

THE FATE OF PERI-URBAN WOODLAND RESOURCES UNDER CURRENT ENVIRONMENTAL CHALLENGES IN ZIMBABWE

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Introduction

- “With the population of the third world increasing by over 3% per year, consumption of fuelwood has never been greater. At the same time, overgrazing, heavy timbering, climate change and the expanding demands of agriculture are rapidly destroying the world’s remaining forests. Fuelwood which in the past had always been considered “renewable”, is now being consumed as a finite resource,” Bassan (1979).

Introduction

- “No less than one and half billion people in developing countries derive at least 90% of their energy from wood and charcoal. Another billion people meet at least 50% of their energy needs this way. Indeed it has been estimated that at least half the timber cut in the world still serves its original role for mankind: as fuel for cooking and heating,” Ayensu (1980).

Introduction

- Zimbabwe: land-locked, area 391000 sq.km. Population was 11.9 mill. and growth rate 3% and GDP US\$ 575 in 1998 but now 12,3 mill. and 0.9% rate of natural increase (CSO, 2002). HIV – AIDS and emigration contributed to this fall. Income distribution skewed due to dualistic structure of the economy.

Introduction

- Forest Resources contribute an underestimated 3% of GDP.
- Conservation and mgt of woodland resources has low priority in govt dev plans.
- Indigenous woodlands exploitation is wasteful: their contribution to sustainable agric and environ protection ignored.

Introduction

- Policy initiatives in general problems in agriculture will tend to define patterns of land use, public and private investment and institutional development with cross sectoral implications for forestry (Bradley and McNamara, 1991).
- Most Africans south of the Sahara are resource challenged and depend on fuelwood (fw) for energy.

Introduction

- Conservation role of forests as opposed to productive and commercial roles is regarded as difficult to quantify in direct economic terms.
- Cutting of live wood for fw can have significant impacts on community structure and species composition.

Introduction: Study Area

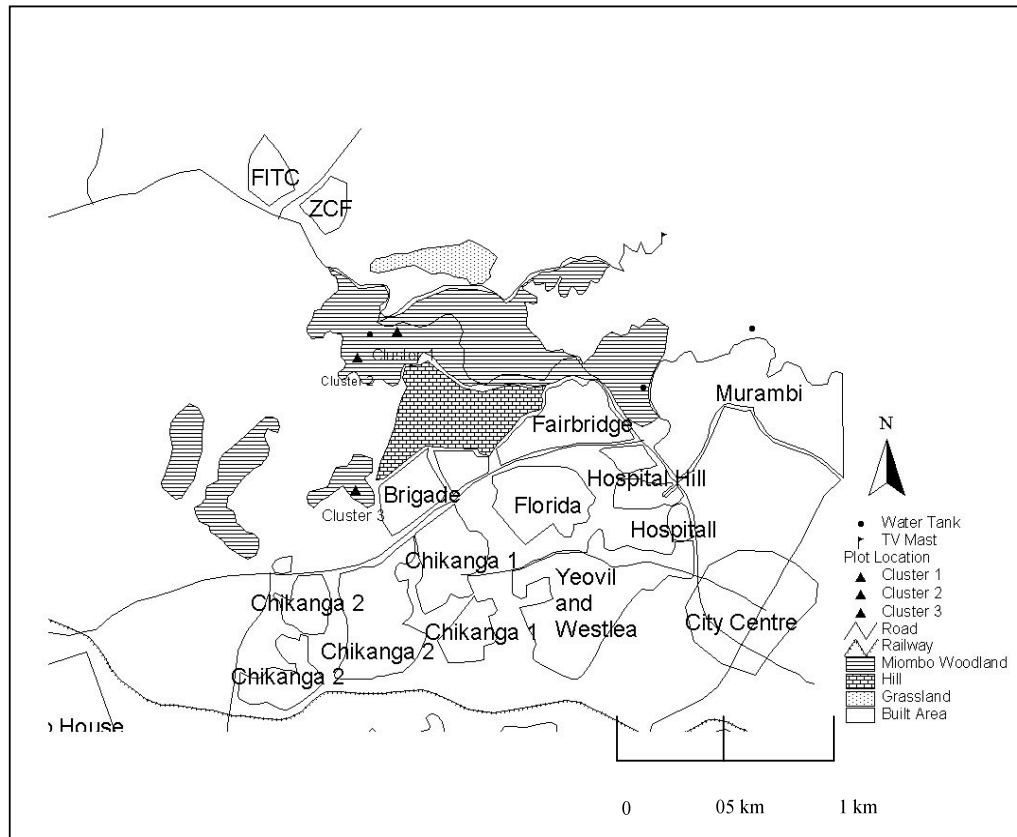


Fig. 1: The study area – Christmas Pass miombo woodlands, Mutare.

Introduction: The Problem

- As of 1992, new residential areas have sprung up resulting in increased demand of all services including energy.
- Since ESAP, econ conditions for residents have fallen. Shortages of many basics including once subsidised paraffin, exacerbated by shortages of electricity made fw the only available and affordable energy source.

Introduction: The Problem

- Resource challenged families trek into the mountains around Mutare for own use and sale.
- The effects of wood collection are unknown and deterrents may not save the woodlands.
- The fate of the Christmas Pass miombo woodlands maybe in the hands of all stakeholders.

Introduction: Objectives

- Describe structure and composition of miombo vegetation of Christmas Pass.
- Assess any visible effects of fw collection in the woodlands.
- Estimate fw use of the residents of Chikanga high density suburb.

Introduction: Justification

- The threat of wholesale wood removal from Christmas Pass is real.
- It is timeous to document status of woodlands and analyse the effects of fw collection and its use in Chikanga suburb.
- Such information is necessary to influence policy makers address the issue and adopt a course of action that may lead to sustainable utilisation of the woodlands.

Materials and Methods

- Study area identification (description).
 - Aerial photo interpretation to stratify into veg zones; confirmed by reconnaissance.
 - Sampling area marked in miombo; belt transect towards Chikanga.
 - Numbered grid used to select randomly 16 plots located on topographical maps and hand held GPS by UTM coordinates.

Materials and Methods

- Plot demarcation
 - Circular plots of radii 15m and 3m with a common centre constructed.
 - UTM coordinates used to form the centre of the circle.
 - 3m radius was for recording regeneration saplings and seedlings.

Materials and Methods

- Plot Measurements
 - Identification of tree species per plot.
 - Measurement of soil variables.
 - Tree characteristic assessments.

Materials and Methods

- Chikanga high density suburb survey.
 - House numbers obtained from Mutare City Council.
 - Randomly selected residents to receive designed questionnaire.
 - Questionnaire to capture household fw use and status in Chikanga.

Materials and Methods

- Data analysis.
 - Microsoft Excel for Windows.
 - MINITAB for Windows.
 - CANOCO for Windows.

Results

- Species List – Appendix 5
- Principal Components Analysis (PCA) – Figure 3 and 4.
- Detrended Correspondence Analysis (DCA) – Figure 6.
- Canonical Correspondence Analysis (CCA) – Figure 7 and 8.

Results

- Height (Ht), Diameter at stump height (DSH), Diameter at breast height (DBH) and Soil variables – Figure 9 and 10.
- Diameter distribution of main species – Figure 11 and 12.
- Basal area and Density per ha; Species Richness and Shannon-Weiner indices – Figure 13 and 14.
- Fire incidence and Deadwood – Fig 15,16.

Results

- Chikanga survey: Number of Stands:4190
 - Average family size = 5.84
 - Wood used: 1 wb/wk average. Extreme case 1wb/day in winter.
 - 56% collect fw from Xmas Pass woodlands by picking and cutting.
 - User rights: 100% of respondents knew it was illegal.

Results

- 48% saw future energy needs as difficult.
- 80% felt there was fw scarcity in Chikanga.
- For the way forward, 60% feel there is a need of a selling point. Also suggestion of electrification of all homes and zonation of the hills to allow controlled fw collection.

Discussion

- Introduction
- Structure and composition and state of miombo woodland – Appendix 6 and 9.
- Signs and effects of fw collection – Appendix 7 and 8.
- Fw use in Chikanga high density suburb.
- Future of Xmas Pass woodlands.
- Concluding remarks.

Conclusion

- Thank You.
- NTFP and NWFP time permitting.