



## REPORT

### Taxonomic training & access to collections in Belgium

#### PART I - CANDIDATE INFORMATION

Family name: UMUNTUNUNDI

First name(s): Prosper

Nationality: Rwandese

Date of arrival and departure in /from Belgium: 3<sup>rd</sup> till 30<sup>th</sup> September 2017

Number of training days: 30

Type of visit: Capacity Building in Taxonomy, access to collections and Collection Management

Location of training: Royal Belgium Institute of Natural Sciences, Brussels

## **PART II - GENERAL INFORMATION**

*Describe concisely how you have learned about the Belgian GTI Project*

I have learned about GTI project via an email from a colleague.

*Describe concisely how you have learned about this specific call for proposals*

Same as above.

*Describe concisely why you needed capacity building in taxonomy and collection management*

I needed capacity building in taxonomy and collection management because I wanted to compile the data of the land snails from the Kahuzi-Biega National Park, Democratic Republic of Congo, and neighbouring areas available in the Royal Belgian Institute of Natural Sciences. To supplement the data about the land snail fauna of that national park I gathered during a recent survey. Furthermore, I wanted learn to dissect slugs and semi-slugs and how to determine them by characters of the reproductive organs. I wanted to compare shells of semi-slugs that I collected in Afromontane forests of the Albertine Rift and sorted into morpho-species with material in the Royal Belgian Institute of Natural Sciences and possibly with material from the Royal Museum for Central Africa in Tervuren to identify with described species.

*Describe concisely what support (e.g. training, access to collections,...) you have received and how this training can be related to taxonomy and /or collection management*

On the second day after being welcomed at the museum for the first day. I was briefed on laboratory equipment (camera Lucida and many other dissecting kits). After, laboratory practical experiment in parallel with the supply to the enrich literature on African snails were given to me till the end of the training. During my stay at Royal Belgian Institute of Natural Sciences I was taught and introduced to many new techniques. Techniques inclined mainly to slug determination using anatomical reproductive organs and general knowledge on collection management. In total I dissected 16 specimens of slugs from three different country localities (Kenya, Rwanda and Tanzania) assigned to five species namely: *Atoxon kiboense* (Verdcourt, 1960), *Atoxon pallens* (Simroth, 1895), *Bukobia picta* (Simroth, 1895), *Polytoxon*

*robustrum* (Simroth, 1896), and *Urocyclus kirkii* (Gray, 1864). From the specimens dissected all the 5 species were confined to Tanzania and only *Polytoxon robustrum* (Simroth, 1896) was confined in the three country localities. Drawing of the genital apparatus was done on some *Polytoxon robustrum* (Simroth, 1896) from Rwanda, Gishwati forest reserve. Addition to the genital apparatus extracted and drawn, similar practice was performed for other parts (internal shell and jaw). For further slug determination, the spermatophore and radula were also extracted. For scanning electron microscope study, radula was extracted from the dull sac and prepared. By assistance from the scanning electron microscope technician. I viewed and appreciated radula teeth variation of some *Polytoxon robustrum* (Simroth, 1896) species from Gishwati forest reserve, Rwanda. All dissections and drawings were performed under a Wild M5 stereo-microscope and camera Lucida. Some of the drawings were scaled using appropriate technique.

Finally, I had a chance of seeing how land snail invertebrate collection is managed at the Royal Belgium Institute of Natural Sciences and Museum of Central Africa, Tervuren. I also received in depth training on various natural history collection and management.

*Describe concisely how your gained capacity will help you in your professional duties*

The ability to dissect slugs and to use the anatomy for classification improved my preliminary determinations based on shell morphology and, thus, the quality of my work. The gained capacity gave me confidence of starting a land snail collection and create a collaboration network at University of Rwanda, Huye campus, Biodiversity Center of Excellence. The gained knowledge and literature obtained at the Royal Museum for Central Africa, Tervuren will help me to finish a publication of land snails I collected from the Kahuzi-Biega National Park. It will also enable me to perform taxonomic revisions and new descriptions of several taxonomically complicated taxa from the Afromontane forests in Albertine Rift. I would also like to develop an identification key for the slugs and semi-slugs based on morphology and shell characters. The acquired abilities and knowledge will also help me to prepare for a planned PhD study on the systematics and biogeography of land snails from the Albertine Rift.

*Describe concisely how your gained capacity will be implemented in your institution*

Up to now in my country Rwanda, there is no other person studying land snails. Thus, immediately at my arrival in Rwanda after my GTI project grant, I have started a land snail collection with emphasis on slugs and semi-slugs. I have initiated a cooperation at University of Rwanda, Biodiversity Centre of Excellence, Huye Campus. Thus, with this cooperation I will mobilize and train undergraduate biology students of University of Rwanda, Huye campus about land snail ecology, land snail sampling and sorting, collection management, etc.

*Describe concisely what other support you eventually would need*

I would need a stereo-microscope WILD M5 for dissection and camera Lucida for drawing.

*Describe concisely what infrastructural and human resources you and your institution eventually still need to become fully functional*

I have been allowed to be based and use the laboratory of University of Rwanda, Huye Campus, and Biodiversity Centre of Excellence. Though I am the only person working on land snail in the whole country, Rwanda. As mentioned previously, I will mobilize biology undergraduate students of University of Rwanda, Huye campus to join me. In addition to the stated above equipment, I only need storing containers to fully start.

*Describe concisely how you think the Belgian GTI National Focal Point could further construct capacity for you and your institution*

The Belgian Focal Point to GTI can further construct capacity for me and my institution by:

- Providing me with further taxonomic training in slugs and semi-slugs.
- By providing a public talk at University of Rwanda, Biodiversity Centre of Excellence, Huye Campus.
- Informing when the next call for application is open.

### **PART III – TAXON SPECIFIC INFORMATION**

*What is your taxon of interest?*

My taxon of interest is Mollusca, Gastropoda, Pulmonata/ Urocyclidae/ Urocyclid slugs and semi-slugs

*Describe concisely how you intend to make your taxonomic data available to other colleagues*

I hope to attend international malacological conferences so that I can present my results there. I will try to create more public awareness regarding the ecological importance of terrestrial snails in tropical rain forest ecosystems by presenting my findings to the Rwanda Development Board (RDB) and the Rwanda Environmental Management Authority (REMA). I finally, hope to publish my taxonomic data in peer reviewed journal.

*Describe how your taxonomic work helps improving the status of biodiversity in your country*

With my work, I want to contribute information beneficial to the successful management of conservation areas in the Albertine Rift Valley, especially with regard to the threat of global warming and changing climate patterns on Afromontane rainforests. My study will also contribute a scientific basis for Rwanda's reforestation program and promote ecosystem health. Terrestrial gastropods can be used as bioindicators to assess the status of degradation in tropical rainforests or to document the progress of reforestation attempts in Rwanda.

*Describe how your project could help reduce poverty in your country*

During the Rwandan reforestation processes, local communities around protected areas will have new job opportunities due to various community conservation programs initiated by the Rwandan authorities. This includes numerous income-increasing activities such as honey harvesting, but also short training programs on family planning. Employed people are mobilized to form cooperative units that will help them to easily get access to bank loans. Such loans will improve their business investment opportunities and lead to a diversification of livelihoods.

My project will have no direct impact on those activities, but it will help Rwandan politicians and conservation managers to make the right decisions regarding the delimitation and zonation of protected areas and their buffer zones. This also includes biodiversity managing in areas designated to community conservation projects, i.e. areas in which biodiversity is moderate.