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

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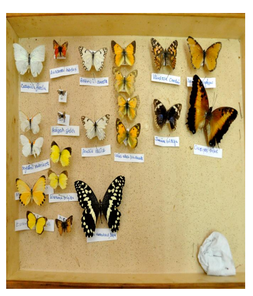

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Introduction

Invertebrates are dominant among multicellular organisms in terms of abundance, richness and sometimes biomass (Neves, 2009). They offer important provisioning, regulatory and supporting services.

Despite their high diversity and importance invertebrates have largely been neglected in conservation studies (Zamin et al., 2010).

There is inadequate taxonomic, distribution and abundance knowledge of diverse invertebrates taxa**.**

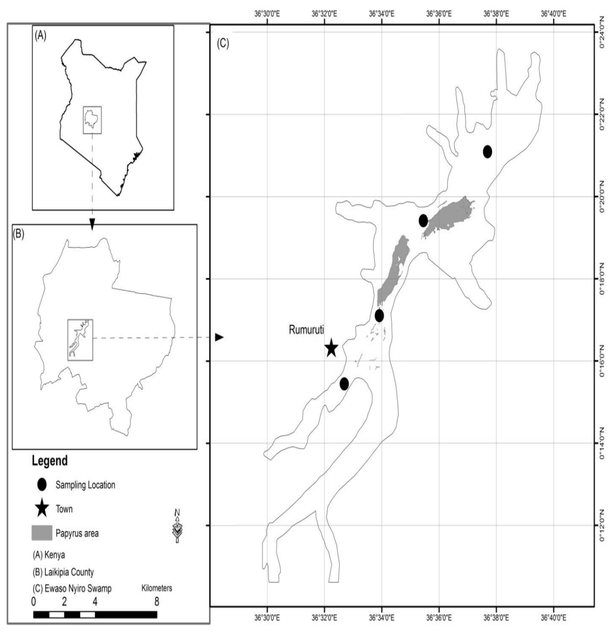
Objective of the study

Our objective was to monitor the seasonal abundance and diversity of invertebrates along a land use gradient.

Study Area

Ewaso Narok is a highland floodplain formed by Ewaso Narok River in the semi-arid Laikipia plateau, Rumuruti. It has been drained for crop cultivation, occasioned by unreliable rain fed agriculture.

Under Köppen-Geiger classification Rumuruti is included in the transition between the bioclimates" Tropical Savana" and "Temperate with Dry and Warm Summer" (Peel et al., 2007)



Methods

The invertebrates were trapped using

- Sweep net
- Pitfall traps

Sweep net for canopy dwelling invertebrates

Pitfall traps for ground dwelling invertebrates

Study design

It was based on land use regimes representing different intensities of anthropogenic pressure (hemeroby) on the wetland ecosystem

Crop Land

Fallow

Grazing Land

Pristine

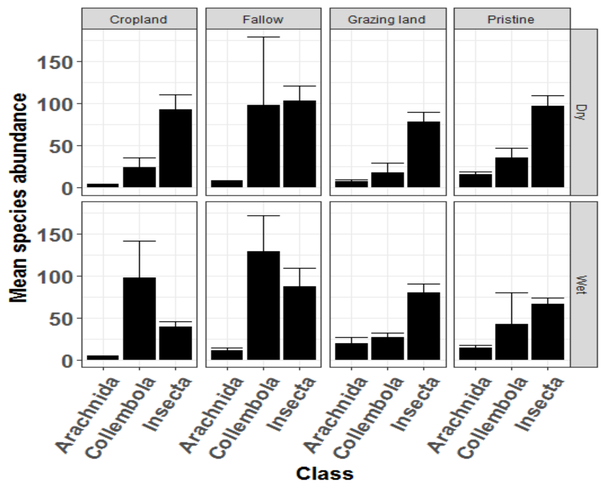
Preliminary results

Due to constrained resources and limited taxonomic expertise we focused on three groups; Arachnida, Collembola and Insecta for the analysis.

From 3,000 samples, we collected 36,000 individuals, constituting 395 species. Class Insecta was the most species rich at (367) Arachnida (21) and Collembola (7).

An independent sample t-test showed no significant difference in mean species abundance in wet and dry season (t=- 0.51, df = 483, P< 0.61).

Similarly 1-way analysis of variance showed no significance difference in mean species abundance across the land use regimes (F=1.23, df=3, P> 0.29) See Figure below.



Conclusion

This first inventory reveals that the floodplain is rich in invertebrate diversity.
Their diversity in the different land use regimes is rich to be used for biological monitoring and as indicators of anthropogenic activities.

References

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