MAROMIZAHA PROJECT

Protecting the singing lemur and its forest

FIFTH INTERIM REPORT – SEPTEMBER-OCTOBER 2022

SECOND SEMESTER – JULY-DECEMBER 2022

General information

The project

The staff from the NGO U ONLUS (https://www.uonlus.it/), as part of the Ethology and Bioacoustics research group of the University of Turin, Department of Life Sciences and Systems Biology, is currently leading the first and only long-term indri population monitoring. Starting from 2008 we have habituated 12 family groups of *Indri indri* in the Maromizaha NPA. We currently have 4 research guides performing daily surveys on the animals, collecting behavioral and spatial data on each indri group, at individual and group level (no collars, each individual is recognizable thanks to natural marks on its pelage). In addition, a Passive Acoustic Monitoring of the indri population is ongoing, thanks to an array of 2 Wildlife Acoustics SM4 (https://www.wildlifeacoustics.com/) and 10 Audiomoth (https://www.openacousticdevices.info/audiomoth) recorders.

Threats for the species

The species *Indri indri* is a highly distinctive lemur, endemic to the island of Madagascar where it inhabits the eastern rainforest habitats.

Illegal hunting is a major problem for the indri in certain areas. Although long thought to be protected by local *fadys* (traditional taboos), these do not appear to be universal and the animals are now hunted even in places where such tribal taboos do exist. In 2018, for example, in the Commune of Lakato (Alaotra Mangoro Region), 9 indris were killed by poachers in the Antavolobe forest (Ratsimbazafy, pers. comm.). Recent studies of villages in the Makira Forest indicate that indri have also been hunted in the past for their skins (which were worn as clothing), that indri meat is prized and fetches a premium price, and that current levels of indri hunting are unsustainable (Golden 2005, 2009; Jenkins et al. 2011; R. Dolch pers. comm.). The principal threat to this species is habitat destruction for slash and burn agriculture, logging and fuelwood gathering, all of which take place even within protected areas. Increasing levels of illegal hunting is also a major problem for the indri (Jenkins et al. 2011). Fady against the hunting of indri are becoming less respected, and hunting has thus worryingly increased since the political crisis, now posing a serious threat to this species. The corridors between Mantadia and Zahamena are an important Conservation Site, where wide conservation education and capacity building actions should be implemented, to eliminate hunting, with the indri as the flagship species. This species has never successfully been kept in captivity and thus captive breeding programs are highly doubtful.

In the next years it will be of great importance to support local forest management by improving the existing community-based approach (Randrianarison et al. 2015). Actions should include expansion of protected habitats to increase population connectivity (e.g. the Ankeniheny-Zahamena corridor) and to decrease lemur disturbance by rural communities. Without external support, the last remaining forest habitats will be devastated within a few years resulting in the local extinction of most lemur populations (Schüßler et al. 2018).

Thanks to the collaboration between the WSO, Friend of The Earth, Friend of the Sea, U ONLUS, the University of Turin and GERP, the "Maromizaha 2022 Conservation Project" will carry out conservation activities targeting the population of indri lemurs in Maromizaha during a one-year project, starting from January 1, 2022.

The **"Maromizaha 2022 Conservation Project"** thus aims at protecting the indri lemurs, through two main activities:

1) **Indri population monitoring**

The project will foster conservation by:

i. Implementing the number indri family group under the actual monitoring protocol;
ii. Implementing the Passive Acoustic Monitoring population survey;
iii. Building capacities among the local communities in the domain of biodiversity conservation and education;
iv. Increasing awareness, facilitating and encouraging people's involvement in conservation actions in the area.

2) **Habitat Restoration**

This action supports local forest management by improving the existing community-based approach and by expanding the network of protected habitats in the Ankeniheny-Zahamena corridor.

Fifth bimonthly report

For the **"Maromizaha 2022 Conservation Project"** the team from the University of Turin, who is currently set at the Maromizaha Multipurpose Center and coordinated by Prof. Cristina Giacoma and by the PhD students Valeria Ferrario and Filippo Carugati, carried on the following activities:

1. monitoring of the indri groups through direct observations, camera traps and passive acoustic monitoring;
2. habituation of 2 additional family groups of indris;
3. organization of two training sessions for the research guides.

Indri monitoring

The indri survey

In the Maromizaha NPA the 4 research guides follow and monitor a total of 12 indri family groups, whose composition and structure for 2022 was reported in previous reports. The research guides are able to identify each individual in each group, thanks to the color of the pelage and to the fur's natural marks. We reported the study protocol in the Attachment 1 and in the first interim report.

Within this birth seasons, Gilbert and Naivo registered the presence of 5 newborns in the indri population monitored.
The newborns are called Mofo (4MZ), Bruno (9MZ), Rano (10MZ), Vintsy (14MZ) and Yhandry (13MZ).
The guides, in collaboration with the students, are annotating all the specific intra- and inter-group dynamics and are collecting spatial and behavioral data. They also recorded a total of 90 songs, that are emitted by the indris on a daily basis.

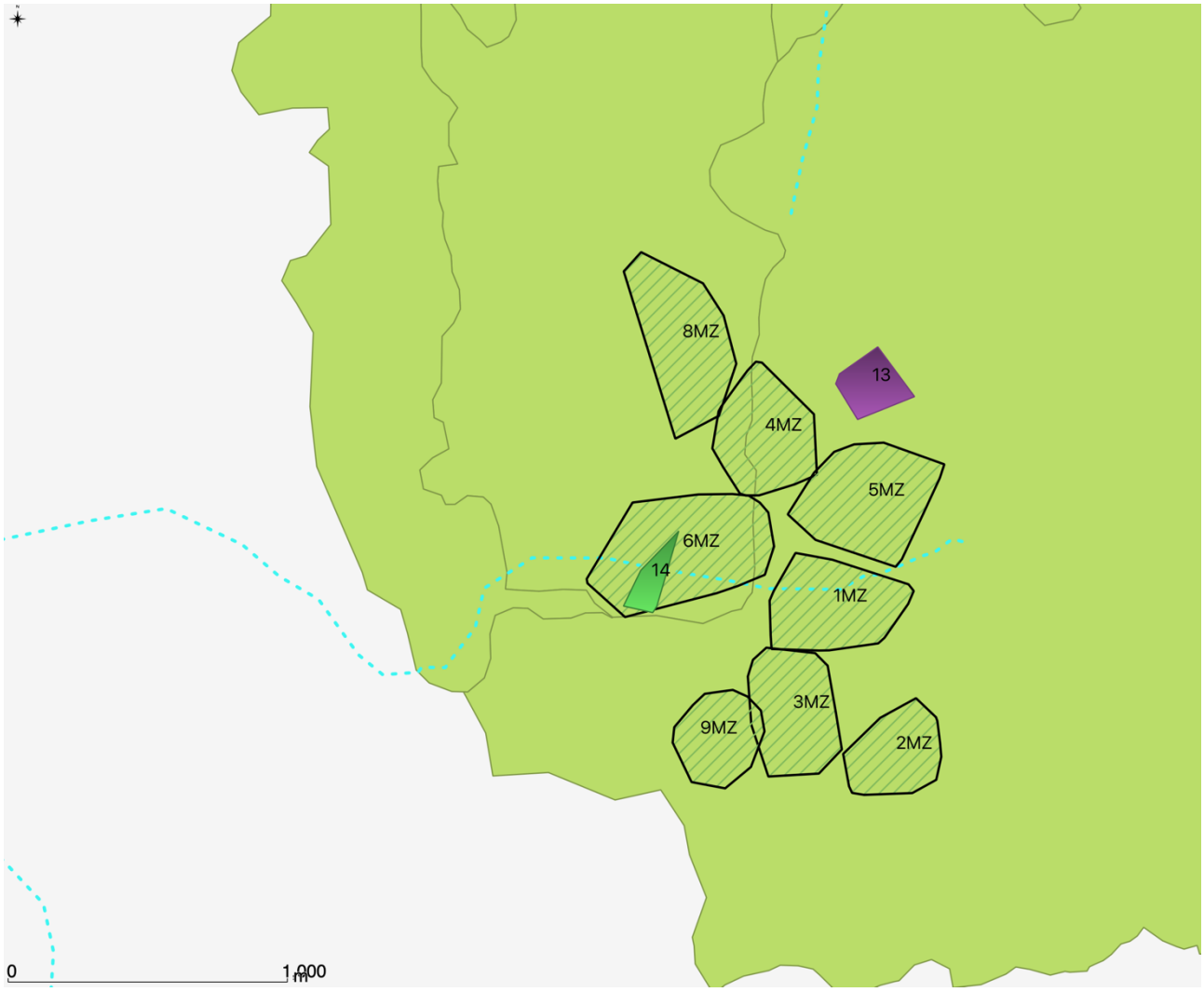
From mid-June Setra and Zafison started to visit the territories of unhabituated groups to find 2 new suitable family groups to follow and habituate. They followed and habituated the following family units.

Group 13MZ: it's made of a reproductive couple, Ravalo, the male and Hery, the female. There is a 2022 baby, Yhandry, and a juvenile female, Xsa.

Group 14MZ: made by a reproductive couple, Avana (male) and Sara (female) and their baby, Vintsy.

The sex of the individuals, except for the babies, has been assigned thanks to the recording of 5 songs, that allowed the guides and the students to identify the sex of the callers. The guides will continue to follow the animals in the next months, paying much attention of both the development of the two babies and the relationship with the neighboring indri groups.

The distribution of the 2 new units is represented in the following map , in which territories are reported for 8 of the 12 habituated indri groups (MCP 100% represents the location of each indri territory in 2018-2019). The 13MZ group's territory is located in the proximity of indri groups $MZ and 5MZ, while the 14MZ group's territory has subtracted space to the 6MZ group.



We also set 2 Audiomoth recorders in the new territories, in order to monitor the acoustic environment and to extend the area of the Passive Acoustic Monitoring Array in the Maromizaha forest.

Sara and Vintsy from group 14MZ

Hery and Yhandry from group 13MZ

From the beginning of July a set of 20 camera traps has been installed in the NPA, with the precise aim to monitor geophagy sites (where several lemur species feed on soil and clay), to target wild indri groups, to detect the predators' presence and to collect information about the Maromizaha fauna in general. A complete HOBO weather station has also been installed in the forest, in order to collect ecological data (temperature, humidity, rainfall, soil pH, wind speed and direction), to be used to monitor the quality of air, water and soil in the NPA. Climate data will be useful inputs also for GERP, to monitor the effect of climatic variation and to plan more effective management strategies for compensating negative effects on the Maromizaha faunistic and floristic communities.

The Phd and Master students setting the HOBO weather station at the Maromizaha Multipurpose Center, with the help pf the research guides Zafison and Setra.

Rising awareness

From September, 29 to October 2, the Indri festival has been organized in Andasibe. A lot of different actors of conservation and eco-tourism in the Andasibe and Alaotra-Mangoro area were present and a series of concerts, public conferences, sports tournament have taken place in Andasibe.
The U ONLUS team contributed 200.000 Ariary to the AGAM Association, to pay the transfer costs for all the Maromizaha guides to attend the Indri Festival.

The aim of the Festival is to group together all the actors of conservation in the area, to promote awareness about lemur conservation, through dissemination and by direct contact with the local communities. Several organizations were present and different VOI and associations directly managing sites, protecting indris and their forests. Several

videos and information about the event could be find at the official Facebook Page of the event: https://www.facebook.com/festivalindri/

Habitat restoration

Maromizaha Restoration

Thanks to the WSO/Friend of the Earth budget we will be able to contribute to extend the restored area, by enrolling two additional agents who will be in charge of both the tree nursery and the tree planting. The seeds of native species will have been directly collected by women in the forest and/or obtained by the ongoing restoration project.

From October 24 to 27, 2022 Dr. RANDRIANANTENAINA Tahina, the GERP's restoration coordinator, went to Maromizaha in order to monitor the advances of the restauration project. He has sent his report for the activities, attached in Annex VIII. With the support of GERP's local coordinator, Mr. RANDRIAMIALISOA, the restoration activities are continuing without difficulties.

The project intervention started with the restoration/building of two tree nurseries, that should reach the objective of producing 10,000 seedlings for 06 months. So far, 10.000 pots have already been transplanted with young autochthonous plants from the Maromizaha Forest.
The restauration activity has started, with 1.000 plants installed in a 1 Ha plot.
Detailed restoration report is attached to the present document (in French, Annex IX).