



# *Towards an integrated management system across protected areas thematic and geographical boundaries*

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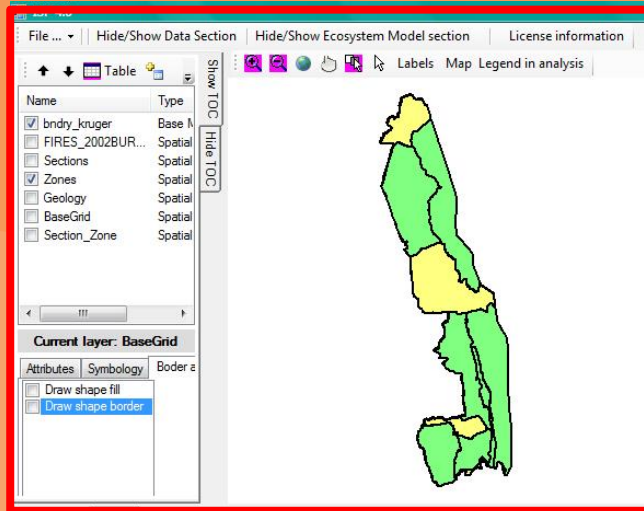


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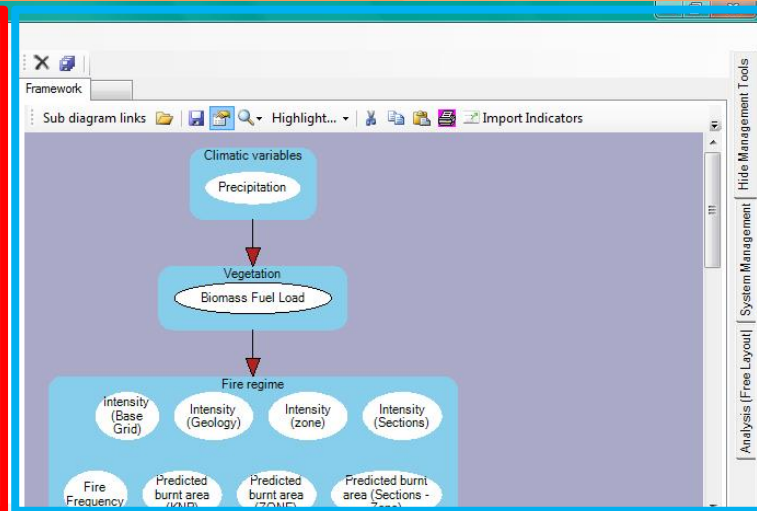


# Fire Management System – Kruger National Park

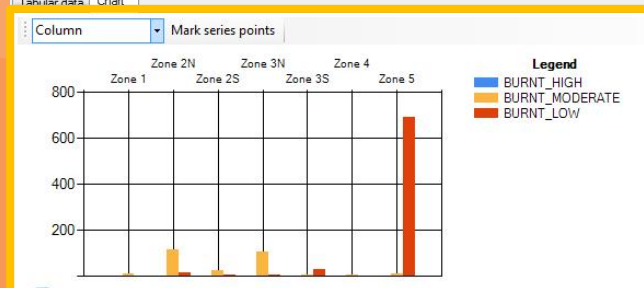
## GIS functionalities



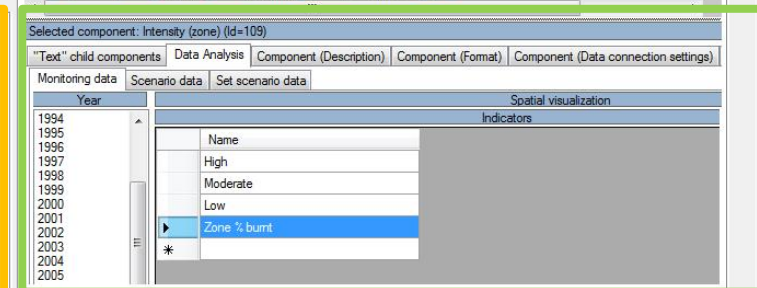
## Conceptual mapping



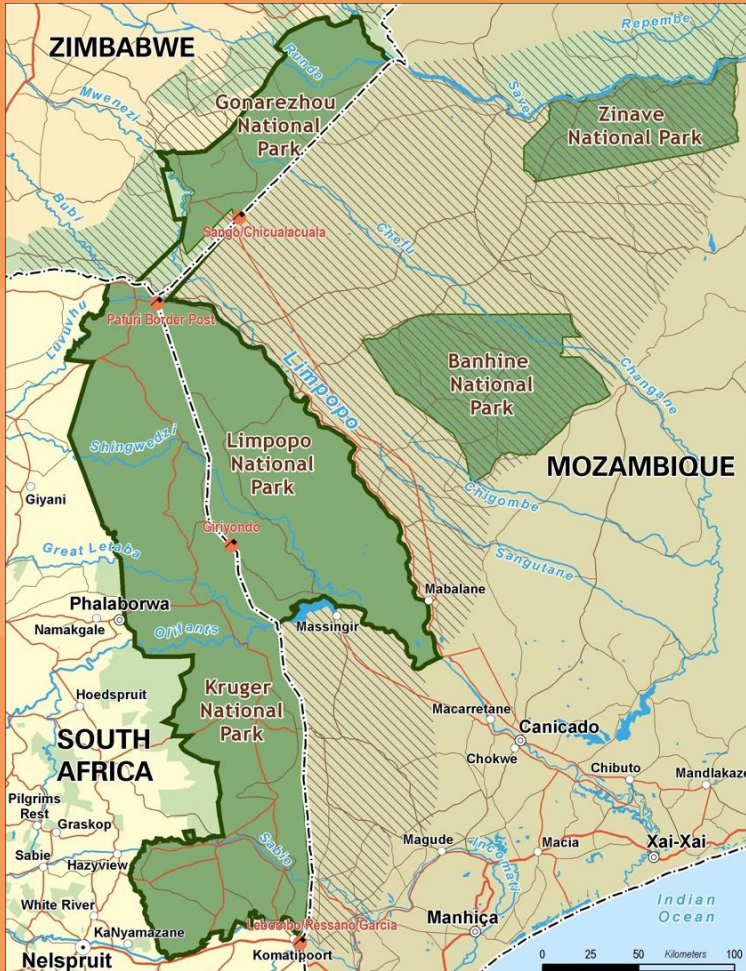
## Indicator data



## Component indicators



# Transboundary Management Systems



Water management system

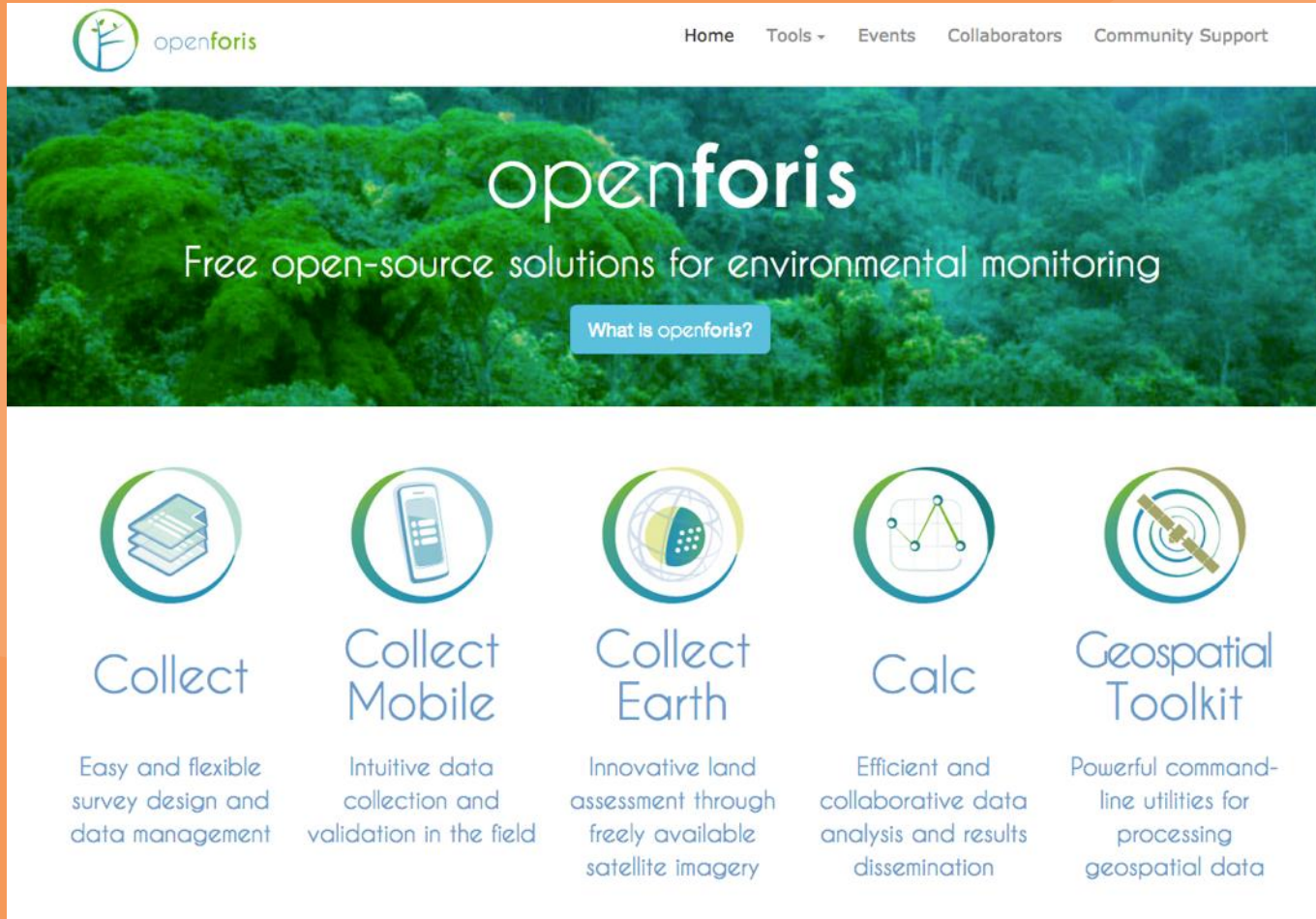
Fire management system

Biodiversity monitoring system

Transmission of diseases among  
livestock-wildlife-humans



# Open Foris

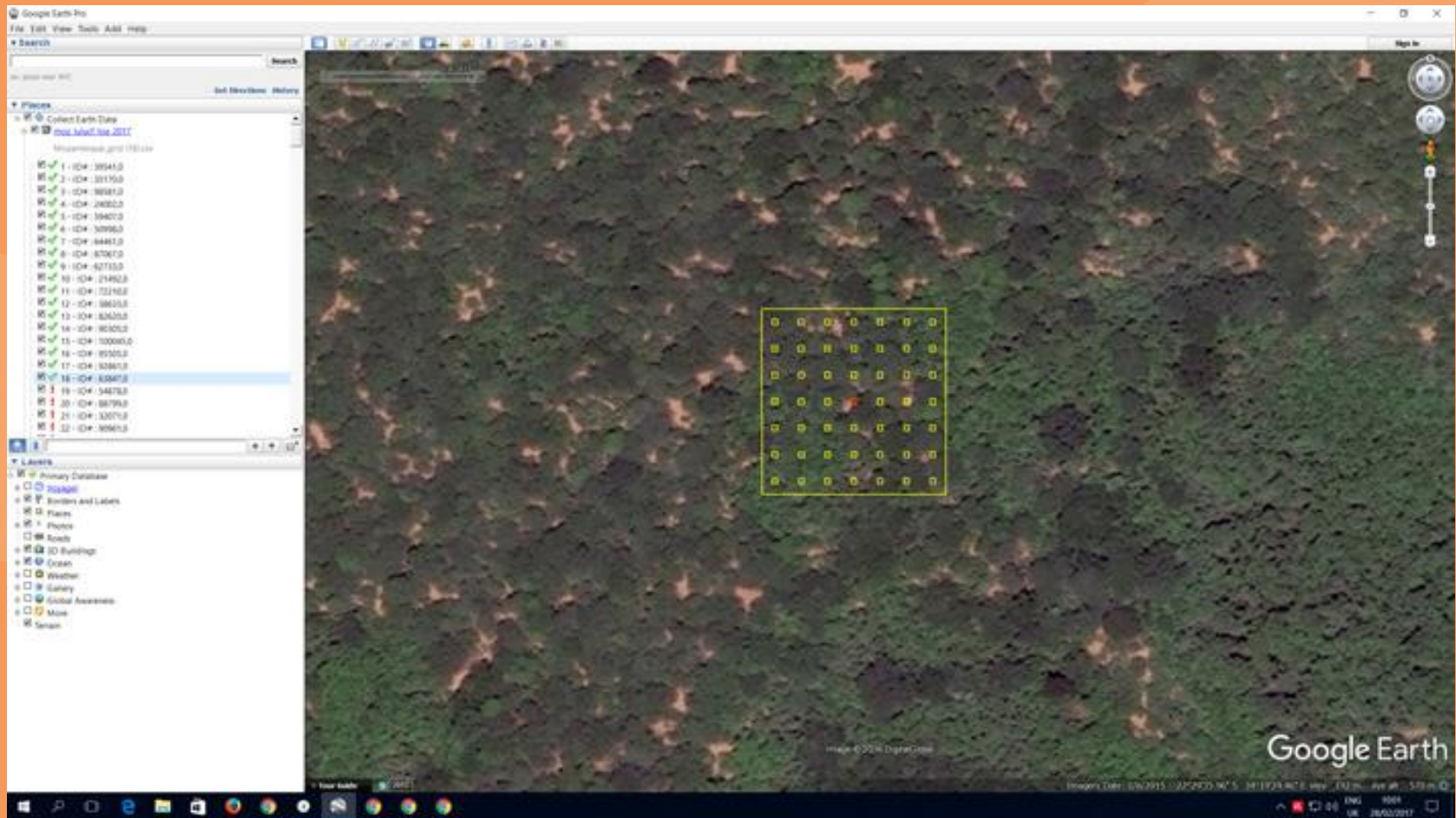


The screenshot shows the Open Foris website. At the top is a navigation bar with the Open Foris logo and links for Home, Tools, Events, Collaborators, and Community Support. The main banner features a lush green forest background with the text "openforis" and "Free open-source solutions for environmental monitoring". A button labeled "What is openforis?" is centered below the banner. Below the banner are five tool cards, each with an icon, a title, and a description:

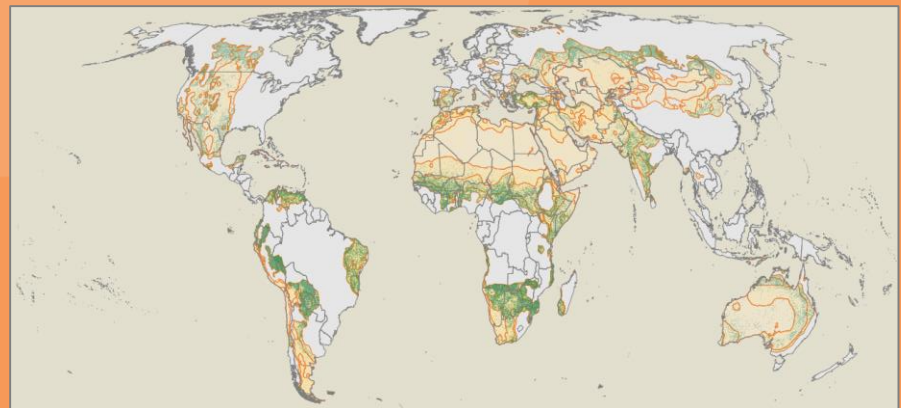
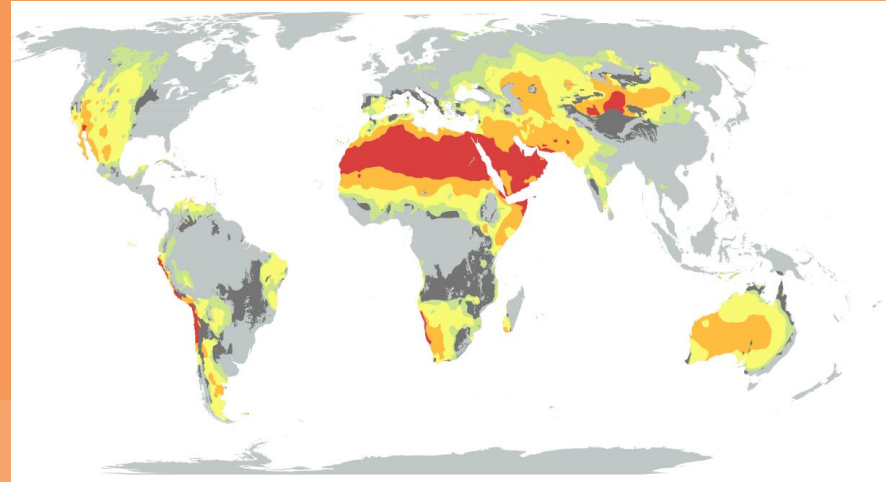
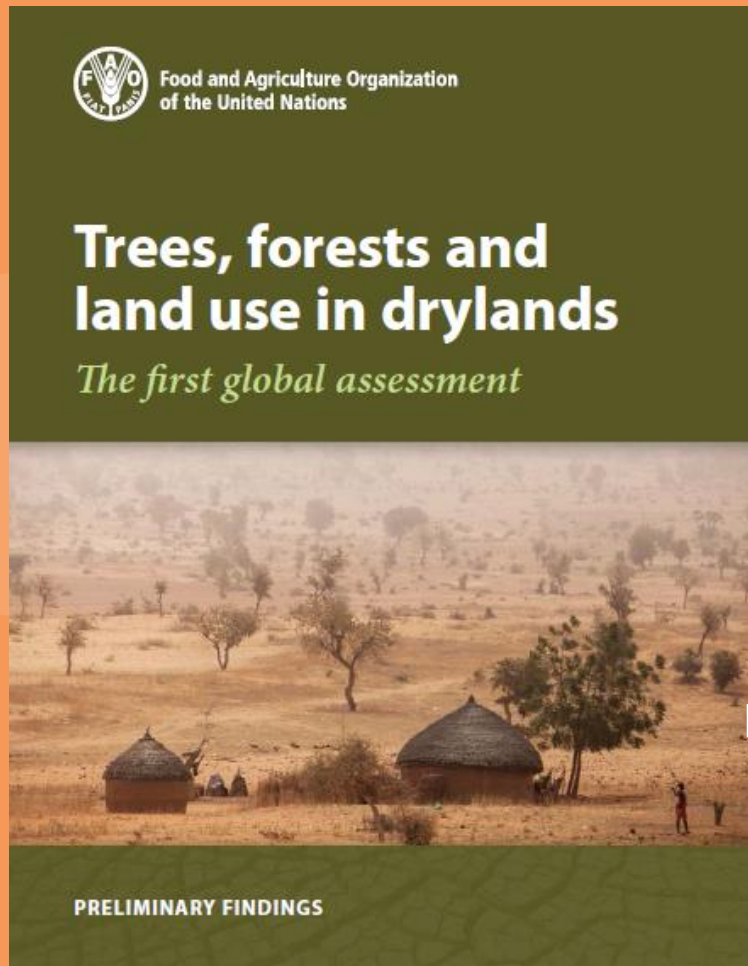
Collect	Collect Mobile	Collect Earth	Calc	Geospatial Toolkit
Easy and flexible survey design and data management	Intuitive data collection and validation in the field	Innovative land assessment through freely available satellite imagery	Efficient and collaborative data analysis and results dissemination	Powerful command-line utilities for processing geospatial data



# Collect Earth

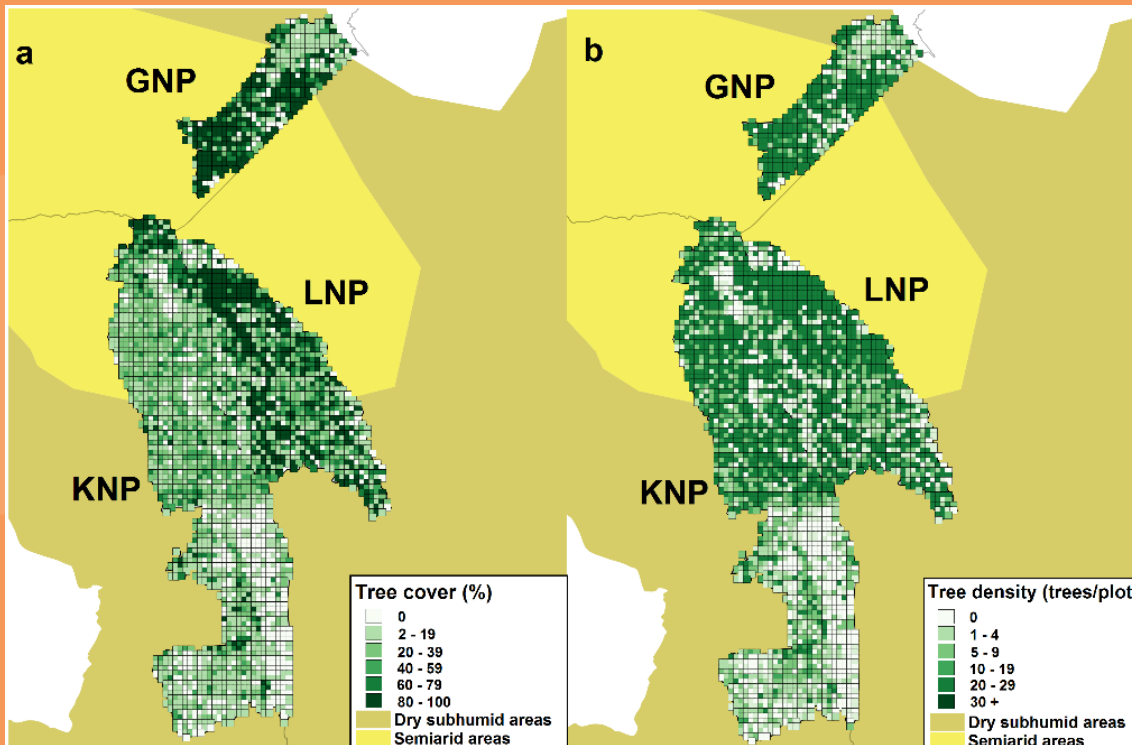


# Global Assessment of dryland forest





# GLTCA tree cover and density



3382 0.5 ha plots

Kruger=1875

Limpopo=1036

Gonarezhou=476

96 % plots from  $\leq 1$  meter (VHR);

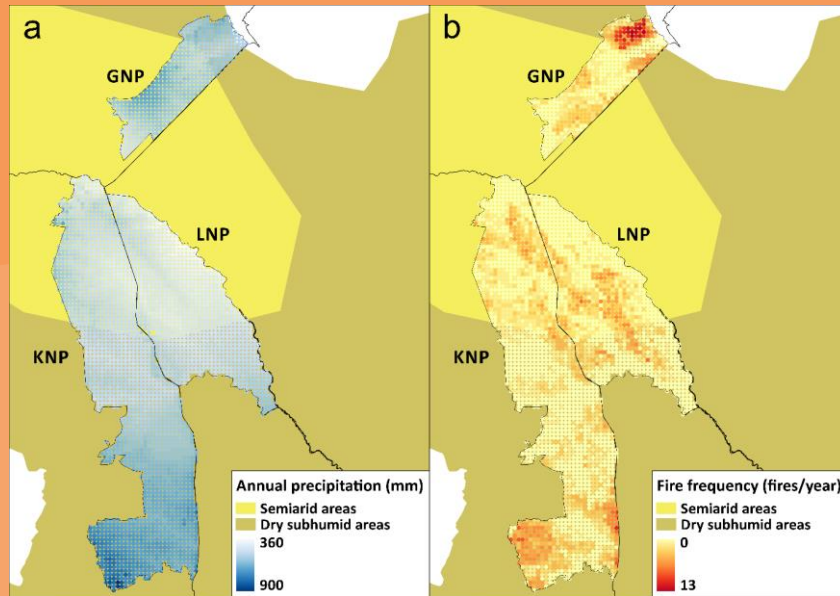
3 % (high resolution, e.g. SPOT, RapidEye)

1 % (medium resolution, e.g. Landsat; <1% of plots),

Normalized Difference Vegetation Index (NDVI) from Landsat 8

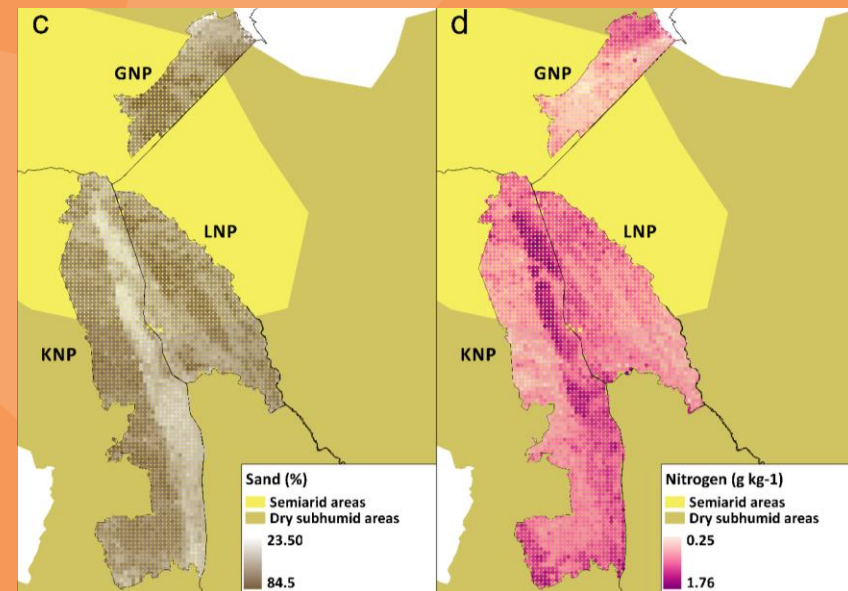
84% in 2013

# Environmental factors



Fire frequency  
Annual precipitation

## Soil features





# Conclusions

- More than 57 000 trees were recorded, about 34 trees per hectare, or 17 trees per plot.
- Estimate total number of trees: 118 millions, of which 58 for KNP, 39 for LNP, and 20 for GNP.
- $KNP < LNP < GNP$  – Fire regime and elephant population density.
- Semi Arid > Dry Sub Humid. Convergent effect
- - Fire Frequency, + SAND %, - Nitrogen content (Sankaran et al. 2005. Nature).

Obrigado por vossa atençao

Thank you for your attention!

Grazie per l'attenzione!