
Rainfall, Primary Production and Cattle density relationships in South East Lowveld of Zimbabwe

By

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Introduction

Debate about the degree of feedback between livestock and vegetation in rangeland systems

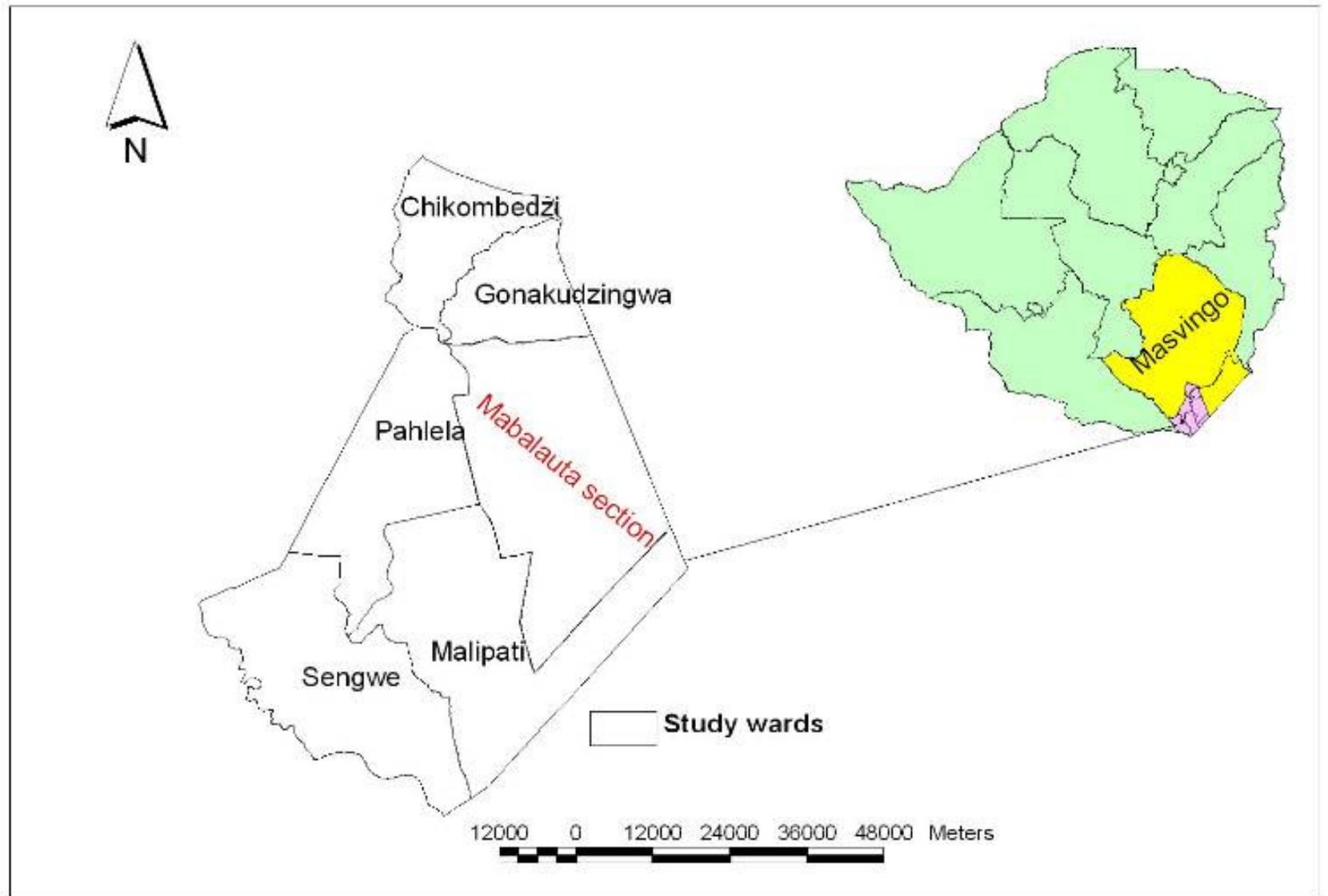
The equilibrium model stresses the importance of biotic feedbacks between herbivores and their resource

The non-equilibrium model stress stochastic abiotic factors as the primary drivers of vegetation and herbivore dynamics.

However, range and livestock management has been built around the equilibrium concept

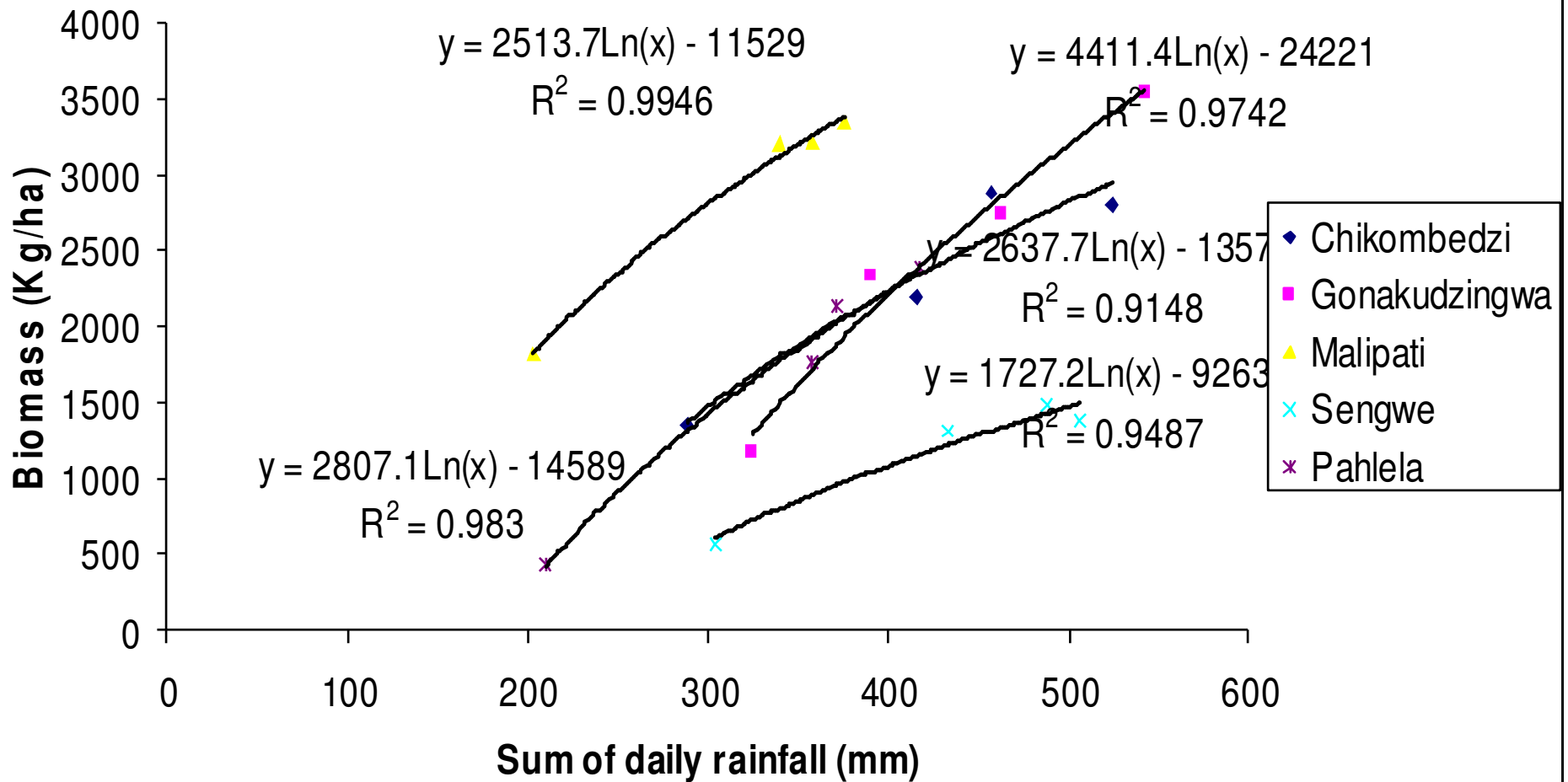
The practical relevance of this study is that it helps identify intervention needed in managing (semi-)arid rangeland

Study Area



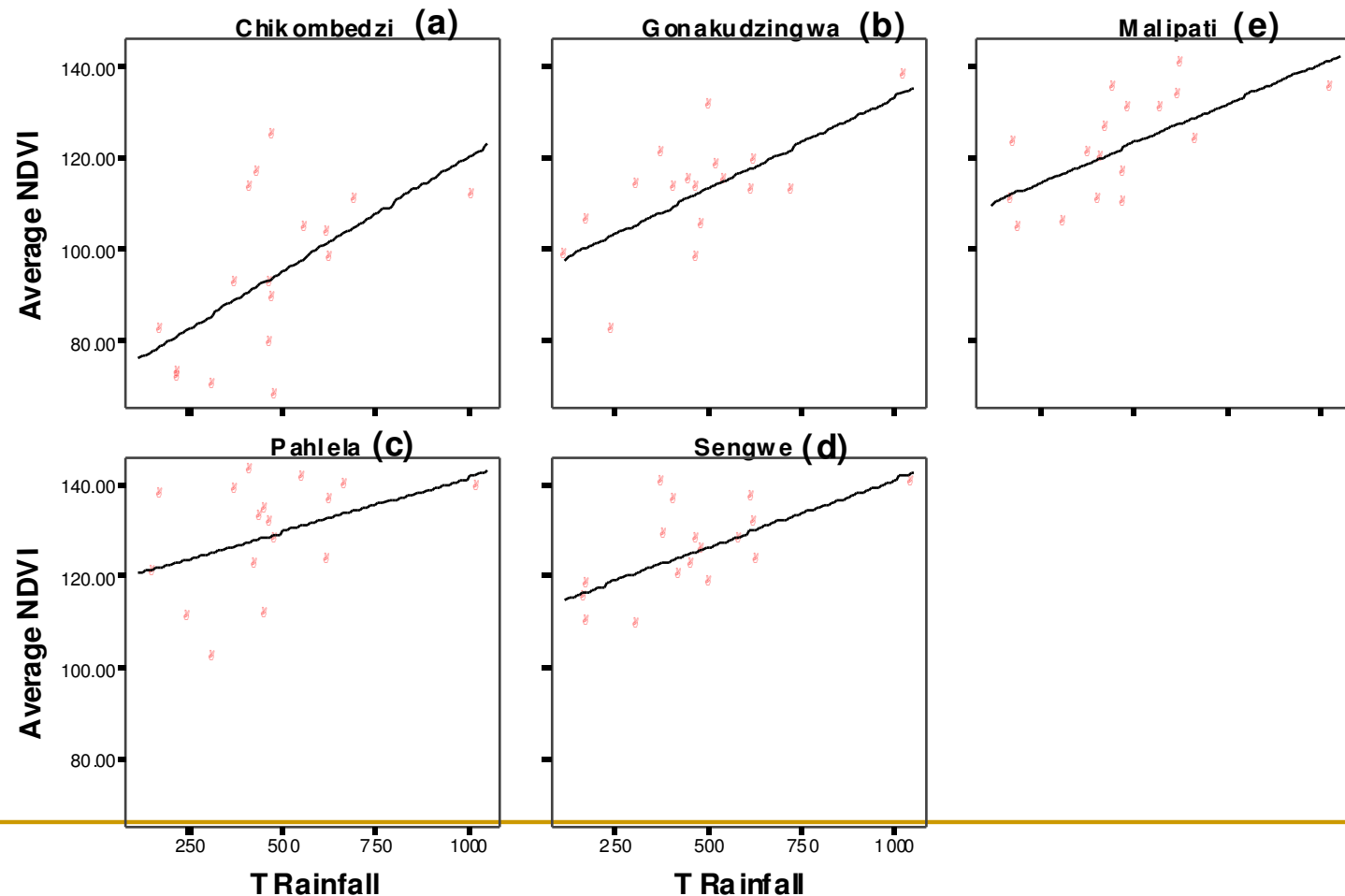
Methodology

Relationship between sum of daily rainfall (mm) and herbaceous biomass (kg/ha) in different wards of South East Lowveld of Zimbabwe



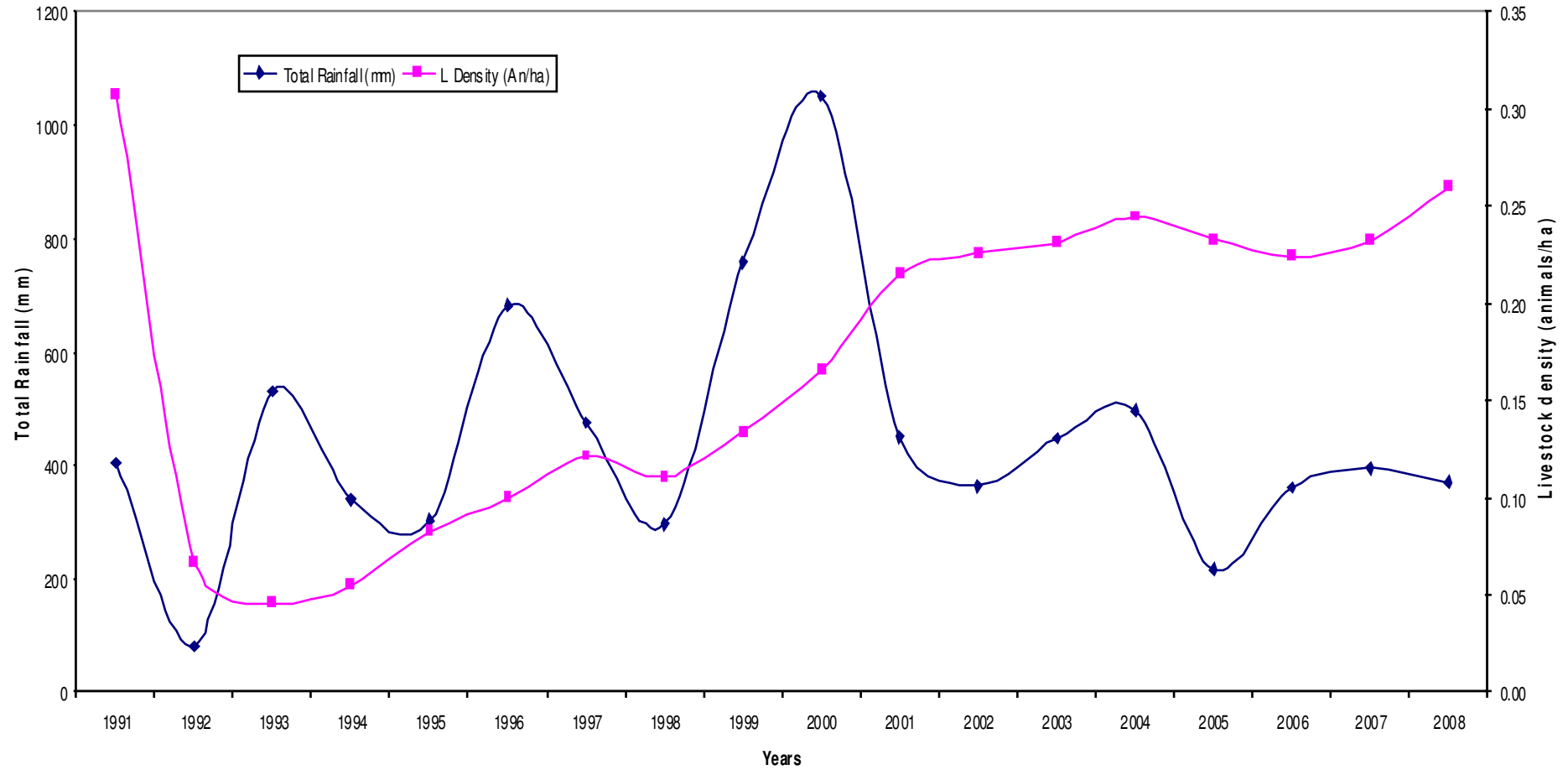
Results and Discussion

Based on data from all the wards, we found a significant ($r = .257$, P (one-tailed) < 0.05 , $n = 77$), positive correlation between annual rainfall and average NDVI

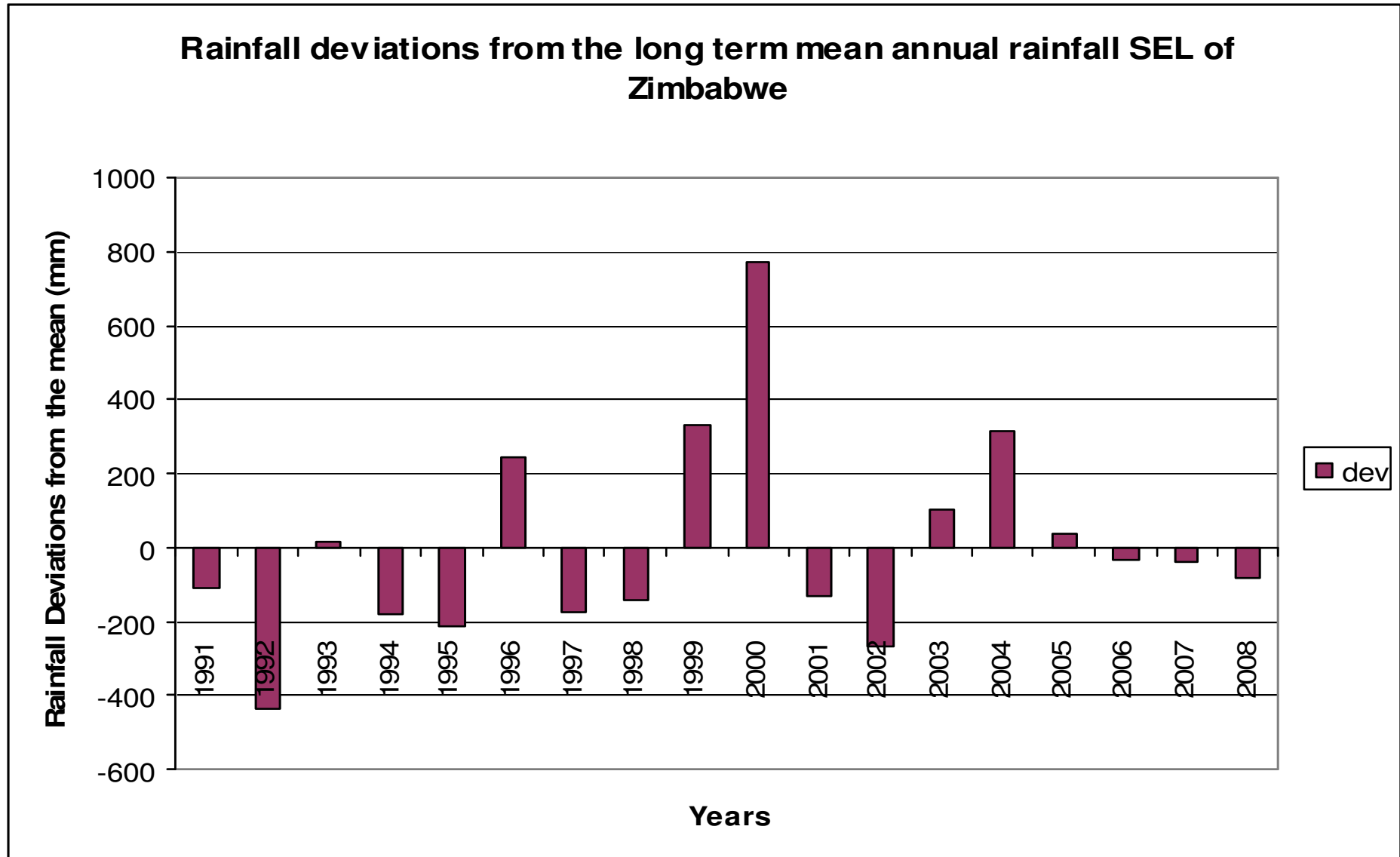


Results cont'

Relationship between total rainfall and cattle densities in Chikombedzi communal area of SEL of Zimbabwe



Results and Discussion cont'



Summary

- Relationships between annual rainfall and average NDVI/ herbaceous biomass
- Significant relationships between livestock density and annual rainfall when considering the whole area.
- Mortalities were explained by rainfall fluctuations
- Relationships between pre-drought and post-drought cattle populations provided weaker evidence for density dependence
- Infer that the SEL grazing system appears largely a non-equilibrium system.

■ Thank You
