Monitoring Wetland Vegetation Regeneration in an Inland Valley in Uganda

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Introduction

Wetlands in East Africa are increasingly **converted to cropland** due to growing food demand and high fertility of wetland soils

Intensification of **land use** adversely affects **biodiversity** and **ecosystem functions** as well as provision of **ecosystem services.**

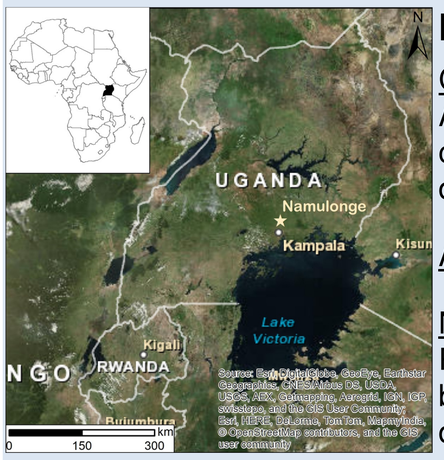
Pristine vegetation can **regenerate** during **fallow** periods or after **abandonment** of cropland.

We study the **dynamics of recovery** in terms of **biomass** growth and **species composition** at different hydrological positions in an inland valley in Central **Uganda**.

Biodiversity and Ecosystem Services

Use	Number	Examples
Medicine	29	*Acmella caulirhiza, Bidens pilosa, Ludwigia abyssinica*
Food	11	*Cleome schimperi, Vigna reticulata*
Forage	11	*Leersia hexandra, Sorghum arundinaceum*
Building material etc.	4	*Cyperus latifolius, Panicum maximum*
Other uses, e.g. soil improvement or firewood		

Study Area



Namulonge, Uganda

Climate:
Am - Tropical monsoon climate with bimodal rainfall distribution

Altitude: around 1110 m

Natural vegetation:
Papyrus marsh in the wetter, bushland and forest in the drier parts of the wetland

Sampling plots: 4 plots of 2 m x 2 m each in:

- valley **fringe**
border zone of the wetland, seasonally waterlogged, almost never flooded

- valley **middle**
seasonally flooded zone between fringe and center

- valley **center**
frequently flooded zone close to central stream

Key Findings

After wetland reclamation, vegetation recovery depends on hydrological conditions, former land use and diaspore availability.

Stages of succession are defined by shifts in species composition and dominance.

After 10 months, a total of 75 plant species was recorded. Most (about 75 %) are native and can be used as herbal medicine, vegetable, forage or building material.

Biomass accumulation tended to be higher in the wetter center than in the drier fringe areas, species diversity higher in the fringe.

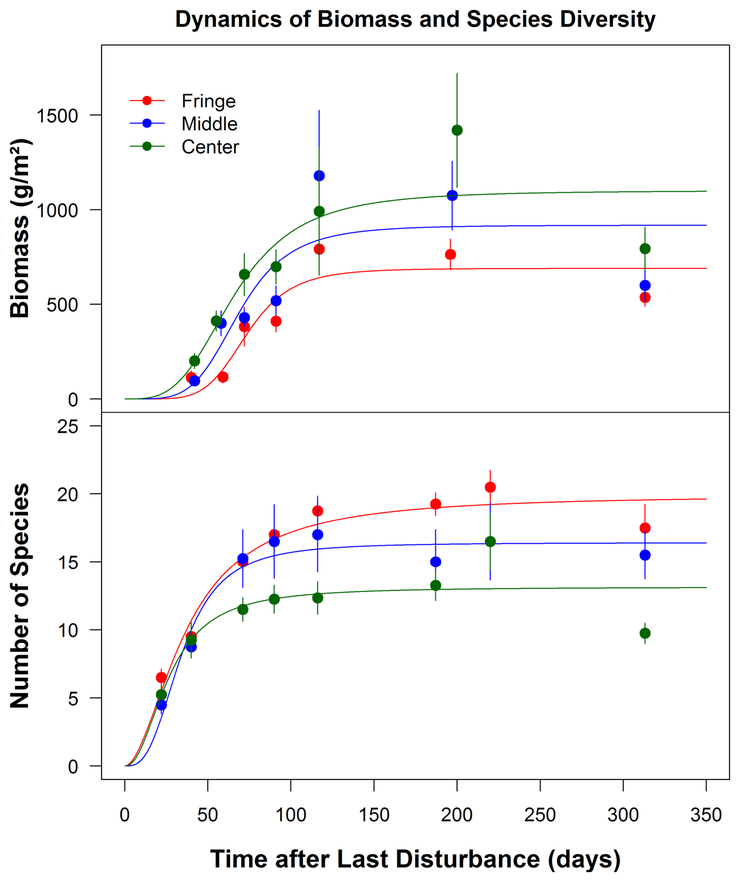
Successional Stages (Center Section)

2 months after clearing
Fast growing annual pioneer
Cyperus difformis (Cyperaceae) covers up to 95 per cent of the plot

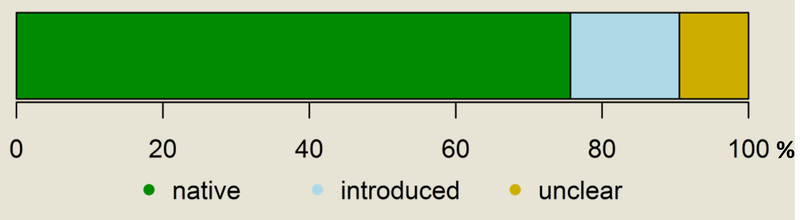
6 months after clearing
Perennial wetland species *Leersia hexandra* (Poaceae) and *Ludwigia abyssinica* (Onagraceae) build the stand

Pristine vegetation
Tall and dense stands of *Cyperus papyrus* (Cyperaceae), often with the fern *Cyclosurus interruptus* (Thelypteridaceae)

Regeneration Dynamics



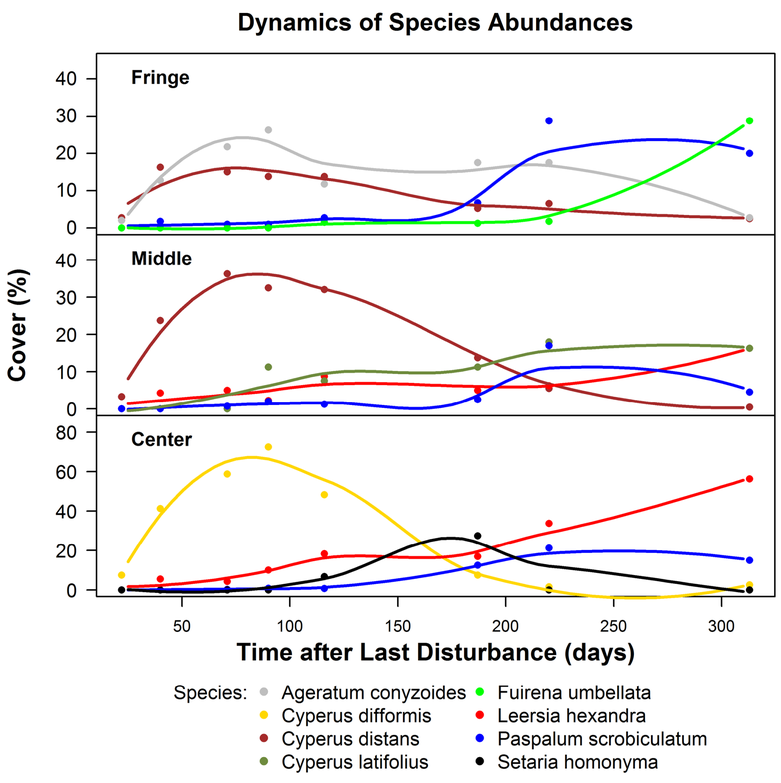
Origin of Species



Mimosa pigra (Fabaceae)
Invasive species

Sacciolepis africana (Poaceae)
Typical native marsh grass

Regeneration Dynamics



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