GIS4D

The Exotic and Native Tree Species of Mweka

Biodiversity Group
Introduction

- Medicine/Herbs
- Food
- Building/Construction
- Firewood
- Decoration
- Biashara
Objectives

- Identify and quantify the native and exotic [tree] species in Mweka village.
- Determine the distribution of the species along three altitudinal gradient(s)
- Compare the distribution and abundance of the species along the roads and rivers
Methodology

• Zoning

• Formation of Quadrats
  ■ Four quadrats for each zone
    • Two along the road and two along the river
      – Quadrats size: 20 by 20 meters

• Data collection
  – Using GeoODK tool
  – Specie (native & exotic), height, position, quantity

• Data cleaning [ manual]
Methodology......

• Data analysis
  – Arc GIS 10.3 student version

• Maps (buffer (10m river, 20m road), clip, summarize)

• Google earth

• Excel
Results and discussion
Results and discussion ...

<table>
<thead>
<tr>
<th>Spp. Type</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native</td>
<td>167</td>
<td>40%</td>
</tr>
<tr>
<td>Exotic</td>
<td>248</td>
<td>60%</td>
</tr>
<tr>
<td>Total</td>
<td>415</td>
<td>100%</td>
</tr>
</tbody>
</table>
Results and discussion.....

Distribution of tree species

<table>
<thead>
<tr>
<th>Location</th>
<th>Exotic Level</th>
<th>Native Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest Elevation</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Mid Part</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Forest Bordering</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

Legend:
- Exotic
- Native
Results and discussion.....

- Tree species within buffer zone

<table>
<thead>
<tr>
<th>Spp. Nature</th>
<th>Road</th>
<th>River</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native</td>
<td>7.2%</td>
<td>9.6%</td>
<td>16.8%</td>
</tr>
<tr>
<td>Exotic</td>
<td>3.2%</td>
<td>1.6</td>
<td>4.8%</td>
</tr>
</tbody>
</table>
Challenges

• Network was not good, so affect the accuracy of GPS

• Species identification

• Inadequate experience to use the GeoODK tool
  ➔ Spend a lot of time to map a point,

• Accessibility of some areas, e.g. steep slopes
Conclusion and recommendations

• Exotic Spp dominated:
  – High economic value
  – Tourism

**Recommendations**

Education on Values of native Spp.
Tourists.......Trash in trash out
Restricting buffer zones usage
Thanks