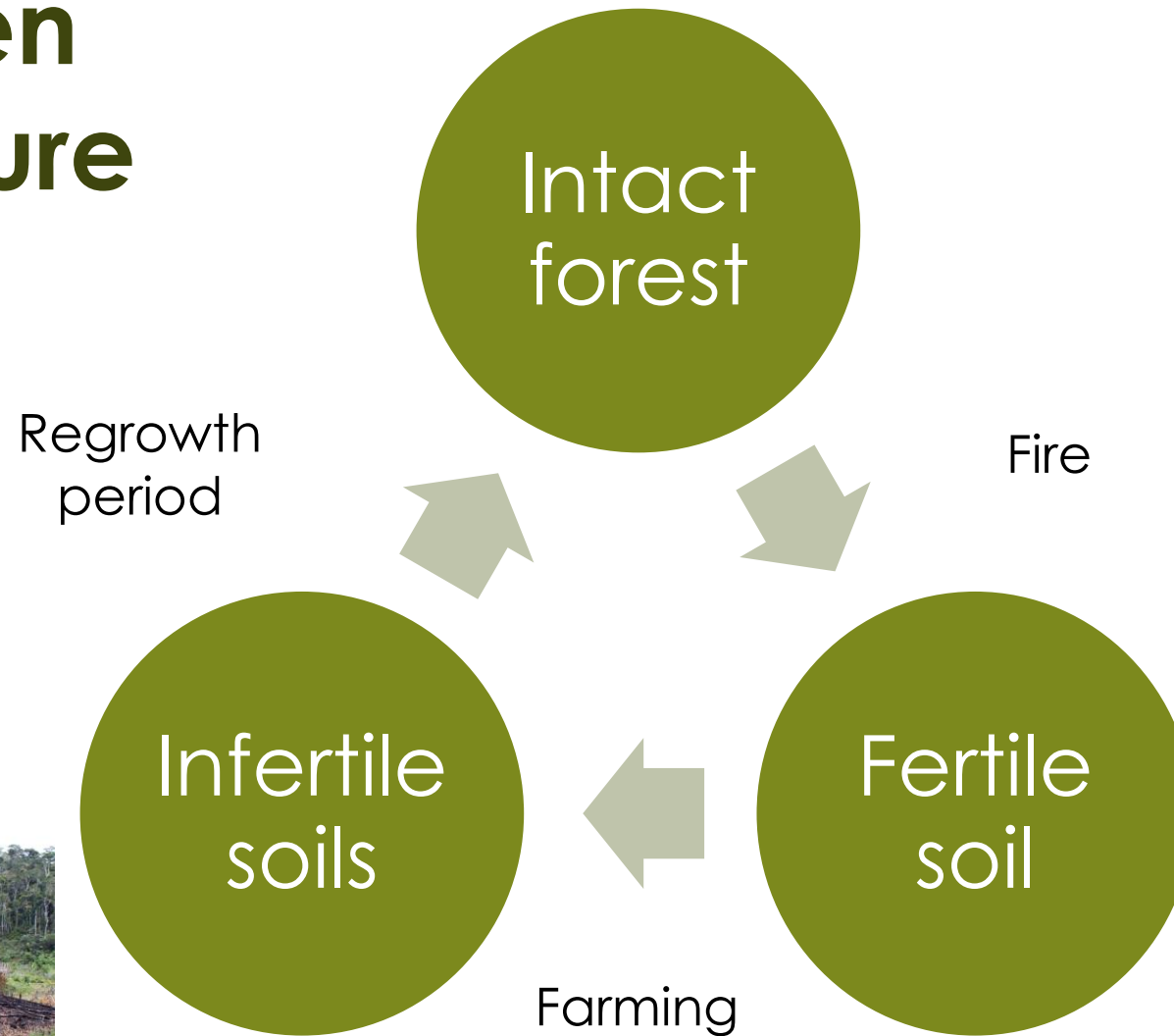


The effect of habitat degradation on earthworm communities in Madagascar

Maria Pestana Correia



Swidden agriculture



Swidden agriculture



Photo credit: Chuan Zhao



Photo credit: U. Radespiel



Photo credit: WWF Madagascar

Hypothesis

- Habitat degradation has a negative effect on earthworm abundance





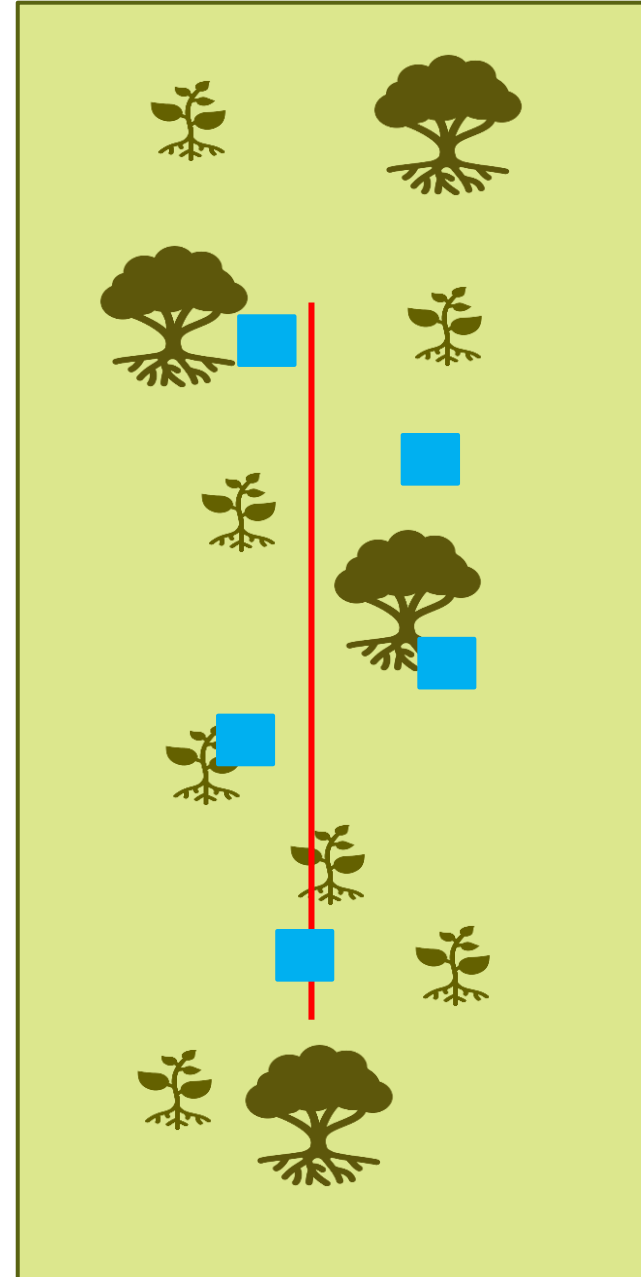
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- Field study in the Ankeniheny-Zahamena Corridor (CAZ)
 - 47 transects
 - 100 m long



Methods

- In each transect
 - 5 randomly selected sampling points (10 x 10cm)
- In total, 5 main habitat types and 721 earthworms were collected



Methods

- GLM with negative binomial error distribution and log link function

Response variable

- Earthworm abundance

Main explanatory variable of interest

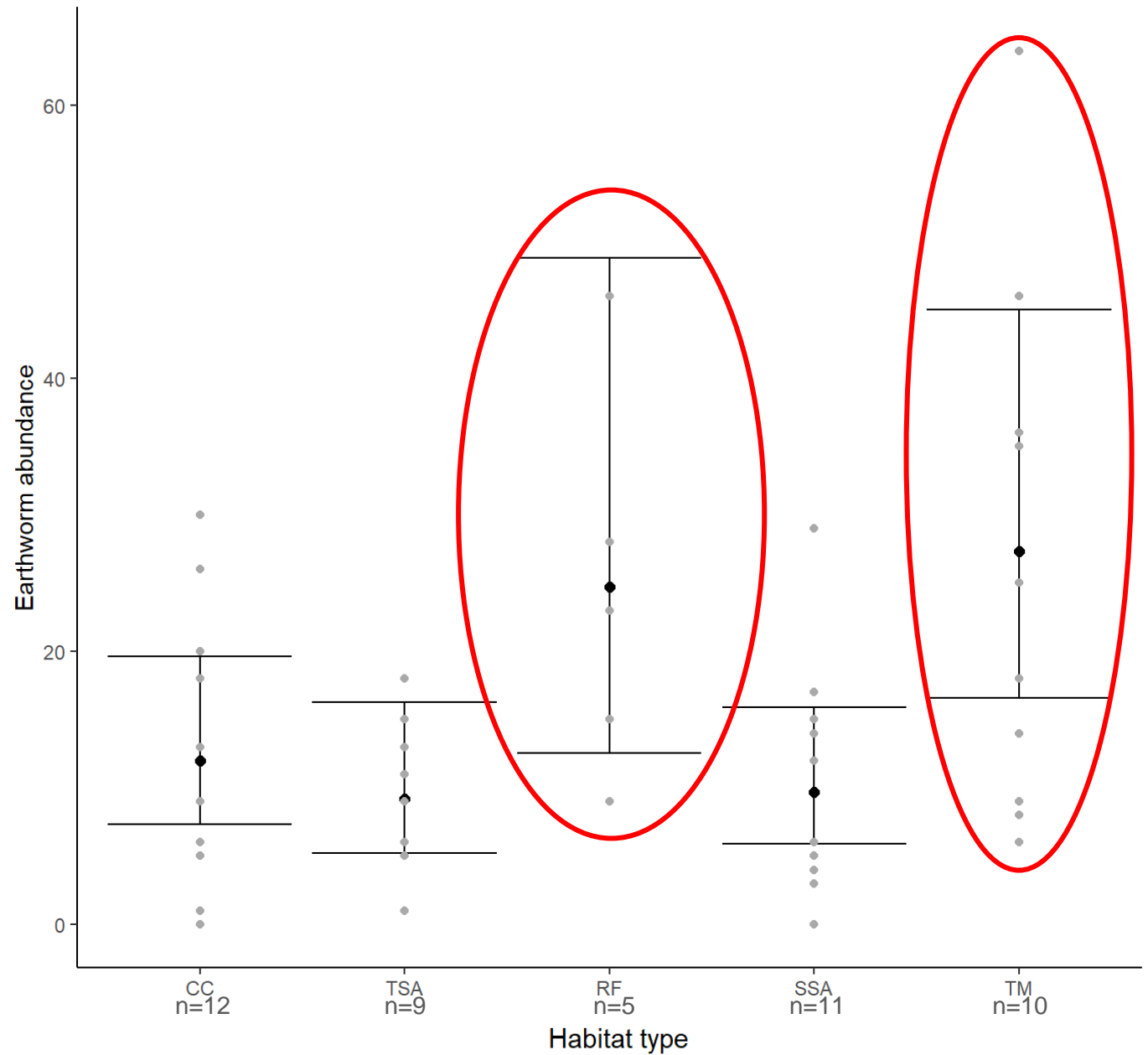
- Habitat type

Covariates

- Soil porosity
- Bulk density
- Saturated hydraulic conductivity

Results

- Earthworm abundance
 - Higher in reforested and degraded habitats
- GLM: Only significant in degraded agricultural land ($p=0.02$)



Why?

- Degraded agricultural land
 - Less competition in degraded areas
 - In Madagascar, 41% of earthworm species are invasive
 - Abundance may not be the most appropriate measure
 - Higher abundance but potentially lower species richness
- Reforested areas
 - Increased vegetation structure, nutrients and organic matter



Future studies

- Larger sample size
- Earthworm species richness or functional diversity
- Other environmental variables
 - Humidity
 - Soil nutrient availability



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