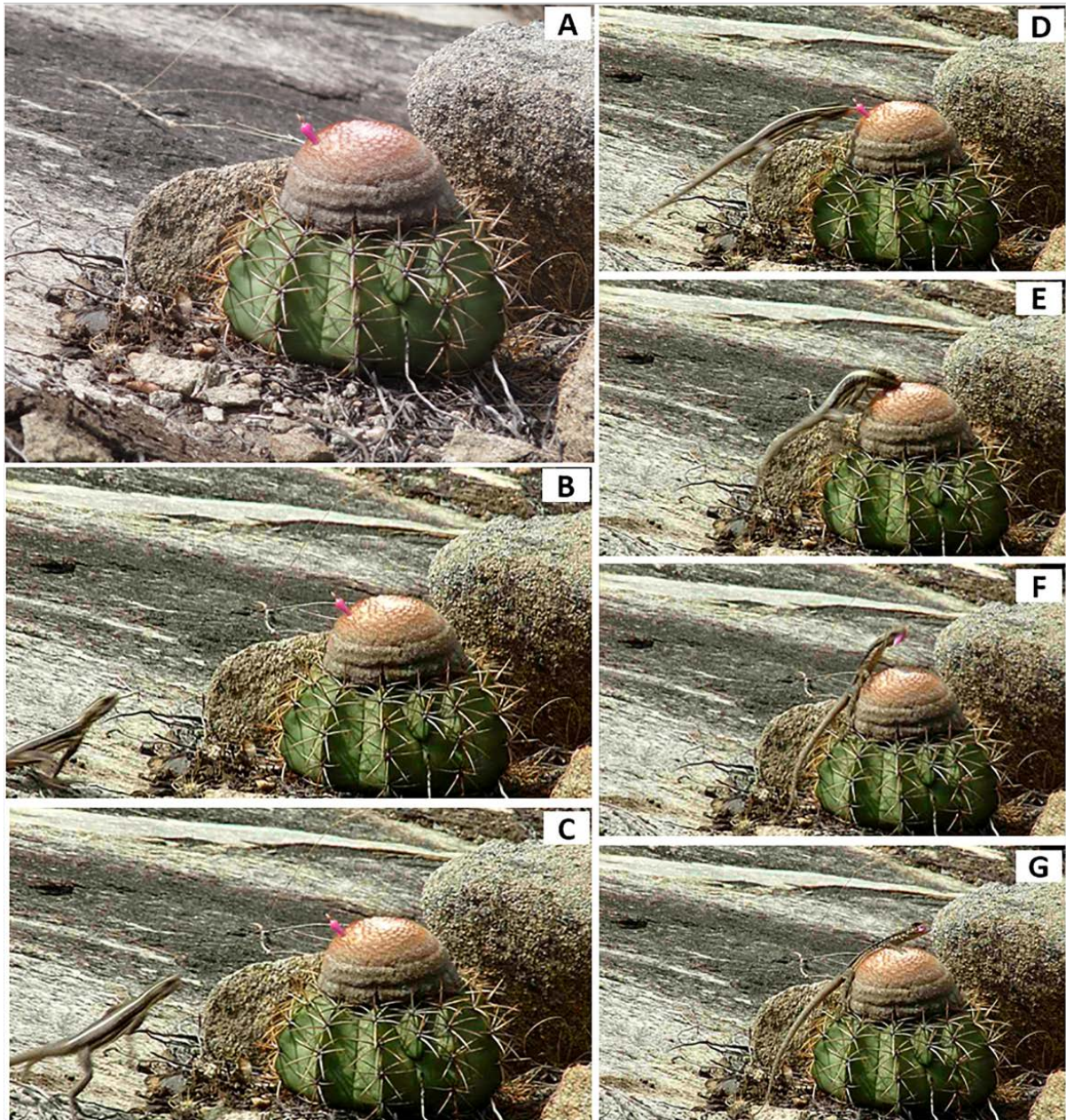


Figure 1: A) *Melocactus lanssensianus* individual. (B-G). Frugivory by *Tropidurus semitaeniatus* on fruits *M. lanssensianus*. These photos are mine. I would like this figure not to be published. Please, remove it. (Article in prep.).

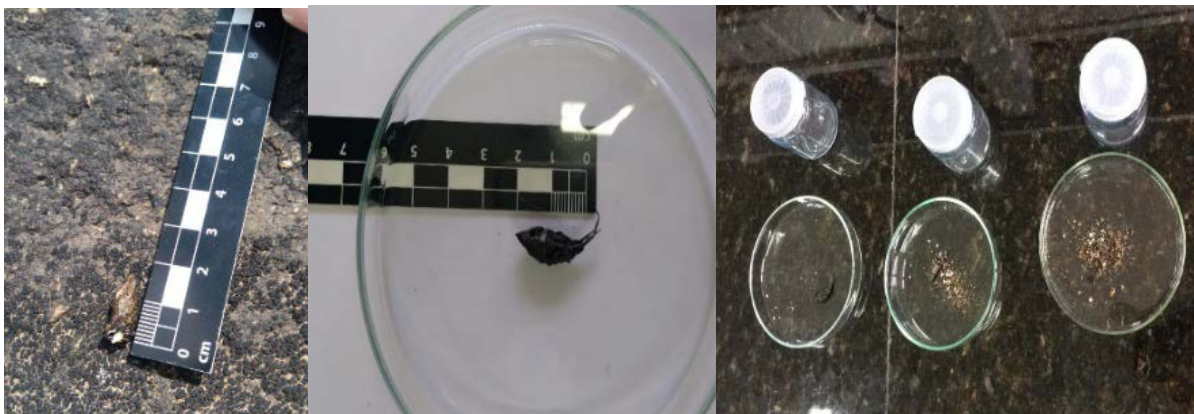


Figure 2. Fecal samples collection to obtain consumed seeds. All collected seeds were submitted to germination tests. These photos are mine. I agree to post on Rufford's website.

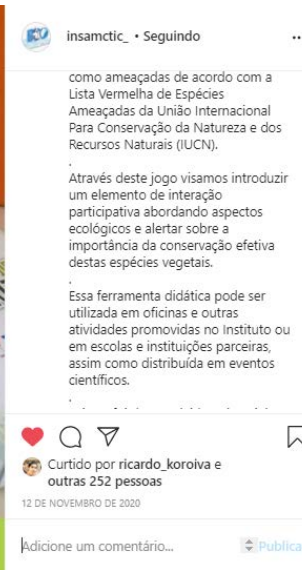


Figure 3: Divulagation of the Memory card game *Cactos do Semiárido*. These photos are mine. I agree to post on Rufford's website.

References

Ranal, M.A. & Santana, D.G., 2006. How and why to measure the germination process? *Brazilian Journal of Botany* 29: 1-11.