



## A Framework for Community-based Conservation of Flying Fox Roosts

### 1. Overview

Madagascar's three species of flying foxes are facing increasing pressures from hunters and damage to their feeding and roosting habitats from expanding agriculture. They are the only threatened endemic mammals that are not listed as protected species and have been neglected by conservationists for decades. The two largest species, *Pteropus rufus* and *Eidolon dupreanum*, are both listed as vulnerable on the IUCN Red List.

In the Alaotra Mangoro Region of eastern Madagascar, Madagasikara Voakajy and its local partners are pioneering conservation efforts at the roost sites of *P. rufus* using village-based activities. These large bats roost prefer to roost in small patches of forest and there are few colonies known from Madagascar's protected area network because existing parks usually consist of large and intact forest blocks. Efforts to conserve *P. rufus* therefore need to focus on the small roosts sites where these bats rest during the day. Their varied diet and ability to survive on a range of native and exotic food plants means that persistence in Madagascar's changing landscapes is possible as long as roost sites are conserved.

The project sites were located in the Ambatondrazaka and Moramanga Districts. Community institutions were created to conserve *P. rufus* roosts and to build the foundation for the management of the sites by local villages supported by the regional government.

### 2. Objectives

For each of the objectives outlined in your original project proposal, list the associated activities and explain the progress made to date e.g.

#### **Objective 1 Establish management committees**

Activity 1.1 (Completed) Bring together community leaders

We organized community meetings in January 2008 concerning three *P. rufus* roosts (Fanafana, Ambakoana and Analabe) for which a community by-law to protect the bats was created in 2005 but deemed to be rather ineffective. This meeting was attended by village leaders, mayors, as well representatives from local NGOs and the Ministry of the Environment, Forests and Tourism. Madagasikara Voakajy staff presented information on the ecology and conservation of *P. rufus* and group sessions were used to identify threats to the bats and to determine potential



solutions. A signed statement was the main outcome of the meeting in which everyone agreed the following:

- i. Flying foxes and their roosts should be conserved
- ii. Roosts need local management committees
- iii. Committees need a reference book on flying foxes
- iv. Committees, NGOs, government and funders should meet twice a year
- v. Committees are responsible for educating communities about the by-law and for organizing fire-fighting responses at roost
- vi. Committees require the following equipment:
  - Identification badge authorized by government
  - Bicycles (2)
  - Lamp (2)
  - Water containers (6)
  - Mobile telephone (1)
  - Spades (10)

Three new committees were established during the project.

Between July and September we initiated complimentary activities to improve the conservation status of the roosts. In July we organized a regional workshop to discuss the creation of new protected areas at two of these roosts (Analabe and Ambakoana). The conservation message was reinforced through oral presentations before detailed discussions about site protection. It was decided after this meeting to prepare a proposal to the Malagasy government to create two new IUCN Category III Protected Areas to conserve the roosts. A series of public meetings in the villages surrounding these roosts occurred during August during which we obtained support for the creation of the new protected areas and important information on land tenure in the proposed sites.

A follow-up workshop was held with all other stakeholders in the region to inform about the process and this was a key activity because it is obligatory to inform representatives from other government departments (e.g. Ministry of Mines, Ministry of Agriculture). In September we organized a regional validation workshop during which the final limit and zoning for the new protected area was presented to stakeholders. Because of uncertainty surrounding the private land in these sites submission of the final dossier to the government was delayed and discussions are ongoing.

### **Objective 2 Launch abundance monitoring at five roosts**

This objective was not completed because it was felt to be too advanced for the current state of the roosts where conservation activities have only started. Weekly counts at two other roosts meanwhile continued. It was premature to expect communities to monitor their local roosts before they had set up the appropriate structure.



### **Objective 3 Education initiatives to reinforce the by-laws**

There was no stand-alone initiative associated with this output because all of the education and awareness raising was undertaken during meetings at the village, district or regional level.

### **Objective 4 Assess the conservation status of five roosts**

#### Activity 1 (Completed) Status assessment

Field visits were made to three roosts that were located in sites where there had yet to be any conservation efforts directed at the bats. We estimated colony sizes of 850 *P. rufus* at Analalva, 1,200 each at Mahialambo and Andranomadio. These colonies reportedly moved during the year and we identified a total of seven forest fragments used by the flying foxes. Between the 8<sup>th</sup> and 11<sup>th</sup> of March 2008 we organized community meetings to discuss the conservation of the roosts. A key part of the process was encouraging the participants to identify the threats, causes and potential solutions for the roosts.

The problem was defined as a reduction in the number of *P. rufus* and extent/quality of its roosting habitats.

*Habitat loss/degradation.* This is caused primarily by agricultural activities including conversion of forests into rice fields and use of forests as holding areas for cattle. Fire was also a threat that was related to agricultural burning, but could also be as a result of arson or natural events.

*Hunting.* *Pteropus rufus* can be legally hunted between May and September but there was low awareness of this legislation in the communities where we worked. Hunting was mainly undertaken by people from outside the community and there was perceived to be very little advantage, in terms of money or meat, to local people.

There was also wide agreement that the flying foxes were important but because so few people were aware of their ecological role there was little existing support to conserve *P. rufus*. However, on a more positive note the forest fragments in which the bats roost are of high cultural and social importance, often as burial sites, sacred forests or sources of rivers.

These meetings were concluded by a signed agreement that the forests used by the flying foxes should be protected and that additional effort is needed to raise the awareness of local people. It was also agreed that each community would create its own committee, or village association, to promote the conservation of the remaining forest fragments.



### **Objective 5 Raise the awareness of community leaders**

We identified seven forest fragments that were used by *P. rufus* and focused our efforts in three communities. None of these sites had ever received conservation effort previously and nobody who we encountered had considered actively conserving the flying foxes. It was clear though from our first visit that there was considerable concern locally about the loss of forest fragments and we discovered a desire by community leaders to protect the remaining vegetation. In this sense, our work provided stimuli and foci to launch the community groups, but the villagers themselves developed the new associations. We responded to requests to provide information about flying foxes in public meetings to increase the support for forest conservation. We also responded to requests for certain items that the villagers requested to support their new institutions (signs, uniforms). The information disseminated during the meetings was supported by a log-book document in the Malagasy language that contained the key facts about flying foxes. These log-books are aimed to assist the village groups keep records of any disturbance events at the roosts and future monitoring of the village associations by Madagasikara Voakajy will include an assessment of the entries in the log book. Crucially, the project was supported throughout by the regional government and all public meetings were attended by ministry representatives. The log-book and uniforms were also endorsed by the regional government before the hand-over and training ceremony.

### **Objective 6 Direct payment initiatives**

This idea was based on the premise that we would need to provide financial incentives to begin and sustain conservation at the roosts. Happily, this was not required during the project but we were able to support the requests that we received from the villages, especially the three sites lacking any previous conservation action. It was agreed during the initial meetings that the project would reward the creation of community associations but that it would not support the process because all of the human resources were already available. Three communities completed their new associations and were legalized by the regional director of the Ministry of the Environment, Forests and Tourism. These new organizations requested, and received, roadside plaques promoting conservation and fire-fighting tools.

### 3. Outcomes

3.1 Three new management committees, led by village chiefs (Fokontany Analasoa, Fokontany Ambohibary Sud, Fokontany Analabe), set up at two roosts:

- Ambakoana
- Analabe

3.2 Five village (community) associations created at four other roosts:

- Analalava: 'Fanasina Analalava (30 members)
- Betanatana: 'Vonona Andranomalaza' Mahialambo, 'Imaintsoanala Antsapanimahazo (19 members)
- Ampananganandehibe/Beasina: 'Lovasoa Andranomadio' (31 members) and 'Lovasoa Andranomalaza'

3.3 Three roosts obtained temporary protected area status (proposed IUCN Category III)

Roost name	Protected Area Size (ha)	Conservation Area Size (ha)
Beasina	918	186
Mahialambo	886	65
Analalava	910	335

- a. Increased awareness about flying foxes at the local, district and regional levels. This was mainly through the high attendance at meetings and included people from a range of institutions and backgrounds.
- b. Prizes awarded to three communities for the successful creation of legal community based groups consisted of:
  - Ten large color signs promoting flying fox conservation
  - Fire-fighting equipment (30 spades, 30 beaters, 6 wheel barrows)
  - Five village associations received clothing (hats x 5, shorts x 5, shirts x 5) for members with responsibility of patrolling the roosts
  - Bespoke roost logbooks created for each village association and a total of 10 copies distributed at four flying fox roosts

### 4. Unexpected results

We have obtained temporary protected area status for three of the forest fragments. As part of the ongoing process in Madagascar to expand the protected area network we were able to integrate the flying fox roosts sites with a suite of other areas that were awarded preliminary status as protected areas. These are subject to final decisions by the government of Madagascar and if approved, will lead into the next stage which will see the transition from temporary to permanent protected status. These are the only protected areas in Madagascar created predominantly for flying foxes.



The sites at Ambakoana, Analabe and Andranomadio represent major challenges because of possible conflict with private land owners and mining concessions and decisions on these will be made in inter-ministerial committees. They were not therefore awarded temporary protected area status but remain 'potential' sites for future conservation.

We presented some of the results and conclusions from this project in the first Western Indian Ocean Flying Fox Workshop, held in Mauritius during November 2008, which was attended by the co-chair of the IUCN Chiroptera Specialist Group.

A substantial portion of the costs for transporting and accommodating various high-level government personnel, in addition to funding additional workshops and public meetings, was met by the USAID grant (which we would not have received without using the IUCN PSF as matched funds).

## Conclusions

Summarize the key findings from the project including whether or not the original objectives have been met.

The key objective of this project, which was to develop practical, community-based, solutions to conserving small areas of humid forest that are of high importance for threatened flying foxes but had hitherto been neglected during traditional conservation planning, was achieved.

We have so far achieved greater success working in communities where conservation (both of flying foxes and forests) had never previously been seriously considered. We were able to harness a desire by local people to conserve the remaining forest fragments and this was achieved partly through the creation of three new protected areas. The project collaborated closely with the Malagasy government and this partnership continues as three provisional protected areas are being assessed.

A key conclusion is that considerable momentum for conservation can be achieved through modest financial means when there is existing support for protecting forest. In these cases, technical assistance is needed to launch the project on a sound footing and occasional follow-up visits are recommended. The flying fox roosts have a much better long-term chance of survival as a result of this project. A key recommendation is to revisit the sites following each significant change of personnel in the administration (i.e. mayor and regional director of environment) to assist the continuity of support for community groups conservation efforts.