Tropentag, September 18-21, 2016, Vienna, Austria

"Solidarity in a competing world — fair use of resources"

Seasonal Diversity and Abundance of Bee Pollinator Species in a Sudanese Agro-Ecological System (Burkina Faso, West Africa)

Drissa Coulibaly[1], Katharina Stein[2], Souleymane Konaté[1], Karl-Eduard Linsenmair[2]

[1] *University Nangui Abrogoua, Dept. of Research in Ecology and Biodiversity, Ivory Coast*

[2] *University of Wuerzburg, Theodor-Boveri-Institute of Bioscience, Dept. of Animal Ecology and Tropical Biology, Germany*

Abstract

Bees are the most important pollinators of many crops and wild plant species. The ecosystem service of pollination provided by these insects is crucial to maintain overall biodiversity and to secure crop yields worldwide. Especially improving the livelihood of smallholders in developing countries through higher crop yields is essential for achieving global food security and poverty reduction. However, ecosystem degradation, depletion of plant species, habitat fragmentation, use of insecticides and global warming constitute severe threats to these organisms with some being clearly at risk of extinction. Despite the great ecological and economic importance of bees as pollinators hardly anything is known about the bee species in West Africa. The study aimed to assess bee communities of a Sudanese agro-ecological system in Burkina Faso. We investigated the diversity and abundance of bees in near-natural savannah habitats and in nearby fields of the main cash crops of this area (cotton, sesame). Bees were caught with 288 coloured pantraps for the duration of one year, covering the dry and rainy season. A total of 97 species of bees belonging to 31 genera and 4 families (Apidae, Megachilidae, Halictidae, and Colletidae) were determined.

The most diverse family with 37 wild bee species was Halictidae (sweat bees). Apidae (including honey bees, bumble bees and stingless bees) was the most abundant family including 92.57 % of specimen collected. The stingless bee *Hypotrigona gribodoi* was the most abundant species with 73.74 % of all specimen. During the dry season, bees were more abundant in the savannah habitats due to the flowering period of many wild plants, whereas more bees were recorded in fields during the flowering period of agricultural crops in the rainy season (availability of food resources). This study represents first insights into the West African bee diversity in relationship with the increasing pressure by human activities and climatic variability in the Sudanese area. The assessment of bee species and their seasonal distribution is an important scientific basis for the establishment of appropriate management strategies and can be used to create mutually beneficial scenarios between biodiversity and crop yields and hence human wellbeing.

Keywords: Abundance, bees diversity, pollination, Sudanese area

Contact Address: Katharina Stein, University of Wuerzburg, Theodor-Boveri-Institute of Bioscience, Dept. of Animal Ecology and Tropical Biology, Josef-Martin-Weg 52, 97074 Wuerzburg, Germany, e-mail: katharina.stein@uni-wuerzburg.de