

# Ambodiriana Amphibian Conservation Project (Madagascar)



## Thoiry-Peaugres Conservation

Proposal to Stiftung Artenschutz and VdZ

23/05/17



## **1 - Project promoter and funding recipient**

Thoiry-Peaugres Conservation : TPC

TPC is a french NGO founded in 2009 by two French zoos : Parc de Thoiry and Safari Parc de Peaugres. Since then TPC supports and promotes in-situ conservation programs of endangered species. It has already been involved in several projects related to amphibian conservation in Madagascar.

## **2 - Project coordinator :**

Cathy Gibault : veterinary, curator and conservation projects coordinator in Thoiry zoo.

C. Gibault has been involved in conservation projects for more than 20 years. She already conducted field surveys about amphibians of Ambodiriana forest in 2015 and 2016.

Contact address :

Cathy Gibault  
Thoiry-Peaugres Conservation  
Parc de Thoiry – France  
cathy.gibault@thoiry.net

## **3 - General context of the project :**

Amphibians are facing an unprecedented worldwide decline with 41% of all species known to be threatened.

Madagascar has an incredibly high level of amphibian diversity and endemism and it ranks among the richest country in the world for its amphibian diversity. But this unique richness is severely threatened by the high rate of deforestation.

Although the rainforests, once distributed almost continuously along the eastern coast of Madagascar are now highly fragmented, they are still the habitats of great part of the diversified Malagasy batrachofauna.

Chytridiomycosis, a disease caused by a fungus, is the second main threat for amphibians worldwide. The fungus was first recorded in Madagascar in 2010 but we still do not know how much Malagasy amphibian populations are affected.

Another new threat is the spread of the invasive Asian common toad (*Duttapfrynus melanostictus*) which was reported in 2015 from Toamasina and its surrounding.

## **4 - Objectives of the project :**

This project focuses on the amphibian species of Ambodiriana forest (east coast of Madagascar) and on actions for their conservation.

The main sub-objectives are :

- to inventory the species and to describe possible new species
- to study their ecological needs
- to follow the dynamic of the populations on a long term basis
- to identify potential new threats
- to identify actions for their conservation
- to increase community awareness about Ambodiriana forest conservation at each level of the community (local authorities, guides, teachers, villagers, children etc ...)
- to contribute to obtain the official status of protected area for the forest.

## 5 - Study site

Ambodiriana forest (Manompana district) is located in the north of Madagascar, in the east coast of the island (200 km north of Toamasina).

This small forest (67 ha) is one of the last remaining fragments of low elevation tropical rainforests. It is connected to larger patches of forest but fragmentation is increasing dramatically.

Up to now, Ambodiriana forest has been prevented from logging and slash and burn agriculture (« tavy ») for two main reasons :

- it use to be considered as a sacred forest by local villagers,
- it has been protected thanks to an agreement of management between the local authorities and ADEFA (Association de Défense de la Forêt d'Ambodiriana) from 1997 until 2015. This NGO based in La Réunion worked in closed relationship with the villagers to prevent fires, logging, to promote economic alternatives like clove trees plantation, tourism development and to develop environmental education.

Thanks to this conservation status, the forest still supports many undisturbed suitable microhabitats like old forest, streams, ponds, waterfalls, river banks. Several endemic species of plants have already been discovered by ADEFA inside this small remaining patch of forest.

The complexe water system and two small hills (altitude varies from 100 m to 242 m) located inside the forest are also favourable to endemism of plants, invertebrates and small vertebrates like frogs.

Including the area of old « tavy » regeneration, the whole protected area covers 120 ha.

Most of the tropical rainforests of the east coast of Madagascar that are protected are mid elevation forests. This is one of the reasons why this remaining patch of low elevation forest deserves a high level of interest.

## 6 - Participating organizations / persons :

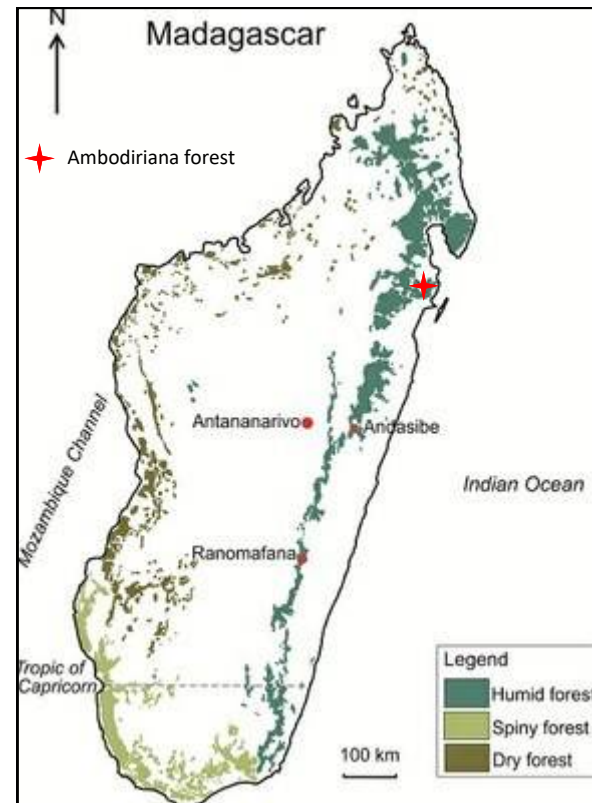
- Thoiry Peaugres Conservation (TPC) - Cathy Gibault : project promoter - coordinator and researcher.

- Association des Gardes pour la Protection de la Nature (AGPN) : AGPN is a Malagasy NGO based in Manompana. It was founded in 2012 to contribute to environmental conservation.

- Chantal Missandeau : she is a member of AGPN and she's the founder of ADEFA (Association de Défense de la Forêt d'Ambodiriana) and ADAFAM (Association des Amis de la Forêt d'Ambodiriana-Manompana). She is working as a volunteer to coordinate conservation projects and she is involved in Ambodiriana forest conservation since 1997. With botanical specialists she discovered several palm trees and orchards endemic to Ambodiriana. She is the local coordinator of this amphibian project.

- Grinaud Miandra (team leader), Rollin Rasoazanaka, Syraly Whanghou : they are members of AGPN. They are working as guides and field assistants. They have been trained to collect field data during amphibian field surveys in 2015 and 2016 and they are doing the field surveys every 2 months. They are also members of the patrol team which is in charge of forest protection.

- Franck Glaw, Miguel Vences, Franco Andreone : all of them are malagasy amphibians experts. They already collaborated to identify or to validate identification of frogs that have been found in Ambodiriana.



## 7 - Preliminary studies and activities :

Several amphibians surveys were already conducted punctually in Ambodiriana forest during the last past years : S. Gehring et F. Ratsavina in 2009, S. Gehring, F. Ratsavina, M Vences in 2010, C. Schwartz and L. Reynes in 2012, B. Ferrier in 2013, C. Kervella and C. Gibault in 2015.

According to these first punctual surveys, at least 35 species have already been recorded but some of them require additional investigations for description and characterization.

Among the identified species, 3 are qualified as Endangered, 1 as Vulnerable and another one as Nearly Threatened (IUCN status). For example several stations of *Gephyromantis webbi* (EN) have been recorded inside Ambodiriana forest. This means an important extension of the known range of the species to the south.

But these numbers will probably increase if new species or subspecies will be soon described.

In November 2014 Chantal Missandeau and Cathy Gibault attended the four days meeting of the ASCAM 2 (A Conservation Strategy for the Amphibians of Madagascar—2nd edition) in Ranomafana.

In 2015, 3 guides have been trained by C. Gibault to collect field data. These 3 people show special interest in amphibians and their conservation.

In November 2016 the “Amphibian Conservation Project” was launched thanks to funding from Stiftung Artenschutz and Verband der Zoologischen Gaerten and Thoiry Peaugres Conservation. This project is a long term study of amphibians populations with conservation objectives of these populations and their habitat

## 8 - First results of Ambodiriana Amphibian Conservation Project (from November 2016)

### 8.1 - Amphibian surveys

From November 2016 to September 2017, field surveys are being conducted every two months in selected areas of the forest.

#### - Identification of species/subspecies

During each survey biometric data are collected (snout-vent length, tympanum size etc ...) and pictures are taken so that species or subspecies could be identified. Identification are verified by malagasy amphibian experts (Franco Andreone and Angelica Crottini).

-- The publication of the first edition of the list of the amphibians species of Ambodiriana forest will be done in late 2017 or early 2018.

-- Identification of some subspecies will need genetic analysis. This could probably be done in collaboration with F. Andreone and A. Crottini. The use of environmental DNA is under examination too.

#### - Study of ecological needs

During each survey, environmental data are collected for each species of amphibian (habitat, temperature, humidity etc). This information will be very valuable to define potential conservation actions (such as habitat protection or captive breeding for example).

-- Very interesting data have already been collected about ecology and breeding of *Gephyromantis webbi* which is classified endangered (IUCN 2016).

### 8.2 - Study of potential new threats

Because of administrative complications, swabs are not used yet to study chytridiomycosis potential occurrence.

-- But no mass mortality and no symptom that could be related to chytridiomycosis have been detected.

Regarding the invasive Asian common toad villagers are regularly asked about the presence or absence of the species in the area.

-- No observation of Asian common toad has been reported yet.

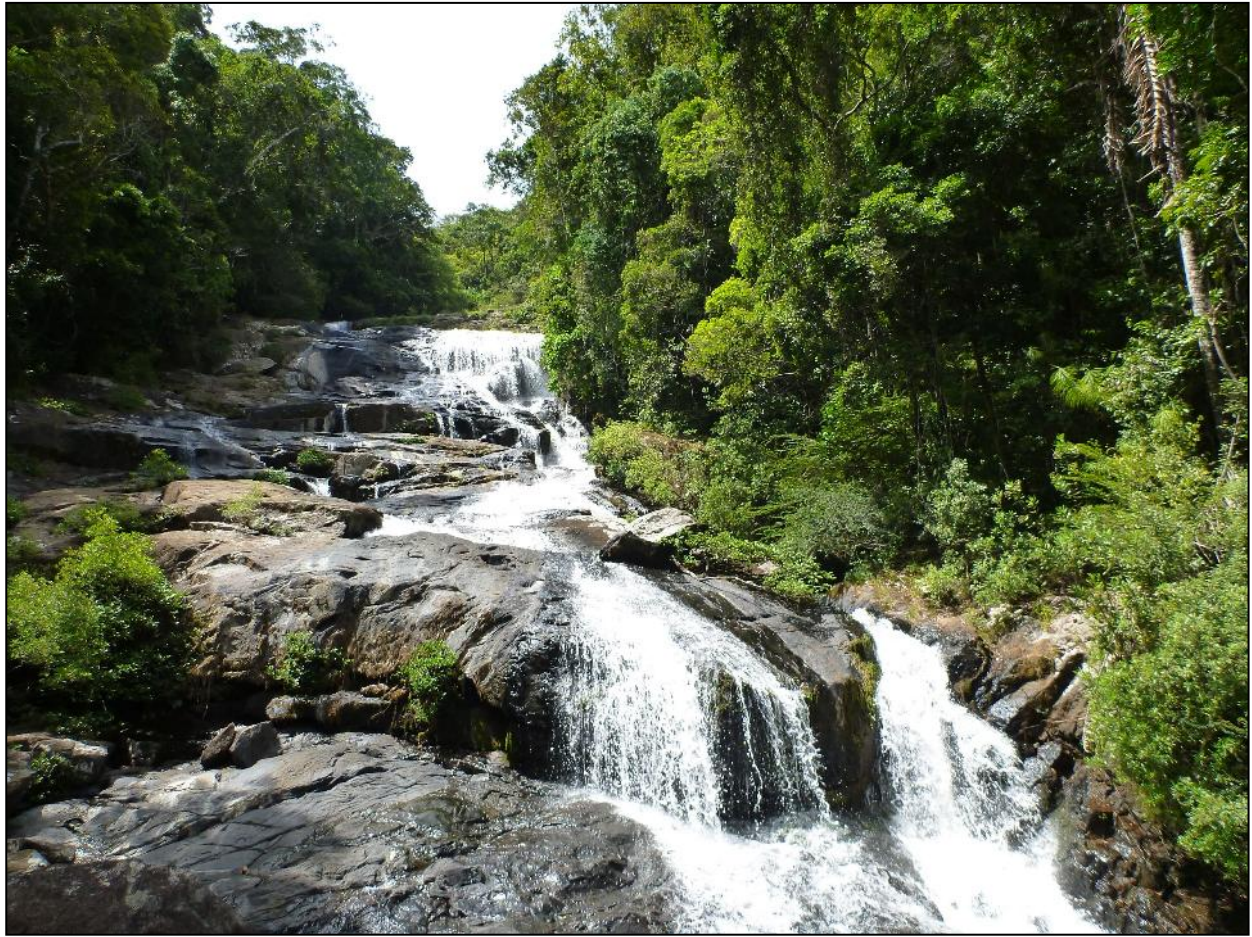
## Project Portfolio



On the way to Ambodiriana forest



In front of the entrance of the forest (from left to right): Grinaud Miandra, Rollin Rasoazanaka, Arnold Whanghou , Chantal Misandeau, Syraly Whanghou , Cathy Gibault.



Manompana river inside Ambodiriana forest





Degraded habitat surrounding the forest





Field survey and training of field assistants in 2016





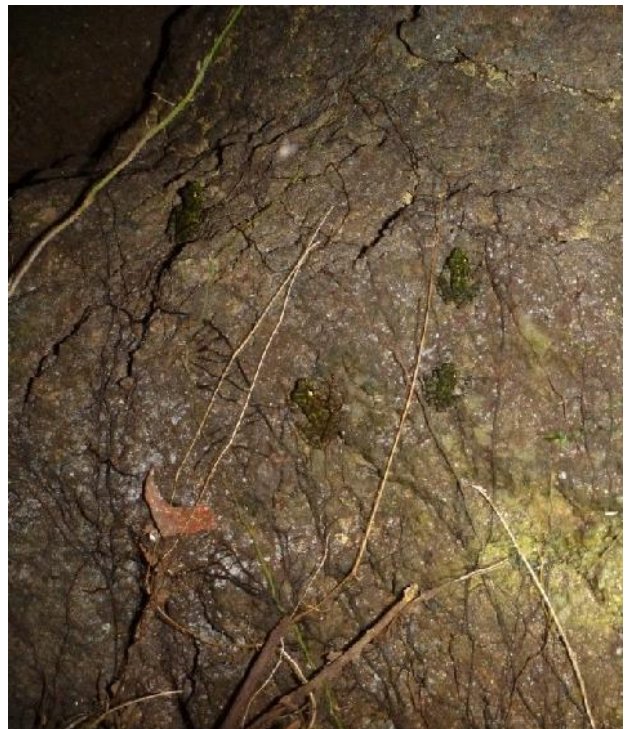


Collect of ecological data (temperature, humidity, light, UV)





Collecting ecological data in a breeding site of *Gephyromantis webbi*





Gravid female of *Mantella ebenau*



*Gephyromantis luteus*



Meeting and video projection in Manompana with local authorities and villagers





**Key words :**

- Protection of low elevation tropical rainforest
- High potential for endemic species
- Long term study of amphibian communities