BIOCULTURAL DIVERSITY IN AGROFORESTRY SYSTEMS IN TOGO AND BENIN

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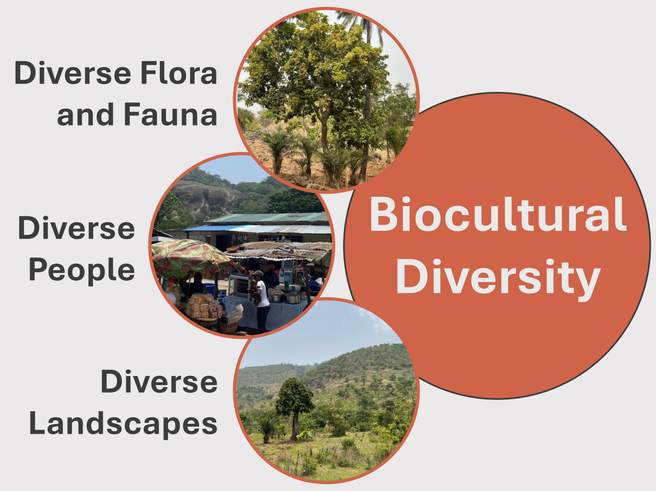
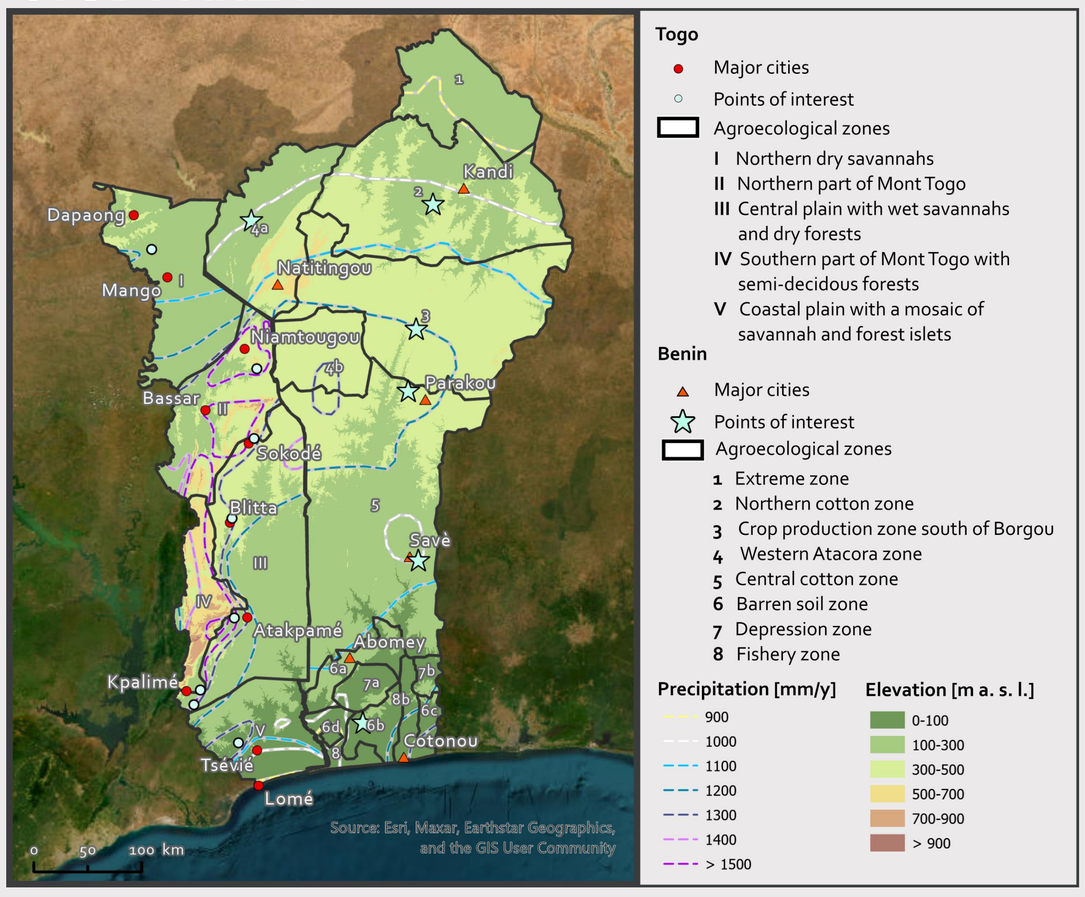
INTRODUCTION

- **Agroforestry** addresses local and global challenges, including **climate change and food security**.
- Numerous studies have been conducted in Togo and Benin examining **ecological or social aspects** of agroforestry.
- There is a **lack of studies** that bring these two bodies of knowledge together.
- The concept of **biocultural diversity** offers a novel opportunity to enhance comprehension of traditional and modern agroforestry in the context of climate change.



STUDY AREA



AIMS

Take inventory of traditional and modern agroforestry systems in Togo and Benin.

Characterize existing agroforestry systems of both countries based on case studies covering different climatic and ground conditions.

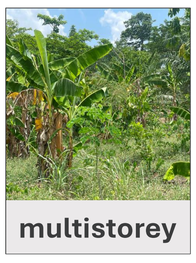
METHODS

Interviews & site surveys	Data base research	Remote sensing
• small-scale farmers	• Useful Tropical Plants	• SRTM
• NGOs / cooperatives	• Agroforestree Database	• CHIRPS

RESULTS & DISCUSSION

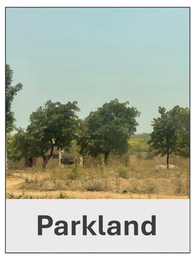
Structural types

scattered



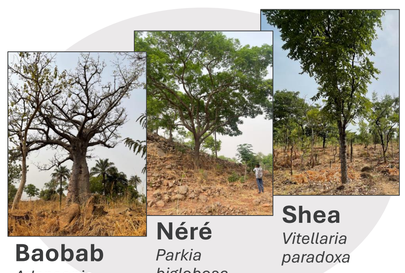
multistorey

linear

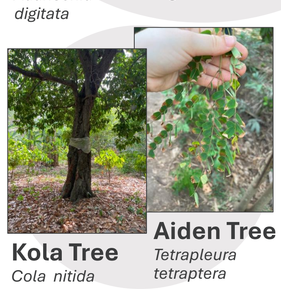


Parkland

Tree species of traditional use (examples)



Baobab *Adansonia digitata*
Néré *Parkia biglobosa*
Shea *Vitellaria paradoxa*

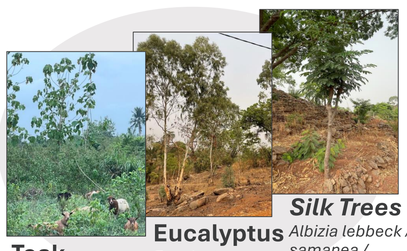


Kola Tree *Cola nitida*
Aiden Tree *Tetrapleura tetraptera*

Oil Palm *Elaeis guineensis*

Shea *Vitellaria paradoxa*
Baobab *Adansonia digitata*
Tamarind *Tamarindus indica*

Introduced tree species (examples)



Teak *Tectona grandis*
Eucalyptus *Eucalyptus camaldulensis*
Silk Trees *Albizia lebbeck / samanea / stipulata*

Cocoa *Theobroma cacao*
Coffee *Coffea arabica*
Silk Trees *Albizia lebbeck / samanea / stipulata*
African Mahogany *Afzelia africana*

Moringa *Moringa oleifera*
Papaya *Carica papaya*
Mango *Mangifera indica*

Mango *Mangifera indica*

- **Conversion of cropland or pasture** to an agroforestry system is the **"modern way"**, while **thinning of existing forest** to allow agricultural production is the **"traditional way" of implementing agroforestry** in Togo and Benin.
- **Elevation**, **precipitation**, and **socio-cultural preferences of ethnic groups** influence **structure**, **tree composition**, and **crop association**.
- **Long-established non-native tree species** are **single-purpose** trees focused on firewood / charcoal production, whereas **recently introduced trees** are **single-** and **multi-purpose** trees focused on **N-fixation, soil improvement, afforestation, and shade provision** or on **fruit production.**
- More recently established **linear** or **multistorey agroforestry systems** are focused on growing **cash crops**.
- There is **considerable variation in alpha diversity** among the study sites.
- **Biocultural landscapes** that are **highly specialized**, such as the Kabyè Mountains, have an **exceptional diversity of trees** coupled with a **relatively low tree density** compared to multistorey systems.

SUMMARY

Tree diversity and **species composition** are linked to **ecological and social factors**.

Long-established systems focus on **subsistence farming** and **socio-cultural functions**, whereas **recently established** ones focus on **production for sale**.

It is important to further study the **biocultural complexity** of these systems to optimize **climate change adaptation**.

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