

EFFECTS OF FIELD MARGIN VEGETATION ON THE DIVERSITY AND ABUNDANCE OF INVERTEBRATE TAXA IN SMALL HOLDER FARMS IN NAKURU COUNTY

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Introduction

Presence of spatial and temporal diverse vegetation plays an important role in enhancing invertebrate taxa in agricultural ecosystems. Research findings have shown that agricultural intensification reduces and disrupts invertebrate taxa like the natural enemies responsive to natural pest regulation and crop pollination. This translates to direct reduction in crop yield (Pimentel and Peshin 2014; Potts *et al.*, 2016). For an effective natural pest regulation and pollination to occur, sufficient numbers of natural enemies are required throughout the cropping season. Hence it is important to provide alternate shelter other than the main crop such as hedgerows and weed margin strips to act as invertebrate taxa bankers. These will release the natural enemy in sequence with pest population build up dynamics and support their survival after harvesting the crop (Concepcion *et al.*, 2008; Woltz *et al.*, 2012). Sustainable conservation of natural enemies in field margin vegetation in farmlands in Kenya will provide an alternate method of pest control and increase crop yields. It will also reduce excessive use of pesticide and mitigate the its harmful effects on human, animals, organisms and the environment.

Materials and methods

Invertebrate taxa collection and field margin documentation

On farm sites : Njoro and Rongai - 8 farms (Replicates), 2 diversity environment

Methods deployed in field vegetation documentation

. Throwing a quadrat three times per field margin counting species identification aided by East Africa weed hand book

Method deployed in collection of invertebrate taxa

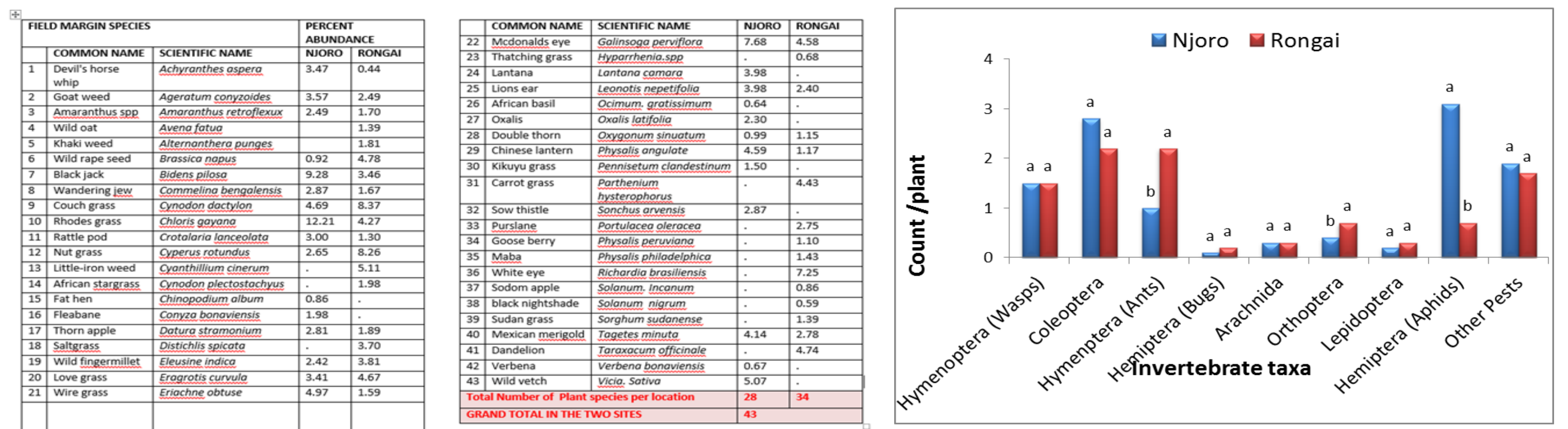
. Yellow Sticky traps, pan traps, suction traps and sweep netting

Data analysis

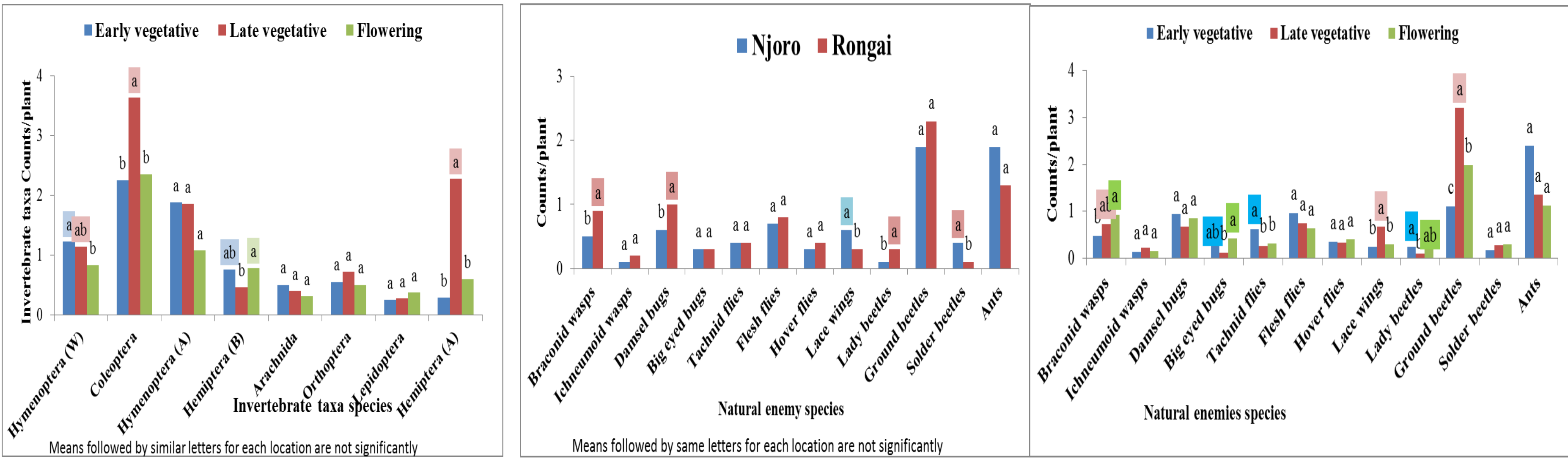
Data on invertebrate taxa counts and field margin species abundance was subjected to analysis of variance using PROC GLM using SAS software and treatment means separated using Tukey’s HSD test at $\alpha \leq 0.05$

Results

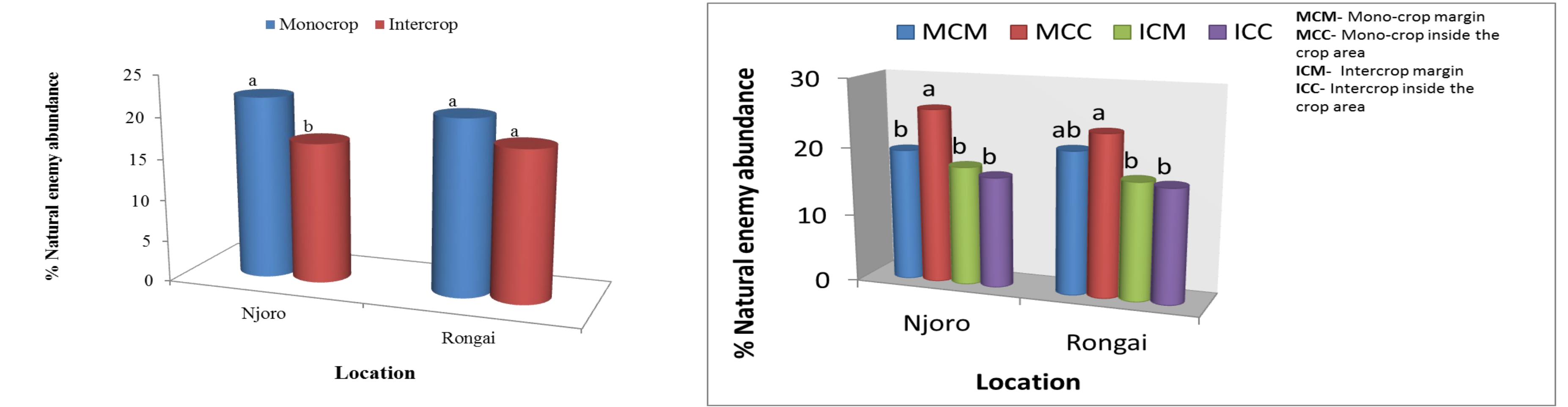
Effect of location showed diversity in field margin vegetation abundance and the associated invertebrate taxa in Njoro and Rongai



Invertebrate taxa species varied across the locations and the seasons, the same trend was observed on the natural enemies of the bean aphids on Dolichos lablab.



The natural enemy interaction was observed both in the Dolichos crop plots along with the field margin vegetation near the crop in Njoro and Rongai



Conclusion

- Locations have diverse margin vegetation but have equal potential in supporting invertebrate taxa populations.
- In the presence of natural growing margin vegetation the invertebrate taxa like the natural enemies are supported throughout the cropping season.
- Populations of natural enemies remain high in the field margin as well as the main crop with slight population deviation between the inter and mono cropping systems
- Field margin vegetation when incorporated in the Kenyan cropping system have a poten-

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GCRF -NaPROCLA project

