# Bee diversity and floral resources along a disturbance gradient, coastal Kenya

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# Background

While pollinators are declining due habitat destruction, more than 87% of land surface is unprotected

Accompanied loss of ecosystem services for human livelihoods and biodiversity

(Steffan-Dewenter and Westphal, 2008; Winfree et al., 2007; Kremen and Ricketts, 2000)

# Research questions

Q1.

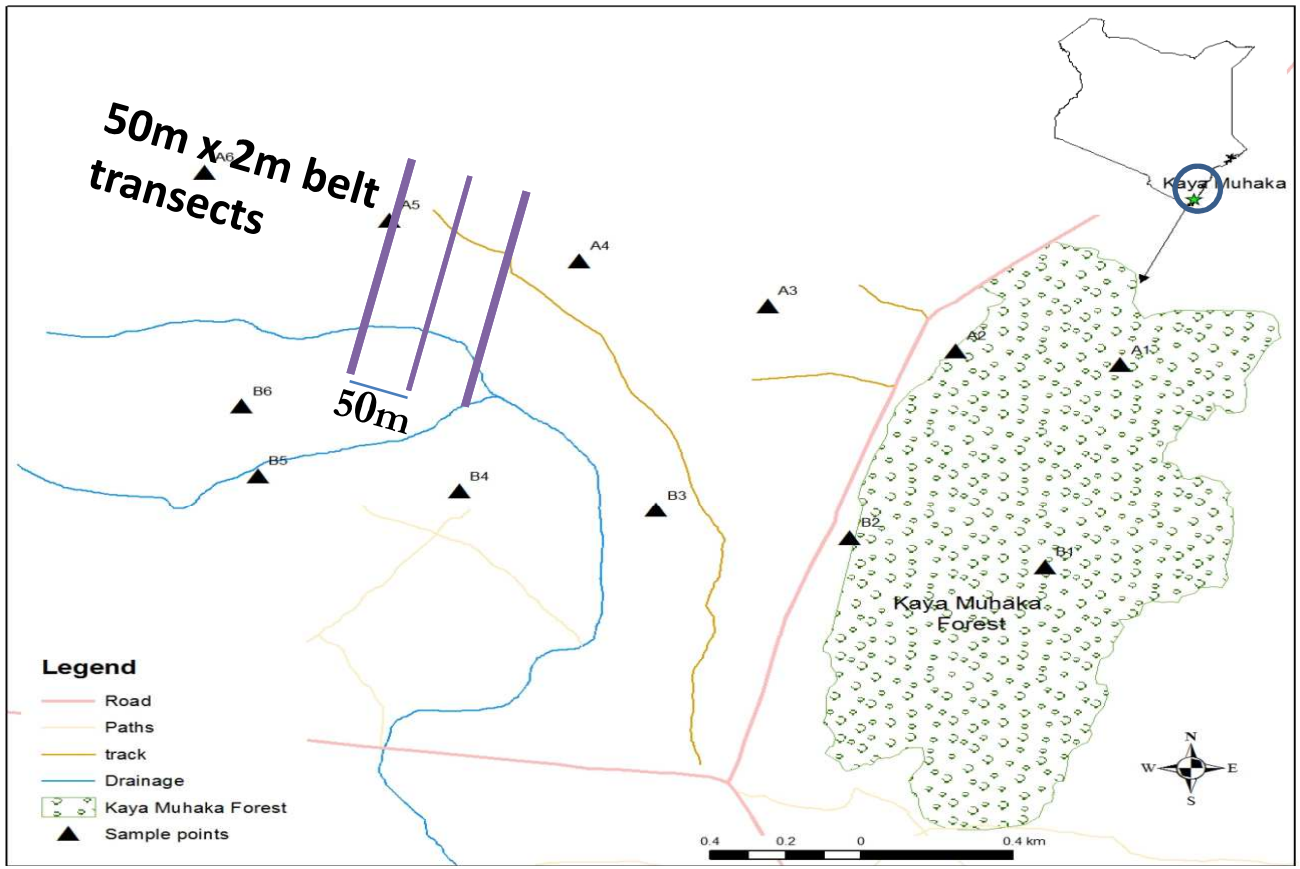
What is the effect of habitat type on diversity and abundance of bees?

Q2.

What is the relationship between bee species richness and floral resources richness?

Q3.

Does distance from the forest affect bee diversity and abundance?




Botanically diverse with ½ of Kenya's coastal rare plants

(Banaszak, 1996; potts *etal.,* 2003, Gikungu *et al,* 2011)

# Habitats

Forest edge

Agro-ecosystems/ fallow farmland

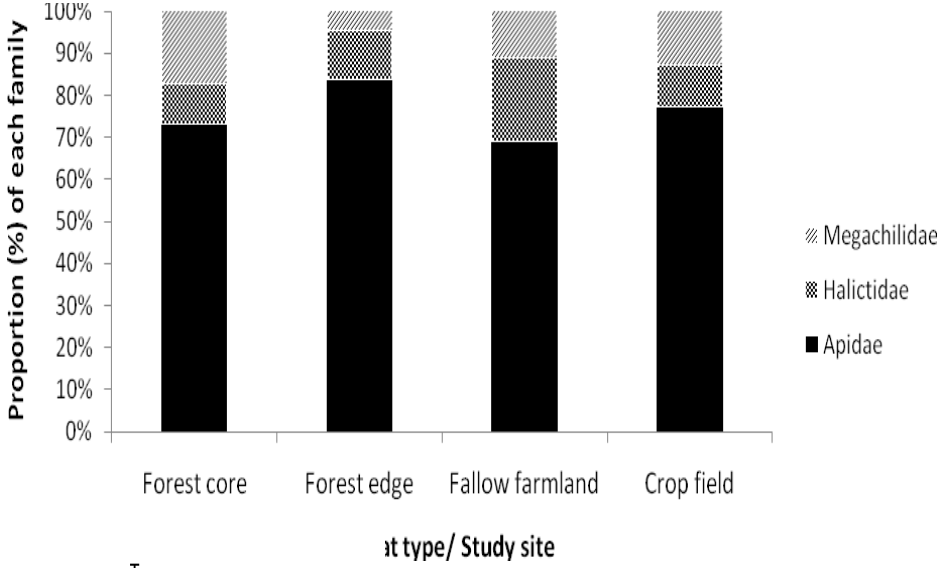
Farmland

Fallow Farmland

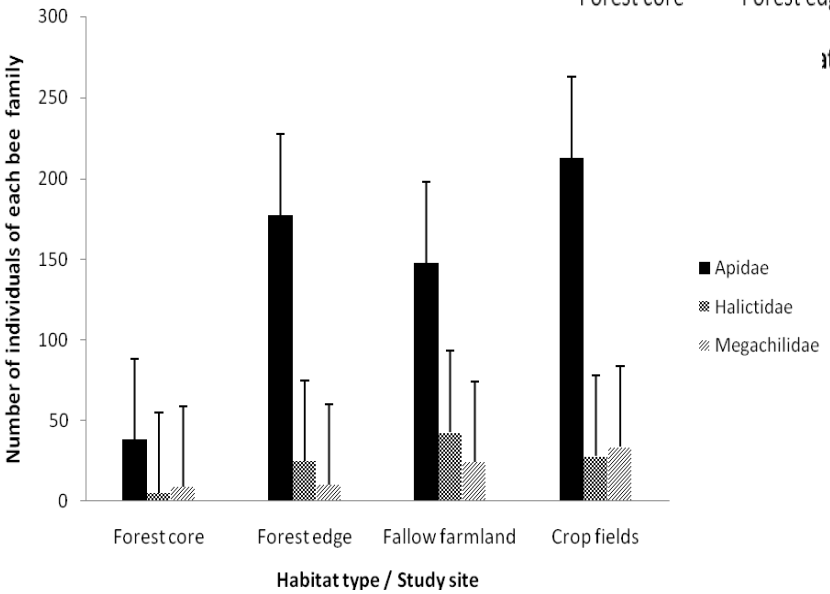
Forest core

# Results and discussion

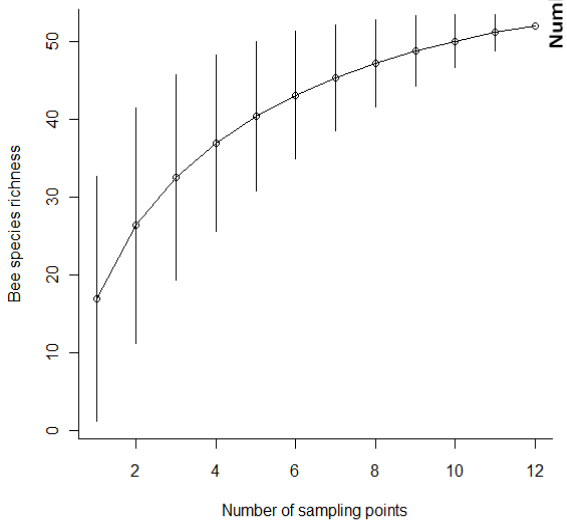
- 755 bee individuals
- 52 species bee species from 3 families;
- Dominance by Apidae;



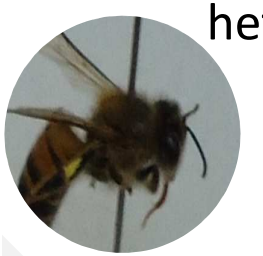

Overall high abundance in open farmlands

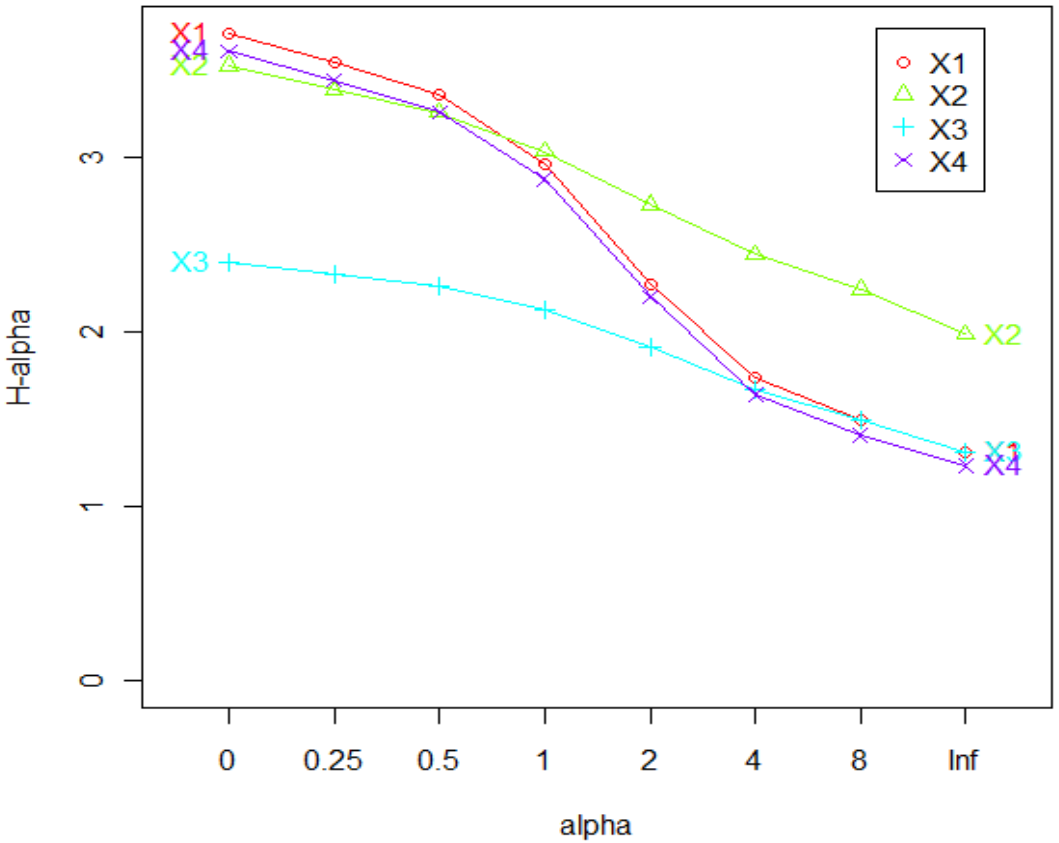



Relative abundance of 3 families

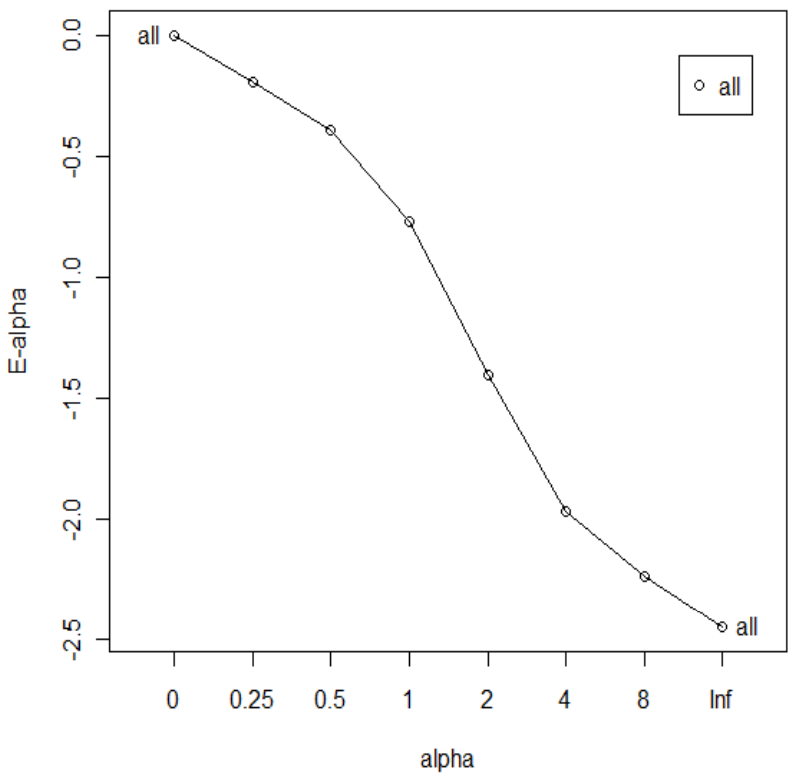



Overall high abundance in fallow farmlands due to heterogeneity and abundance of floral resources






Rényi diversity profiles for separate habitats




Evenness profile

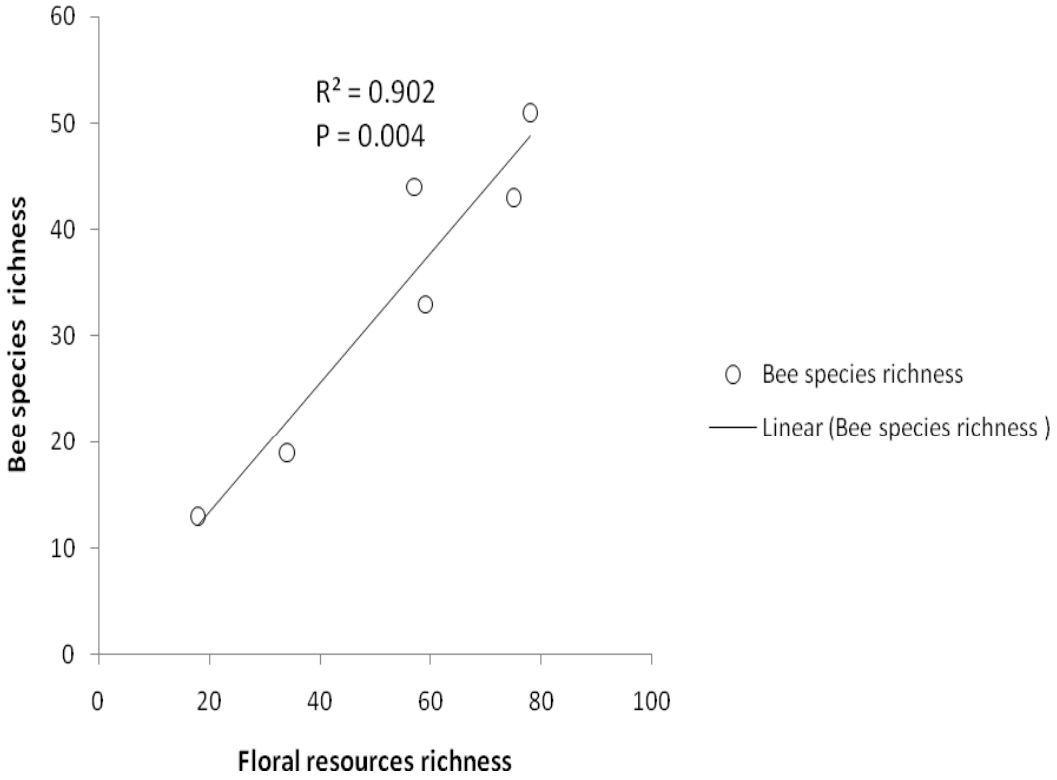
**Key: X1-Crop fields, X2-Fallow farmland, X3-Forest core, X4-Forest edge**

Habitat type had no significant effect on bee diversity

(P = 0.1853) ?

# Effect of floral resources

# What drives bee community structure?




Habitat quality and heterogeneity are more important factors influencing diversity and abundance and not distance from primary forest

Habitat diversity; Primary forests, forest edge, fallow farmlands and crop fields complement each other in bee conservation

Floral resources richness had significant positive effect on bee species richness

(P = 0.004, $R^2$ = 0.902)

Floral resources richness significantly influence bee diversity

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