



Tropentag, September 17-19, 2018, Ghent

“Global food security and food safety:  
The role of universities”

## An Inventory of Invertebrates in an Agriculturally Impacted Floodplain Wetland of Kenya

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### Abstract

Wetlands ecosystems are rich in invertebrates, where they are known to facilitate key ecosystem services such as pollination and nutrient recycling. Some invertebrates act as biological control agents for crop pests and parasites, while others are source of food for local communities. Despite their importance to the well-being of humans and ecosystem health, invertebrate diversity and abundance are reportedly declining in many temperate and tropical ecosystems. This is possibly due to habitat degradation and loss, but also direct effects of agrochemical uses. To understand the effects of human activities and agricultural land use on invertebrates, we monitored the seasonal abundance of invertebrates in the Ewaso Narok Swamp on the semi-arid Laikipia plateau in Kenya between 2015 and 2016. We sampled during 6 seasons, representing 3-wet and 3-dry periods, and in four land use systems, representing different intensities of anthropogenic pressure (hemero-by) on the wetland ecosystem (pristine, grazed, fallow, and cropland). We used pitfall traps for ground-dwelling and sweep net techniques for canopy-dwelling invertebrates. Due to limited resources and taxonomic expertise, we focussed on class; Arachnida, Collembola and Insecta, hence soil-dwelling Anelida, Nematoda, and Mollusca were excluded from the present analysis. Preliminary results indicate that the floodplain is rich invertebrate fauna with 395 species 201 genera and 105 families recorded, mainly within the Arachnida, Collembola and Insecta. The class Insecta was the most abundant (51 % of all the individuals) and most species rich (80 % of the species), with a substantial share of potential biocontrol agents and some source of food by the local communities. The number of some genera for example *Omalium* was significantly lower in crop land (less than 5 %) than in grazing lands at (27 %), while it was prevalent in pristine areas and previously cropped sites 35 % and 37 % respectively. Most sensitive to the practice of soil tillage were ground-dwelling species of the family Carabidae. Seasonal effects were not significantly different. We conclude that abundance and the diversity of some invertebrates strongly respond to anthropogenic disturbances. Their potential uses as indicators of wetland disturbance or the effects of land use on wetland integrity and health will be discussed.

**Keywords:** Biodiversity, Ewaso Narok, hemeroby, indicator values, land use