

# Zimbabwe biodiversity data in support of climate action, life on earth and sustainable food and feed: Biodiversity of reptiles, arachnids found in Protected Areas and edible insect fauna in Zimbabwe

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**Programme:**BID

**Project ID:** BID-AF2020-026-INS

**Project lead organization:**Natural History Museum of Zimbabwe

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

**Report approved:** 23/6/2023

## Final Narrative Report

### Executive Summary

The project digitized and mobilized data from Natural History Museum manual registers, to add 10533 occurrence records and 726 species records of arachnids, edible insects and reptiles on the GBIF public platform. this was met and surpassed, made 7 datasets accessible for researchers and policy makers.

- Data on arachnids and reptiles of protected areas was uploaded for researchers to access, including
- Data
- The Entomological Association was successfully formulated and partners added data towards the edible insect database and an additional database on freshwater macrovertebrates use as a data cleaning and mobilizing training exercise.
- Inaturalist was successful in engaging the public in participating in adding photos of species to the Inaturalist database which added more than 40000 records during this project which was a 141% increase in data for the distribution of species.
- Engaging the citizens in citizens science has made the public interested in being part of the data collection for the understanding of our species citations for the country.
- The lessons learned include how involving the citizens can contribute to the better understanding of the distribution of species for Zimbabwe.
- Post project activities will include putting up a permanent display of edible insects in one of the display galleries to educate the public on the importance of their contribution to food. Arachnids data digitization of the museum specimens records to continue being loaded on the GBIF platform and then after completion to publish a fieldguide. Herpetology to continue to digitize Zimbabwe data held in the Natural History Museum manual records and uploading on the GBIF. platform. Field Guide of the Herpetofauna of the Limpopo Safari Area to be published as the end result of the current JRS biodiversity project.

### Progress against milestones

**Has your project completed all planned activities?: Yes**

**Has your project produced all deliverables: Yes**

## Report on Activities

### Summary of the implementation of the project activities

**Training in Mobilization of Data:** Participants to the training became able to participate in digitizing data from our manual catalogues onto the GBIF Darwin Core standards for standardization of data for easy uploading onto the GBIF database. This training involved how to clean data, georeference which all educated them on best ways of treating data.

**Digitization of Specimen Data:** More than the number of 9000 records was exceeded, all cleaned and uploaded this included 7 datasets and distribution maps.

**Entomological Association Meeting:** The formulation meeting which was done online was a success in that the Association is now operating with partners participating in providing data for edible insects which has been added to this project.

**Distribution Maps for reptiles and arachnids:** The species distribution maps have been generated for several arachnid and reptile species and will be available on museum website BID page, for those researchers that need to know the distributions of different species in protected areas.

**Data publishing workshop:** The data publishing workshop was a success in that now partners are able to access the data that has been published for our institution on the GBIF platform.

**Community/Stakeholder workshops:** This workshop involved our stakeholders and citizens. This was mainly to thank them and to give a presentation of the activities that had happened during the course of the grant period.

### Completed activities

#### **Activity: Training in Mobilization of Data**

**Description:** Museum technical staff and available partners and stakeholders will be trained in data digitization, cleaning, geo-referencing, managing databases

**Start Date - End Date:** 26/5/2021 - 27/5/2021

**Verification Sources:** Report

#### **Activity: Digitization of specimen data**

**Description:** 10533 specimen data to be digitized in Darwin Core format by GBIF standards, clean data and georeferenced

**Start Date - End Date:** 1/4/2021 - 31/3/2023

**Verification Sources:** <https://www.gbif.org/search?q=Natural%20History%20Museum%20of%20Zimbabwe>

#### **Activity: Data Cleaning**

**Description:** Updating of taxonomic nomenclature changes using online resources georeferencing and date checks

**Start Date - End Date:** 1/4/2021 - 31/3/2023

**Verification Sources:** <https://www.gbif.org/search?q=Natural%20History%20Museum%20of%20Zimbabwe>

## **Activity: Entomological Association Meeting**

**Description:** A meeting to launch Entomological Association of Zimbabwe as a monitoring and networking tool encourage standard data management for the entomology sector in the country

**Start Date - End Date:** 17/1/2022 - 25/1/2022

**Verification Sources:** Report

## **Activity: Mobilization and Publishing of Datasets to GBIF**

**Description:** Publishing of Occurrence and Checklist Datasets on the GBIF public platform of 9000 records 6500 records for collections of arachnids and reptiles from protected areas in Zimbabwe's edible insect species, mainly the orders Leptoptera, Coleoptera, Orthoptera Hymenoptera and Hemiptera up to 2500 expected records

**Start Date - End Date:** 1/4/2021 - 31/3/2023

**Verification Sources:** 6 datasets (3 occurrence; 3 checklists)

## **Activity: Distribution Maps for reptiles and arachnids**

**Description:** Mapping of distribution of reptile and arachnid species found in protected areas of Zimbabwe and their uploading onto the GBIF online platform

**Start Date - End Date:** 28/3/2023 - 31/3/2023

**Verification Sources:** Available on the Valuable Resources on the BID page museum website

## **Activity: Data Publishing workshop**

**Description:** Training of participants and stakeholders in publishing data on the GBIF platform

**Start Date - End Date:** 5/7/2022 - 8/7/2022

**Verification Sources:** Report

## **Activity: Community Stakeholder workshop**

**Description:** Training workshop on citizens science and the use of partners such as inaturalist

**Start Date - End Date:** 8/3/2023 - 8/3/2023

**Verification Sources:** Report

## **Report on Deliverables**

### **Deliverables - Summary**

- All Occurrence datasets for arachnids 5111 records and reptiles 3208 records digitized for protected area, and edible insects of Zimbabwe were uploaded.
- Checklists for arachnids 299 and reptiles 178 species were published and edible insects 165.

Checklist of Freshwater Macroinvertebrates of Umfurudzi River 84 records

- distribution maps were uploaded for several species that occur in protected areas of Zimbabwe

### **Deliverables produced by the project**

### **Dataset deliverables**

**Biodiversity of reptiles found in Zimbabwe's Protected Areas. distribution maps to indicate where**

## **Reptile species occur in Zimbabwe**

**Dataset type:** Occurrences

**Dataset scope:** Occurrence datasets for Reptiles from protected areas of Zimbabwe

**Number of records:** 3,208

**Data holder:** Natural History Museum of Zimbabwe

**Data host institution:** Natural History Museum of Zimbabwe

**% complete:** 100%

**Status update:** Current

**DOI:** 10.15468/t6dw97

**Expected date of publication:**

## **Cataloguing Zimbabwe's edible insect resources: developing a museum-based accessible database for supporting sustainable food and feed**

**Dataset type:** Checklist

**Dataset scope:** Checklist of species of edible insects on record for Zimbabwe among the mobilized datasets

**Number of records:** 40

**Data holder:** Natural History Museum of Zimbabwe

**Data host institution:** Natural History Museum of Zimbabwe

**% complete:** 100%

**Status update:** Current

**DOI:** 10.15468/aq65yt

**Expected date of publication:** 2023-04-30

## **Biodiversity Inventory: Checklist of reptile fauna found in Zimbabwe's Protected Areas**

**Dataset type:** Checklist

**Dataset scope:** Checklist of species of reptile fauna found in different geographical locations of protected areas in Zimbabwe

**Number of records:** 178

**Data holder:** Natural History Museum of Zimbabwe

**Data host institution:** Natural History Museum of Zimbabwe

**% complete:** 100%

**Status update:** Current

**DOI:** 10.15468/v9khus

**Expected date of publication:**

## **Biodiversity of arachnid fauna found in Zimbabwe's Protected Areas**

**Dataset type:** Occurrences

**Dataset scope:** Occurrence dataset for arachnid fauna from protected areas of Zimbabwe. Distribution maps to indicate where arachnid species occur in Zimbabwe

**Number of records:** 5,112

**Data holder:** Natural History Museum of Zimbabwe

**Data host institution:** Natural History Museum of Zimbabwe

**% complete:** 100%

**Status update:** Current

**DOI:** 10.15468/sg5km9

**Expected date of publication:**

## **Biodiversity inventory: Checklist of arachnid fauna found in Protected Areas of Zimbabwe**

**Dataset type:** Checklist

**Dataset scope:** Checklist of arachnids found in protected areas of Zimbabwe

**Number of records:** 350  
**Data holder:** Natural History Museum of Zimbabwe  
**Data host institution:** Natural History Museum of Zimbabwe  
**% complete:** 100%  
**Status update:** Current  
**DOI:** 10.15468/6vv7hr  
**Expected date of publication:**

## **Checklist of Freshwater Macroinvertebrates of Imfurudzi River, Chimanimani, Umvumvumvu, Mutare and Nyanyadzi Rivers Zimbabwe post Cyclone Idai sampling**

**Dataset type:** Checklist  
**Dataset scope:** Research data contributed by Entomological Association of Zimbabwe participants of Entomological Association of Zimbabwe  
**Number of records:** 84  
**Data holder:** Natural History Museum of Zimbabwe  
**Data host institution:** Natural History Museum of Zimbabwe  
**% complete:** 100%  
**Status update:** Current  
**DOI:** 10.15468/6xbzjz  
**Expected date of publication:**

## **Other deliverables**

## **Communications and visibility**

The results of our project has made the public appreciate the importance of citizens science and among the stakeholders the need to standardize data to be uploaded on the GBIF platform and also the need to have clean data for future use by other researchers and relevant organization in decision making.

## **Monitoring and evaluation**

### **Final Evaluation**

Our project successfully implemented objectives and activities as stated in our grant proposal and over and above managed to accomplish more than what is in our original project proposal, in terms of data mobilized and digitized.

### **Best Practices and Lessons learned**

Training participants in-person and online encouraged participants to the workshops to apply the knowledge of data practices as by the Darwin Core standards of GBIF. This standardized data was added to the Natural History Museum database.

Online workshop are not as effective as in-person workshops due to connectivity and access to internet resources.

Stakeholders interacted with the team throughout the project and made aware of the available data and the importance of the GBIF public platform

Hosting participants from outside our city require travel grants that we did not include in our budget.

The participants to the entomology online workshop that had data on edible insects were not willing to share the data instead provided freshwater macrovertebrates.

### Post Project activities

- The continuation of data mobilization and digitization for Arachnids and Herpetology and publication of Field guides are plans for post project activities. Continue encouraging citizen's science participation in the country with additional workshops and the Entomological Association will continue into the future.

- A permanent Display of Edible insects of Zimbabwe to be mounted by the Entomology Department as part of educating the public on edible insects found around Zimbabwe. This display to be exhibited in one of the Natural History Museum galleries.

## Sustainability

### Sustainability Plans

The partners involved will build on the results of this project by mobilizing data which will then be added to the Natural History Museum database and collaborations with museum curators in publishing data mobilized, in different fields of research. Citizens science to continue in adding species found in Zimbabwe.

## Impact of COVID-19 pandemic on project implementation

The COVID-19 pandemic did not impact on the implementation of our project. nor on the smooth running of our project achievements.

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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.

