

Project Update: August 2021

The following is the report on the execution of the project during the raining season from March to July 2021. Three main villages (Sambolabo, Mayo Barkedje and Fungoi) have been identified around the study site.

After obtaining the research permit from the Ministry of Scientific Research and Innovation (MINRESI) in March 2021, we have started the work on the field.

The different objectives of this project were to: (1) study composition, distribution, and status of amphibians, (2) Understand factors (vegetation, seasonality, habitat, human activities) influencing the occurrence of the batrachofauna (3) collect GPS coordinates of breeding sites, and (4) Develop tailored conservation strategy involving awareness-raising.

Among these 4 objectives cited above, the first 3 are already ongoing.

(1) Study composition, distribution, and status of amphibians in our key biodiversity area (Tchabal Mbabo mountain):

a) Biological sampling:

Based on previous field observations, transects of 1 km each were demarcated beside water bodies/puddles and preferably along an altitudinal gradient during the first field visit, then surveyed monthly. Transect design and randomized walk design were adopted for this study (following Crump and Scott 1994). This technique involves choosing random directions and walking set distances (500 m) in each direction. Habitat parameters were collected every 100 meters along the transect as well as the presence of amphibians following the methods proposed by Rödel and Ernst (2004). Visual encounter surveys: Surveys were conducted to have a holistic view of the mountains following an altitudinal gradient by four surveyors. Opportunistic visual encounter surveys (Crump and Scott, 1994) were the predominant survey method used, as well as searching for microhabitats, inspecting stems, logs, holes, cracks, slopes, and stones with a focus on habitats near water bodies including puddles. Surveys were undertaken both during the day (from 6:30 a.m. to 10:30 a.m.) and at night (from 7:30 p.m. to 11:30 p.m.) (Rödel and Ernst 2004) by walking quietly through various habitats. Logs and rocks were restored after searching to reduce habitat alteration and all materials were sterilized before each field survey to avoid the dissemination of the deadly fungus *Batrachochytrium dendrobatidis*. Frogs were captured by hand, specimens identified and photographed then released at the point of capture. The point of capture and breeding site were carefully recorded using a GPS device. Figures 1 and 2 below are some illustrations.



Figure 1: Principal investigator in the taking of the picture of frog during the night outing in the Sambolabo (near Goumti river).



Figure 2: Team members on the field for morning investigation in Sambolabo (near Sarbogarri river).

b) Study of composition, abundance and distribution of amphibians
So far, we have been able to document diversity and abundance of 13 species of frogs from 10 genera and 6 families in four sample sites.

Site 1, Sambolabo: here, we had three transects,

Transect 1 near Goumti river: GPS coordinate: 07.08722N 011.98515E 1013m. Habitat type: Savannah.

Here, we had 8 species and 6 genera from 5 families.

- **Hyperoliidae:** in this family, we had 1 specimen of *Hyperolius balfouri viridistriatus*; 25 specimens of *Hyperolius igbettensis* and 1 specimen of *Africalus cf. fulvovittatus*.



B



C



Figure 3: A=*Hyperolius balfouri viridistriatus*, B=*Hyperolius igbettensis*, C=*Afrivalus cf. fulvovittatus*

- **Ptychadenidae:**

Here we had 2 specimens of *Ptychadena cf. oxyrhynchus* and 7 specimens of *Ptychadena mascareniensis*.



Figure 4: A= *Ptychadena cf. oxyrhynchus*, B= *Ptychadena mascareniensis*

- **Pipidae:** in this family, we had 14 specimens of *Xenopus cf. eysoole*.



Figure 5: *Xenopus cf. eysoole*.

- **Bufo**idae:

Here, we had 1 specimen of *Sclerophrys cf maculata*.



Figure 6: *Sclerophrys cf maculata*

- **Arthroleptidae:**

Here, we had 2 specimens of *Leptopelis nordequatorialis*



Figure 7: *Leptopelis nordequatorialis*

Transect 2 near Sarbo-gari river: GPS coordinate: 07.09111N 011.97974E 1033m. Habitat type: Savannah

Here, we had 2 specimens of *Xenopus sp* (**Pipidae**) and 5 specimens of *Ptychadena mascareniensis* (**Ptychadenidae**).



Figure 8: *Xenopus* sp.

Transect 3 near Mayo-garwoul: GPS coordinate: 07.09726N 011.94026E 1093m, Habitat type: gallery forest.

Here, we had 6 specimens of *Xenopus* cf. *eysoole* and 1 specimen of *Xenopus* sp (**Pipidae**), 2 specimens of *Hyperolius igbettensis*, 1 specimen of *Hyperolius balfouri viridistriatus* and 3 specimens of *Afrivalus* cf. *fulvovitatus* (**Hyperoliidae**), 2 specimens of *Sclerophrys* cf. *maculata* (**Bufonidae**), 1 specimen of *Ptychadena mascareniensis* (**Ptychadenidae**) and 2 specimens of *Phrynobatrachus* cf. *natalensis* (**Phrynobatrachidae**).



Figure 9: *Phrynobatrachus cf natalensis*

Site 2, Mayo-barkedje: GPS coordinate: 07.08956N 011.97644E 1016 m. Habitat type: gallery forest.

Here we had 3 specimens of *Afrivalus cf. fulvovitatus*, 6 specimens of *Hyperolius igbettensis* and 1 specimen of *Kasina senegalensis* (**Hyperoliidae**), and 14 specimens of *Xenopus sp* (**Pipidae**).



Figure 10: *Kasina senegalensis*

Site 3, Mayo-Kelele: GPS coordinate: 07.11246N 012.04386E 1697m. Habitat type: Savannah.

We had 2 specimens of *Arthroleptis poecilonotus* (**Arthroleptidae**) here.



Figure 11: *Arthroleptis poecilonotus*.

Site 4, Fungoi: GPS coordinate: 07.25251N 012.05965E 2063 m. Habitat type: gallery forest. Here, we had 6 specimens of *Astylosternus* sp (**Arthroleptidae**)



Figure 12: *Astylosternus* sp.

(2) Understand factors that influence occurrence of the batrachofauna:

During our surveys in the field, we noted that there are several threats that can influence the occurrence of the batrachofauna at our study sites. We can cite overgrazing since the main economic activity of local populations around the mountain is cattle rearing. We can also cite the practice of intensive agriculture around the study site. That can explain why still now, we have not yet found some of our flagship species such as *Cardioglossa alsco* or *Astylosternus rheophilus tchabalensis*. The following figure 13 is an illustration of cattle breeding.



Figure 13: Illustration of cattle breeding on Tchabal Mbabo near the village Fungoi, at 2022m elevation.

(3) Mapping amphibian breeding sites:

Habitat type: forestry gallery.

During our survey, we have recorded four breeding sites. In Sambolabo, we had two: one near Sarbo-gari river with GPS coordinate 07.09111N 011.97974E 1033m where we found one breeding site of *Ptychadena mascareniensis* and another one near Goumti river with GPS coordinate 07.08722N 011.98515E 1013m where we found the breeding site of *Xenopus cf. eysoole*. Another breeding site in Mayo-barkedje with GPS coordinates 07.08687N 011.98413E 1020m where we found an active breeding ground of *Kasina senegalensis* (figure 14). The last one was found in Fungoi, where we observed *Astylosternus sp.* breeding with GPS coordinate 07.25251N 012.05965E 2063 m.



Figure 14: Breeding site of *Kasina senegalensis*