

Project Update : August 2016

1) Use GIS to record breeding sites and make management plans to restore degraded habitats (if necessary) around these points.

The majority of the breeding sites have been identified and demarcated on all our three study sites. On the Bamboutos Mountains four plots and rivulets have been designated as the most important breeding zones of frogs and GPS positions recorded. These are mainly within riparian forests at 2200 to 2600 m asl. The breeding sites on Mount Mbam occur between 1650 and 2000 m asl and are seriously threatened by bushfires as high as 1900 m asl. The breeding sites on Mount Oku are the best preserved due to historic conservation initiatives involving local community involvement. The waypoints progressively recorded will enable a baseline of breeding sites of endemic species on each mountain. I have engaged with ~30 farmers on Bamboutos Mountains to discuss preservation of the breeding sites identified.

2) Evaluate how endemic amphibians disperse relative to other animals (common species) in the study site.

Given the dispersal capabilities of common frogs (*Ptychadena mascareniensis*, *Arthroleptis variabilis*), *Leptodactylodon perreti* and *L. axillaris* are comparatively sedentary. The most common aggregations of endemic amphibians found in the field have been associated to their reproduction site. These animals would thus be expected to be more sensitive to human disturbances as they do not stray far from their breeding site. Exceptions include *Astylosternus ranoides* and *A. rheophilus* which have been observed far from their breeding site. Common species colonise almost all types of microhabitats and even seem to proliferate, notably the pan-African, cosmopolitan *Ptychadena mascareniensis* which is abundant in agricultural areas on Mount Bamboutos and Mount Mbam. During the wet season, some common species leave from along streams and spread into the forest in Mount Oku.

3) Assessing the habitat preference to best understand their ecological needs based on human disturbances;

Leptodactylodon perreti, *Leptodactylodon axillaris*, *Werneria bambutensis* and *Wolstertorffina mirei* are the main endemic amphibians of the Mount Bamboutos. According to the IUCN, all these species are threatened: *L. axillaris* is assessed as a species Critically Endangered while the rest are listed as Endangered. The samples taken during this second project allowed us to observe *L. axillaris* for the first time since two years. two specimens have equally been recorded on Mount Oku in bamboo forest near to small streams in a rocky area at around 2600 m asl. *Wolstertorffina mirei* (EN) and *Werneria bambutensis* (EN) have still not been found. The variability of human activities being the cause.

The observation of *Leptodactylodon axillaris* allowed us to learn more about its ecology. *Leptodactylodon axillaris* is found between 2400 and 2560 m asl on the Bamboutos Mountains, mainly in the bed of the slow-flowing clear water sources in riparian forests lack of any anthropogenic activity, where access is almost impossible for cattle and very difficult for people. This microhabitat is equally special: its habitat is rocky and humus necessary for spawning and development of larvae. *L. axillaris* is particularly sensitive to anthropogenic disturbances that it is quite rare to collect the animal to over 10 m from the spawning site. It prefers to hide under stones or under the ground cover that grows on flat stones that line the streams. Work can now go underway to measure stream properties such as width, pH, temperature, conductivity,

sediment size so that habitat requirements can be assessed, particularly for tadpoles. Also, this would provide a baseline for existing populations, and potential restoration targets for impacted streams.

L. peretti presents a more or less original distribution because on Mount Bamboutos (around 2400 m a.s.l.), it shares a same habitat than *L. axillaris*. It seems to better tolerate the disturbances than *L. axillaris*. The species was collected at 1300m on Mount Mbam in typical rocky biotope, may be due to warmer temperatures that prevail in the area.



Herd of cattle accompanied by a shepherd penetrating an amphibian reproduction site (*Astylosternus ranoides*, *A. rheophilus*) (2420 m asl).



Range of toxic products (Herbicides, Pesticides and Fertilizers) most often used on the Bamenda Highlands



Egg masses of *Leptodactylodon axillaris* under the vegetation



Device used to spread these products



Leptodactylodon axillaris at around 2400 m
asl



Leptodactylodon perreti at around 2500 m asl