Meliponula bees are insects like honey bees and known in East Africa for their little sweet honey usually harvested in the wild by young people. The number of local names for *Meliponula* bees in the region reflects their familiarity though people do not describe them as bees but just insects. These bees are stingless and are among a number of genera known as stingless bees This factsheet intends to provide information about these bees to aid farmers in understanding them, protecting them and ensuring their crops get the best pollinator at times of flowering period.

Common Name (Language)

Stingless bees (English); Maranga, Obwiza, Obugashu, Obuzagali, Obuganza (Abayanda or pygmy language of Uganda), Obuhura (Rukiga language-Uganda), Ebihura (Kinyarwanda-Uganda); Ngilû and Mbûa (Kamba – Kenya)

Scientific Classification

Kingdom: Animal
Phylum: Arthropoda
Class: Insecta
Order: Hymenoptera
Family: Apidae
Subfamily: Melipininae
Tribe: Meliponini
Genus: *Meliponula* Cockerell, 1934

Species in the Genus

Stingless bees are a large and diverse group comprising some 60 genera, many of which are poorly known (Rasmussen & Cameron 2010; Roubik 2006). Today, over 600 species in 56 named genera have been named from tropical and subtropical areas of the world. *Meliponula* bees are a small genus with species only found in sub-Saharan Africa.

Representative Species in East Africa

Meliponini bees are among the best known taxonomically of the Meliponini bee species occurring in East Africa - Rwanda, Burundi, Kenya, Tanzania, Uganda (Eardley & Urban 2010, Byarugaba 2004, Kajobe 2008). However, it is likely that more than the six Afrotropical *Meliponula* species documented by Eardley & Urban (2010) occur in East Africa.

Description

Meliponula species are not known by local people in East Africa as bees but people are familiar with them particularly because of their precious honey. *Meliponula* bees are small to medium sized bees in the tribe Meliponini (or stingless bees). Meliponini, along with the honey bee (tribe: Apini) constitute the two highly eusocial bee groups. i.e. bees that live in large colonies of individuals in which there is a division of labour including reproductive queens and sterile workers.

Economic / Ecological importance

These bees are social and live in colonies. They require both pollen and nectar for themselves and the colony. They thus are important pollinators of crops and plants where they effect pollination while collecting their food resources. In so doing, they enhance productivity of crops, which in turns provides farmers with more income from commodity sales. They seem to be good candidates for commercial pollination particularly in greenhouse crops (Slaa et al, 2006). In addition, farmers have enough to eat, both quantity and quality wise. At ecological level, they pollinate shrubs and plants and ensure their reproductive success. Some of the shrubs are important in erosion control and are source of food to animals and wildlife. Their presence is a good indicator of ecosystem

Similar Taxa/Possible Causes of Confusion

Some insect species look like large *Meliponula* bees. These include other stingless bees in the genus *Plebeina*. Plebeina bees are mostly smaller than *Meliponula* bees. Some hoverflies can resemble

Meliponula bees like *Meliponula bocandei.* Flies can be distinguished from *Meliponula* bees as they have only two wings while bees have four wings.

Documented Distribution in Kenya, Tanzania, Uganda

The genus *Meliponula* is found in most Districts/Regions of Uganda, Kenya and Tanzania (Eardley et al. 2009).

Habitats

Meliponula bees are well distributed in tropical Africa and can be found in various specific habitats (land-uses) in East Africa such as grasslands, natural forests, wetlands, marshlands, protected areas, farmlands, woodlands, woodlots (forest plantations) and riparian forest areas.

Nesting Sites

Meliponula bees use various structures in the nature for nesting. These are social bees that nest both in the soils and in wooden materials (Michener 2007, Eardley 2005). In Uganda, when collected in agricultural landscapes, these bees are commonly found nesting in termite mounds and sometimes on walls of old buildings. In forest habitats, these bees are observed nesting in holes found in dead and living standing trees. In savannah ecosystems, these bees are frequently found nesting underground in of dry dead stumps or in standing stumps of shrubs. Overall, these bees prefer choosing their nests near or inside primary, secondary or degraded forest habitats. In Uganda, these bees are also seen nesting in leaves of wetland plant species (e.g. *Papyrus*).

Crops Visited

Meliponula bees are among the most efficient crop pollinators in East Africa. These bees collect nectar and pollen from various flowering crop species belonging to a large number of plant families found in East Africa. These bees visit almost all crop plant species.

Other Plants Visited

In Uganda, *Meliponula* bees have been recorded visiting flowering plants from almost all plant families. Either in natural or in farmland habitats, they frequently visit almost all shrub/herbaceous flowering plants with flowers of different colours and sizes, especially those with yellow to white flowers of small size.

Threats

These bees, just like the others, are threatened by factors such as habitat degradation, agricultural intensification, the overuse of pesticides . Information about the effects of their and pests and diseases is lacking though these play important ecological role in regulation of population dynamics of species.. These species are also threatened by unsustainable exploitation of their honey. In Uganda, they have been wrongly described together with honeybees as vector of banana bacterial wilt, making them vulnerable to the control measures employed by banana growers.

Conservation and Management Practices

here have been some attempts in domesticating stingless bees in East Africa. Stingless bee beekeeping is known as meliponiculture. It is not yet well organized in East Africa but is of great potential for small-scale farmers as source of income and as source of pollinators for particularly the greenhouse farming which has become very important in the region. Theoretically, bee conservation and management is inexpensive and adopted activities can also improve the aesthetic value of the landscape. Such practices involve setting land aside (e.g. a 1-metre strip) in the farmland to host all year round food resources for the bees, as well as safer sites for nesting, mating, resting and hiding from natural enemies (Slaa et al. 2006). During flowering, farmers should manage pesticide usage carefully to avoid poisoning flower-visiting bees. Farmers should also minimise pesticide drift from the field to adjacent areas. Other management measures for these species are educating people not to destroy nests while collecting honey, management of bee pests and diseases and provision of good nesting sites (Eardley et al. 2009).

Legislation (National and International)

There is not yet any legislation in East Africa that explicitly addresses pollinators. However, there is scattered legislation for the protection of biodiversity particularly that covering environmental protection,

protection of wildlife and heritage sites, protection of forests and natural resources such as water catchments. In addition, laws governing registration and use of plant protection products also indirectly play a major role in the protection of pollinators. Such legislation, together with developments such as the Good Agricultural Practices (GAPs) codes, standards and regulations may help to protect bees albeit incidentally. Farmers should lobby their governments to develop Integrated Pest Management policies that would protect bees and other useful insects of importance in agriculture.

Sources of Further Information and Links

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Acknowledgments

We recognise the support from the Kenya Agricultural Research Institute (KARI), Busitema University (Faculty of Natural Resources and Environmental Sciences) - Eastern Uganda, Tropical Pesticide Research Institute (TPRI) – Tanzania. This activity was undertaken as part of the BioNET-EAFRINET UVIMA Project (Taxonomy for Development in East Africa).

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