Project Brief

This project is digitizing collections of moths and butterflies (Order: Lepidoptera) in Museums in Kenya, Uganda and Tanzania targeting Lepidoptera pollinator specimens in three families, Sphingidae (hawkmoths), Hesperiidae (skipper butterflies) and Papilionidae (swallowtail butterflies). The Museum collections are being enhanced with specimens collected from biodiversity hotspot localities, the Eastern Arc Mountains in Kenya (Taita hills forests), Tanzania (East Usambara forest) and Mabira forest in Uganda. Sampling of voucher specimens is being done in the forests and the surrounding farmlands to capture the target species diversity in both landscapes.

Advances in Achieving the Project Objectives

(i) Establishment of Partnerships:

Partnerships have been established for effective data retrieval collaboration in mobilizing Lepidoptera pollinators’ data in Kenya, Uganda and Tanzania. The first regional training workshop was held in Kenya with participants from the three countries. In addition 8 participants from seven key stakeholder Institutions in Kenya, Nature Kenya, National Environment Management Authority, Kenya Forest Research Institute, Kenya Water Towers Agency, Kenya Wildlife Service, Kenya Agriculture and Livestock Research Organization and Shigarro Butterfly Farmer (Taita Taveta County) also attended.

(ii) Survey on biodiversity data end-user needs

Through a questionnaire, a survey was undertaken to determine biodiversity data end user needs from 32 institutions in Kenya, Uganda and Tanzania. The 37 responses from 32 institutions indicated 89 % frequently need biodiversity data in their work and 80 % get it from local institutions in form of reports, followed by digital documents, maps and also from specimens. Occurrence data and distribution maps were ranked as the very useful forms of biodiversity information and online information and electronic databases are the most preferred biodiversity formats. Only 32 % of the respondents require biodiversity information on moths and butterfly as compared to 53 % who require the same for plants, probably indicating the lack of knowledge on moths and butterflies as pollinators.

(iii) Capacity Building

The project has undertaken training on specimen collection techniques, species identification, curation, digitization, collection data management and publishing. The Integrated Publishing Toolkit (IPT), a free open source software tool used to publish and share biodiversity datasets through GBIF network in compliance with the five terms of the JRS Open Data Policy regarding access, timelines, licenses, standards and compliance. The project is enhancing capacity in Lepidopteran pollinator biodiversity informatics and taxonomy and three young scientists are currently undertaking research for their Master of Science Degrees in the project.

(iv) Field studies of the target Lepidoptera species

The field studies are in progress in the Eastern Arc (Taita hills forest [Kenya] and East Usambara forest [Tanzania]) and Mabira forest [Uganda] and the surrounding farmlands.

Acknowledgement

The project is supported by the JRS Biodiversity Foundation.

for Partnerships with Makerere University and the National Museum of Tanzania.

Kenya:

Esther N. Kikoi (PhD)
Senior Research Scientist
(Agricultural Entomology)
and Head, Zoology Department
National Museums of Kenya
P.O Box 40658-00100.
Nairobi, Kenya
Email: ekikoi@museums.or.ke

Uganda:

Anne Akol (PhD)
Professor of Entomology
Department of Zoology, Entomology and Fisheries Sciences
College of Natural Sciences
Makerere University. P.O. Box 7062.
Kampala, Uganda
Email: akolam50@gmail.com

Tanzania:

Adelaide Sallama (MSc)
Curator of Biology
(Evital Ecology & Restoration)
National Museum and House of Culture
National Museum of Tanzania
P.O. Box 511
Dar es Salaam
Email: adel slaves5mon@yahoo.co.uk

Fig. 1: Target Lepidoptera families: Sphingidae (Hawkmoths), Hesperiidae (Skipper butterflies) and Papilionidae (Swallowtail butterflies)

Fig. 2: Sphingid, hesperiid and papilio butterfly. Spectacular insects that pollinate plants

Fig. 3: Participants of the project Inception workshop held at NMK Kenya in March 2017

Fig. 4: Responses by Institutions in East Africa on the sources and use of biodiversity information

Fig. 5: MSc Student, spreading hawkmoths in Tanzania, a drawer of databased hawkmoths (Acherontia atropos) and a wooden insect cabinet for specimen storage

Fig. 6: Farmlands around Mabira (Uganda) - Taita Hills forest (Kenya) and East Usambara Forest (Tanzania)

Fig. 7: Some of the target species recorded at the study

Fig. 8: Paw paw, African indigenous vegetable - Spider plant and Macadamia in Taita Hills Farmlands