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REPORT

Taxonomic training & access to collections in Belgium

NOTICE
The present questionnaire must arrive with the Belgian National Focal Point to the Global Taxonomy Initiative within one month of the official closure of the capacity building visits. Electronic submission on the general e-mail address of the Belgian GTI NFP (cbd-gti@naturalsciences.be) is strongly encouraged. If electronic submission should however be impossible, paper copies may be sent by fax or ordinary mail. The Belgian GTI NFP will acknowledge receipt of all project reports.

If grantees have **relevant pictures** to illustrate their capacity building visit, these may be annexed to the report. The Belgian National Focal Point might use some of these pictures in one of its reporting activities, but only after the copyright holder has given his permission.

Contact and further information

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PART I – CANDIDATE INFORMATION	
Family name:	Hora
First name(s):	Zewdu Ararso
Nationality:	Ethiopian
Date of arrival and departure in / from Belgium	16 June 2013 and 06 July 2013
Number of training days:	Three weeks
Type of visit	☒ Mainly training in taxonomy and collection management ☒ Mainly access to collections ☐ Other, *specify*
Location of training:	☒ Royal Belgian Institute of Natural Sciences, Brussels ☐ Royal Museum for Central Africa, Tervuren ☐ National Botanic Garden of Belgium, Meise ☐ Other, *specify*
PART II - GENERAL INFORMATION	
Describe concisely how you have learned about the Belgian GTI Project	For the first time, I was informed by GTI Ethiopia project team came to Ethiopia from RBINS
Describe concisely how you have learned about this specific call for proposals	Belgian Focal Point to the Global Taxonomy Initiative coordinator, Marie-Luc Sussini, sent me call for the proposal.
If this was your first study visit financed via the Belgian GTI National Focal Point, describe concisely why you needed capacity building in taxonomy and collection management	
If this was not your first study visit financed via the Belgian GTI National Focal Point, describe concisely why you needed further support	During the first training, I have learned about taxonomy, where to look for Hymenopterans and how to collect them, and training on collection management. Furthermore, how to use identification keys and reference specimen to identify specimen to genera level was also the part of first study visit. The Second study visit was proposed to access more Belgian reference collections to identify some taxon to sub-genera/species level with help of Belgian expert and I was also interested in learning how to prepare publication on a particular taxon.

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	Access to reference collection at RBINSh:- I have learned how to carry out field collections, how to identify Meliponi to sub–genera level, how to prepare a publication on particular taxon, with this training I have been able to have the reference specimens for about 40 wild bee species of Ethiopia that is stored at Holeta Bee Research Center for further use. These training activities are basic components of insect taxonomy and /or collection management. It could help /imitate HBRC staffs working on pollination as well as any other interested young students to use it as a reference specimen.
Describe concisely how your gained capacity will help you in your professional duties	The training improved my skill on how to collect bees, how to prepare specimens, collection managements (preserving till mounting, pinning, drying, proper labelling and preserving museum collections). Identifying ication of Megachile and Xylocopa to genera level, and Apis and Tribe Meliponini of Ethiopia to genera level (some to species level) using reference specimens. Helped me to have a reference specimen for about 40 species of which 4 of them are new species. This will help me to carry out further studies on the diversity of Apis and Meliponi of Ethiopia and to make more future collections to study the diversity of wild bee pollinator fauna of Ethiopia that is less known. This will finally contribute to world biodiversity.
Describe concisely how your gained capacity will be implemented in your institution	By preparing a publication on some of the taxon that could be an input for the interested staffs who are working in pollination. Carrying out a follow up collection on wild bee pollinators in the areas not included in the previous sites and identifying them at least to the genera level that could contribute to the bee fauna of the country. Collecting bees pollinating apple flowers and identifying the most important ones. A way forwarded from the result for their proper utilization & biodiversity. Extent of distribution & future fear of the alien species (*Apis florea*) detected during the project study will be indicated.
Describe concisely what other support you eventually would need	All the taxonomic works performed during previous project are under the close supervision & with help of Belgian experienced expert. So to develop a confidence to perform a taxonomic work lonely, I fill a knowledge gap yet. Therefore, a follow up support for identification of wild bee pollinators that will be collected in the coming spring (September – November, 2013).

Describe concisely what infrastructural and human resources you and your institution eventually still need to become fully functional	Owing to wide range of habitats from highland to the Great Rift Valley, Ethiopia offers one of the most valuable hotspots, worldwide, in terms of plant and animal biodiversity in general and bee pollinators in particular. Conversely, this environment is very sussibtable to terrible conditions majorly caused by expansion of human activities like agriculture, livestock over grazing and indirect global change. All these factors contribute to the loss of vegetation cover of the country. As a result, there are some attempts to conserve plants and larger animals. But there is no point for the conservation of wild bees though they are equally threatened. The reason for this is they are underrepresented in museum collections. Therefore, an accurate estimation of their endangered status is almost impossible and it is difficult to take effective conservation measures specifically to wild bee pollinators. This clearly shows the need for better knowledge about their current (remaining) diversity in the natural environment. Thus, obtaining more accurate & well organized estimate and description of the targeted taxonomic group is very important. For these purpose field collection materials, laboratory equipment for identification and permanent storage are among the infrastructure needed. Ultimately, experts specialized in the field of Hymenoptera taxonomy, and pollination ecology are needed by the institute. In this regards, further long term study is also required for me & others. So well-trained experts with well-organized collection materials would fill the gaps by awareness creation in the community that could change the mind of policy makers.
Describe concisely how you think the Belgian GTI National Focal Point could further construct capacity for you and your institution	Belgian GTI National Focal Point could help me and my institution through promoting and funding a long term study for further specialization in the taxonomy of the intended taxonomic group and/or pollination ecology. Because it is difficult to identify most of the taxa with a very limited three weeks training. Supporting projects targeting to wild bee species biodiversity baseline documentations. Through initiating and funding continuous joint taxonomic works in which experts from RBINS take part. Supplying basic materials required for insect collections, identification and specimen management and storage.

PART III – TAXON SPECIFIC INFORMATION	
What is your taxon of interest	Phylum: Arthropoda, Class: Insecta, Order Hymenoptera, Superfamily: Apoidea (bees)
Describe concisely the different methodologies for collecting your taxon.	Three types of collection methods were used. -Hand net: Field visits were made at different times to observed wild bees on different species of flowers. Then hand net was used to sweep bees collecting pollen and nectar. The bees killed in plastic jar containing cotton sacked in ethanol. This method enabled to collect all kinds of bees (from small to larger bees). Plant species from which the bees trapped were collected and confirmed botanist and where it is difficult taken to herbarium to be identified. -Pan traps: Yellow pan traps half filled with soapy water were placed at 5m interval in the morning (8:00am) along the edge of crop field. Late in the afternoon, what were collected was poured on a sieve to separate from soapy water, place in a vial with 97% ethyl alcohol to be sorted later. This step was repeated every day for different crop fields. -Lastly natural nest method was used to collect some *Meliponula baccarii* from nest constructed underground and *Liotrigona* workers from Acacia trunk.
Describe concisely how to best preserve collected specimens of your taxon for taxonomic purposes	Killed bee specimens were preserved in laboratory alcohol (97% ethyl alcohol) until drying and pinning. Large specimens should be pinned vertically through the right hand of the scutum using stainless steel pin No.1 on a foam board to dry. Smaller specimens should be pinned either using micro pins on a small polyporpous squares or glued on glue board and pinned with pin No.3 with a label about the specimen. After the drying each specimen is pinned in a well designed entomological box for further taxonomic uses.
Describe concisely how you intend to make your taxonomic data available to other colleagues	The taxonomic data from this training can be available for others in the form of detailed report submitted to my institute and The Institute of Biodiversity Conservation (hard and soft copies) so that all interested staffs from both institutes can easily access it. Through training especially on collection management & how to use reference collection specimens for those who are in need. Furthermore it can be accessible through making the identified reference specimens accessible to all and through publishing a paper from the project.
Describe how your taxonomic work helps improving the status of biodiversity in your country	Ethiopia is thought to be rich in biodiversity of which wild bee fauna is the one. Nevertheless, the species diversity of the wild bees of Ethiopia is poorly known as very old works present few specimens preserved in museum collections outside. However, the environment harbouring wild bee fauna is changing from time to time. Thus my current work contribute a lot as a start point for the future further works to monitor and detect changes in bee pollinators biodiversity, to understand the functional role of these pollinators in the ecosystem and to provide more data underpinning conservation. Furthermore, one alien honey bee species (*Apis florae*) is also addressed with this work. This information needs an attention since it could harm the natural bee biodiversity where it exists in the country.

Describe how your project could help reduce poverty in your country	Wild bees are extremely beneficial providing ecosystem services through pollinating wide variety of wild flowers as well as may crops. Subsequently play a major role for agriculture production increment and food security. In this regards, taxonomic knowledge on wild bee pollinators is crucial to support conservation measures and thus to guarantee a long-term availability of pollination service in sustainable agricultural and natural environment of the country.

Belgian National Focal Point to the Global Taxonomy Initiative