

Mobilization and use of botanical data as decision-making tools in Gabon

Programme: BID

Project ID: BID-AF2020-194-USE

Project lead organization: Institut de Pharmacopée et de Médecine Traditionnelle

Project implementation period: 1/4/2021 - 31/3/2023

Report approved: 31/5/2022

Narrative Midterm report

Executive Summary

Project achievement

i) Meeting with members of local institutions to launch and monitor the project activities; ii) Data mobilization. For herbarium specimen, 7046 herbarium sheets have been mounted in total and stored in the collection room of the Herbarium National du Gabon. Forest inventory data have been mobilized on 182 temporary plots from 0.1 to 0.25 ; iii) Data categorization. About 249 endemic species, 200 medicinal and cosmetic plant species and 134 threatened have been already selected for digitalization. For the type specimens, only 285 are stored in our herbarium among 1700 types recorded in the databases; iv) Digitalization of herbarium specimens. In the project, 2000 specimens, including specimens used for categorization were planned for digitalization. Data categorization activity allowed to scan 668 specimens by AGS company; v) Workshop attendance. Two projects representative, Mboma Raymonde and Engone Obiang Nestor, attended workshops organized by BID-AF2020 between May and November 2021.

II. Monitoring, evaluation and changes. Activities listed above are done by all herbarium staff and the partner institutions except the digitalization process. Lists of each category were compiled according to taxa and authors. Each staff is responsible to look for the selected species and put them in the box for digitalization. Each list is checked in order to record the missing specimen. No major change is done for the moment. Therefore, project planned to digitalize about 2000 specimens, including cosmetic, endemic, threatened and type specimens. Up to date, about 668 specimens including types specimens, endemic and threatened species are physically present in Gabon National Herbarium. The rest of the specimens are found in other herbaria.

Progress against milestones

Has your project published at least one dataset through GBIF.org?: Yes

Dataset published:

Dataset	DOI
Biodiversity description of the Crystal Mountains park National buffer zone	https://www.gbif.org/dataset/8be5d1f5-802e-4401-9c1c-2e01b67e252c

Has at least one member of your project team received certification following the BID capacity enhancement workshop?: Yes

Name of the workshop participant: Bissiengou Pulchérie

Certification obtained: Advanced Badge

Report on Activities

Activity progress summary

Activities on mobilization, categorization and digitization have evolved. The initial report contained the data mobilized and categorized up to July.

- Occurrence data. Data mobilization begins with the mounting of samples before encoding them. About 5046 samples were mounted between July 2021 and January 2022. Among them, 2,500 were encoded and listed in the various databases. In addition, the geographical coordinates of the first 2000 mobilized specimens have been recorded.
- Categorization and digitization. The first task of this activity is to filter the target data in the databases and check if the samples are physically present at the herbarium. Until July 2021, 577 samples had been selected for digitalization. Between July and January, another 391 specimens were selected and a total of 668 samples have already been scanned by the AGS Archive company. Images have been sent to us and are available in our database.
- Inventory data. The activities carried out until July made allowed to mobilize data from 58 non-permanent plots. Between July 2021 and January 2022, other data were mobilized on 123 plots of 0.25 ha. This last dataset have already been published on the GBIF portal.
- Niche model. This activity will start with the field verification of the geographic coordinates supposed to be outliers, which will allow the dataset cleaning of this specific activity. A field mission is scheduled between February and March in the Makokou and Mitzi zones.

In view of these newly mobilized data, project activities have evolved significantly. These data will continue to be mobilized until the publishing of all datasets.

Completed activities

Report on Deliverables

Deliverables progress summary

The presented deliverables come from the main project activities currently implemented.

1) Meetings to launch and monitor project activities

The first meeting had been organized on May 2021 with the staff of local institutions, especially IRET and ANPN (cf. BID Narrative Early Progress Report). The objective of this meeting was to launch the activities of the project focused on the following points: Data mobilization; Data digitalization; Data categorization; Niche modelling and Policy briefs for policy makers. Large gatherings being limited on the basis of compliance with barrier measures related to COVID 19, eight people were present. List of participants and the meeting report are the verification source of this event. The second meeting of 13 peoples was about the project activities review and the new orientations proposition for the best project activities continuation. The meeting reports available at IPHAMETRA are the sources of verification of these activities.

2) Data Mobilization

a. Data occurrences. It is planned to mobilize 10,000 occurrence data and publish them on the GBIF portal at the end of the project. About 2,000 data had been mobilized until July 2021 (cf. BID Narrative Early Progress Report). Between August 2021 and January 2022, 5046 new data have been mobilized according the uploaded excel files (table_occ1, table_occ2 and table_occ3), i.e a total of 7046 data available. However, this data which from the mounted samples are the verifications sources. They do not constitute the final file. Modifications and corrections are daily done according the checking in the Tropicos and BRAHMS database. The final true file will be available before the publishing of this dataset in the GBIF portal. The geographical coordinates data are also checked and added. The sources of verification of this data are the Excel tables (uploaded).

b. Inventory data. The mobilization of inventory data should result in 75 sampling event data. In total, 58 samples (plots and transects) listing 4631 trees belonging to more than 100 species had already been mobilized (cf. BID Narrative Early Progress Report). In addition, the new sampling event data from 123 non-permanent plots and counting more 9000 trees belonging 277 species, 197 genus and 54 families have been also mobilized between august 2021 and January 2022. This dataset (table_biodiversity_kinguele_aval, uploaded) in IPHAMETRA have been published on 2022-03-08 (Engone Obiang N L, Bissiengou P (2022). Biodiversity description of the Crystal Mountains park National buffer zone. Herbar National du Gabon. Sampling event dataset <https://doi.org/10.15468/nzs7j6> accessed via GBIF.org on 2022-03-14).

3) Data categorization

The verification of the categorized species has been done thanks to BRAHMS and TROPICOS database. This categorization was about

- 249 endemic species
- 134 threatened species
- 285 types specimens
- 100 medicinal plants
- 100 cosmetic plants

The verification sources of this activity are the excel tables (table_endemic_species, table_threatened_species, table_types, table_medicinal_species and table_cosmetic).

4) Digitalization

In the 2000 specimens, including specimens used for categorization, 868 specimens have already been selected to be scanned. But 668 specimens are currently scanned and images are already available in our database. Three images (1 image by categorized data) have been uploaded as verification sources (im_endemic, im_threatened, im_types). About 1700 types specimen from Gabon are recorded in BRAHMS database. After physical checking, unfortunately only 285 type specimens are stored in our herbarium. Most of them are found in other herbaria, especially in the Museum d'Histoire Naturelle de Paris (MNHN). Based on these facts, actions will be taken:

- digitalization will be done on other specimens, especially the fertile specimens representing different families to reach 2000 images according to the initial objectives
- request of repatriation of type specimens in the digital format to MNHN.

Progress towards deliverables

Deliverables - Project planning phase

Digital herbarium

Description: Catalogue of the selected and scanned specimens including endemic, threatened and types specimens.

% complete: 42%

Status update: About 668 images are already available in our database. The other selected specimens to continue digitalization is available at the herbarium especially medicinal and cosmetic plants species.

Sources of verification: Excel table of the scanned and selected specimens

Deliverables - Project data mobilization phase

Herbarium specimen data

Dataset type: Occurrences

Dataset scope: Mounting and insertion of herbarium specimens

Number of records: 7,046

Data holder: IPHAMETRA-Herbier National du Gabon

Data host institution: IPHAMETRA-Herbier National du Gabon

% complete: 70%

Status update: Not present on the GBIF webpage or in our IPT

DOI:

Expected date of publication: 2023-03-20

Forest inventory

Dataset type: Sampling Event

Dataset scope: Crystal Mountains national park buffer zone, Estuaire, Gabon

Number of records: 123

Data holder: IPHAMETRA

Data host institution: IPHAMETRA

% complete: 100%

Status update: Published dataset

DOI: http://ipt-gabon.gbif.fr/resource?r=biodiversity_kinguele_aval&v=1.1

Expected date of publication:

Deliverables - Project evaluation phase

Communications and visibility

The Project communication is addressed to scientific community, general public, stakeholders, policy makers and funders.

Scientific community and general public are informed by the meetings with researchers and technicians in our institutions and the participation to the workshops among which BID workshop. We also plan to

publish the project activities in the local journals. The steps have been already undertaken toward the largest Gabonese daily newspaper called "Union". IPHAMETRA-actu is the information journal known in the national scientific research center. Project activities will be published in this journal too. The first step was to write the technical sheet to explain the importance of herbarium and how to mount the herbarium specimen. The link between these activities and the BID project has been done. This technical sheet will be available in the IPHAMETRA-actu number 4, December 2021. Because the BID project is well known in our institution, data from the forest inventories funded by IPHAMETRA and his partners between July and September 2021 allowed to strengthen database of the BID project, especially the sampling event dataset.

Monitoring and evaluation

Monitoring and evaluation findings

Project is monitored and evaluated according to the specific activities. Data mobilization starts by the selection of the non-mounted-specimens. The monitoring of this activity concerns the checking of contents of the specimens labels before to encoding data. The result is a excel table giving the number of the mounted-specimens. The last step is the checking of the table fields without the geographical coordinates. So, the specimen number is checking in Tropicos or BRAHMS database to extract the specimen geographical coordinates. A monthly threshold of 600 data at least have been set from the mounting herbarium specimens to data encoding. Sampling event data is monitored uploading files in the GBIF portal to correct badly written scientific names. The categorized data are extracted from Tropicos, Brahms databases and other sources. The monitoring of this activity is focused on checking of each specimen numbers to ensure their physical presence in the Herbarium. The species categorization column added to the existing database allow their filtration according uses and sort them for digitalization. The evaluation concerns the information checking associated to specimens et the number of sorted specimens by technical staff under the supervision of researchers and the project leader. Thank to this checking, a shift has been observed between the type specimens number given by database et the actual number physically present to herbarium. For the scanned specimens, the monitoring is done by checking the image quality. The Images test are sent to us to be compared to specimen images from other international herbaria before scanning all samples. Each data contains information about family, scientific name, specimen number, this allow to upload directly the associated image.

Impact of COVID-19 pandemic on project implementation

Since the covid 19 pandemic emergence, the researcher movements, meetings and workshops organizations have been limited. However, the activities are executed respecting preventives measures for covid 19. The implementation of BID project activities is not significantly impacted by the pandemic at our institution scale.

GBIF leads the Biodiversity Information for Development (BID), a programme funded by the European Union. The programme provides supplementary support for activities addressing the needs of regional researchers and policymakers through mobilization and use of biodiversity data.

