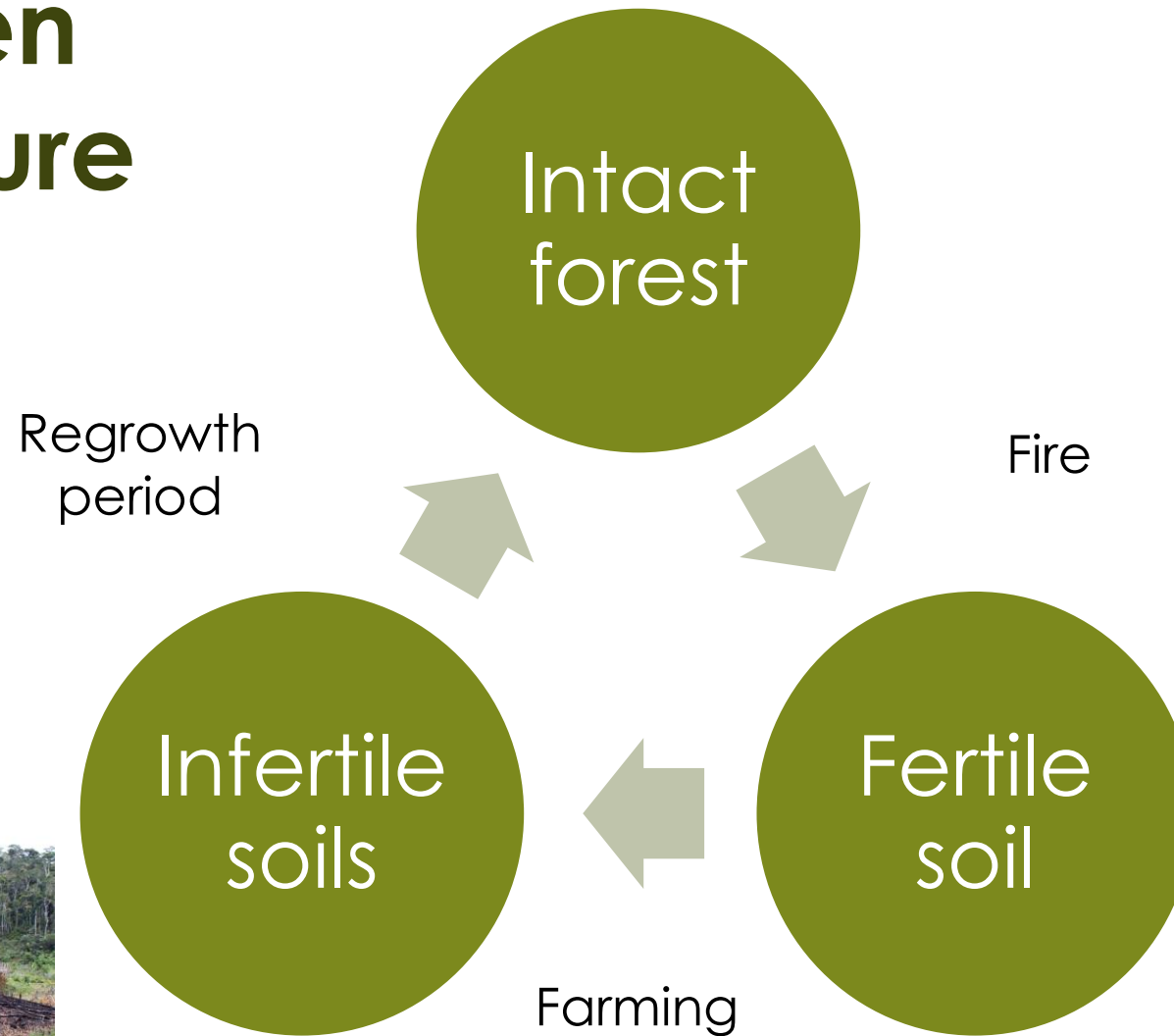


# The effect of habitat degradation on earthworm communities in Madagascar

Maria Pestana Correia



# Swidden agriculture





# Swidden agriculture





# Hypothesis

- Habitat degradation has a negative effect on earthworm abundance





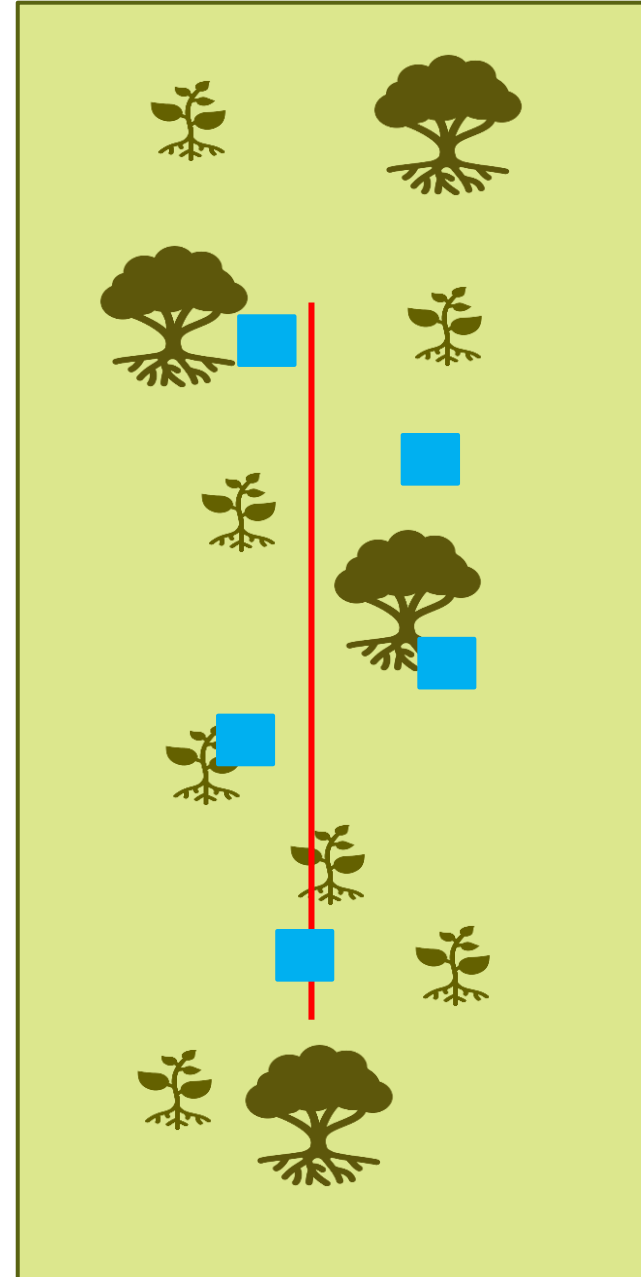
# can paying 4 global ecosystem services reduce poverty? [www.p4ges.org](http://www.p4ges.org)

- Field study in the Ankehienye-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

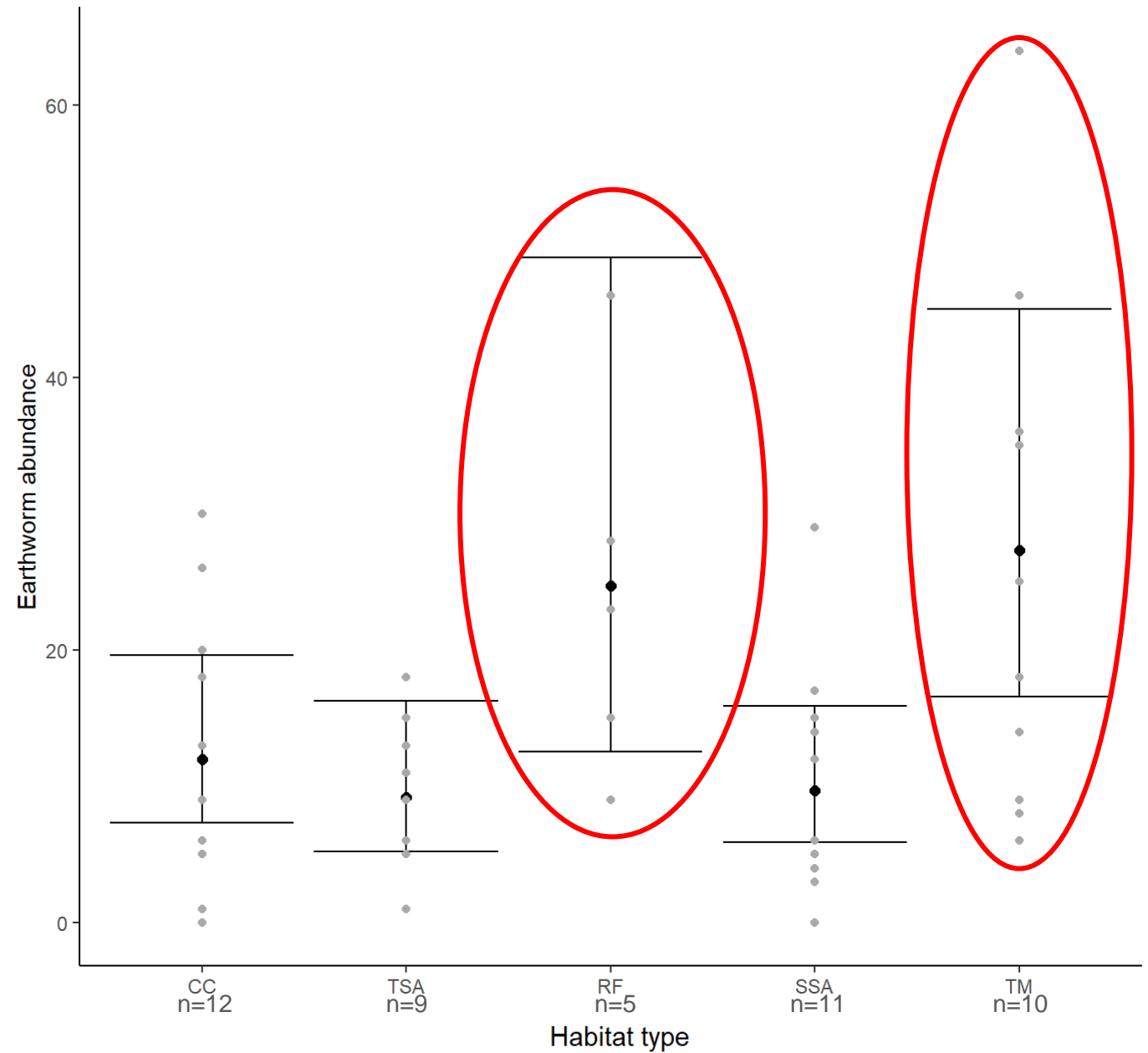
## Covariates

- 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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