



MAROMIZAHA RESEARCH and CONSERVATION

The **Maromizaha New Protected Area** (NPA) or “rainforest of the Dragon trees” (150 km east of Antananarivo on RN2, 6.5 km from the Analamazaotra Reserve) is a primary rainforest (altitude of between 890 and 1,210 m asl) that harbors a unique community of highland and lowland species: 13 lemurs, 77 birds, 60 amphibians and 20 reptile species have been counted so far. This area (2,150 ha) represents an important link between the last remaining rainforests in the north and the south and is located within the Ankeniheny–Zahamena Corridor (CAZ).

The Maromizaha Forest is officially managed by GERP (Groupe d’ Etude et de Recherche sur les Primates de Madagascar) since 2008 and thanks to the collaboration with the University of Turin (Italy) and its international partners and donors (Parco Natura Viva – Garda Zoological Parks, ARCA Foundation, Green Teen Team Foundation, LVDI, UIZA, EAZA, U ONLUS, Rotary Foundation, etc.) it has been officially declared a **New Protected Area** in 2015 by the Ministry of the Environment.

The **Maromizaha Multipurpose Centre**, built in local materials and alimented by solar energy, is a one-floor building that reflects the UniTO mission to promote research while respecting the rainforest.



ACTIVITY REPORT 2022

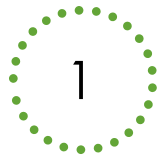
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Our Mission

The project is centered on the valorization of biodiversity and the development of initiatives to empower communities to increase control over their lives and take a leading role in conservation of local biodiversity.



Research and Conservation

The study of wild animal populations is fundamental to design effective, long-term conservation programs, as for the critically endangered indris.



Education, Training, Capacity Building

To improve the existing community-based approach, aimed at supporting local forest management, we are promoting knowledge transfer and an integrated education program, involving the local villagers at all levels.



Rural Development

Community involvement, entrepreneurship, physical infrastructure, and social infrastructure all play an important role in developing rural regions. We are, thus, promoting sustainable income-generating activities, in the domain of agriculture, agroforestry and cooperation, to reduce intense exploitation of natural resources.

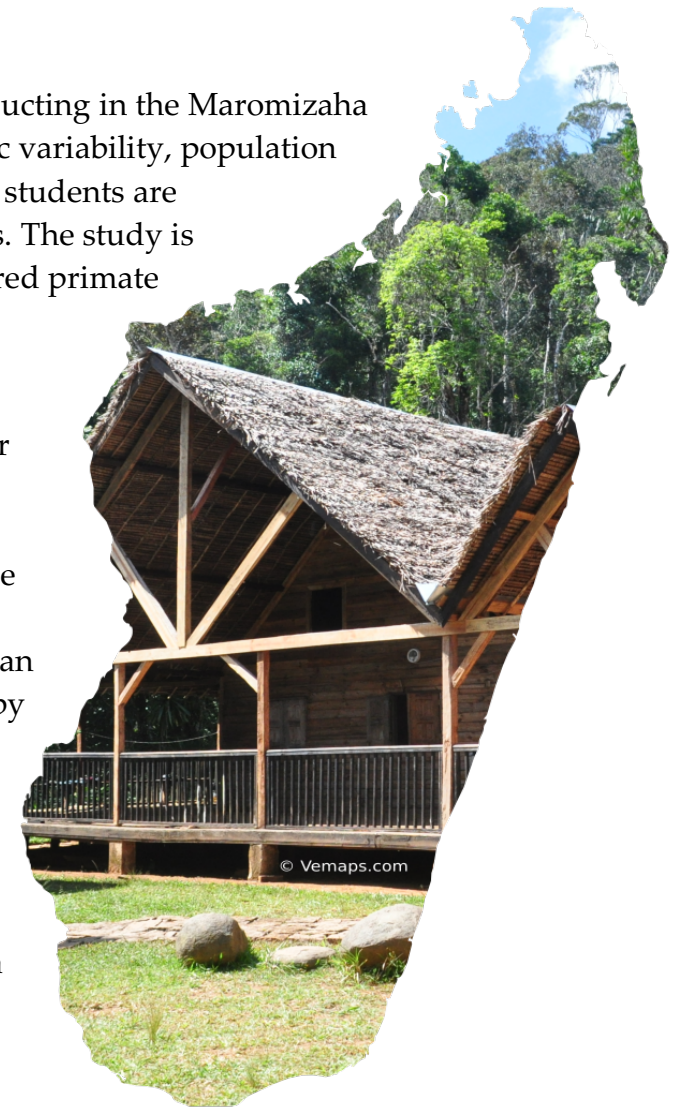
Research and Conservation

The University of Turin and its partners (U ONLUS, GERP, PNV, ARCA Foundation) are conducting in the Maromizaha New Protected Area (NPA) the only ongoing long-term study on vocal communication, genetic variability, population dynamics and spatial behavior of indri lemurs (*Indri indri*). Italian and Malagasy scientists and students are investigating the indri ethology and communication by adopting multidisciplinary approaches. The study is fundamental to design effective, long-term conservation programs for these critically endangered primate (IUCN RED LIST A3cd+4cd).

The long-term monitoring of the indri territories' extension and location resulted in the annexation of the unprotected southern part of the forest to the Maromizaha NPA in 2019, after the validation by the Ministry of Environment and Sustainable Development (MEDD).

In 2022 UniTO and its partners (WSO, U ONLUS, GERP, PNV, ARCA Foundation) financed the monitoring of 14 indri, 6 diademed sifakas (*Propithecus diadema*), 3 red-bellied lemurs (*Eulemur rubriventer*) and 6 grey bamboo lemurs (*Hapalemur griseus*) groups, hiring 9 research guides on an annual basis. More than 120 individuals are recognized and followed daily by the guides and by the researchers/students. Behavioral data (spatial, etho-ecological, acoustics) and samples (faeces, soil, leaves, etc.) are collected.

The lemur population monitoring has been also ensured by the implementation a Passive Acoustic Monitoring and a Camera Traps monitoring array, resulting in more than 8,000 recordings and more than 200 days of camera surveys. At present 20 Browning Camera Traps, 2 SM4 and 8 Micro Wildlife Acoustics and 20 Audiomoth devices are in place.





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.

In 2022 we supervised 10 UNITO students and 2 students from the University of Antananarivo. We hired 2 students from Madagascar in our International PhD program SUSTNET (<https://phdsustainability.campusnet.unito.it/do/home.pl>). We published 6 research articles and presented oral contributions at 3 different Congresses. A piece of work is in preparation for the Animals Special Issue in "Primateology and the Achievement of the UN 2030 Sustainable Development Goals" about the Maromizaha Conservation Project.

In 2023, UniTO also promoted training among the research guides enrolled in the lemur population monitoring. The training sessions targeted at improving capacities around the following topics: data collection and storage (new protocol for field studies), new planning of the PAM array system (see map), how to use new equipment (new GPS models, cameras, handy recorders, etc.). In collaboration with prof. Rabarison Harison, the guides benefited from a specific training about new protocols for field studies of botanical samples, plots for vegetation and phenological surveys, plant identification and the creation of an herbarium.



Education, Training, Capacity Building

In 2022 we contributed to the Anevoka EPP education program, by supporting activities targeting the local schoolchildren. Thanks to the support of the A.R.C.A. Foundation of the Parco Natura Viva – Garda National Park and to the Friend of the Earth initiative of the World Sustainability organization (WSO), we contributed 7 scholarships and 2 green classes in the Maromizaha forest for schoolchildren living in the Maromizaha NPA surroundings.



Our actions targeted scholastic support in the educational paths of children attending the primary school (EPP) of Anevoka and some second-level institutes in Moramanga. The budget allocated has covered scholarships and annual tuition fees, the purchase of teaching materials, scholars' food and lodging expenses, school uniforms, study trips. The purpose of this action was to support the costs of the most needy families whose children are distinguishing by particular merit, in order to prevent early school leaving in the most isolated villages. Starting from 2018, the project has supported the schooling of 10 students, 6 girls and 4 boys from 6 to 19 years old.

We organized two green classes in the Maromizaha forest, whose goal was to raise awareness among young people in local community about the biodiversity inhabiting the protected area and the pressures to which it is subjected. In total, 53 children (aged 6-13 years old), 9 research guides, 10 students and 2 teachers participated in the *green class* training. We both organized fieldwork with the guides and lessons at the Multipurpose Centre, to talk more about doing research on lemurs and about the importance of studying animals and plants to collect information aiming at protecting



the forest. In the long term, this will enhance awareness, gained at a young age, will facilitate and encourage their involvement in conservation and the search for environmentally sustainable job opportunities.

We contributed to the delivery of food at the Anevoka Primary School (EPP) canteen, for a total of 208 schoolchildren. The school canteen service has to be developed all year, in order to reduce the risks for malnutrition and for school dropouts. We were only able to buy 1155 kg of rice, 20 l of oil, 100 kapoaka of dried legumes, for around 72 days.

Children and youth in developing countries face many barriers to obtaining quality education. The main problems we would like to target in 2023 are: overcrowded or unsafe school classes, poor quality of teaching, irrelevant curriculum and learning materials, school fees, uniforms and supplies that families are unable to afford.

Rural Development

In 2022 we supported local forest management by improving the existing community-based approach and by expanding the network of protected habitats in the Ankeniheny-Zahamena corridor, through a restoration plan financed by the World Sustainability Organization (WSO) and by Italian zoos within the VOLOHASY II project.





Thanks to the partners involvement, we have been able to contribute to extend the restored area, by enrolling 4 agents who will be in charge of both the tree nursery and the tree planting. In summary, 10,000 seedlings have been produced in two nurseries for 6 months (from June to November 2022). The 10,000 seedlings were all planted in September (1,000) and December (9,000). 284 man/day provided by the local populations have been necessary for developing and carrying out the various stages of the restoration activity (clearing, transport of seedlings, borings, planting, assistance/surveillance). All species grown and relocated in the forest were native from the forest: the seeds of native species have been directly collected by women in the forest and/or obtained by the ongoing restoration project. Tree planting has been ensured by the restoration agents

and, during a demonstrative event, by the research guides, researchers and teachers from the EPP Anevoka.

In 2023 we would like to extend the restoration are and to teach the Anevoka schoolchildren to take care of the forest, by starting a school tree nursery. We are currently in search for a small amount of money to start the nursery.

