

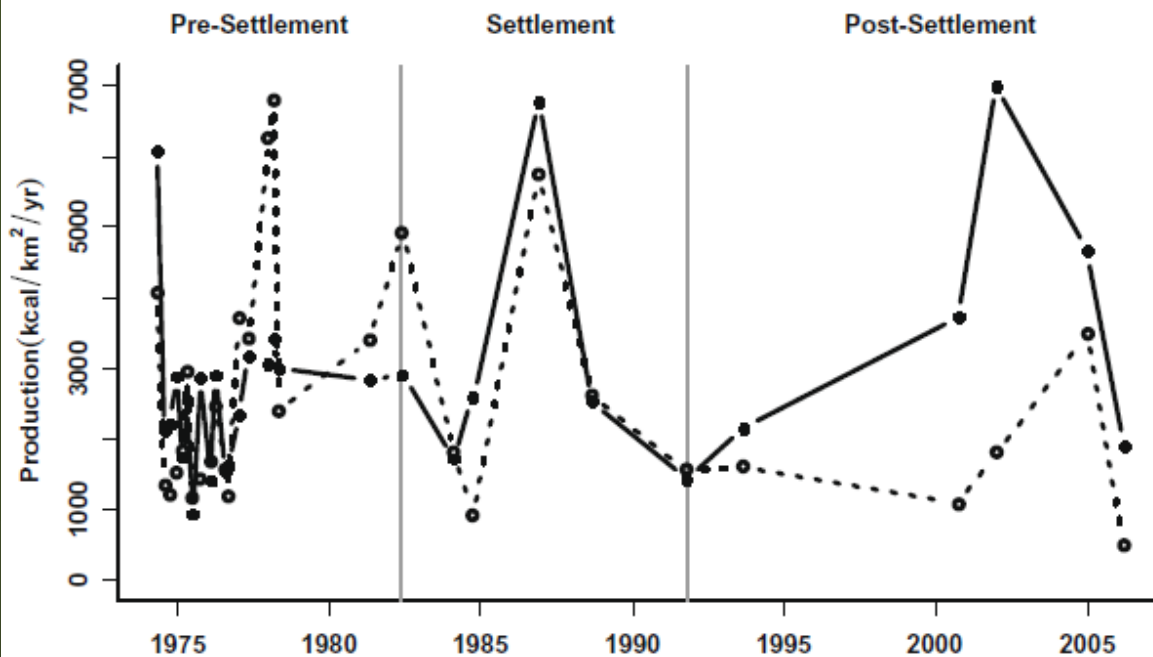
IMPACTS of ENCLOSURES ON RANGE HEALTH IN WEST POKOT



Peter Mwangi
Regina Waiganjo
Others

OBSERVATIONS

- Enclosures & agroforestry strategies used to improve range in west Pokot for 3 decades
- Enclosures leads into subdivision and sedentarization
- Land outside enclosures is more degraded
- Animals appear healthy
- In other areas studies have shown that sedentarization has resulted in decline in forage, livestock and wildlife - Kajiando



	Ranch	Mean \pm SE
Biomass ($\text{g} \cdot \text{m}^{-2}$)	Mbirikani	181.4 ± 4.6
	Merueshi	118.9 ± 5.3
Ground cover (%)	Mbirikani	45.8 ± 0.6
	Merueshi	32.0 ± 0.6
Grazing (%)	Mbirikani	36.6 ± 0.9
	Merueshi	40.5 ± 1.4

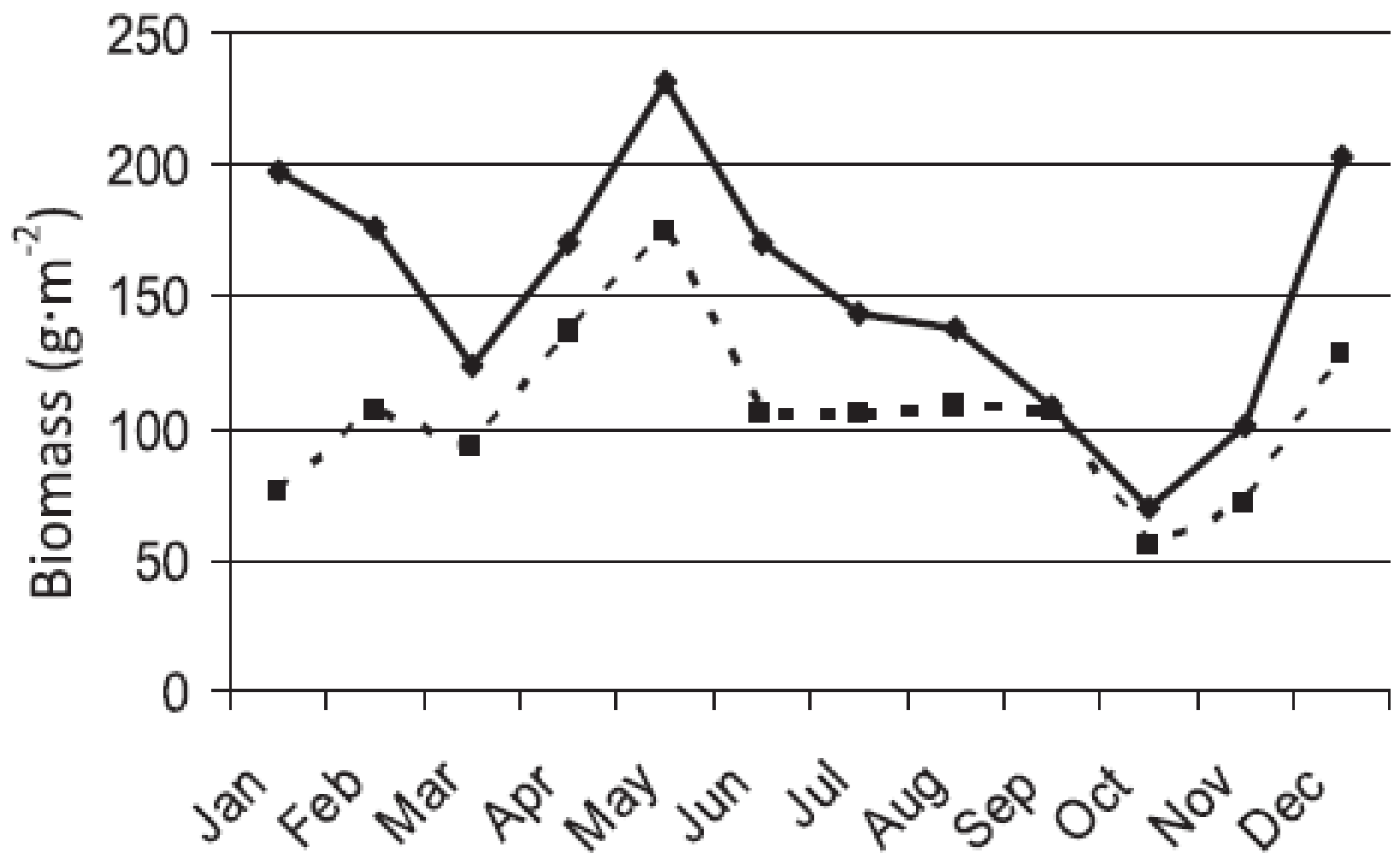
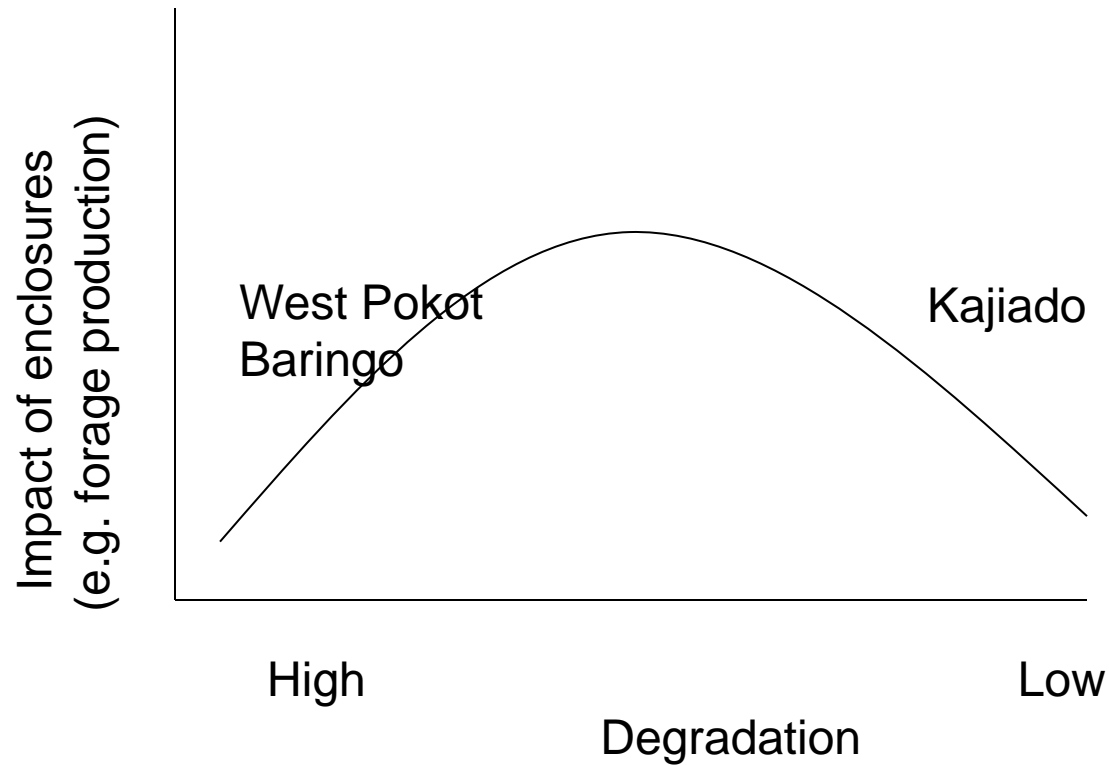


Figure 3. Temporal changes in biomass on Mbirikani (unsubdivided) and Merueshi (subdivided). The solid line represents Mbirikani; the dashed line Merueshi.

hypothesis



INTRODUCTION

- In the last three decades, there have been changes in vegetation in parts of West Pokot
- **Enclosures and afforestation** have been the main range restoration in this area
- The proposed study seeks to evaluate if the changes in vegetation can be attributed to use of enclosures to control grazing and afforestation to improve and restore production

Introduction continue

- In west Pokot there is more active vegetation management through **enclosures**, for production of fodder, crops and wood than in neighboring severely overgrazed areas
- The major production systems are **pastoralism**, agro-pastoralism, rain fed agriculture and to a lesser extent, irrigated agriculture at small scale
- Increasing human and livestock populations, vast communal grazing lands in Kenyan arid zones are becoming degraded

Questions

- How has enclosures succeeded in rehabilitating range in west Pokot
- It because it is coupled with agroforestry?
- Are there changes in plant diversity?
- Which species are common rehabilitated areas?
- Is forage productivity improving?
- What about quality?

General objective

To determine the impact of enclosures and afforestation on forage production West Pokot.

Specific objectives

- To determine the impact of afforestation and enclosures on forage productivity.
- To determine the optimal enclosure area and optimal tree density for improved plant productivity.
- To determine the effect of enclosure and afforestation on seed bank in Chepareria, West Pokot.
- To evaluate the indigenous knowledge, on range monitoring and rehabilitation in Chepareria, West Pokot.

Hypothesis

Enclosures and afforestation have no impact on plant productivity.

Enclosures changes plant diversity

Afforestation facilitates quick range rehabilitation

Study site

- The research will be carried out in two divisions/districts in West Pokot, Chepareria and Kongelai.
- The climate is very similar between these neighbouring divisions
- Rainfall is bimodal: long rains fall between March and June and short rains September to November
- In West Pokot District (Kenya), changes in livestock grazing patterns - due to insecurity, population pressure and drought - have led to a serious reduction in vegetation.
- The district is inhabited primarily by the Pokots and has a population of 396,000 people

METHODS

Modified Whittaker plots will be used in sampling

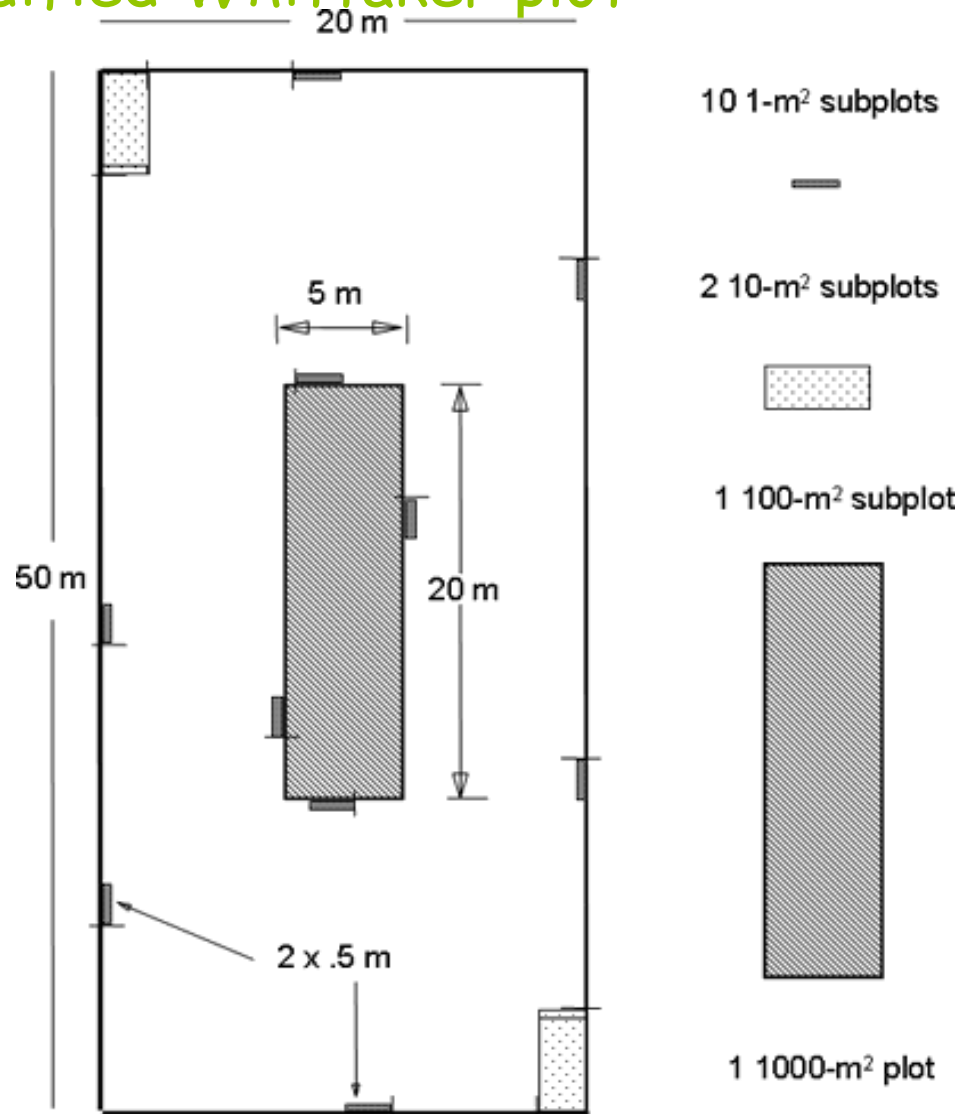
Sampling will be done inside and outside enclosures

This is a robust approach to assess vegetation as different scales from 1m^2 - 1000m^2

Different methods will be used to measure productivity, plant diversity, seed bank

Grazing control will be assessed through questionnaires administered to head of households where sampling is done

Modified Whittaker plot



Data

- Productivity (plant diversity, cover, biomass, species richness, abundance etc)
- Seed bank (abundance and diversity)
- Enclosure vs open
- Duration of enclosures
- Grazing decisions (where to graze when and why)
- Cattle and shoats numbers
- Enclosure size

Expected Outputs

- Impacts of enclosures on forage production
- Impacts of enclosures on plant diversity
- Identify drivers of the impacts (grazing control, seed bank, duration, enclosure size)



THANK YOU!