PROGRESS REPORT

RSG REFERENCE: 39083-B_radosoa-andrianaivoarivelo

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Project title: **FOOD RESOURCE DYNAMICS AND DISTRIBUTION OF NATURAL HABITATS MAY DETERMINE THE PANMICTIC POPULATION STRUCTURE OF MADAGASCAR FRUIT BATS AND IMPROVE THEIR STRATEGIC MANAGEMENT**

List of figures:

Assessment of fruit bat roosts

- 5 fruit bat roosts (FBR) observed: among the 5 FBR observed in 2000, 2 are abandoned and the 3 others seem to be perturbed by habitat loss and hunting pressure.
- A significant reduction in population size (more than 59%) has been observed since 2000 until our expedition in august and September 2023.
- On bat colony within the New Protected area of Ambondrombe managed by the Durrel Wildlife Conservation Trust seems to be stable. However, the nighttime count we carried out shows that the bat population has experienced a reduction in size. The previous count in this roost showed higher population size compared to our count in august 2023.
- Some individuals of *Rousettus madagascariensis* were seen but no roost was found.

Table showing the Status of the five fruit bat roosts investigated in august and September 2023

Site name	**Population size estimate 2023**	**Population size estimate 2000**	**Roost status 2023**	**Threat**	**Habitat type**
Ambondrombe (Aboalimena)	1300 to 1700		Occupied	none	Marshes withis the Ambondrombe New Protected Area
Androtra (Tsitakabasia)	Not visited due to the insecurity	350	Occupied according to the people surveyed	Unknown	In a valey
Andrenialafotsy (Andranomena)	0	400	**Abandoned**	Habitat perturbation	Mangrove
Andranomena (Manamby)	150 to 200	420	Occupied	Habitat perturbation	In a valey near the river
Bekoria (Soatanimbary)	0	360	**Abandoned**	Habitat perturbation, converted into farmland	On an even area with marsh
Angodongodo (Ambatolahy)	170	320	Occupied		In a valey near the river
Anjanaboro (Ankotrofotsy)	150	Not known as a roost site, not investigated	Occupied	Habitat perturbation	Islet surrounded by a river

Fruit bat activity in the feeding site

The research moment from August to September corresponds to the dry period of the year. For wild frugivore communities, fruits and flowers food resources of these animals appear to be very limited. Flying foxes are not seen in areas without fruits and flowers that normally supply them. They are active on the few eucalyptus and sisal plants in flower.

Traces of activities on the 16 sites studied show that bats exploit exotic fruits and flowers. Traces of teeth and claws of *Rousettus madagascariensis* are observed on the fruits of *Ziziphus jububa* and flowers of *Musa paradisiaca* and *Agava sisalana*.

The feces of *Pteropus rufus* collected underneath the two roosts have uniform consistencies colored dark green resulting from the exploitation of leaves where this species in this season of scarcity of fruit mainly eats leaves and partially ficus fruits.

However, the nature or variety of leaf plants exploited cannot be identified but previous research leads us to assume that they take leaves from plants in the natural forest and leaves from naturalized plants such as *Tamarindis indica* and *Albizia lebeck*.

Threats

The results of investigation on five (5) villages with a history of exploitation of bat meat show that fanihy are still exploited for domestic consumption and catering. Hunters look for them during the *Ceiba pentandra* flowering season and occasionally in roosts.

According to the hunters and restaurateurs interviewed, the number of bats they have been able to capture has drastically decreased over the last 20 years. According to a former hunter living in the village of Beroboka, around the year 2000 he was able to collect up to twenty individuals per night and currently the hunt is very poor with only 2 to 4 individuals per week.

The reduction in the number of bats collected by hunters according to our analysis is caused by two main factors. One is the reduction in the population size of these animals in the wild (roosting) due to the anthropic perturbation of their natural habitats and intensive hunting and the other being the reduced number of flowering plants attracting bats in the village, particularly the kapok tree. If we consider the case of the Beroboka South village where we have long observed the hunting of pteropus rufus, in 2000 around thirty kapok trees existed there while, in August 2023, this number has decreased significantly since there are only a few remaining (around 10) this plant species.

Summary

The data obtained needs to be analyzed for more information on the diet and different types of feeding sites exploited by the fruit bats in western Madagascar during the dry season. This first mission allowed us to have an overview of the evolution of the populations of these animals on a regional scale. Classified according to the IUCN red list as vulnerable, it seems to us that these animals are subject to severe anthropogenic pressure leading to a significant reduction in their numbers of up to 50%. Let us cite for example, the clearing of more than half of the Menabe Antimena reserve over the last two decades, leading to the loss of habitat for many mammals' endemic to the region and of which the frugivorous ones also endure the consequences. The reduction in the number of animals captured by hunters is none other than the logical consequence of the loss of habitat and the abandonment of roosts by flying foxes.

The panmixia process of these animals seems to be favored by the abandonment of roosts disturbed by humans and the search for other places more conducive to survival. Our next missions consist of raising awareness among residents and hunters still seeking to eat or sell the bash meat in order to slow down the loss of the population. We will also inform conservation entities on sites exploited by the animals, but which are not included in the system of Protected Areas in Madagascar, particularly those with natural vegetation in Madagascar.

Résumé en francais

Les données obtenues ont besoin d'être analysé pour plus d'information sur le régime alimentaire et les diffèrent types de site d'alimentation des chauves-souris frugivores de l'ouest de Madagascar. Cette première mission nous a permis d'avoir un aperçu global de l'évolution des populations de ces animaux à l'échelle régionale. Classés selon la liste rouge de l'IUCN comme vulnérable, Il nous semble que ces animaux subissent de pressions anthropiques sévère entrainant une réduction significative de leurs effectifs allant jusqu'à 50%. Citons par exemple, le défrichement de plus de la moitié de la reserve de Menabe Antimena durant la dernière deux décennies entrainant la perte d'habitat de nombreux animaux endémiques de la région et dont les animaux frugivores en endurent aussi les conséquences. La réduction de nombre d'animaux capturé par les chasseurs n'est autre que la suite logique de la perte d'habitat et l'abandon des gîtes par les renards volants.

Le processus de panmixie de ces animaux semble être favorisé par l'abandon de gîtes perturbés par les humains et la recherche d'autres lieux plus propices à survivre.

Nos prochaines missions consistent à la conscientisation des habitants et chasseurs cherchant encore à manger ou vendre la viande de ces animaux afin de freiner la déperdition de la population, aussi bien que l'information des entités sur les sites exploités par les animaux mais qui e ne sont pas inclus dans le système des Aires Protégées à Madagascar notamment ceux ayant de végétation naturelle de Madagascar.

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