



CAMEROON BIOSECURITY PROJECT

Development and Institution of a National Monitoring and Control System (Framework) for Living Modified Organisms (LMOs) and Invasive Alien Species (IAS)

Production of an interoperable database of introduced species for Cameroon

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Under the Supervision of:

Project Component 4 Taskforce (MINRESI)

&

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Acronyms and Abbreviations

Acronym or Abbreviation	Name in full
CBP	Cameroon Biosafety Project
IAS	Invasive alien species
IUCN	International Union for the Conservation of Nature
LMOs	Living modified organisms
MINADER	Ministry of Agriculture and Rural Development
MINEPIA	Ministry of Livestock, Fisheries and Animal Industries
MINFOF	Ministry of Forests and Wildlife
MINEPDED	Ministry of Environment, Protection of Nature and Sustainable Development
MINRESI	Ministry of Scientific Research and Innovation
UNEP/GEF	United Nations Environment Programme / Global Environmental Facility

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Disclaimer

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1. Executive summary

This report explains the process behind the creation of an interoperable database on invasive species for Cameroon. 144 species were selected through the linked consultancy A4.3.1, and the fields for the database were established following guidelines set out by the component 4 project task force, and revised by the consultants. The fields are divided into three groups:

- species taxonomic information (Species name, Kingdom, Phylum, Class, Order, Family, Subfamily, Genus, Species, Authority);
- information on the species in Cameroon (Mode of spread, Regions the species has been seen in, Use of species in Cameroon, Type of negative impact, How bad is the impact?, Outcome of impact, Management Category, Management details, Contact information, Photo);
- global information on the species (Native range, Introduced range, General uses, Type of negative impact, Management, Details of management, Examples of legislation to manage the species, Links to further information).

Data for the database was compiled from online datasources as well as through stakeholder engagement through workshops and individual consultations in Cameroon. The stakeholders also clearly stated that while the database should be freely available online, Cameroon should remain in control of the database via its hosting on the MINEPDED website, and there should be only limited password protected access for experts to add or change datafields.

These considerations have been reflected in the database construction and hosting by choosing software and programming languages familiar to IT staff at MINEPDED (phpmyadmin and mysql), and a simple and open access software for the front end design (python). Detailed instructions on management and use of the database as well as data entry are provided in the manual. The manual is divided into three sections. First it explains how to use and search for information in the database, which should be easy for anyone to do. Next it explains how new information can be added to the database, an option that is password protected. A guide on how to enter data is also given in the manual. Finally, the manual explains how to manage the database back end and web-based front end, and how to host the database on the MINEPDED server. These actions that should only be carried out by qualified staff. Until the site is uploaded onto MINEPDED website, the database can be accessed from:

http://cameroonias.pythonanywhere.com/cameroonias_review_new/default/index

2. Objective of the consultancy

The objective of this consultancy 4.4.1 is the 'Production of an interoperable database of introduced species for Cameroon that conforms to international data management standards'. More specifically the outputs are expressed as

- A database based primarily on the species list produced under A.4.3.1 (production of an up to date lists of invasive species in Cameroon) using relevant parameters that conform to international standards and interoperability.
- A manual outlining the structure of the database and the procedures for its maintenance.

2.1 Data fields in the database

The information included in the database is of three different types. First there is taxonomic information that identifies the species and makes this database interoperable. Second there is data about the species from Cameroon, collected from expert stakeholders in the country. Lastly there is data about the species from across the world, focussing on its distribution, impact and management. The data fields are explained in more detail in the manual.

2.2 Database design

The database has been designed in phpmyadmin as a series of linked tables which are connected via the unique species ID number. Some of the data fields in the table are restricted to choices, while others are freeform. The database is linked to a webface interface for ease of use and accessibility. This has been designed in python programming language.

2.3 Adding and editing data

While the database has been populated with all data available to date, there are still gaps in the data entry. In addition, further research will continually add information to existing species, as well as new species that are now assumed to be invasive.

New data can be added in two ways. For small amounts of data this can be done through the web-based interface. Large amounts of data can be added through the phpmyadmin back end. Both of these options are discussed in the manual.

All data entry is password protected. To ensure a consistent high quality of data, new information should be approved before it is entered, and the person or people entering data must understand how to do so in order to ensure that there are no mistakes.

2.4 Hosting the database

It was agreed that the database be hosted on the MINEPDED server, providing a link to the web based internet via the homepage. At present the website can be viewed at the following temporary address:

http://cameroonias.pythonanywhere.com/cameroonias_review_new/default/index

2.5 Managing the database

Technical information on how to manage the database, as well as how to set up links are provided in the manual. These should only be carried out by information technology (IT) personnel.

3. Discussion and next steps

This database represents a first step in providing information on Cameroon's invasive species to a wider audience, not only in Cameroon but across the world. The information provided in the database represents knowledge to date of species in Cameroon and on a global level. This knowledge is continually improving, and it is envisioned that the database will be updated regularly in order to ensure that the best possible information is made available. Technical information on how to use this database is provided in the manual.

The following next steps are envisaged

- a) Ensure that it is uploaded onto MINEPDED server and that it becomes accessible to all via their webportal;
- b) Publicise the website nationally to interested parties, schools and universities;
- c) Publicise the website internationally to the Invasive Species Community via IUCN Invasive Species Specialist Group;
- d) Identify key stakeholders in Cameroon who would be responsible for data entry and editing, and provide training to these experts;
- e) Ensure a mechanism for updating information regularly into the database;
- f) Recommend the development of an offline database, or datasheets to ensure that the information is available to everyone
- g) Create a technical team that validates any new information proposed for addition to the website. The head of the technical team would have administration rights as manager for the database.

4. List of people consulted

People who contributed information to this database are as follows:

4.1 Information given via the workshop:

Richard Awa (IRAD) , Vitalis Chepnda (MINEPIA), Simon Patrick Dambo (MINEPDED), Ejolle Ehabe (C.D.C), Eugene Ejolle Ehabe (IRAD Ekona Regional Research Center), Berthe Fahag (Secretariat), Zealous Fantong (DPMH), Mary Fosi (Consultant CBP), Justin Fotsing (FAO YAOUNDE), Jean-Paul Ghogue (National Herbarium), Patrick Guiebouri Mamia (MINEPDED), Gabriel Ambroise Manga (IRAD Ekona, Njombe Multipurpose Station), Yves Nathan Mekembom (Limbe Botanic Garden), Christian Moundjoa (MINEPIA), Sabina Nanyonge (Mapania women's farming group), Alice Ndikontar (MINADER), Peter Ngeke Ngando (Wonya Lioto Farmers Association), Armand Nkwescheu (MINSANTE), Nwaga (University Yaounde 1), Jean Michel Onana (National Herbarium), Sakwe (University Buea), Martine Zanga Ekodo (Secretariat), Joseph Kengue (IRAD).

4.2 Information from the report MINEPDED (2013)

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4.3 MINEPDED IT Team

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<http://www.apsnet.org/edcenter/intropp/lessons/Pages/default.aspx>

BioNET EAFRINET:

<http://keys.lucidcentral.org/keys/v3/eafrinet/weeds/key/weeds/Media/Html/index.htm>

CABI: <http://www.cabi.org/isc>

Crops Knowledge Master, Hawaii:

<http://www.extento.hawaii.edu/kbase/crop/Type/pentalon.htm>

FAO <http://www.fao.org/ag/aqp/AGPC/doc/qbase/latinsearch.htm>

GISP: <http://www.issg.org/database/welcome/>

ICRISAT: <http://eprints.icrisat.ac.in/view/subjects/>

IUCN Red List: <http://www.iucnredlist.org/>

Munich Botanical Gardens http://www.botmuc.de/en/audio_tour/205.html

OIE <http://www.oie.int/for-the-media/animal-diseases/animal-disease-information-summaries/>

SANBI: <http://www.plantzafrica.com/plantcd/cyperuspap.htm>

USDA APHIS: http://www.aphis.usda.gov/wps/portal/aphis/ourfocus/planthealth/sa_manuals