



**CRITICAL ECOSYSTEM**  
PARTNERSHIP FUND



**MISUKU HILLS IMPROVEDLIVEHOOD AND BIODIVERSITY  
CONSERVATION PROJECT BIODIVERSITY SURVEY REPORT  
(WILINDI, MATIPA AND MEGHESSE FOREST RESERVE)**

AfES/2015

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## **ACROYMS AND ABBREVIATIONS**

**EDO.....Environmental District Officer**

**DFO.....District Forest Officer**

**VNRMCs.....Village Natural resources Management Committees**

**EPA.....Extension program area**

**AfES.....Action for Environmental Sustainability**

**FGDs.....Focus Group Discussions**

**ADCs.....Area Development Committees**

**DBH.....Diameter at breast height**

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# CHAPTER 1 INTRODUCTION

## 1.1 BACKGROUND TO THE BIODIVERSITY SURVEY

The biodiversity survey was conducted for the period of 44 days. The survey was carried out in Misuku Hills, situated in Chitipa District. The survey was done collectively involving various stakeholders and institutions in Misuku Hills and was led by the District Forestry Officer (DFO), Environmental District Officer (EDO) and the two staff from Action for Environmental Sustainability (AFES).

## 1.2 GEOGRAPHICAL DESCRIPTION OF MISUKU HILLS.

Misuku Hills are located in Traditional Authority Mwene Misuku in the north east of Chitipa District. It is composed of three forestry reserves namely Mughese, Wilindi and Matipa.

Mughese Forest Reserves occupies the western most part of Misuku Hills. The reserve was gazetted in 1948. Altitude ranges from 1,460m to 1,900m. Matipa Forest Reserve is a montane evergreen forest supporting 726 Ha of pristine stands of indigenous tree species and 10Ha of pine and Cyprus plantation.



*A side distance view of mughese forest reserve © afes2015*

Matipa Forest Reserve consists mainly of 1047 Ha of evergreen forest, some grass land and 13 Ha of pine and Eucalyptus plantation. Gazettment of this reserve took place in 1948. It forms the northern wall of the Misuku Basin. Soil type is mainly sandy- loam to clay-aerosols under evergreen forest.

Willindi Forest Reserve is mostly sub-montane evergreen with patches of montane grassland on the edges. Gazzeted in 1948.

The three reserves are very similar in nature, close to each other and with the same ecosystem. Therefore, it was logical to conclude that they have the same species, the fact that was confirmed by data collected from sample plots of each reserve.

The surrounding customary estate forests occur mostly on unallocated land and comprise largely of miombo woodlands with *Branchystegia* and *Uapaca* species being Dominant.



**Part of the customary land around the three forest reserve © afes2015**

## CHAPTER 2. METHODOLOGY

The biodiversity survey was conducted using the following methods of collecting data:

### 2.1 FOCUS GROUP DISCUSSION

Focus group discussion was conducted at Misuku Women Forum in TA Mwene Misuku. It comprised of 20 members of the Village Natural Resources Management Committee and 10 members of the Area Development Committees. The DFO, EDO and AfES staff facilitated the discussion with the assistance of the Forestry Extension Officer of the EPA. During the FDGs, primary data on biodiversity species found in Misuku Hills forest and surrounding customary land were collected.



*Focus group discussion meeting © afes2015*

## 2.2 TRANSECT WALK

The transect walk was conducted by the DFO, EDO, AfES staff, Forestry Extension Officer and 5 key informants from VNRMCs and the ADCs. During the transect walk, key informants identified and gave physical description of species found in the area.



*Members of the ADC, VNRMCs during the transit walk moving toward mughese forest reserve © afes2015*

## 2.3 SAMPLE PLOTS

In each of the three forest reserves (Wilindi, Matip and Mughese forest reserves), a square sample plot of 20m by 20m representing 0.04 of a hectare was laid. Tree species with diameter of 5cm at DBH and above were counted. Within the bigger sample plots, a 2m by 2m plots were laid to collect data about regenerants with DBH of less than 5cm.

## **2.4 DOCUMENTARY ANALYSIS**

This was done to collect secondary data on species found in Misuku Hills. It was interesting to note that secondary data was correlating well with primary data collect during FGDs with key informants.

### CHAPTER 3. FINDINGS AND DISCUSSIONS

The following tables show the results of the biodiversity survey on species found in Misuku Hills. The results also indicate the physical characteristics of the species as well as their social economic importance to the surrounding communities.

#### 3.1. TABLE 1: INDIGENOUS TREE SPECIES

Table 1. Shows the dominant tree species for Misuku Hills forest reserves.

LOCAL NAME	SCIENTIFIC NAME	PHYSICAL CHARACTERISTICS	SOCIAL ECONOMIC IMPORTANCE
Mukalikali	<i>Entandrophragma excelsum</i>	<p>3 The stem is strait with only branches on top</p> <p>4 The stem may grow up to 50m with up to 2m DBH</p> <p>5 Has pinnate leaves each with between 5-9 pair of leaflets</p> <p>6 Has leaflet that grows between 8-10cm with acuminate tip</p>	<p>7 Used for timber production</p> <p>8 For making music instrument</p>
Mufyomi	<i>Syzygium cordatum</i>	<ul style="list-style-type: none"> <li>Evergreen loving tree</li> </ul>	<ul style="list-style-type: none"> <li>Fruits edible to man</li> </ul>

		<ul style="list-style-type: none"> <li>• Found near streams</li> <li>• Has elliptical to circular, bluish green on top and paler green below</li> <li>• Flowers are white to pinkish and fragrant</li> <li>• Flowers borne in branched terminals</li> </ul>	<ul style="list-style-type: none"> <li>• Fruits sometimes used to make alcohol</li> <li>• Used for traditional medicine</li> <li>• Firewood</li> </ul>
Mufu	Aningeria adolfi-friedricii	<ul style="list-style-type: none"> <li>• Stems may grow up to 180ft</li> <li>• Has clear cylindrical bole that may grow up to 80ft</li> <li>• Gives cedar like odor</li> <li>• Trunk diameter above tall cylindrical</li> </ul>	<ul style="list-style-type: none"> <li>• Fruits eaten by both human beings and feeding livestock</li> <li>• Timber production</li> <li>• Firewood</li> </ul>

		<p>buttresses ranges from 3 to 4 ft</p>	
Msuku		<ul style="list-style-type: none"> <li>• the tree is dioecius</li> <li>• height ranges from 5-13m with DBH of 15-25cm</li> <li>• has dark-green glossy leaves which are between 12 to 36cm long and between 8-24cm wide</li> <li>• produces spherical fruits with diameter ranging from 2-4cm. fruits have green colour that turns to yellow or brown when the fruits ripens</li> </ul>	<ul style="list-style-type: none"> <li>• Fruits eaten by both human beings and feeding livestock</li> <li>• Firewood</li> <li>• Timber in some cases</li> </ul>

Muchakata	Chrysophyllum gorugosanum	<ul style="list-style-type: none"> <li>• Has alternate evergreen leaves which are 5-15cm long</li> <li>• Has tiny flowers which are purplish white which produces sweet fragrant smell</li> </ul>	<ul style="list-style-type: none"> <li>• Timber production</li> <li>• Used for toilet construction</li> </ul>
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### 3.2. TABLE 2: EXOTIC TREE SPECIES

This table shows dominant exotic tree species in both the reserves and surrounding customary land

LOCAL NAME	SCIENTIFIC	PHYSICAL CHARACTERISTICS	SOCIAL IMPORTANCE	ECONOMIC
Malongoti	<i>Pinus kersia</i> , <i>Pinus patula</i>		<ul style="list-style-type: none"> <li>• Timber production</li> <li>• Firewood</li> </ul>	
kambokambo	<i>Cyprus species</i>		<ul style="list-style-type: none"> <li>• Timber production</li> <li>• Firewood</li> </ul>	

### 3.4. TABLE 3: THE DOMINANT GRASS SPECIES

LOCAL NAME	SCIENTIFIC	PHYSICAL CHARACTERISTICS	SOCIAL IMPORTANCE	ECONOMIC
Sokola	<i>Nervilia bicarinata</i>		9 Used for roofing houses 10 Habitat for birds 11 Used for traditional medicine	
Kanyeli			<ul style="list-style-type: none"> <li>• Habitat for animals like rabbits</li> <li>• Used to make sweeping blooms</li> </ul>	

**3.5 TABLE 4: DOMONANT BIRDS FOUND IN MISUKU**

<b>LOCAL NAME</b>	<b>ENGLISH</b>
ISWANGA	EAGLES
FIKUKU	DOVE

**3.6 TABLE 5: DOMINANT ANIMALS FOUND IN MISUKU**

<b>LOCAL NAME</b>	<b>ENGLISH</b>
IMBISA	BLUE MONKEYS
AWOMBILA	FOXES
ULUSANJI	BLACK AND WHITE COLOBUS



*Black and white colobus © afes2015*

## **CHAPTER 4. CONCLUSION AND RECOMMENDATIONS**

The biodiversity survey was a revelation and provided insight on future sustainable natural resource management and utilization by the communities. However the following issues need to be taken on board if the natural resources of the area are to be sustainably utilized and the environment managed:

- There is a huge need to promote tree growing on the surrounding customary land to reduce overdependence on forestry resources in the reserves. If tree planting is not promoted the area will be heavily deforested looking at the current trend of harvesting hence leading to environmental degradation.
- Different partners including the government of Malawi through the department of forestry need to add more resources and effort to demarcate Village Forest Areas (VFAs) and develop their participatory management plans with local communities to guide sustainable utilization and management of natural resources of the area as this still remains a big issues beside the fact that previous and current programs have addressed it in other parts representing only 62 percent of the forest areas.

## **CHAPTER 5. SURVEY CHALLENGES**

- Moving around Misuku Hills forest has been a challenge due to poor roads around the forest reserves to an extent that some of the trips were cancelled during the survey.
- Mobilization of various community groups within the time schedules has been difficult in some cases because communities around Misuku Hills forest are very much scattered in long distances to each other.
- There was a need to expand budgets on the biodiversity survey in order to involve other sister department such as Parks and Wildlife, Forestry Research Institute of Malawi and Botanical Garden of Malawi but it was impossible.