Digitization of biodiversity information and literature in sub-Saharan Africa – a case study from Ghana

Alex Asase

University of Ghana

aasase@ug.edu.gh

Introduction

- Biodiversity is about the variety of life. At least 40% of the world's economy and 80 % of the needs of the poor are derived from biological resources.

- In sub-Saharan Africa including Ghana, biodiversity is very important for daily subsistence, health care and nutrition as well as for economic income. The biodiversity is, however, declining at an unprecedented rate .

- It important to note that 8 of the world 34 biodiversity hotspots can be found in Africa.

Conservation International
February 2005

• In Ghana, several factors including land-use change, agriculture, mining and wild fires continue to pose significant threats to biodiversity .

•The National Biodiversity Strategy document for Ghana has indicated lack of accurate information on biodiversity for users.

Biodiversity information required

- Baseline data on biodiversity
    - Checklist of flora and fauna.
    - Conservation status of species.
    - Threatened and Invasive species.

Users

Scientists   Park managers
Researchers   General Public
Policy Markers

- Species level info and user-friendly tools
    - Flora and Field guides.
    - Images and illustration of species.
    - Distribution maps.

Scientists   Park Managers
Researchers   Security services
Plant exporters Schools

- Ecosystem level data
Plant-Animal interactions
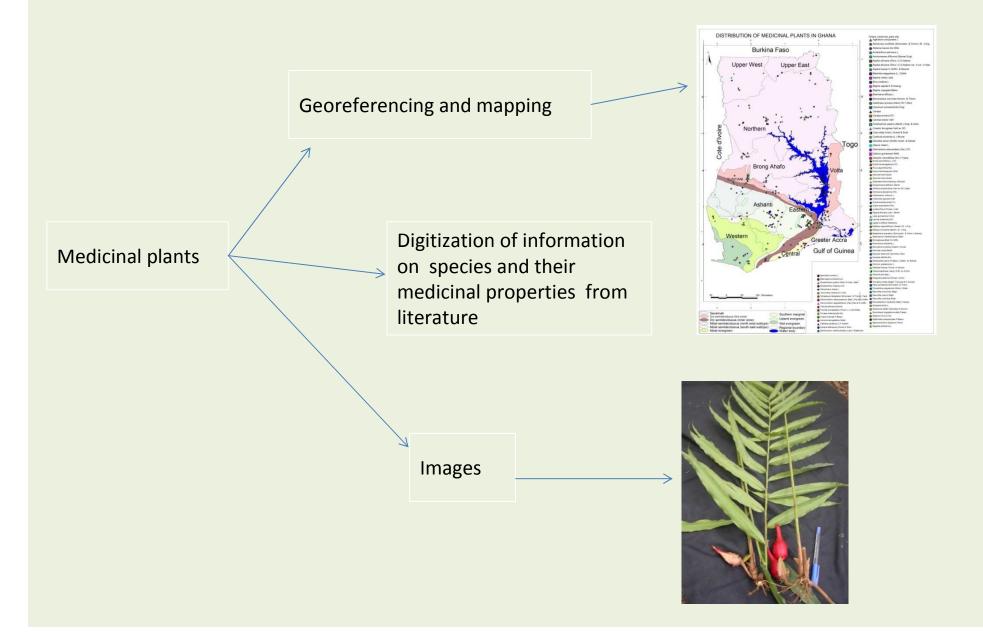
Scientists   Researchers

Digitization of natural history collections in Ghana

- Started in Jan. 2009 with funds from JRS although some earlier initiatives existed to address info needs.

- Digitization of botanical specimens was done in three herbaria - GC, KUM and CSRPM.

- Digitization was achieved using BRAHMS software and Herbscan (imaging).

- Statistics on digitized botanical specimens.
    - 131,860 specimens.
    - 85,279 records.
    - 10,229 species.

    - Specimens at the insect museum in the Dept. of Animal Biology and Conservation Sciences were also digitized (ca. 8000 specimens).

Preliminary work towards meeting user's needs

Medicinal plants

Georeferencing and mapping

Digitization of information on species and their medicinal properties from literature

Images

Challenges

- Ownership and Intellectual Property Right (IPR).
    - GhanaBIF MOUs between partners.
    - Training on IPR.

- Tools and Infrastructure requirements.
    - High internet speed.
    - Software and hardware.
    - Uninterrupted power supply.

    - Inadequate access to literature on biodiversity.

    - Lack of adequate (requisite) capacity in informatics and other best practices.

    - Funds to support further mobilizing and digitization of specimens, species and ecosystems level data.

Next steps

- The institutional arrangements for further digitization and sharing of biodiversity information are available through the Ghana node of GBIF, Library Board as well as the National Biodiversity Committee.

- Data repatriation from institutions such as Missouri Botanic Gardens and Smithsonian Institute which contains collections from Ghana and largely West Africa is needed.

- Collaborations with relevant intuitions, i.e. BHL and EOL will be the right step towards improving the quality of our digitized data and subsequently the type of biodiversity information on species that is shared.

- Further mobilization and digitization of biodiversity data as well capacity building in biodiversity Informatics within the West African sub-region by JRS should be considered a priority given fact that it is a biodiversity hot spot.

Acknowledgments