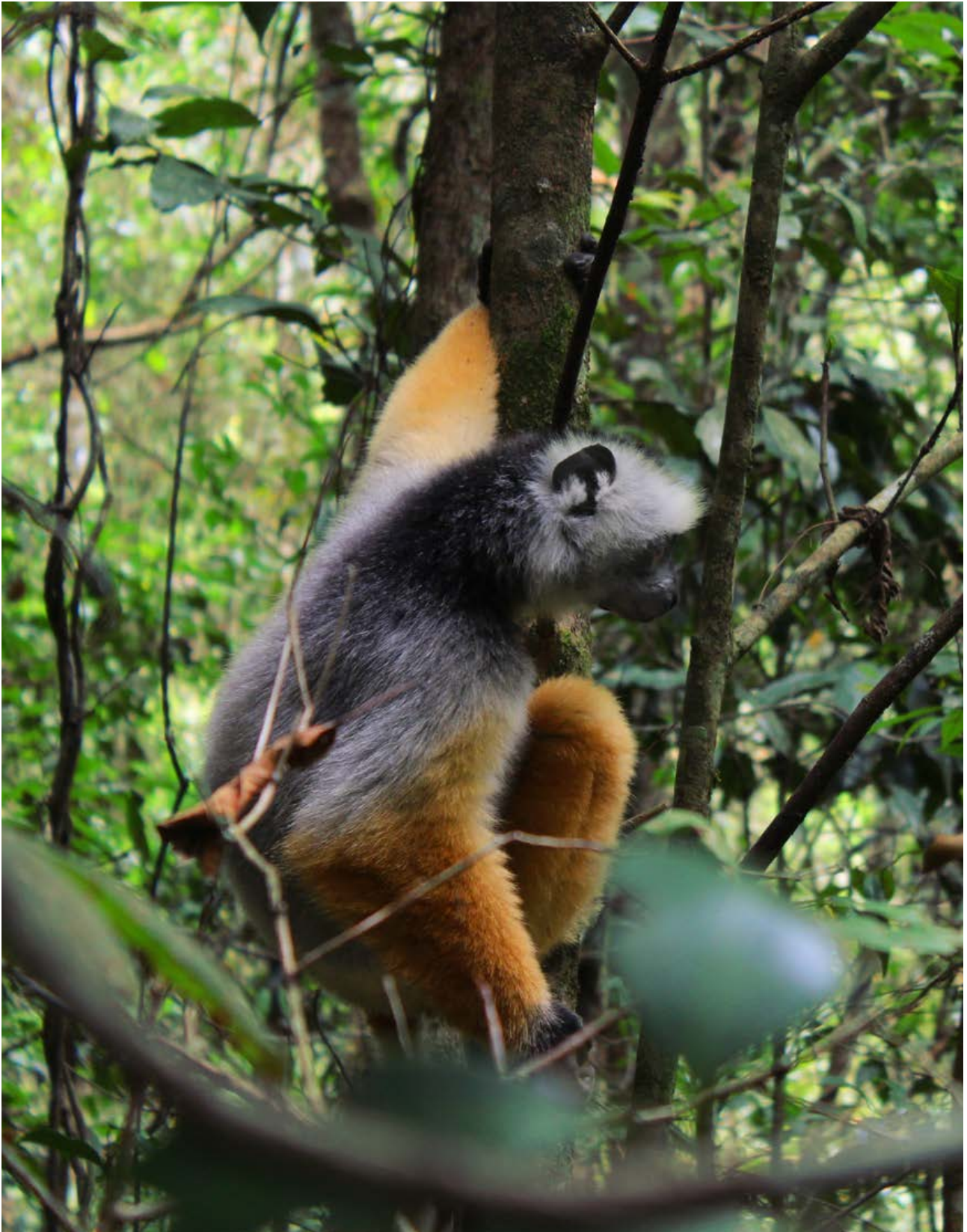


Conservation Management Plan, 2017

Madagascar

ProjectsAbroad



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1. Executive Summary

Our Conservation Project, based in the National Park, is located in the Andasibe region of Madagascar. The long-term project aims are to achieve a legally binding conservancy for the Andasibe area. This will be achieved by using various ecological survey and census techniques (bird census, lemur census, pest plant removal, amphibian and reptile census, camera traps etc.). These studies will prove that this area of Madagascar is unique in both flora and fauna and therefore an essential area for protecting biodiversity in eastern Madagascar.

To date, there has been little survey and census data gathered in the area. The Projects Abroad and Andasibe National Parks partnership intends to become a conservation leader in issues relating to biodiversity in the area. Through census and survey data, we hope to show how unique and diverse the area is.

Our primary goal is to improve and secure the biodiversity of flora and fauna in the area. Before 1960, Andasibe was mainly broken forest due to French colony camps. The wildlife moved away or poached in the area but the natural balance is slowly coming back. To help the wildlife return to Andasibe, neighbouring villages have decided to improve and secure the area.

The project is divided into two main aims:

1. Protect and improve the environment for the existing wildlife and eradicate all fences and garbage found.
2. Conduct surveys and census projects to assess the unique value of the area and create awareness for tourism potential, which includes recording birds and lemurs' movements. The data gathered is available to organisations and authorities in support of our goals.

2. General Information

2.1 Study Area

The Republic of Madagascar is located in Africa with an unstable civilian government since winning independence from the French in 1960. Conservation legislation and laws have allowed the eco-tourism sector to grow as Madagascar has allocated areas of land to protected areas (national parks, wildlife) and conservancies. Madagascar is one of the mega biodiversity hotspots in the world.



The rainforest in Andasibe is located in eastern part of the island between Mandraka and Toamasina. It consists mainly of privately owned land with some offering safari tourism and government protected land.

2.2 Geography / Geology

Madagascar is an island country with mountains as high as 2 884 m above sea level. The highest point is 1 200 m at Mantadia National Park.

2.3 Climate

The hot and humid summers in Andasibe are from November to February (temperatures in the shade are from 22°C to 32°C) where the increase in temperature causes storm clouds to form and the much-awaited annual rains to fall (annual rain from 1 700 ml in Andasibe). From May to August, temperatures drop (temperatures in the shade are from 10°C to 15°C during the day) and especially during the night (can reach 6°C) with very little, if any, precipitation experienced. It is during these dry cold winters that much of the wildlife suffers from a lack of water and food as the bush dries up, and plants cannot produce any new foliage.



Green forest Andasibe Madagascar

2.4 Flora and Fauna

Madagascar is home to a wide variety of flora and fauna. In fact, the country has more than 2 500 species of plants and several species of trees. Furthermore, there are more than 200 endemic species of birds and 105 species of lemurs. There are also many species of non-venomous reptiles and amphibians.

Large parts of the Andasibe are lush green forests with diverse habitats. The vegetation in the area, particularly during the wet season, is simply spectacular. The trees along the Analamazaotra river are gigantic, especially the Palisander Trees (*Dalbergia baronies*), a species that only occurs in this part of Madagascar. The tree fern (*Asplenium nudius*) is also very visible amongst the trees because animals such as birds like to put their eggs inside. Birdlife proliferates in the diverse environment. Andasibe is one of the best places in eastern Madagascar for ornithologists. Over 117 species of bird have been identified in the Andasibe Park and most of them are endemics to the island.



2.5 Social Context

Madagascar has a population of 24 000 000 (2016) of which 61% live in urban areas. The capital city of Antananarivo is the major economic centre with a population of 1,600,000 making it small compared to other capital cities on the African continent. The country's diverse landscape comprises a total size of 592,540 km².

Despite being independent since 1960, Madagascar still presents high levels of poverty. It is ranked 131st in GDP rank according to the World Bank Statistics. It faces a number of issues such as gender inequality, unemployment, corruption, ecological trafficking, property rights and regulatory efficiency etc.

The Madagascar government has recognised that utilisation of its natural resources is an answer to tackling issues related to economic development. In 2006, the president pushed towards the development of national parks, game reserves and wildlife management areas. It is through this dedication that a growth in the economy was credited to eco-tourism. Madagascar's close proximity to Africa has allowed much of the land to remain protected and benefit both local communities and wildlife. Tourism is the second largest revenue generated by the country after business investments.

3. Major threats to the area

Andasibe Park's main threat is pollution caused by new constructions such as restaurants or hotels in the proximity of the park and lack of environmental education in the surrounding villages.

4. Protect and Improve the Environment

Projects Abroad, in collaboration with Andasibe Park, has three main aims:

- a.** Protect and improve the environment for the wildlife by creating/maintaining tree nurseries for the park's usage, maintaining the trail and eradicating all fences and garbage found.
- b.** Conduct surveys and census projects (lemurs, birds, amphibians and reptiles).
- c.** To assess the unique value of the area (long-term project) and create a legally binding conservancy within central Andasibe where all land owners will abide by an agreed constitution in protecting the environment.



4.1 Reforestation

The largest forest area in Andasibe Park is a secondary forest due to the deforestation from French colonists. The forest is also in danger because the local population practices of slash-and-burn agriculture (Tavy in the Malagasy language).

Aims

- Protect and rebuild the rainforest from the damage done years earlier.
- Plant the endemic trees once found in the area.

Method

- Dig a hole and add fertiliser. The local population brings the compost from collected garbage around the village.
- Plant seeds or small trees.
- Repeat process to create a tree nursery.
- Data sheets and GPS coordinate are taken to record how many hectares were reforested and how many plants were planted.



4.2 Path Maintenance

Path maintenance is very important for the development of tourism and the protection of the environment by stopping the encroachments of tourists into the rainforest.

Aims

- Protect the smaller plants nearest the paths.
- Increase the amount of tourism due to good infrastructure within the park, which indirectly increases income for the villagers around the park.
- Repair the pathways around the park.

Method

- The paths have to be dry to remove the debris.
- Place wooden fences at the edges of the path.
- Remove branches after careful consideration of the lemurs' habitat.
- Fill the path with gravel.
- Repeat if/when necessary for the park.



Building a new permanent bridge

4.3 Rubbish Removal

Many people traversing through Andasibe are not sensible about rubbish management and can often be seen throwing rubbish everywhere. Rubbish can be dangerous for wildlife and it is important to remove it. Things like glass bottles and rusted cans can harm animals that step on them and can be cut or become trapped when trying to put their mouths into a can.

Aims

- Collect all types of rubbish around:
 - The park, school and everywhere in the village
 - Around the town hall or any place we find rubbish

Method

- Walk around the park and school by foot, looking for rubbish.
- Search around parks for any kind of rubbish.

4.4 Alien Plant Removal

Six alien plant species have been located around the area. The biggest problems are wild ginger (*Aframum Longustifolium*) and large thorn-wine (*Rubus molecanus*). Alien plants are species that are not from Madagascar and are not supposed to grow here. Most of the alien plants are native of South America, Asia or Europe. These kinds of plants are a danger for the forest and the Andasibe ecosystem because they are very competitive and can grow and spread out very fast. It will overtake native species and the primary forest composition will change. These species are rarely eaten by the wildlife, as they are not part of their traditional diet. This activity happens throughout the year and the alien plants spread quickly.

Aims

- Remove all alien plants found at Andasibe Park and surroundings. Each plant has a specific removal technique (some need to be burnt and some need to be removed from the area).
- Remove the plants before they seed to avoid further spreading of the species.

Method

- Find the alien plants in the park.
- Record GPS coordinates and take photos of area.
- Teach/learn the different types of alien plants before any activities to avoid removing endemic plants.
- Remove all the roots and the plants.
- Depending on the species, some need to be burned. Alternatively, they can be collected to create fertilisers for use at the tree nursery.



5. Ecological Surveys and Census

5.1 Bird census

Andasibe is the habitat for a number of unique residents and migratory bird species. Several of these are on the endangered species list. Their presence on the reserve and in the area, as well as their intra-specific relationships, is of high conservation importance.

The presence of diverse bird species populations on the reserve provides an important role in ecosystems. They facilitate seed dispersal, provide shelters for other species, control insect and parasite populations and prevent the spread of diseases. It is essential to monitor these as the environment is constantly under pressure of change, which may affect bird populations.

Aims

- Compile an accurate list of all bird species, including migratory species, which are found in the Andasibe rainforest.
- Collect information on distribution, 'abundance' and seasonal movement patterns of a variety of bird species.

Method

- Bird watch on foot or from a hide.
- With the aid of binoculars and field guides, record each species on the data sheet with time and GPS coordinates.
- Complete additional information on data sheet relating to the date and staff participating in the observation.



Bird watching from a Canopy



Bird watching from the walk

5.2 Lemurs Census

The Andasibe area has historically been a large camp by France during the colonisation. This has caused considerable degradation to the natural balance of the ecosystem. At the return of the property to wildlife habitat, lemur populations are beginning to flourish. The information collected will provide evidence of any changes, relative abundance and population structure of species.

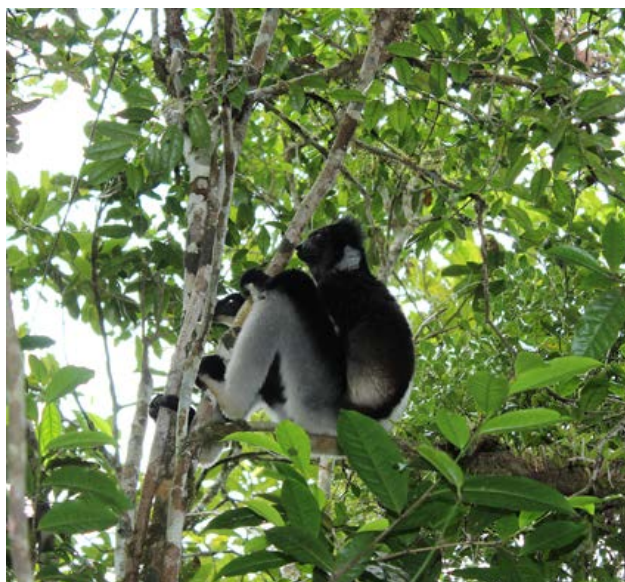
Information on the distribution of species, seasonal distribution patterns of species and waterhole usage facilitates reserve management. It may be possible in the future to encourage species to move into certain areas on the reserve using seasonal waterholes, to increase or decrease grazing pressures on the vegetation, particularly over the harsh winter period.

Aims

- Compile an accurate list of all lemur species, which are found in the forest at the Andasibe Park throughout the year.
- Collect information on of a variety of lemur species.
- Present this information in a database that can be further utilised in reserve management and long-term ecological studies.

Method

- Walk in the forest to observe lemurs in the trees.
- Be quiet at any sighting.
- With the aid of binoculars (if you have some make sure you take them with you) identify lemurs with books.
- For each lemur or group of lemurs observed, record:
 - Time of observation
 - Location using a GPS handset
 - Species of individuals/group
 - Number of individuals in group
 - Sex and age composition of individuals/group
 - Complete additional information on data sheet relating to weather and date.



Indri Indri



Propithecus diadema



Andasibe rainforest

5.3 Camera Traps

The creation of a complete lemur species list is important to gain official protection for the area. By discovering and recording, the lemur species present in the rainforest at Andasibe and surrounding areas. We will be able to use this list as evidence to obtain further official protection for the land based on the presence of rare, unusual and/or protected species. Using camera traps is a non-invasive method, which allows us to obtain data about shy and nocturnal species. It is also a good method to follow particular species like the brown lemurs and to study their ethology and behaviour in the den. Camera traps can take pictures or video, both during the day and night, with date and time. They have SD memory cards and an infrared system, which keeps disturbance of the wildlife to a minimum.

Aims

- Compile a complete list of lemur species present in the rainforest at Andasibe and its surroundings.
- Help in the compilation of a species list of the smaller, shy, nocturnal animals.
- Follow target species, such as the aye aye, and learn more about their ecology, ethology and behaviour.

Method

- Take out as many camera traps available onto the reserve.
- Find a suitable location i.e. drainage line, game path, waterhole or potential den and set up a camera at least 1.5 m from the ground and aimed at an appropriate angle. Take account of the sun, branches and rocks in the field of focus, which may influence the sensor.
- Repeat this for each camera at different locations
- Check the cameras every one to two weeks to download images and check batteries and status of the camera.
- Leave the cameras in position for at least two weeks.



5.4 Amphibian and Reptile census

The amphibian and reptile census is one of the activities in the Andasibe rainforest. This unique activity involves cataloguing the different types of amphibians and reptiles such as the boophis frog or the tomato frog.

Aims

- Record the amount and types of existing snakes and frogs in the area.

Method

- Recording the location using GPS.
- Fill provided data sheets for records.
- Continue to walk in the forest and repeat actions.
- Identify the species with the help of books and internet.



5.5 Vegetation Census

The Palisander (*Dalbergia Baroni*) is an iconic tree species of the Andasibe rainforest. They are incredibly slow growing trees; approximately 1 m growth in circumference is equal to 25 years, and they have a lifespan of 900 years. They are an integral part of the ecosystems as they provide food, water and shelter for a large number of species such as epiphytic plants (*Asplenium*).

Aims

- Determine the spatial distribution of Palisander in the Andasibe region.
- Collect data of rare plants and the type of trees that are endangered.
- Investigate whether there is a relationship between the utilisation incurred and the distribution of the trees and the water sources.

Method

The following is recorded for each tree:

- The location using GPS
- The number of the tree planted
- The species of plant planted



Tree fern



Record the girth of the tree at 1.3 m



Rainforest trees

6. Other Projects

As with the management of any wild area, several management practices are essential to the maintenance of the parks.

These projects include:

- 1. Path Maintenance:** As with any reserve, the path is essential but difficult to maintain. They constantly need maintenance on the surface and we need to clear the encroaching bush.
- 2. Path Cleaning:** After the rain, trees and branches grow fast and may stick out into the road. It is important to clean the path so that it does not encroach into the ecosystem.
- 3. Bin creation:** It is also important to place new bins to protect the environment and maintain a clean, undisturbed ecosystem in the area.



7. Implementing the plan

As Projects Abroad places volunteers, interns and professionals into hundreds of projects worldwide, it is vital that these resources are shared in a way that utilises their strengths and coincides with the aims and objectives of the project.

To ensure all resources available to the project are being utilised correctly, Projects Abroad employs staff on site that directs the daily activities and ensures the surveys and censuses are being carried out in accordance with this plan.

8. Reporting on surveys and census

Data collected at the project will be sent to the National Parks at Andasibe and then Projects Abroad Madagascar for review. Internal reports will be written using these data sets and made available to the public through a public domain such as village meetings.

When data sheets are sufficient, reports will be available to leading experts for review and possible use in their work. The project will produce an annual report outlining progress and recommendations. It will also feature in the Projects Abroad Conservation Annual Report, made available to the public through a wide range of media.

