

Project Update: June 2016

Our first field work was carried out between February and May 2016 on two of the four islands of the Comoros archipelago (Anjouan and Mohéli). These two islands are known to host the Livingstone's flying fox (*Pteropus livingstonii*). Another flying fox species, the Comorian flying fox (*P.seychellensis comorensis*) is known to occur on these islands but it is distributed on the four islands. 15 sites hosting the two fruit bat species were visited to collect faecal samples for both species. In each study site, up to 20 samples of faecal materials have been taken per dormitory and per species after defaecation. In some roosting sites, the two species of bat was encountered at the same dormitory plant; in such case the collection of faecal samples is avoided to minimise confusions and DNA sample contamination. Each sample was attributed to one of the two species by direct observation of the individuals occupying the dormitory and if individuals of the two species occupy the same plant, no sample was taken. For the collection, a plastic awning was placed below each dormitory plant at 6:00 pm and faecal samples were collected each morning at 6:00 am and placed into individual tubes containing 96° ethanol.

A total of 410 faecal samples were collected for the two species during our field work session and rapidly sent in the "Centre d'Ecologie Fonctionnelle et Evolutive" Lab for the DNA extraction and amplification.

To estimate the genetic diversity and population structure, both mitochondrial (cytochrome b) and microsatellite markers have been developed. Firstly, we assessed the species level by amplifying a 460 bp of cytochrome b in order to separate the two species and to have confirmation of each species with genetic data.

The amplification success rate for the cytochrome b was 43.41% for all the fecal samples and was variable between islands and between species.

Regarding the microsatellite markers, 45 positive samples from the two species (positive with cytochrome b) was amplified using nine different microsatellite loci. All the tested samples with the microsatellite markers were successful. For results, all the microsatellite loci were polymorphic and the number of alleles per locus varies between 2 and 8. Our genetic analysis is in process.

Interviews with local population were carried out to document local perceptions and knowledge about the socio-ecological importance of fruit bat species in the forest regeneration and gene flows as pollinators and seed dispersers. 28 villagers are interviewed and the analysis of this part of the study is in progress (recording transcription and interpretation).

Nocturnal and diurnal prospections were realized to localise feeding and roosting site. Occurrence points were collected for the two species. These occurrence data are linked with ecological and environmental covariates to assess the ecological niche and geographic limits for each species and to study the ecological requirements and possible interspecific interactions between these two sympatric fruit bat species. Analyses of these data are also in progress.

A second field work will be carried out between August and November 2016 in order to complete the sampling session and interviews.

I thank the Rufford foundation for funding large parts of this study.



Interviews with villagers



The Comorian fruit bat (*Pteropus seychellensis comorensis*, photo by Thani)