



# Design and Plan of New Trails and Campsites in Udzungwa Mountains National Park.

(Project Number: TZ04403 – Udzungwa Mountains National Park)

DRAFT REPORT NOT FOR GENERAL CIRCULATION  
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## **Executive Summary**

UMNP is conserving a globally important biodiverse 'hotspot', vital water catchment areas, and also has a high potential for tourism. Tourism numbers have increased greatly since the park first opened in 1994. There is a need for existing trails to be improved and additional trails to be created.

During the fieldwork period of this assignment all of the existing trails in UMNP were walked, mapped and described in full (with the exception of the Mwanihana trail, which was partly completed). Of the nine trails proposed in the general management plan (TANAPA, 2001), three were walked, two have been described from previous survey work, two were discussed with village elders and deemed not suitable for tourists and two still require surveying. Six additional trails are recommended, two were walked, mapped and described in full, two have a recommended route and two have been partly walked, mapped and described and have a route recommended. All five existing campsites were visited, and recommendations for their improvement have been made. Locations of new permanent and fly campsites have been proposed. Trained, well-informed enthusiastic guides are essential to the success of UMNP trails, guides require additional training.

Specific and more general recommendations relating to trails, campsites and interpretative materials and tourism marketing have been made.

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## **Acronyms & Abbreviations**

asl	Above Sea Level
GMP	General Management Plan
km(s)	Kilometre(s)
m	Metres
TANAPA	Tanzania National Parks Authority
UMNP	Udzungwa Mountains National Park
UTM	Universal Traverse Mercator
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature

## **1 Introduction**

### **1.1 The Eastern Arc Mountains**

Udzungwa Mountains National Park (UMNP) is part of the Eastern Arc Mountains. These are defined as a broken mountain chain stretching from Taita Hills in south-eastern Kenya and extending down to the south-western part of Tanzania, with the Udzungwa Mountains being last in the chain (Lovett & Wasser, 1993). Although the Eastern Arc Mountains cover less than two percent of Tanzania's land area their forest contain 30 to 40 percent of the country's plant and animal species (TANAPA, 2001). The high proportion of endemic forest-dwelling organisms in the Eastern Arc is ascribed to the long presence of a humid forest cover, fostered by a seasonal, but highly predictable rainfall pattern (Lovett, 1993). The precipitation arises from moisture evaporating from the Indian Ocean, being subsequently carried towards the East African coast and discharged (Lovett, 1993). The Udzungwa Mountains, the largest of the Eastern Arc Mountain blocks, comprise a number of highly fragmented forest patches of varying size and composition (Lehmberg & Dinesen, 2001)

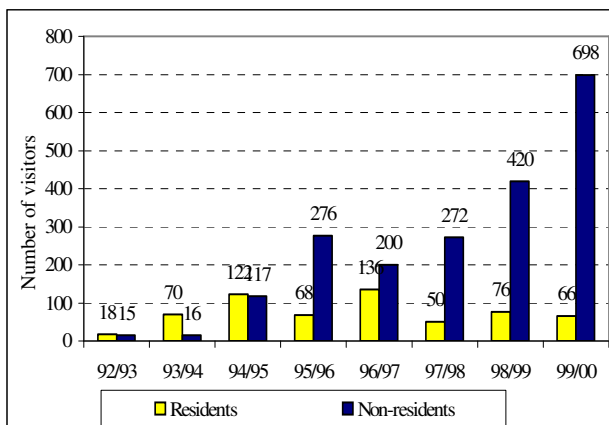
### **1.2 The Udzungwa Mountains National Park**

UMNP is one of Tanzania's most beautiful wilderness areas and an exceptional park for hikers. The park, covering an area of approximately 1990km<sup>2</sup>, is located between UTM 37 206000 E 910900N and 277000 E 9170000 N, in Iringa and Morogoro regions of central Tanzania. The park has a large altitudinal range of 200m above sea level (asl) to 2576 m asl. UMNP has distinctive natural vegetation zones, which range from the lowland forest found below 800m asl to alpine grassland at 2500m asl. UMNP was gazetted in 1992 in accordance with the National Parks Ordinance (Cap 412) of 1959 by excising land from five forest reserves. These forest reserves, established in the 1940's, include Mwanihana, Iwonde, Nyanganje, Matundu and a portion of West Kilombero Scarp (TANAPA 2001).

The purpose of UMNP as defined in the general management plan (TANAPA, 2001) is:

- To protect the park as a representative sample of Eastern Arc Mountains and to conserve the unique ecological ranges and features of the mountain system.
- To protect the natural forests as a watershed, providing high quality water to Kidatu Hydroelectric Dam, surrounding agricultural land and for local communities.
- To protect the area against soil erosion on the steep mountain slopes.
- To conserve an area of exceptional natural and scenic beauty.
- To protect the natural forests as a storehouse of genetic diversity.
- To protect the habitat for threatened, endangered, endemic and rare species.

The number of visitors to UMNP has increased steadily since 1992 (see Figure 1) when the park was opened. Although the number of visitors is relatively low compared to the northern parks, it is expected that when UMNP is incorporated into the southern circuit and facilities are improved, the number of visitors to the park will be relatively high - especially on the eastern side of the park (TANAPA, 2001).



**Figure 1** Visitor Number in UMNP

### 1.3 Nature Tourism and Ecotourism

Tourism is one of the worlds' largest industries and in recent years tourist preferences have started shifting away from mass tourism to more specialised forms of tourism such as nature tourism. There are many terms describing types of tourism in this field such as: nature tourism, ecotourism, wildlife tourism, sustainable tourism and alternative tourism, distinguishing between them is often difficult as these terms are not clearly defined (Higgins, 2002). The term ecotourism was first mentioned in the literature by Miller (1978) and subsequently found its way into the sustainable development movement (Ashton & Ashton, 1993). From this perspective, ecotourism is environmentally sound and sustainable tourism, which may secondarily include viewing nature. Other researchers have identified ecotourism as a more recent offshoot of nature tourism, along with adventure tourism. In this context, ecotourism is a newer and more refined version of nature tourism, with less emphasis on conserving resources or reducing environmental impacts (Higgins, 2002). One commonly used definition adopted by the recent World Ecotourism Summit, is that of The International Ecotourism Society (TIES) which stipulates that ecotourism is:

**'The responsible travel to natural areas which conserves the environment and improves the welfare of local people'.**

The development of ecotourism is a reaction to the perceived negative impacts caused by mass tourism to natural areas. As a result, the idea of ecotourism inevitably owes its conception to the developing interest of resource managers, tourism officials, and community leaders. In essence, it is a mechanism that can aid in the conservation of our natural, cultural, and historical resources while still providing the economic incentive to do so (Norman 1997).

'Ecotourism is about creating and appeasing a hunger for nature, about utilizing tourism's potential for conservation and economic development, and about deterring its negative impact on ecology, culture, and aesthetics' (Western, 1993).

The concept of ecotourism is evolving. With this evolution has come a search for standards of practice to guide ecotourism suppliers and destinations. In 1993, The



International Ecotourism Society (TIES) took several steps to address this need by formulating and publishing Ecotourism Guidelines for Nature Tour Operators (Higgins, 2002).

Nature tourism and ecotourism have recently become high growth areas within the travel industry. Although the number of nature tourists and ecotourists remains a small percentage of total international visitors, the high rate of growth and affluent character of this particular sector has attracted substantial commercial attention (Higgins 2002).

#### 1.4 Trail design

‘Trail construction and maintenance is an inexact science with many variables. Much depends on the location of the trail, the soil, the climate and the types of uses.’ (California State Parks, 2002).

There is a wealth of information regarding trail design readily available on the Internet. Unfortunately, the majority of this relates to design trails for multiple uses such as mountain biking, horse riding and hiking. Some of the principles recommended do not allow for the mountainous terrain of UMNP, e.g. ‘the linear gradient of the trail should be less than 10%’ (California State Parks, 2002). However, ‘there are certain guidelines which, if adhered to, will prevent most trail deterioration and minimise maintenance costs’ (California State Parks, 2002).

Bad trail features to be avoided include (California State Parks, 2002):

- **Deep trenching** – The trail is sunken such that hikers feel like they’re walking in the bottom half of a pipe.
- **Widening** – The trail has widened from a single or double track to an unsightly wilderness freeway of multiple parallel tracks, all trenched to a different degree.
- **Short cuts** – knowing that the shortest route between two points is a straight line, users create a web of trails, most of which are steep and erosive.
- **Tripping Hazards** – Regular use and erosion ultimately expose tree roots and rocks.
- **Steepness** – If a trail is too steep **over a long distance** one of two things will happen: either people won’t use it, or users will not enjoy their excursion.
- **Impact to natural/cultural resources** – Erosive trails and multiple trails compound the impact that trails have on rare plants and on archaeological sites.

All of these problems can be tied to one or more of the following three causes:

1. **Water** is the foremost cause of trail problems. The movement of water causes erosion and deep trenches. It also exposes tripping hazards.
2. **Poor Initial Trail Design** can rarely be overcome, even by regular maintenance.
3. **Inadequate or Inappropriate Maintenance** wastes valuable crew time and can sometimes increase trail problems.

Elements of a well-designed trail include (California State Parks, 2002):

- **Gradient** (i.e. the percent of the gain in height over the horizontal distance)  
10 % is a good standard, but highly erosive sandy soils may require less than 5%, and harder granitic soils can tolerate higher gradients of 15 %. It should be noted however that

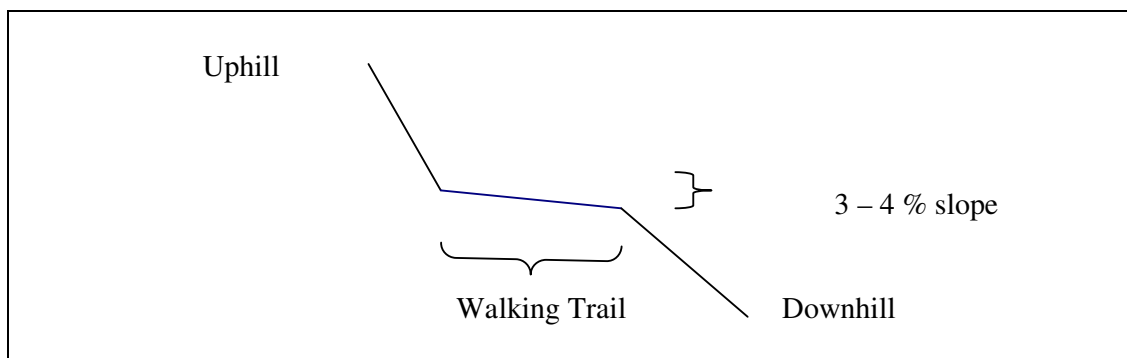
the trails less than 10 % are far more comfortable to walk, soils may allow for a trail that exceeds 10% but the users might not.

- **Relationship to existing contours.**

A well-designed trail is laid out to **cross** a hillside, rather than ascend directly. Water will run down the middle of a trail that climbs straight up a hillside, whereas it will drain off more easily a trail that is crossing the contours, because when you traverse the contours there is always a lower side to the trail.

- **Outslope.**

A well-designed trail should be constructed to have a 3 – 4% cross-slope to drain water off the trail as soon as possible. See diagram below:



**Figure 2** Cross section of ‘outslope’

It is **very important** that the outslope is maintained, normal use will create a dip on the uphill side of the trail and a ‘berm’ (mound of soil) on the downhill side. If left this will prevent water draining off the trail, instead the water will collect in the dip and be channelled along the path leading to erosion. Maintenance teams must level the berm into the dip and re-create the 3 –4 % outslope.

- **Avoid Switchbacks wherever possible.**

A switchback is any place where the direction of a trail crosses a slope in one direction and then abruptly ‘switches back’ towards the opposite direction. Switchbacks are often used to run a trail up a steep slope in a constrained location, and are often the only solution to rock outcrops and steep slopes. They should be avoided because unless they are perfectly designed and constructed they present an irresistible temptation to shortcut the trail and cause erosion.

These principles should be considered when constructing trails in UMNP.

## 1.5 Tourist Facilities

Sournia (1996) suggests that the “basic needs for successful tourist development in protected areas include good basic information, good technical information, good tourist reception, good accommodation, good transportation facilities, and proper marketing.” As with the majority of developing tourism destinations, UMNP is still on the road to achieving all these ‘pre-requisites’ for successful tourism.

## **2 Aims**

The aims of this assignment are to:

1. To determine the relative and optimal location of proposed trails and campsites as stipulated in the General Management Plan/Environmental Impact Assessment.
2. Using appropriate colour paints, mark on conspicuous trees/stones to determine position and direction of the proposed trails and campsites on the ground.
3. To determine and record GPS co-ordinates along the proposed trails and campsites and map them appropriately.
4. To identify, record and map all attractions along the trails and campsites.
5. To suggest infrastructure and facilities that have to be put along the trails and campsites for tourist use.
6. To provide recommendations on how to enhance tourists' experiences as they walk along the trails.
7. To produce a document with maps on nature trails and campsite plan for Udzungwa Mountains National Park.
8. To identify potential impacts likely to occur as a result of tourists influx or/and unsustainable practices.

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### **3 Progress summary**

#### **3.1 Meetings and information collation.**

Prior to departure to UMNP, Zakia Aloyce (WWF) briefed the consultant team in Dar es Salaam, and a preliminary literature search was undertaken.

The first two days in the field were spent meeting with UMNP warden in charge, Mr Meoli, the head of UMNP tourism department, Mr Godson Kimaro and David Moyer from World Conservation Society.

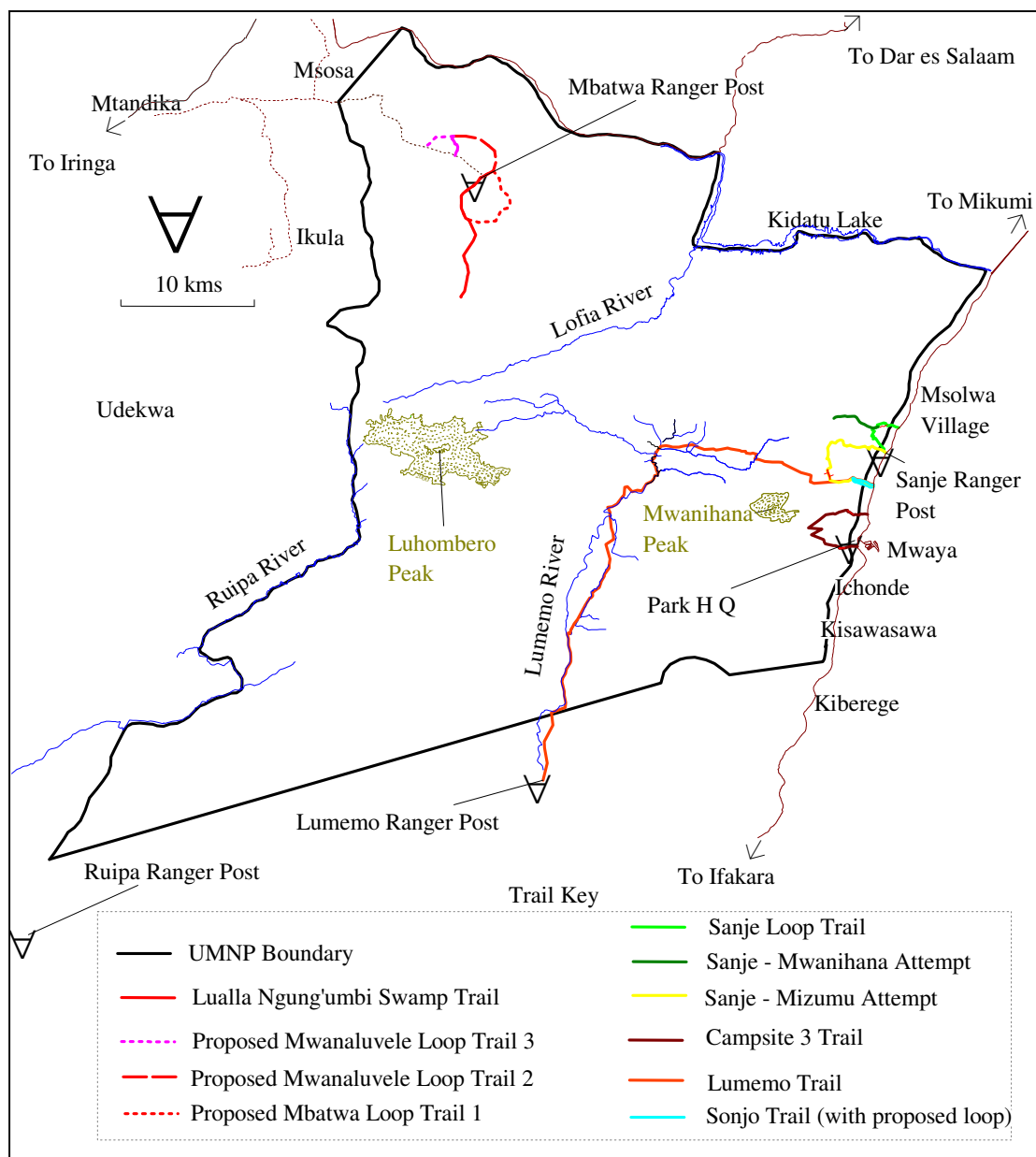
UMNP staff welcomed the trail design team and each party stated what they hoped would be achieved during the consultancy timeframe. It was agreed that as trail development is a long process, and UMNP a large park when on foot, we could not hope to cover the whole area during the allocated time frame. It was also agreed that recommendations in the General Management Plan are to some degree flexible, and that our work is a preliminary stage in developing walking trails in UMNP. Mr Godson Kimaro has walked extensively in UMNP, and his advice and experience was invaluable throughout the trail design period.

The trail design team also met with David Moyer (World Conservation Society) who provided a valuable insight into proposed trails already surveyed by him. In addition he kindly agreed to fly the trail design team over UMNP in the WCS plane. This was very useful and gave the trail design team an idea for the over-all topography of the park and a feel for suitable areas for trail development.

#### **3.2 Using this report.**

In this report we summarise our findings and present recommendations on a trail by trail basis. The trails are grouped by area, in the order that the trail design team visited them. To support the written information there are a series of maps of each of the trails, photographs, and an annotated list of GPS points for each trail. All GPS points given are Universal Transverse Mercator (UTM 37) Zone 37 (Southern Hemisphere), using ARC 1960 map datum, thus they correspond with the 1:50,000 topographic map sheets.

Map 1 gives an overview of surveyed trails in UMNP.



**Map 1** Sketch Map of Trails in Udzungwa Mountains National Park

### 3.3 Mbatwa Trails

The dominant vegetation in the Mbatwa area is dry *Commiphora* sp. / *Adansonia* sp. woodland, giving way to grassland and miombo woodland at higher altitudes, this area is very different to the wetter eastern side of the park. The Mbatwa area offers tourists opportunities for visits to cultural sites, hill-walking and good game viewing. The scenery and the views are spectacular, and with a good guide the cultural history can still be seen in the landscape features.

#### 3.3.1 Access

Access to all the Mbatwa trails is currently from Mbatwa Ranger Post (UTM 37 238128 E 9159670 N). It is possible to drive all the way to the ranger post on a reasonably good road that is passable in all seasons with a good 4 wheel drive vehicle. To reach Mbatwa Ranger Post, turn off the Dar – Iringa road at Mtandika village (also known as Mahenge / Kidika village, UTM 37 217587 E 9167159 N), and take the road to Msosa and Ikula. After approximately 5km the road forks, take the Msosa road which is the left fork (the other goes to Ikula village). After approximately another 6 kms, you reach the turning for Msosa village. Instead of turning left to enter the village you continue straight on, after about 2 kms you cross the Msosa river (UTM 37 226721 E 9165350 N) and continue on the road for about another 15 kms to Mbatwa Ranger Post.

TANAPA / WWF have planned to build a National Park Entrance Gate on the north-eastern side of the park near Msosa village (TANAPA, 2001). Until this gate is constructed all permits have to be purchased at the park headquarters in Mang'ula, this will be very inconvenient to visitors travelling along the Iringa – Dar road, adding about 6 hours of driving to their journey. It is important that the Msosa gate is constructed and made operational as quickly as possible to encourage visitors to visit the north-western section of the park.

#### 3.3.2 Mbatwa Ranger Post

Currently there are no facilities for tourists at Mbatwa Ranger Post (UTM 37 238128 E 9159670 N). However the recently constructed Ranger Post is in an excellent position to serve as start point for walking trails, visits to the Mbatwa cultural sites, and possibly driving routes through the *Commiphora* sp. / *Adansonia* sp. woodland.

A possible campsite was located (UTM 37 237958 E 9159416 N see Map 2) on the hill just above the ranger post. This campsite location offers excellent views down the valley and of the surrounding hills (see Photograph 8). Ideally a track from the ranger post to the proposed campsite should be cleared so that vehicles can access the site to carry equipment and if necessary deliver water. The stream that runs close-by to the ranger post is not suitable for cooking and drinking water, due to its salinity. Currently TANAPA rangers collect water from the Msosa river (UTM 37 226721 E 9165350 N) approximately 15 kms away. This strategy would not suffice for large numbers of visitors. A feasibility study for the construction of a well or borehole at the ranger post should be undertaken, with the aim of establishing a supply of **fresh** water for both the ranger post and the campsite. If it is not possible to obtain fresh due to high salinity in the substrate, it **MUST** be widely advertised that visitors have to bring their own supplies of drinking and cooking water. This situation, although not ideal, works in other Parks in Africa e.g. Central Kalahari, Botswana.

### 3.3.3 Mbatwa Ruins

Mbatwa Ruins (see photographs) are the remains of a primary school and village located on the site until 1975.



**Photograph 1 Mbatwa Ruins north-west corner of school building.**

The people of Mbatwa village built the Mbatwa road, village and school completing the latter in 1973. Most remarkable is the fact that all the cement and rocks were head loaded 17 kms to the site, and the village was then abandoned in 1975, apparently due to concerns about lack of fresh water. Most of the inhabitants moved to Msosa Village.



**Photograph 2 Mbatwa Ruins school building.**

The ruins are about five minutes walk from the ranger post, and are very small in scale but they are an interesting feature to include in a visit.

The trail team walked two trails in the Mbatwa area, these are marked on Map 2 with a solid line. In addition the team identified several opportunities for trail extensions that need to be further investigated, these are indicated on Map 2 with a dotted or dashed line.

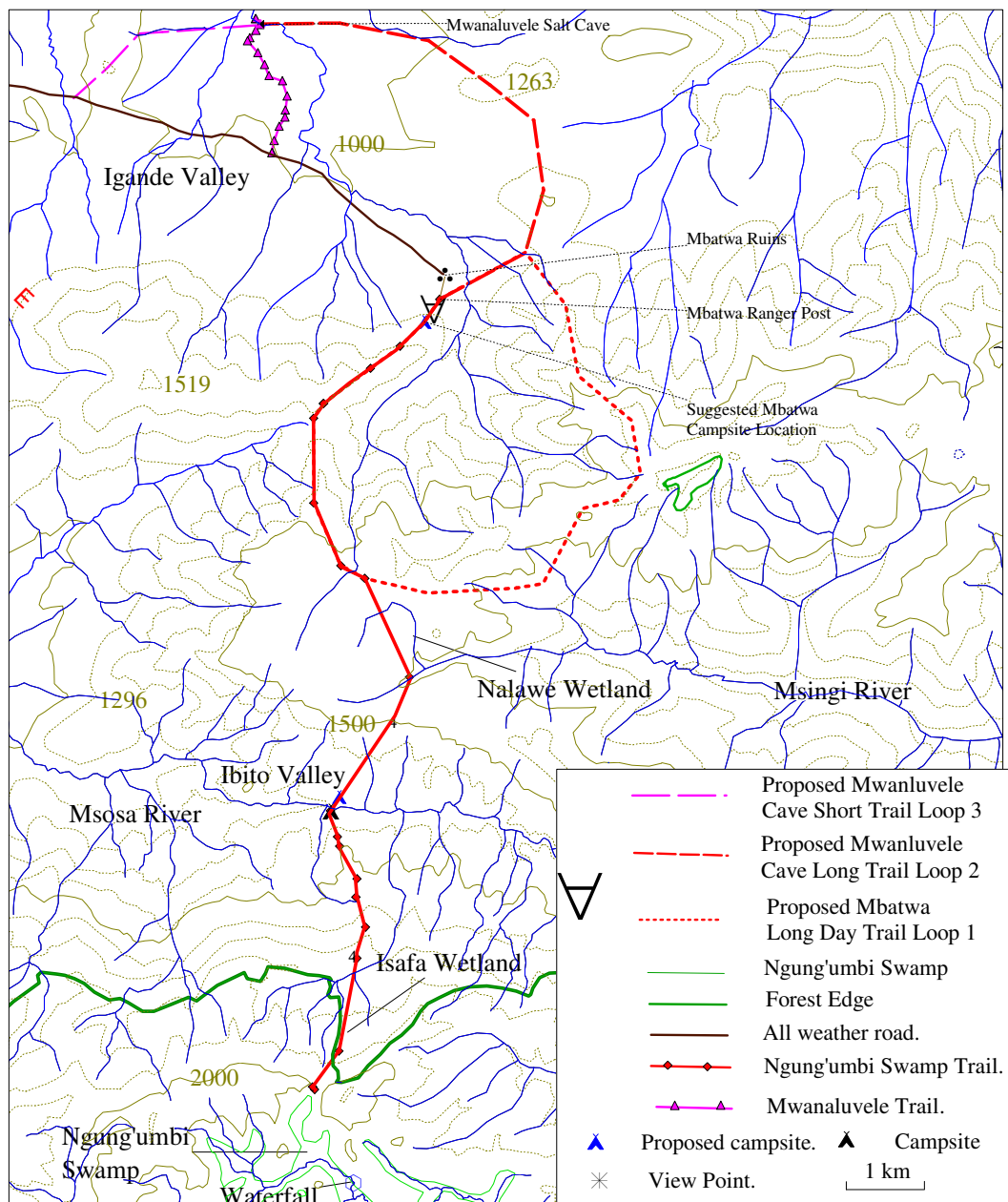


**Photograph 3 Mbatwa Ruins west facing wall of school building.**

When advertising this area it is important not to raise expectations of an 'ancient ruin site', but explain the ruins in the context of the shifting settlement patterns of the whole central and north-western area of the park. Some further, more detailed research documenting the shifting settlement patterns in the whole of the park would provide an interesting aspect to interpretative information about the park.



**Photograph 4 Foundations of Mbatwa Ruins School**



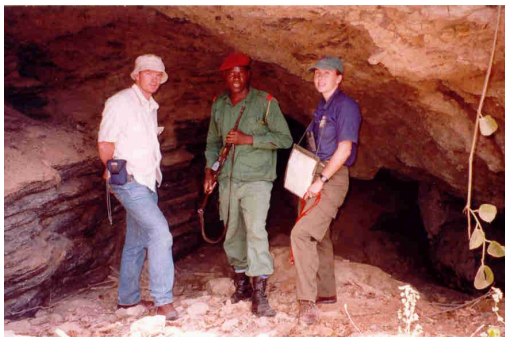
**Map 2** Mbatwa Map



### 3.3.4 Trail to Mwanaluvele Salt Cave

<b>Trail Name:</b>	Mwanaluvele Salt Cave Trail.
<b>Start/End Point:</b>	Start from the Msosa to Mbatwa Ranger Post road. Start point marked with blue paint on trees (approximately 2.5 kms from ranger post) The start and end point at present is at the same place – linear trail. UTM 37 236234 E 9161332 N Start and End point
<b>Distance:</b>	1.8 kilometres
<b>Difficulty:</b>	Easy Flat walking
<b>Time:</b>	2 hours
<b>Habitat Types:</b>	<i>Commiphora</i> sp. / <i>Adansonia</i> sp. woodland Riverine thicket
<b>Attractions:</b>	Mwanaluvele Caves – cultural significance Elephant wallow holes Possible bird watching
<b>Positive features:</b>	<ul style="list-style-type: none"> <li>✓ Easy walk through dry woodland</li> <li>✓ Easy access to area by car</li> <li>✓ Good chance of seeing signs of animal tracks</li> <li>✓ Lots of evidence of elephant (wallows &amp; rubbing on trees)</li> <li>✓ Bones and debris of animal kills inside the caves</li> <li>✓ Different habitat from other areas of the park</li> <li>✓ Interesting tales regarding the caves and surrounding area</li> </ul>
<b>Negative features:</b>	<ul style="list-style-type: none"> <li>✗ Very short trail</li> <li>✗ No views along trail</li> <li>✗ The cave is very small and may prove to be an anticlimax on its own</li> <li>✗ Caves possibly unstable after very heavy rains – needs regular safety inspections. (Wazee of Msosa report that the caves have not collapsed or changed shape for many years)</li> </ul>
<b>Description and other information:</b>	The Mwanaluvele Caves are a site of cultural and historical significance for the people of Msosa village. Traditionally women visited the caves to excavate salt. There seem to be many tales about the use of caves. For example, it is reported that during the period of fighting between the Hehe and the Mdene people, the Mdene people took refuge and hid in the caves. There is also a strange (incomplete) tale about a large breasted women who died of hunger in the cave, although the reasons why are not clear. Another tale describes how a group of women collecting salt found a human skull with the facial markings of the Hehe imprinted onto the skull. They moved the skull and on their way home the women got very lost, eventually they abandoned their salt and found their way home to the village. This incident led to the belief that when

	<p>visiting the caves you must just do your work and not disturb anything you find there.</p> <p>The trail to the cave is a gentle walk through dry <i>Commiphora</i> sp. woodland. There are numerous animal trails through the woodland, so it is very easy to miss the trail that leads to the cave. At UTM 37 236148 E 9162328 N there is an elephant and buffalo wallow, an interesting feature along the trail that visitors will enjoy. The caves are adjacent to a dry river bed/wetland, which may provide good game viewing opportunities. The trail from the road has been marked with temporary red plastic tags.</p>
<p><b>Recommendations:</b></p>	<ul style="list-style-type: none"> <li>• Replace temporary trail marks with permanent markers on trees.</li> <li>• Extend the trail to make a short cave trail that includes climbing the nearby hill to get a view, and not returning along the same path to the road. (See Loop 3 on Map 2).</li> <li>• Extend the trail, making the salt cave a pitstop on an 'all-day' loop trail that includes climbing some of the hills nearby to include some views along the trail. (See loop 2 on Map 2).</li> <li>• Document local stories about the cave and its uses.</li> <li>• Initiate regular safety checks on the stability of the caves.</li> <li>• Design, print and distribute trail leaflet/brochure, including information about the trail, a good map, and features of interest along the route.</li> </ul>



**Photograph 5 Salt Cave Entrance**



**Photograph 6 Inside Salt Caves**



**Photograph 7 Geology of cave entrance.**

### 3.3.5 Lualla Ngung'umbi Swamp Trail

<b>Trail Name:</b>	Lualla Ngung'umbi Swamp Trail
<b>Start/End Point:</b>	At present this is a linear trail starting and finishing at Mbatwa Ranger Post UTM 37 238128 E 9159670 N
<b>Distance:</b>	Day 1 7.7 km to campsite in Ibito valley Day 2 7.0 km to Ngung'umbi swamp edge and return to camp. Day 3 7.7 km Ibito valley campsite to Mbatwa Ranger Post Total <b>22.4 km</b>
<b>Difficulty:</b>	Moderate, with some steep hill climbs and wet areas to traverse.
<b>Time:</b>	2/3 days
<b>Habitat Types:</b>	Grassland Miombo Woodland Montane Forest Upland Wetland
<b>Attractions:</b>	Spectacular views Excellent game viewing opportunities in grassland areas. Upland swamp is unusual habitat with a good chance of seeing elephant during the dry season Historical and Cultural features
<b>Positive features:</b>	<ul style="list-style-type: none"> <li>✓ Excellent views</li> <li>✓ Uses easy to follow pre-existing animal and people trails</li> <li>✓ Connects with trail to Ikula to Village giving options for circular routes</li> <li>✓ Evidence of old settlements</li> <li>✓ Good game viewing possibilities</li> <li>✓ Can drive to the start of the trail</li> <li>✓ Possibility for a nice day trail to the viewpoint looking over the Ibito Valley (a good game viewing point)</li> </ul>
<b>Negative features:</b>	<ul style="list-style-type: none"> <li>✗ At present this is only a linear trail</li> <li>✗ Trail passes through Isafa wetland – needs re-routing</li> <li>✗ Water in the Mbatwa area is salty, so drinking water at base camp has to be carried in</li> </ul>
<b>Description and other information:</b>	<p>Day 1</p> <p>The first days' walk climbs up and over the hills south of the Ranger Post, offering spectacular views over the Igande valley (Photograph 8) and also towards Msosa and Ikula. The trail climbs steeply in places but is mostly easy walking through grassland and miombo woodland. Having reached the top of the ridge the trail descends into an area known as Nalawe, a small wetland that drains eastwards into the Msingi river. There were numerous signs of large game around Nalawe, particularly Buffalo (Photograph 9). Shortly after passing through Nalawe the trail reaches the northern edge of the Ibito valley, which holds the headwaters of the Msosa River. This valley is a very impressive sight (Photograph 10), well worth</p>

**Description and  
other information  
continued:**

the walk even for a day trail, there is also good chance of seeing game. The viewpoint marked on the map is a large rock, which is an excellent lunch stopping point. Just below this viewpoint is an area with many *Protea* sp. individuals. From here the trail descends into the Ibito valley towards the campsite near the river. Our chosen campsite was adequate, but other more suitable sites offering sunset views for campers, and larger flat areas were located (indicated on Map 2, UTM 37 236995 E 9154038 N). There are several suitable ridge tops that could be developed into camping sites. The only drawback is that water will have to be carried a couple of hundred metres for cooking etc.

**Day 2**

The days' walk starts with a steep climb out of the Ibito Valley, climbing through the miombo woodland and grassland on the southern slope. Although steep, this climb taken slowly is relatively short and can be completed in 2 hours. Climbing up the valley side you reach the trail that leads to Ikula Village (UTM 37 236973 E 9153585 N). There are signs of previous settlement in the form of former house sites and broken pottery (UTM 37 237093 E 9153178 N, Photograph 11). Once on the ridge, there are beautiful views looking across to Nalawe and the route walked the previous day. The trail then passes around a 'bowl shaped' valley, and then descends into a second - a wetland called Isafa. The Isafa wetland is difficult to cross, so it is recommended that an alternative route passing around the wetland be investigated. The trail then reaches the forest edge (UTM 37 236988 E 9151158 N, Photograph 12) and picks up an elephant trail that passes through the lowest point of ridge separating Lualla Ngung'umbi from the Ibito Valley. The forest path is a well-trodden trail, we were lucky to see fresh Leopard prints. After about half an hour the trail ends abruptly at the edge of the Ngung'umbi swamp (Photograph 13). We recommend that a trail following the contours be cleared around the edge of the swamp. This will allow people to view animals further in the swamp. It is reported that elephants are common in the swamp during October and November. We returned to the campsite in the Ibito Valley using the same route.

**Day 3**

At present the trail returns along the same route as walked on Day 1, however it is much quicker on the return journey (approximately 4 hours walking) as there is more descending than climbing. We were fortunate to see Sable Antelope on our return journey in the grassland areas on the high ridge (near UTM 37 237010 E 9156653 N). From this point we recommend that an alternative route (Loop 1 on Map 2) be developed, descending to Mbatwa along the eastern spur and dropping down to the ranger post from the eastern side. This loop will also provide a long day hike for visitors who wish to



<b>Recommendations:</b>	<p>base themselves at Mbatwa rather than camping further afield.</p> <ul style="list-style-type: none"> <li>• Enable visitors to obtain permits on western side of park as quickly as possible (as per management plan).</li> <li>• Demarcate trails with fixed beacons/cairns.</li> <li>• Develop trail for alternative route to start/end at Ikula Village. There is already a well-established path to Ikula joining this trail.</li> <li>• Develop alternative campsite(s) in the Ibito valley on one of the numerous ridge tops near the river e.g. UTM 37 236995 E 9154038 N.</li> <li>• Find alternative route around the Isafa wetland, if this is not possible identify easier route through the wetland, maybe re-arrange dead logs to form a temporary crossing point.</li> <li>• Identify local people familiar with the cultural history of the area, and document this knowledge. (See Appendix 2)</li> <li>• Extend trail around the eastern spur (loop 1) behind Mbatwa to give tourists an option of a circular day route and an alternative return route to return to Mbatwa.</li> <li>• Design, print and distribute trail leaflet/brochure, including information about the trail, a good map, and features of interest along the route</li> </ul>
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**Photograph 8 View of Igande Valley.**



**Photograph 10 Ibito Valley.**



**Photograph 9 Buffalo Wallow.**



**Photograph 11 Pottery on Trail.**



**Photograph 12 View of Forest Edge.**



**Photograph 13 Lualla Ngung'umbi Swamp approx. 2000 m asl.**

### 3.3.6 Suggested trail developments in Mbatwa Area.

The scenery around Mbatwa Ranger post is spectacular, it is an ideal place to develop a campsite with a series of shorter day trails that incorporate ridge walking and beautiful view points. Several short trail possibilities have been identified, all need to be surveyed, cleared and marked on the ground:



- i. Loop Trail 1 (south of Mbatwa). 12 kms.  
This proposed (long) day trail initially follows the trail to Ngung'umbi swamp, but returns to Mbatwa following the eastern spur of the ridge back around to the eastern side of Mbatwa Ranger post (see Map 2).
- ii. Loop Trail 2 (Mbatwa Ranger Post - Salt Cave – Ranger Post Road via 2 peaks). 7.8 kms.  
This all-day trail heads east from Mbatwa Ranger post and then turns north to climb the first peak, without losing too much altitude the trail follows the saddle between the first and second peak (which is the highest in the immediate area). From the second peak the trail descends west towards the caves (see Map 2).
- iii. Loop trail 3 (Ranger Post Road - Salt Cave - Road climbing 1 hill). 4.1 kms.  
This short trail will act as an extension to the existing Mwanaluvele Cave Trail, providing visitors with a slightly longer circuit instead of a linear trail. The view from the hilltop will add perspective to the trail. It will not matter which direction visitors walk this short half day trail (see Map 2).
- iv. Mbuyuni Campsite Trail.  
Mbuyuni campsite is located just off the Dar – Iringa road, a proposed trail from Mbuyuni to Mbatwa might encourage more visitors to visit the park. The need for this trail route needs to be assessed, a route then surveyed and a safe river crossing established.

### Potential Long-range Trails from Mbatwa

- i. Old German Trail  
From the hills behind Mbatwa Ranger Post, the old German Trail used by troops on horseback is still clearly visible. It is reportedly possible to reach the Lofia Valley (in the north-central area of the park) and then Sumbugulu Village on the north-eastern border of the park. This trail requires further exploration before it can be recommended to visitors, if possible this would be an interesting trail walk. There is also a possibility of exiting/entering via the Kidatu dam (where the Lofia River drains into the dam), midway along the trail.

### 3.4 Lumemo trail

<b>Trail Name:</b>	Lumemo River Trail
<b>Start/End Point:</b>	Lumemo Ranger Post UTM 37 243101 E 9114605 N (Last point that vehicles can reach) End UTM 37 265848 E 9137059 N
<b>Distance:</b>	55 kms (excluding Mwanihana ascent) 60-65 kms (kms including Mwanihana ascent)
<b>Time:</b>	5.5 days (excluding Mwanihana ascent) 6.5 days (including Mwanihana ascent) Based on walking six hours / day, stopping 1 hr for lunch and other stops for views, wildlife and rests. Slower hikers would be advised to allow for another day.
<b>Difficulty:</b>	Moderate to difficult in places.
<b>Elevation:</b>	This route climbs from 340m asl to 940m asl and returns to 340m. For the first 3.5 days the gradient is very mild following the Lumemo River north. On day 3 the trail leaves the Lumemo valley and some steep slopes are climbed as the trail heads eastwards to Njia Panda campsite, from which point the main Mwanihana trail then descends to the exit point on the road. Ascending Mwanihana peak (2080m) adds a further 1000 m climb starting from Njia Panda campsite.
<b>Habitat Types:</b>	Miombo woodland Grassland Bracken Montane, Submontane and Riverine Forest <i>Afromomum</i> 'groves'
<b>Attractions:</b>	<ul style="list-style-type: none"> <li>• Remote wilderness</li> <li>• Lumemo River area, where wildlife such as Cape clawless otter, Pel's fishing owl, giant kingfisher, elephant, buffalo, bushbuck, waterbuck and duiker occur</li> <li>• Mwanihana peak</li> <li>• Sub-montane forest with the many monkeys that occur there</li> <li>• The pools and water falls of the Sonjo river</li> </ul>
<b>Positive features:</b>	<ul style="list-style-type: none"> <li>✓ A true wilderness experience</li> <li>✓ Seeing elephant and other animals on foot</li> <li>✓ The chance to see Pel's fishing owl</li> <li>✓ Challenging Long –range Trail</li> <li>✓ Climbing Mwanihana peak</li> <li>✓ Experiencing a large variety of habitat types</li> </ul>
<b>Negative features:</b>	<ul style="list-style-type: none"> <li>✗ Very long, possible only for a few energetic and wealthy tourists</li> <li>✗ More survey work required to establish a good route for sections of this trail</li> <li>✗ Expensive to create and maintain due to length</li> <li>✗ Challenge to maintain adequate communication to ensure</li> </ul>

	<p>adequate level of safety</p> <ul style="list-style-type: none"> <li>✗ Long grasses are a problem in some areas, potentially dangerous with big game in the area</li> <li>✗ Many river crossings</li> </ul>
<p><b>Description:</b></p>  <p><b>Photograph 14 River crossing</b></p>  <p><b>Photograph 15 Cape Clawless Otter Footprint.</b></p>	<p>Day 1.</p> <p>The trail design team started walking at the Lumemo Ranger post (UTM 37 243101E 9114605N, 340 m asl), this short trail (3 hours walk) passes through overgrown grassland and miombo woodland to the first campsite (UTM 37 243690 E 9119429 N, 340 m asl) next to the Lumemo River. Lumemo Ranger Post was originally planned to be near campsite 1. We recommend that this site (UTM 37 243274 E 9119556, 342 m asl) is developed as a permanent campsite and trailhead. To facilitate this, the road to this site needs to be maintained vehicular access re-established.</p> <p>Day 2</p> <p>The trail follows the Lumemo River to a major tributary (UTM 37 244904 E 9125177 N, 332 m asl). This section offers excellent game viewing opportunities, a lone buffalo, duiker, primates, elephant mineral digging site (UTM 37 245111 E 9123648 N Photograph 16) and a pair of Pel's fishing owls were seen (UTM 37 245037E 9123825 N). On meeting the tributary the trail turns north-east following the tributary to campsite number 2. This section passed through head high grasses with some woodland and riverine forest walking and mainly utilised old elephant/ poacher's routes. It is recommended that an alternative campsite is located before campsite 2 at UTM 37 244932 E 9125173 N, to offer a shorter trail for slower groups. The trail design team walked this section in 7 hrs 40 mins, minus 1hr for lunch and numerous rest and animal viewing stops.</p> <p>Day 3.</p> <p>The trail continues to follow the tributary to its source in a narrow valley, passing a small waterfall Photograph 20, travelling along an old elephant path through a cool shady section of riverine forest. In a small stream in this area the trail design team saw a large rock python hunting in the stream Photograph 22. The trail continues over the ridge that separates the first tributary from a second that flows northwards to the Lumemo. The trail follows this second tributary almost to the river, but shortcuts to the main river passing through a cutting created by elephants over hundreds of years. At the Lumemo (UTM 37 248069 E 9134159 N, 415m asl) the trail crosses to the western bank, involving a fairly deep river crossing that offers an excellent opportunity for a wash or swim Photograph 14. The trail follows the Lumemo past some rocky rapids and waterfalls (where signs of otter were seen Photograph 15) to an attractive quiet stretch where campsite 3 was established (UTM 37 248186 E 913910 N, 460 m asl). Here giant kingfishers and other water birds</p>



**Description:**

can be seen, and small Zanzibar bushbabies and owls can be heard at night in the riverine forest. Opposite this camp on the eastern riverbank are several large impressive Mvule trees. The team walked this section in 8hrs minus 1.5hrs for lunch and numerous rest / observation stops.

**Day 4.**

The trail follows a good elephant path through a mixture of woodland and riverine forests until a tributary running slightly 'white' (UTM 37 249069 E 9134910 N, 460m asl). The team followed the elephant path along the tributary, however this trail heads in the wrong direction (west). This section of the route should be ignored and a trail established that follows the main Lumemo River. The trail rejoins the Lumemo River passing water cascades see Photograph 18 and Photograph 19 (UTM 37250251 9135941 N, 459m asl) with good swimming pools, picnic sites and views of Luhombero Mountain. The trail then makes several river crossings cutting across meanders in the river before reaching campsite 4 (UTM 37 251248 E, 9138552 N, 500m asl) situated next to the river and an animal crossing point. This section of the trail was walked in 8hrs minus 1.5hrs for lunch and numerous rest stops.

**Day 5.**

The trail follows the Lumemo making four shallow easy river crossings. After approximately 1hr the trail meets the confluence of the tributaries draining from Luhombero on the west and Mwanihana on the east (UTM 37 251378 E 9139017 N). This is a significant point as shortly afterwards the trail turns west and starts to climb a spur leaving the Lumemo below. The climb takes you out of the valley (522 m asl) up to the base of Mwanihana (890m asl) and is quite steep in places. Once out of the valley and up on the main 'plateau' which has numerous small streams and hills, there is a network of elephant paths that leads to campsite 5 (UTM 37 258248 E 9139034 N, 937m asl). Elephants were seen in this area. The trail is very unclear in parts and requires slashing and a good guide. This section of the trail was walked in 8 hrs minus 1.5hrs for lunch and numerous rest stops.

**Day 6**

The trail to Njia Panda campsite (UTM 37 260165 E 9138456 N, 950 m asl) passes through undulating hills with woodland, grassland, *Afromomum* glades, and forest. This section of the trail is very enjoyable, as the habitat becomes dense and lush. Several more small streams are crossed and the trail needs clearing. At the Njia Panda campsite hikers can decide whether to climb Mwanihana peak or not! From Njia Panda camp the trail connects to the Mwanihana peak trail, from where it is fast and easy to follow the well-cleared trail down to the main road, via Mizimu camp. This last section of the trail was walked in 8hrs minus 1.5hrs for lunch and numerous rest stops.

<b>Recommendations:</b>	<ul style="list-style-type: none"> <li>• Open the road to the original Ranger post site to create a trailhead inside UMNP.</li> <li>• Develop campsite facilities at trailhead.</li> <li>• Implement Ranger Guide Training Programme. This route is a wilderness trail and requires good, friendly, patient, well trained 'ranger guides' to lead tourists and cope with any problems that may arise.</li> <li>• Improve the route by reducing the river crossings, locating viewpoints near the Lumemo River and constructing a level walking surface in some sections – to be carried out during development stage.</li> <li>• Slash the trail in the tall grass areas, or re-route under woodland areas, alternatively only attempt this trail in the dry season when the grasses are lower.</li> <li>• The safety of tourists is a priority, adequate medical evacuation and first aid procedures need to be implemented.</li> <li>• Establish a communication system (radio) between rangers and ranger posts in order to cope with emergencies - this should be completed before this trail is offered to tourists.</li> <li>• Porters are required for this trail – recruit and train a pool of porters (see Appendix 2) from the local villages.</li> <li>• Investigate ways of providing porters with necessary equipment e.g. tents, rucksacks etc.</li> <li>• Advise Tourists on rates of pay for porters.</li> <li>• Relocate campsite 2, consider site suggested on Map 3 - during development stage.</li> <li>• Develop short trails based from Lumemo Ranger post or trailhead campsite for day or 2 day trips focused on leisurely wildlife watching walks.</li> <li>• Investigate the possibility of sports fishing on the Lumemo River outside the borders of UMNP, e.g. near Lumemo Ranger Post.</li> <li>• Assess feasibility of canoeing in the Lumemo R. as another potential tourist activity.</li> <li>• Clarify the role, responsibility and liability of TANAPA in case of accidents.</li> <li>• Design, print and distribute trail leaflet/brochure, including information about the trail, a good map, and features of interest along the route.</li> </ul>
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**Photograph 16 Elephant Digging**



**Photograph 17 View of Luhombero**



**Photograph 18 Lumemo River Cascades**



**Photograph 19 Close-up of cascades.**



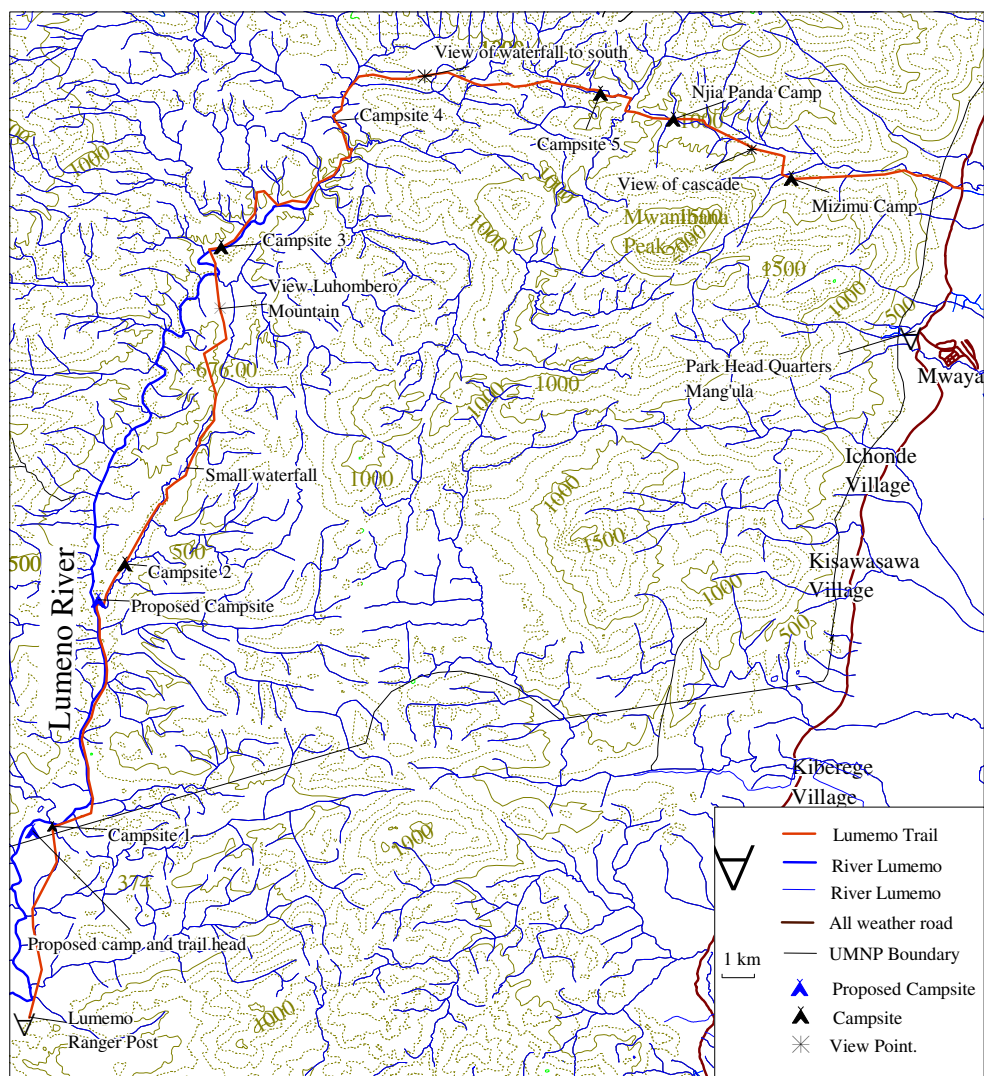
**Photograph 20 Pools on Tributary**



**Photograph 21 Lumemo River**



**Photograph 22 Rock Python hunting in stream**



**Map 3 Lumemo Trail**



### 3.5 Prince Bernhard Trail

<b>Trail Name:</b>	Prince Bernhard Trail
<b>Start/End Point:</b>	Park head quarters Mang'ula UTM 37 266584 E 9132562 N 335 m asl
<b>Distance:</b>	A linear trail approximately 1.5km to go and return.
<b>Time:</b>	40 min (depending on how long is spent at the falls)
<b>Difficulty:</b>	Very Easy
<b>Elevation:</b>	A gentle climb of about 20m elevation.
<b>Habitat Types:</b>	Secondary lowland forest.
<b>Attractions:</b>	Water fall and rocky pools of the Mwaya river Good picnic site Labelled trees Wildlife; blue monkeys, duiker, monitor lizards, birds, red and black and white colobus monkeys
<b>Positive features:</b>	<ul style="list-style-type: none"> <li>✓ Short and easy</li> <li>✓ Can provide a 'time filler' for visitors while tour guides are processing permits</li> <li>✓ Interesting ethobotanical element, where this trail provides the names of some trees and their uses</li> <li>✓ The river and the falls are an attractive end point</li> <li>✓ The falls provide the opportunity to explore the rocky pools, and plants clinging to the rockfaces</li> </ul>
<b>Negative features:</b>	<ul style="list-style-type: none"> <li>✗ Very Short – possibly too short to be advertised as a trail</li> <li>✗ Litter at the waterfalls</li> <li>✗ Damaged sign posting of the trail</li> <li>✗ Unprofessional looking species labels on trees – some of the tree labels need are wrong</li> <li>✗ Unsightly views of the staff accommodation</li> <li>✗ The route is linear; a circular route would be better</li> </ul>
<b>Description:</b>	This walk follows the track behind the park headquarters, through secondary forest to a car park and signpost for the St Bernhards' Falls. Then there is a narrow path to the waterfalls. Walkers note the tree labels on the way and can stop to view semi-habituated groups of monkeys and even the normally shy red duiker. The small waterfalls provide a nice picnic spot, however litter is reportedly becoming a problem which requires tackling e.g. advise tourists on appropriate places to deposit litter and undertake regular littler sweeps of the area.
<b>Recommendations:</b>	<ul style="list-style-type: none"> <li>• Install baboon proof signposts</li> <li>• Install better tree species labels indicating: the correct name of the tree, in Latin, English and Swahili, medicinal or spiritual significance</li> <li>• Make the trail circular - the following options are</li> </ul>

available:

- a) Cut a trail north around the Mang'ula 'bowl' to link up with the Njokamoni River
  - b) Take the path up the Mwaya river crossing to the south to link up with the campsite 3 trail;
  - c) Cross the Mwaya river just above St. Bernard's falls, and follow it westwards to an African violet site, then cross over at the water intake point and return back down the campsite road.
- If the campsite number 2 is not in use, this would make an ideal picnic site.
  - Design, print and distribute trail leaflet/brochure, including information about the trail, a good map, and features of interest along the route.
  - Install animal-proof litter collection points (not in the immediate vicinity of the falls) and encourage visitors to use them.
  - Establish regular litter collection sweeps at falls.



**Photograph 23 Prince Bernhards Waterfalls**

### 3.6 Sanje Trail

Sanje Waterfall is one of the main attractions of UMNP, accordingly this trail is currently the most used trail in the park. Approaching the waterfall from Sanje village is a shorter but steeper route, starting from Sanje Ranger Post offers a longer walk through forest with some steep parts to the trail.

<b>Trail Name:</b>	Sanje Waterfall Loop Trail (See Map 4)
<b>Start Point:</b>	Sanje Ranger Post (UTM 37 268915 E 9139147 N, 340 m asl) Sanje Village (UTM 37 269800 E 914150 N)
<b>Distance:</b>	Including trail to pool at bottom approx. 5.5 Kms Not including trail at bottom approx. 4.5 kms Sanje RP to Sanje Waterfall approx. 3 kms Sanje Village to Sanje Waterfall approx. 1.5 km
<b>Time:</b>	4 – 6 hours depending on fitness and length of time spent at the top of the falls.
<b>Difficulty:</b>	Moderate
<b>Attractions:</b>	Sanje Waterfall African violets on smaller waterfalls Pools for swimming Spectacular views
<b>Habitat Types:</b>	Miombo Woodland Submontane and Riverine Forest Herbaceous scrub in forest gaps
<b>Positive features:</b>	<ul style="list-style-type: none"> <li>✓Spectacular Views</li> <li>✓Waterfall</li> <li>✓Pools for swimming</li> <li>✓Large trees with buttress roots on trail</li> <li>✓Good chance of seeing smaller forest fauna</li> </ul>
<b>Negative features:</b>	<ul style="list-style-type: none"> <li>✗Potential for over crowding of visitors</li> <li>✗Potential for trail erosion</li> <li>✗Sanje River crossing in the rainy season is difficult – requires bridge.</li> <li>✗Transport problems from Head quarters to start point, or Sanje Village back to where the visitor leaves their vehicle – due to be solved as per Plan of Action (TANAPA, 2001)</li> <li>✗Tripping hazards left by fire wood collectors</li> <li>✗Potential for negative social effects of groups of tourists passing through Sanje Village, e.g. children begging etc.</li> </ul>
<b>Description:</b>	Vehicles can be parked safely at Sanje Ranger Post (Mkula village) where the trail begins (UTM 37 268915 E 9139147 N, 340 m asl) see Map 4. The trail follows the Mkula Ndogo river (not marked on the topographic sheets) for several hundred metres and then turns north-west and begins to climb (UTM 37 268747 E 9139278 N, 340 m asl). Along the trail there are several labelled trees. Although steep in places the trail climbs steadily through lowland and then sub-montane forest, offering good views from the occasional clearing. If

**Description Sanje  
Loop Trail  
continued:**



**Photograph 24**  
View from pools at  
bottom of falls.

lucky in these sunny clearings there is the chance of seeing the Red-winged sunbird (*Cinnyris rufipennis*) (species endemic to the Udzungwa Mountains). Along the trail there is an impressive tree with large buttress roots at UTM 37 267963 E 9140109 N, 700 m asl here the trail turns north, roughly following the contours (although there are some valleys with small streams that have to be crossed). Along the route there are many places to sit on a log, rest and admire the forest, if you proceed quietly there is a good chance of seeing Colobus monkeys, and if lucky other forest mammals such duiker. The trail reaches a junction with the 'Research Camp' path at UTM 37 267963 E 9140915 N (781 m asl) and turns north-east (right) descending towards the falls. The top of the falls (UTM 37 268320 E 9141024 N, 730m asl) is an excellent picnic site and the view from this point is truly spectacular. Depending on the water level it is possible to cross the river easily, but a bridge is required for crossing during the rains. From the main falls there is a short path following the river upstream to two smaller waterfalls. Each of these has pools deep enough to swim in and there are African Violets clinging to the rock faces. At the main falls there is no indication on the ground that this trail leads to these smaller waterfalls, and it is evident that visitors are missing out on visiting the smaller waterfalls. Visitors need to be informed about this part of the trail, through guides and interpretative material.

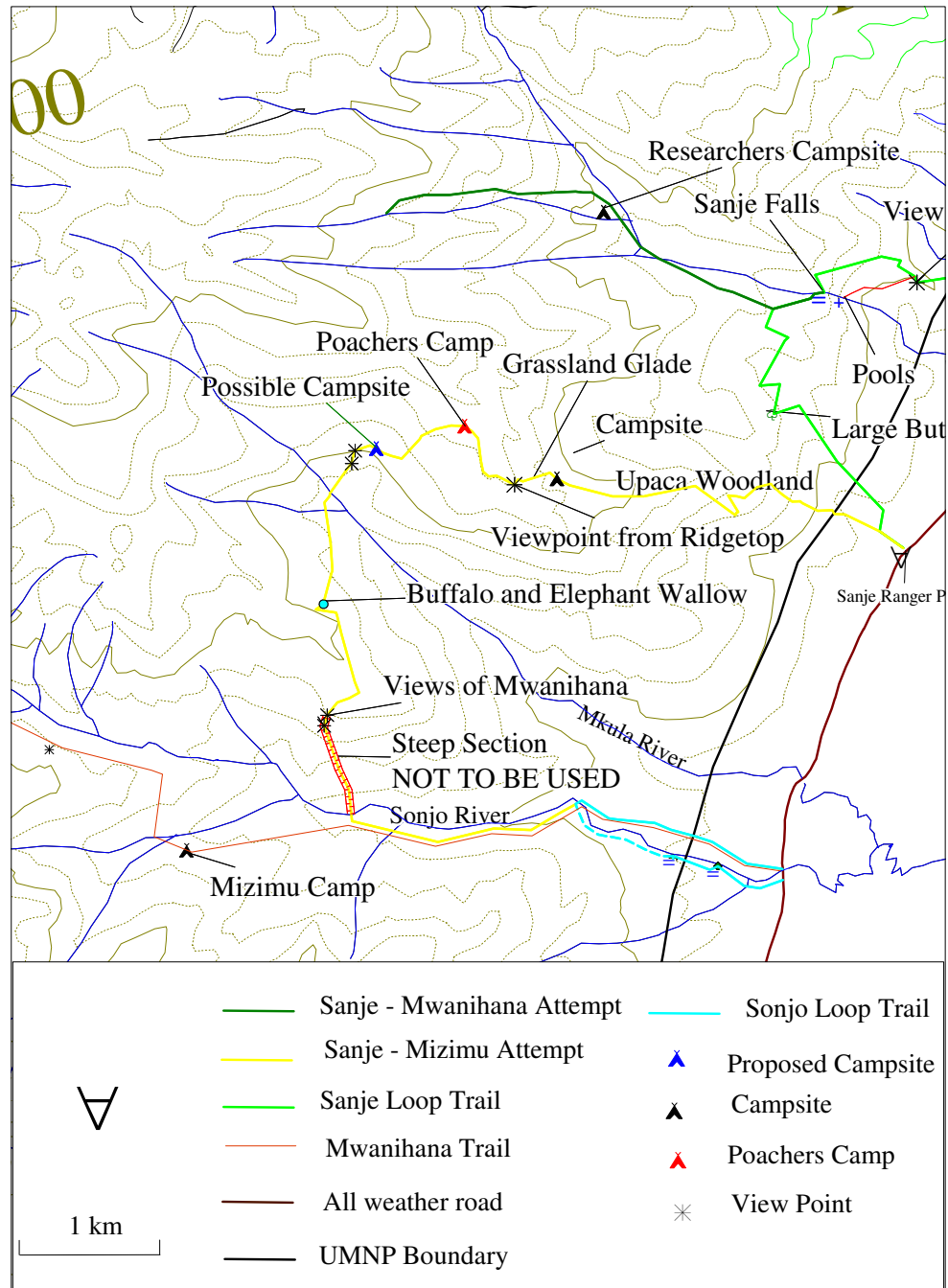
Descending to Sanje village is a shorter, steeper walk offering several views of the Sanje falls. Towards the end of the trail is the junction (UTM 37 268113 E 9141239 N, 522 m asl) with the path that leads to the pools at the bottom of the main Sanje waterfall. It takes about twenty minutes to walk down to pool at the bottom of falls (UTM 37 268576 E 9141048 N), it is possible to swim in the pool and there is a good view looking up the falls (see Photograph 24). Depending on how long is spent at the pool this short diversion adds about 1 hour to the journey.

Just past the trail to the bottom pool junction is a small clearing (UTM 37 269052 E 9141126 N 522 m asl), this is an ideal viewpoint and rest point. It is recommended that a seat is constructed using natural materials, and vegetation obscuring the view is cut back (causing as little destruction as possible).

The majority of this trail is good for walking. Additional switchbacks have been constructed recently making the steep sections easier to climb. Some areas on the Sanje Village side near the falls still need attention as they are very steep and could be difficult to climb in the rains (rocky area).



<b>Recommendations for Sanje Loop Trail:</b>	<ul style="list-style-type: none"> <li>• Construct bridge for Sanje river crossing.</li> <li>• Construct seat using natural materials at viewpoint (UTM 37 269052 E 9141126 N).</li> <li>• Clear vegetation obscuring the view of Sanje Falls (UTM 37 269052 E 9141126 N) limiting damage to absolute minimum.</li> <li>• Ensure visitors are aware of the two smaller waterfalls by improving information from guides and interpretative material.</li> <li>• Improve trail near the falls on the Sanje Village the rocky section of trail.</li> <li>• Provide advice to visitors on in/acceptable behaviour when passing through Sanje Village.</li> <li>• Encourage fire wood collectors not to leave tripping hazards on the trail.</li> <li>• Implement improvement of interpretative materials as described in GMP (TANAPA, 2001). Display board at trailheads and top of falls.</li> <li>• Design, print and distribute trail leaflet/brochure, including information about the trail, a good map, and features of interest along the route.</li> <li>• Implement booking system as described in GMP (TANAPA, 2001) to manage groups effectively i.e. so that each group has an opportunity to enjoy the waterfalls on their own.</li> <li>• Design, print and distribute trail leaflet/brochure, including information about the trail, a good map, and features of interest along the route.</li> </ul>
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**Map 4** Trails in the Sanje Area.

### 3.7 Sanje – Mwanihana Attempt

<b>Trail Name:</b>	Sanje to Mwanihana Attempt See Map 4
<b>Start /finish point:</b>	A linear trail connecting Sanje water falls to Njia Panda campsite.
<b>Distance:</b>	Approximately 13km.
<b>Time:</b>	Estimated two days, six hours walking per day.
<b>Difficulty:</b>	Difficult, very difficult in places.
<b>Elevation:</b>	A steep climb from 700m asl. Sanje falls to a high point of 1800m asl. and descending to 960m asl..
<b>Habitat Types:</b>	Sub montane forest Montane forest Grassland and thicket
<b>Attractions:</b>	Sanje and other waterfalls on the Sanje river Beautiful forest with huge trees and streams Wildlife; blue monkeys, red and black and white colobus,. Bushbabies and tree hyrax at night
<b>Positive features:</b>	<ul style="list-style-type: none"> <li>✓ Walking in pristine forest</li> <li>✓ An interesting and challenging way to link between Sanje falls and Njia Panda campsite</li> <li>✓ Wildlife viewing</li> <li>✓ Waterfall(s) and riverside scenery</li> <li>✓ Rewarding views in places</li> </ul>
<b>Negative features:</b>	<ul style="list-style-type: none"> <li>✗ Too difficult for the average tourist due to the steepness of the climb</li> <li>✗ Does not provide a convenient link between Sanje falls and Njia Panda</li> <li>✗ Extensive trail cutting and earth moving would be required</li> <li>✗ Expensive to construct and maintain trail</li> <li>✗ Trail construction required may harm the pristine ecology of the area which is designated as a 'core preservation zone'</li> <li>✗ Trail development may encourage 'illegal users' to venture further inside the park</li> </ul>
<b>Description:</b>	<p>This route was only partially walked by the survey team, as this trail was deemed too difficult for normal tourist use.</p> <p>The route starts at Sanje Village at the Sanje waterfall trailhead and follows the path to Sanje falls. The trail then crosses over the Sanje River to the south and turns west at UTM 37 267963 E 9140915 N (781 m asl) following the Sanje River along a ridge. The path then descends the ridge to near the river's edge, the path follows and then crosses a tributary (UTM 37 266921E 9141432 N, 815 m asl), passes across a flat area and shortly arrives at the 'researchers campsite' (UTM 37 266468 E 9141845 N 952 m asl). The trail then climbs steeply up the right hand ridge and heads due west. This climb is very steep, in an effort to find an easier</p>

	route the survey team left the ridge crossed the contour to re-join the river (UTM 37 264980 E 9141692 N, 1200m asl). At this point the trail was abandoned. If pursued further this route would require at least one night camping before reaching Njia Panda.
<b>Recommendations:</b>	<ul style="list-style-type: none"> <li>• <b>Do not develop this trail for tourist use</b> - due the amount of time, and finance it will require and the potential ecological disturbance.</li> <li>• The walk up the Sanje river to the research camp could be used as a picnic and campsite to augment the 'Sanje falls experience'. Walkers could continue along up the Sanje river, until the 'research campsite' to picnic and/or camp and then return down on the other side of the river to Sanje falls.</li> </ul>

### 3.8 Sanje – Mizimu Trail

<b>Trail Name:</b>	Sanje – Mizimu Trail (See Map 4)
<b>Start Point:</b> <b>End Point:</b>	Sanje Ranger Post (UTM 37 268915 E 9139147 N, 340 m asl) Sonjo bridge on main Mang'ula – Mikumi Road, (UTM 37 268000 E 9136371 N) (via Mizimu/Mwanihana Trail (UTM 37 264808 E 9136765 N) returning using the Njia Panda Trail).
<b>Distance:</b>	12.5 km
<b>Time:</b>	2.5 days
<b>Elevation:</b>	Starts at 340 m asl, climbs steeply to 1295m on day one and descends steeply to 340m asl.
<b>Difficulty:</b>	Moderate (with sections that are very difficult see description)
<b>Attractions:</b>	Good Views Forest Signs of large mammals
<b>Habitat Types:</b>	Miombo woodland Grassland Submontane Forest Montane Forest
<b>Positive features:</b>	<ul style="list-style-type: none"> <li>✓ Good hill-walking with many good views in open areas.</li> <li>✓ Nice forest during middle and last sections of walk.</li> <li>✓ Visitor presence may decrease poaching activities.</li> <li>✓ Connects Sanje with Mwanihana trail, providing a longer walking route to/from Sanje Falls.</li> </ul>
<b>Negative features:</b>	<ul style="list-style-type: none"> <li>✗ Final part of trail <i>not</i> viable as it is dangerously steep.</li> <li>✗ The connections with the Sanje and Mizimu/Mwanihana trails are at too low an altitude to be of use for visitors walking from Mwanihana. Visitors require a more direct route that does not descend so far down the mountain.</li> </ul>
<b>Description:</b>	<p>This trail was the second attempt to find way of linking Sanje Falls to the Mwanihana/Mizimu Trail.</p> <p>Day 1</p> <p>Our trail started at Sanje Ranger Post (UTM 37 268915 E 9139147 N, 340 m asl) following the Mkula Ndogo river (not marked on topographic sheets) until the existing wood collectors path crossed the river (UTM 37 268482 E 9139408 N, 344 m asl) and began to climb the slope. This section of the trail (UTM 37 268387 E 9139441 N 366 m asl – 268156E 9139501 N, 535 m asl) climbs a long continuous steep slope, well used by wood collectors passing through riverine forest into miombo woodland where the trail seems to peter out. We continued up the slope to UTM 37 268915 E 9139647 N (650 m asl) where the trail turns south-east, here we followed the contours and there was no specific path. It is proposed that this part of the trail is joined to the Sanje trail at about 267950</p>

**Description of  
Sanje – Mizimu  
attempt continued:**

E 9140014 N at an altitude of approximately 700 m asl. The Sanje trail climbs to 700 m along a much easier route, also this would make the path more use as a connecting trail as walkers would not have to descend to 350 m asl and then re-ascend to 700 m asl.

The trail cuts across in a roughly south-easterly direction until it hits a well established path (UTM 37 267647 E 9139405 N, 763 m asl) climbing the ridge from Mkula village. Prior to meeting the Mkula path the terrain is not easy to walk along due to the angle of the slope. To be useful as a route for visitors this section would need a path cut into the slope.

The Mkula path leads west, climbing the ridge, passing through Upaca woodland with many good views south across the valley towards Mang'ula. The trail climbs continuously until about 1100m where we located our first campsite on the ridge path (UTM 37 266282 E 9139681 N, 1057 m asl). This campsite is **not** recommended for tourist use, as it is very small with no opportunity for expanding the area of flat ground.

Day 2:

The trail continues heading west, and after only 300m arrives in a large open glade at the head of a valley. The slopes were very steep and grassy making it a scramble to ascend the ridge. Once on top of the ridge the path was easy to follow north and westwards to the forest (dominated by *Parinari* sp.) edge. At the forest edge there were signs of elephant (mud rubbed onto a tree 2.2 m high) and buffalo footprints. Once in the forest there is a good chance of seeing Colobus monkeys (both red and black and white). The trail is easy to follow as it is well used, there appears to be poaching activity in this area (UTM 37 265586 E 9140084 N, 1295 m asl). The trail follows the curve of the head of the valley, crossing three tributaries of the Mkula River. There is a potential forest campsite near one of these streams (UTM 37 264913 E 9139914 N, 1080 m asl) see Map 4. Having crossed the main Mkula tributary there is a steep climb up the valley wall, until the trail rejoins an old elephant path and turns south-southeast heading towards the south eastern end of the spur. The following part of the trail is **not recommended** as it is extremely steep and in parts dangerous. Our route then crossed over the top of the ridge and dropped down to the Sonjo River some 400 m below. Having reached the Sonjo River we joined the trail to Njia Panda at UTM 37 264710 E 9137065 N (574 m asl) the following morning we then followed the established trail back to the road. If adopted this trail should exclude the steep descent. Instead it should continue east, following the more gradual slope down at the end of the ridge, and meet the Sonjo river at approximately 266300 E 9137131 N where the Mwanihana trail crosses the Sonjo River for first (or last if descending) time. However this proposed route still needs

<b>Description of Sanje – Mizimu attempt continued:</b>	<p>exploration.</p> <p>This trail was intended to connect the Sanje and Mwanihana trails, to this end in its current form this route is unsatisfactory, as it is very indirect. However, as the trail is a very nice walk through a variety of habitat types, with good viewing opportunities it has potential as a two day trail, to offer more choice of trails in the eastern side of the park. The presence of visitors and rangers in the area may help to reduce poaching activities.</p>
<b>Recommendations:</b>	<ul style="list-style-type: none"> <li>• <b>Do not use</b> this trail as link between Sanje and Mwanihana.</li> <li>• Establish alternative descent to the Sonjo River avoiding steep descent (see Map 4).</li> <li>• Investigate re-routing of trail so that it follows the existing Sanje trail to an altitude of 700 m asl and then turns off south.</li> <li>• Assess perceived / actual need for trail connecting Sanje to Mwanihana.</li> <li>• Develop fly camp at UTM 37 264913 E 9139914 N, 1080 m asl.</li> <li>• If this trail is be developed design, print and distribute trail leaflet/brochure, including information about the trail, a good map, and features of interest along the route.</li> </ul>

### 3.9 Sonjo Loop Trail

<b>Trail Name:</b>	Sonjo Loop Trail (See Map 4)
<b>Start/End Point:</b>	South of Sonjo Bridge UTM 37 267951 E 9136592 N (311 m asl) North of Sonjo Bridge UTM 37 267905 E 9136671 N (316 m asl)
<b>Distance:</b>	To first waterfall (and return) 1.1 km To second waterfall (and return) 1.8 km Proposed Loop 3.5 km
<b>Time:</b>	To second waterfall and return - 1.5 hours Loop - 3 hours
<b>Difficulty:</b>	Easy – moderate
<b>Habitat Types:</b>	Miombo woodland Lowland forest.
<b>Attractions:</b>	Sonjo water falls Easy relaxing walking Good wildlife viewing Good picnic sites
<b>Positive features:</b>	✓ Easy walking ✓ Opportunities to see wildlife ✓ Waterfalls, two of them and are good places for picnics and even swimming. ✓ Requires low maintenance
<b>Negative features:</b>	✗ Currently the trail is very short and linear ✗ Trail overgrown in places and not easy to follow ✗ No sign posting for trail or interesting features
<b>Description:</b>	The trail leaves the road (UTM 37 267951 E 9136592 N, 311 m asl) just south of the Sonjo bridge and heads west following the river to the first waterfall (UTM 37 267456 E 9136697 N, 314m asl). The trail then climbs a short slope (375 m asl) and follows the river to the second waterfalls (UTM 37 267115 E 9136753 N, 336 m asl), at present this is the endpoint of the trail. It is proposed that the trail is extended (see Map 4), continuing westwards until it meets the Mwanihana trail. At this point the trail crosses the river to follows the main Mwanihana trail back to the road.
<b>Recommendations:</b>	<ul style="list-style-type: none"> <li>• Install interpretative material at waterfalls – explaining value of UMNP for its water resources.</li> <li>• Extend trail from the endpoint (second waterfall) to the first river crossing point on the Mwanihana trail.</li> <li>• To put botanical signposts on some of the trees.</li> <li>• Design, print and distribute trail leaflet/brochure, including information about the trail, a good map, and features of interest along the route.</li> </ul>

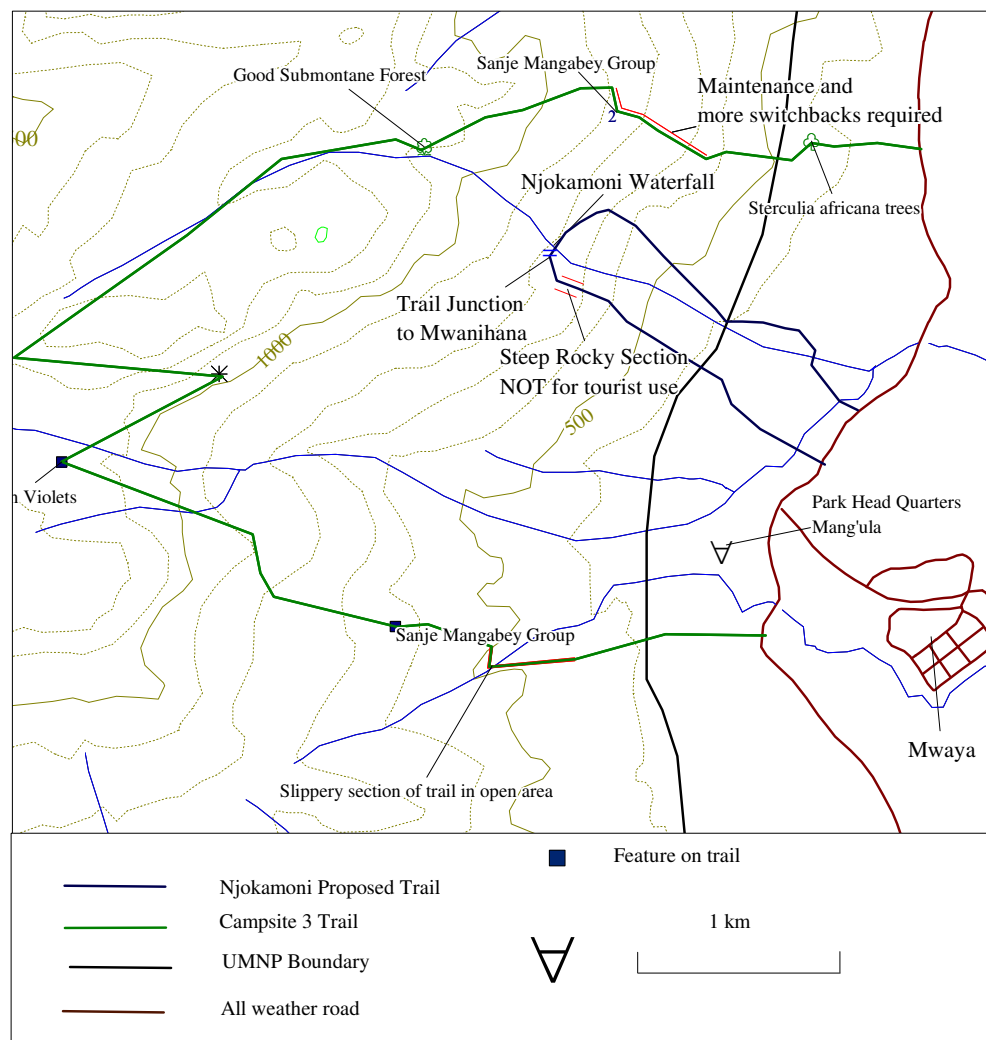


### 3.10 Campsite 3 Trail

This is an excellent but long trail that would be of interest to people seriously interested in seeing the endemic primates, birds and vegetation ecotypes.

<b>Trail Name:</b>	Campsite 3 Trail (See Map 5)
<b>Start/End Point:</b>	Campsite 3 UTM 37 266735 E 9132014 N (318 m asl) Exit/entrance point on main road UTM 37 267513 E 9134422 N, (320 m asl) This is a circular route that starts either from Camp number 3 to end at the main road at a point approximately 2kms north of Mang'ula or the other way around. Both these points can be accessed by car.
<b>Distance:</b>	11 kms
<b>Time:</b>	7 – 10 hours At an average pace with a 40min stop for lunch and others brief stops to look at views or animals it will take 8 hours.
<b>Difficulty:</b>	Moderate with some steep sections
<b>Elevation:</b>	This route requires a climb in altitude from 340m to 1200m and a return down to 340m. The climbs are very steep in places to reach the top of the mountain.
<b>Habitat Types:</b>	Miombo Woodland Lowland and Submontane Forest
<b>Attractions:</b>	Excellent wildlife watching opportunities – particularly birds and primates. Good submontane forest African Violets Challenging all-day walk
<b>Positive features:</b>	<ul style="list-style-type: none"> <li>✓ Good wildlife viewing of primates and birds etc</li> <li>✓ Good views over Kilombero plain.</li> <li>✓ Passes through a variety of vegetation zones, superb sub-montane forests</li> <li>✓ Parts of trail pass by the Mwaya river that is rocky in parts but has colonies of African violets.</li> <li>✓ The top part of the trail is good for camping.</li> <li>✓ No visible signs of elephant or buffalo, armed ranger probably not necessary.</li> </ul>
<b>Negative features:</b>	<ul style="list-style-type: none"> <li>✗ Very and / or unacceptably steep in places which require urgent maintenance.</li> <li>✗ On the camp 3 side parts in-between where the miombo ends and the forest starts is secondary growth which is hard and slippery to walk through.</li> <li>✗ Since the main attraction of this trail is the forest and wildlife, the guides on this must know more about the different habitats, the wildlife and be ENTHUSIASTIC when explaining it to visitors.</li> </ul>

<b>Description:</b>	<p>Starting at Campsite Number 3 the walker goes through miombo woodland and then into a transitional zone of patchy lowland forest and open glades. Then sub-montane full canopy forest is reached, but even this varies including some secondary forest patches and gaps. Some scrambling up steep slopes is required here. When the Mwaya river is reached riverine forest dominates but there are flat open marshy areas as well. On the way following the Mwaya one can hear and glimpse of several waterfalls and water cascades. The dark humid environment created provides ideal conditions for the wild Africa violet <i>Saintpaulia</i> spp. which can be seen growing on the rock faces. After the final ascent up to highest ground the walker is able to experience a fine example of pristine sub-montane forest. This area forms the head waters of the Njokamoni river and visitors can take the time have a picnic here to enjoy the forest and the open glades. Here it is possible to see some of the more elusive forest birds including the Udzungwa endemic, the Red Winged Sunbird (<i>Cinnyris rufipennis</i>). The walk then leaves the 'big forest' and the Njokamoni river and proceeds downwards and eastwards towards the main road. The forest changes to secondary lowland forest with open glades and smaller trees. Good views of the Kilombero plain and the park headquarters are obtained on several occasions on the way down. The path is steep in sections but switch back have been dug to flatten out the path. Finally one passes through a small section of miombo before the arriving at the main road. Through all of the trail the visitor may expect to see the monkeys that the UMNP is famous for.</p>
<b>Recommendations:</b>	<ul style="list-style-type: none"> <li>• Maintain the trail and put in more switch-backs on the steep parts (see Map 5).</li> <li>• Change the route to incorporate more waterfalls on Mwaya river and to point out the African violets.</li> <li>• Change the route to link up with Campsite 1 and 2</li> <li>• Establish a campsite on top of the mountain near the Njokomoni stream, this is good place to pause on the trail and to spend time enjoying the scenery.</li> <li>• Cut a small loop(s) to the nearby peaks that over look Mang'ula.</li> <li>• Establish a trail from the top of the peak across to the Mwanihana trail. The exact trail route needs to be walked first to assess the feasibility. One guide/ecological field assistants Sebastian and three UMNP rangers have walked a route up to the head of the Mwaya river to Mwanihana peak. This needs to be explored again.</li> <li>• Design, print and distribute trail leaflet/brochure, including information about the trail, a good map, and features of interest along the route.</li> </ul>



**Map 5** Campsite 3 and Njokamoni Trails

### 3.11 Long-range wilderness trails

The GMP (2001) proposes several long-range trails starting from Udekwa village, heading to: Kiberege village (12km south of Mang’ula) passing via Luhombero, Mbatwa Ranger Post via Ngung’umbi Swamps, and south towards the Ruipa Ranger Post.

These routes are all extremely long (minimum 60kms) and it was not possible to investigate all the possibilities in the allocated time frame. Developing long-range trails requires a long process of walking various routes to determine the best and most interesting paths. We propose that to achieve this UMNP develops the Lumemo Long-range Trail, and then depending on demand connects other trails to this to form a network.

### 3.12 Udekwa - Luhombero - Mwanihana – Sonjo.

In this report we consider the West – East trail idea. The Udekwa to Kiberege trail was recommended in the GMP after talks with Udekwa village elders who said there was an old trail to Kiberege. This old traditional route goes from Udekwa south of the Ndundulu Mountains and across the lowlands to the Lumemo River where hunting and fishing activities were traditionally carried out. People from Kiberege in turn would walk to the Lumemo River. These trails would always take the most convenient routes, which are not necessarily the most scenic as they often travel through lowland grasslands, for example the traditional route from Udekwa does not climb Luhombero Peak. This proposed trail is extremely long (70-80km) and would not include the spectacular Luhombero and Mwanihana peaks. David Moyer walked an alternative East – West route with a group of tour operators and UMNP staff. The conclusion was that the trail is **NOT** suitable for tourist use in its present state due to serious safety concerns. We describe possible improvements to this trail below but stress that substantial additional survey work is required before this trail can be offered to tourists.

<b>Trail Name:</b>	Luhombero-Mwanihana Trail
<b>Start Point:</b>	The trail head is at ‘Chui camp’ near the Udekwa ranger post.
<b>Distance:</b>	Approximately 60-65km if the Mwanihana peak is climbed
<b>Time:</b>	7 days not including the ascent to Mwanihana which would require an extra day. This estimate is based on walking six hours/day, slower hikers would be advised to allow for another day.
<b>Difficulty:</b>	Difficult - due to the long distance and steep climbs (some parts are easy to moderate) Please Note: No adequate route from Luhombero Peak down to the confluence of Luhombero and Lumemo rivers has been established yet.
<b>Elevation:</b>	From the Udekwa side this route requires a climb in altitude from 1500m to 2580m at Luhombero peak and descends down to a low point at the Lumemo River of 520m and ascends up again to 940m. If Mwanihana peak (2080m) is climbed a

	further 1040m is ascended starting from Njia Panda campsite.
<b>Habitat Types:</b>	<p>This trail encounters most of the habitat types in UMNP due the changes in altitude including:</p> <p>Grassland  Submontane / Montane / Lowland and Riverine Forest  Bracken thicket  Bamboo  <i>Hegenia</i> Woodland  Wetland / Swamps / Marshes  Afro-montane grassland  Miombo Woodland</p>
<b>Attractions:</b>	<p>Remote wilderness.  Spectacular views.  Lumemo River Area, and associated wildlife such as Cape clawless otter, Pel's fishing owl, giant kingfisher, elephant, buffalo, bushbuck, waterbuck and duiker.  Twin peaks of Luhombero (UMNP highest) and Mwanihana.  Pristine Forest Habitats  Wildlife e.g. Primates, Large Game, Rare birds including the endemic Udzungwa partridge (Ndundulu Mountain Forests only) and the red winged sunbird.  The pools and water falls of the many streams and rivers.</p>
<b>Positive features:</b>	<ul style="list-style-type: none"> <li>✓ A true wilderness experience.</li> <li>✓ Physically challenging trail.</li> <li>✓ Wildlife viewing opportunities e.g. elephant, buffalo and other animals such as the endemic birds endemic Udzungwa partridge and the red winged sunbird on foot.</li> <li>✓ Climbing Mwanihana and Luhombero peaks.</li> <li>✓ Experiencing a large variety of habitat types.</li> </ul>
<b>Negative features:</b>	<ul style="list-style-type: none"> <li>✗ Very long, possible only for very fit, experienced and wealthy tourists.</li> <li>✗ A lot more survey work required to establish this trail.</li> <li>✗ Safety Considerations – long and difficult trail with no logistical support in the event of an accident.</li> <li>✗ The safety of tourists is a major concern and adequate medical evacuation and first aid procedures need to be implemented.</li> <li>✗ The liability of TANAPA in case of accidents needs to be clarified.</li> <li>✗ The long grasses are a problem and potentially dangerous with big game in the area. Trails need to be cleared and/or re-routed.</li> </ul>
<b>Description:</b>	<p>Day 1. Distance ca. 6km. Chui – Lualla (Liwale) camp.  Leave 'Chui' camp (UTM 37 218200 E 914113 N) and walk south along the 'Frontier' contour path to the old Frontier research transect 'line 2' on the 9140000 N line. This is a steep initial climb to ascend the Ndundulu Mountains massif from where the walking gradients are much easier. Following the local poachers' route through good submontane forest and patchy bamboo and bramble thicket you arrive in the short</p>

grassed open area called Lualla (Liwale), with fine views (including Luhombero peak) for the first nights camp.

#### Day 2

Lualla (Liwale) camp (UTM 37 223748 E 9140759 N) to Luhombero approach camp (approximately UTM 37 233000 E 914000 N). Distance ca. 9km. Walking from the Lualla (Liwale) grasslands through forest, bamboo and bramble thicket with goods views of the surrounding hills and crossing the Ruipa River. The trail ascends up to within 3k of the peak.

#### Day 3

Leave Luhombero approach camp for Luhombero peak and surrounds. **From this point the way from Luhombero peak down to the Lumemo valley is unclear. The following is a proposed route only and requires investigation.**

Previous surveys (Moyer and Kimaro personal communications) have found that walking east and south-east from Luhombero peak have run into serious problems where the gradients get steep and the vegetation is thicket and/or bamboo. We propose another route whose viability largely depends the presence of elephant paths and the absence of thick vegetation. Follow the ridge leaving north-west from the peak (approximately from UTM 37 236000E 9139700 N to UTM 37 239400 E 9140500 N). If this ridge is too difficult to walk through then there are few options left to leave the Luhombero peak area. Here the path should go north to link up with the next east-west ridge at approximately UTM 37 239500 E 9140900 N where the forest ends and gives way to grassland. If the walking is good and relatively unimpeded a campsite can be set up at around UTM 37 239700 E 9140800 N. Refer to the map for proposed trail routing.

Day 4 Camp 3 to the Luhombero R lowlands. Distance: 8-10km. The trail leaves the forest at about UTM 37 240000 E 9140900 N and follows the ridge down using the most convenient game trails to the Luhombero river at about UTM 37 245100 E 9140900 N. This sector is largely downhill and not steep, so that more ground could be covered than the mountain stages to the next camp on the Luhombero R. which could be between UTM 37 248000E 9140400 N and UTM 37 250000 E 9139300 N.

#### Day 5

Camp 4 to Lumemo Trail 'Campsite 5' (UTM 37 258248 E 9139034 N, 937m asl) via the confluence of the Luhombero and Lumemo rivers (UTM 37 251378 E 9139017 N). Distance ca 9.5km. The trail follows the Luhombero River until the confluence with the Lumemo R, here the trail follows the Lumemo Trail and turns west and starts to climb a spur leaving the Lumemo below. The climb takes you out of the valley (522 m asl) up to the base of Mwanihana (890m asl) and is quite steep in places. Once out of the valley and up on the main 'plateau' which has numerous small streams and

	<p>hills, there is a network of elephant paths that leads to campsite 5 (UTM 37 258248 E 9139034 N, 937m asl).</p> <p>Day 6</p> <p>The trail to Njia Panda campsite (UTM 37 260165 E 9138456 N, 950 m asl) passes through undulating hills with woodland, grassland, <i>Afromomum</i> glades, and forest. This section of the trail is very enjoyable, as the habitat becomes dense and lush. Several more small streams are crossed and the trail needs clearing. At the Njia Panda campsite hikers can decide whether to climb Mwanihana peak or not! If walkers do not climb Mwanihana they can continue on the same day to the exit point. From Njia Panda camp the trail connects to the Mwanihana peak trail, from where it is fast and easy to follow the well-cleared trail down to the main road, via Mizimu camp. This last section of the trail was walked in 8hrs minus 1.5hrs for lunch and numerous rest stops.</p>
<p><b>Recommendations:</b></p>	<ul style="list-style-type: none"> <li>• <b>At the moment this trail is not viable, as the section from Luhombero peak to the Lumemo river valley is not established.</b> An alternative route for this section needs to be surveyed. It is suggested that from Luhombero the route should go east (and not the initially easy SE direction) passing the northern side of the outlying rocky peaks (3km SE of Luhombero peak at 238300, 9137300; 239250, 9137300) and utilising elephant paths and ridges to descend to the Lumemo Valley. The path should aim to meet and then follow the Luhombero River at UTM 37 251378 E 9139017 N from where the Lumemo trail is followed (see also Lumemo trail description, and map).</li> <li>• The proposed route to Kiberege from Udekwa is not recommended at this stage due to its long distance and lack of major attractions.</li> <li>• ‘Ranger guide training. This route is a wilderness trail and will require a good, friendly, patient, well-trained ‘ranger guide’ to lead tourist tours, impart interesting information about UMNP and cope with any problems that may arise.</li> <li>• Only attempt this trail in the dry season when the grasses are lower and the weather is better for walking. Some areas need trail building with digging tools.</li> <li>• A radio link system between rangers and ranger posts needs to be established to cope with emergencies before this type of trail can be offered to tourists.</li> <li>• Good porters from the local village (e.g. the son of Mzee Janus at Udekwa) are required to successfully complete this route. Porters also need tents.</li> <li>• The Luhombero peak area is very picturesque in its self and could be part of a shorter 3-4 day loop trail starting out of Chui camp. Further surveys are needed if this trail is to be extended north and east to explore the high ground of the Ndundulu Mts. and possibly link up with the Mbatwa trail.</li> </ul>

### 3.13 Proposed Trails in the Udekwa Area

There are several trail options for hikers based in the Udekwa area, these are in varying states of ‘walkability’ and take hikers into the Ndundulu and Nyumbanito Mountains and to return back to a base camp near Udekwa e.g. Chui camp. Some of the peaks such as the Nyumbanito peak(s) and Chavemba peak in the north Ndundulu Mountains are sacred peaks to the Wahehe people, and have spiritual and cultural values. These areas could only be visited with the consent of the local Udekwa community. Some of the more promising options are summarised below.

#### 3.13.1 Luhombero Peak trail

This trail follows the main Luhombero trail (via Lualla) (see Luhombero-Mwanihana description), and returns back along the same route as far as Lualla. Then visitors can return on the same path, or go north towards Chavemba peak and then cut west out of the forest to ‘Chui’ using old Frontier research trails. This exact route of this trail still needs investigating.

#### Proposed Trail description

##### Day 1

From Chui camp walkers would walk to Lualla camp.

##### Day 2

Walkers would walk to a camp just under and west of Luhombero peak. From here hikers could spend a day exploring the area.

Day 3 From Luhombero peak camp, hikers could walk out the same way in one day. Alternatively they could camp at Lualla camp and the next day walk out via Chavemba peak to the north of Lualla and then turn west and return to ‘Chui’ camp.

#### 3.13.2 Chavemba Sacred Peak Loop

Enquiries revealed that a two-day loop to Chavemba peak from Chui Camp totalling approximately 15km would be feasible (Moyer, Marshall pers. comm.) and would require one night camping. This trail still requires full surveying but would incorporate the forests and grasslands of the Ndundulu Mountains, and a climb up Chavemba peak. The peak is over 2400m and reportedly has excellent 360° views. Chavemba is a sacred peak to the Wahehe people, so gaining permission and learning about the cultural history would be essential and make such a trail a cultural as well as a scenic experience.

#### Proposed Trail Description

##### Day 1

From Chui camp, hikers would go south and then east to Lualla camp (see Luhombero description) and then cut north onto Chavemba peak where a camp should be established below the summit.

##### Day 2

Hikers climb Chavemba peak and return back to Chui camp via the old ‘line 1’ Frontier research transect trail.



### 3.13.3 Nyumbanito

The Nyumbanito Mountains are characterised by spectacular twin peaks if viewed from Chui camp. Walking into the Nyumbanito Mountain requires starting in Udekwa village and walking south along a well-marked trail. This hike to the middle of the forest is linear and about a 12km round trip. Looping trails would need to be fully surveyed and could utilise the Frontier research trails. Fast hikers could spend a long day in the forests and return or camp in the forest to make the visit more worthwhile. The Nyumbanito twin peaks are sacred and very hard to climb, but may prove a challenging and culturally interesting walk. Local and Forestry And Beekeeping permission are required to walk in this area. As in the Ndundulu Mountains two endemic birds, the Udzungwa partridge and the red winged sunbird, and the endemic Iringa red colobus are present here, so naturalists especially birders would enjoy this area.

### 3.13.4 Udekwa – Luhombero – Ngung’umbi Swamps - Mbatwa.

This trail is at the concept stage only since very few people have walked from Luhombero to the highland swamps of the north-west Ndundulus. Hikers would first walk to Luhombero peak via the Lualla route (see Luhombero-Mwanihana trail description). Then the trail would cut north-west through forest then over a large area of open ground for about 7kms. The trail would then head north back into forest and climb to over 2200m towards a 2400m plus peak at UTM 37 231000E 9146000 N. From this high ground the trail would descend towards the first swamp called Lualla Mabondwa about 2.5km from the previous peak. From here hikers would either cross the swamp or more likely go around it to the next swamp of Lualla Ngung’umbi which would be between 3-6km. The trail must cross or go around Lualla Ngung’umbi to a point where an elephant trail is met (UTM 37 236702 E 9150719N). From there the route would go north on the trail to Mbatwa (see Mbatwa trail description) or to Ikula village. The vegetation and the presence of game trails in this area will dictate the feasibility and ease of passage greatly. The huge distance of such a trail (50-55km and up to 6 nights camping) would make this trail attractive to only a few adventurous tourists. If the trail left Chui camp directly for the swamps missing out Luhombero peak but including Chavemba peak the trail would be reduced to around 35-40km (five nights camping). The safety concerns and other issues discussed for the other proposed long distance trails (see Luhombero-Mwanihana, the Lumemo and the Mbatwa trail descriptions) apply here also.

## 4 Proposed trails and other ideas.

### 4.1 Njokamoni loop trail

<b>Trail Name:</b>	Njokamoni loop trail – potential only. (See Map 5)
<b>Start Point:</b>	Start from the Main road (position: UTM 37 267273 E 9133205 N) just north of the park headquarters entrance.
<b>Distance:</b>	Lower route - approximately 3 kms Upper route - approximately 5 kms
<b>Time:</b>	1.5 - 2 hours to the waterfalls and return 2 hours to the water intake on the Mwaya River
<b>Difficulty:</b>	Mostly easy, difficult (steep in places).
<b>Habitat Types:</b>	Miombo woodland Lowland forest Grassland Farmland
<b>Attractions:</b>	Njokamoni waterfalls Easy walking Wildlife viewing Walk through local farms.
<b>Positive features:</b>	<ul style="list-style-type: none"> <li>✓ Easy walking</li> <li>✓ Opportunities to see wildlife</li> <li>✓ Waterfalls, one is a good picnic spot. There is a second bigger waterfall behind the first.</li> <li>✓ Requires low maintenance</li> <li>✓ The walk through farmland could be a cultural attraction where crop types and methods of farming can be seen and explained.</li> <li>✓ In the farms there are easy to see colourful birds and views of the forested slopes, which are good for photography.</li> <li>✓ Walkers in this area will help reduce poaching</li> <li>✓ Regular walkers in this area might help to habituate some of the monkey species and thus help researchers and tourists alike.</li> </ul>
<b>Negative features:</b>	<ul style="list-style-type: none"> <li>✗ The trail needs surveying in full</li> <li>✗ Parts of the present trail need re-routing as they are too steep and overgrown.</li> <li>✗ Secondary forest is dominant which means there is a lot of thick undergrowth.</li> </ul>
<b>Description:</b>	The trail leaves the road (UTM 37 267273 E 9133205 N) and passes through farmland for about 0.5km, then crosses the Njokamoni River and reaches UMNP border. Once the park border is reached the path passes through miombo woodland following a ridge up the slope until secondary forest is

	<p>reached.</p> <p>Once in the forest the path gets steeper until it reaches the Njokamoni waterfall (UTM 37 265932 E 9134084 N). At the falls there is a reasonable view to the east and pleasant place for a picnic. The waterfall although quite impressive does not justify a linear trail solely to visit this point and would need to be incorporated into a bigger loop trail.</p> <p>The trail then crosses the Njokamoni R. contouring south west to a junction (UTM 37 265645 E 9133886 N). At this point there is a choice either to carry on along the contour path, which goes above a steep rocky slope and eventually meets up with the Mwaya River and the campsite 3 trail. Or you go down the slope eastwards towards the main road, turning south-west at UTM 37 266166, 9133616 and pass under the steep rocky slope and meet the water intake on the Mwaya River. The trail we took went down a steep slope directly to the main road, which would not be suitable for tourists.</p> <p>The ‘upper’ route would make the trail approximately 5km long and the ‘lower’ route would be approximately 3km long. The top route may have more views.</p>
<p><b>Recommendations:</b></p>	<ul style="list-style-type: none"> <li>• Survey the trail in full, using <i>Sebastian</i> who is a field assistant to UMNP ecologist. Two routes are potential available (see description section).</li> <li>• Put botanical labels on some of the trees and plants. Digging for medicinal roots was seen which would be of interest to tourists. Good guides are needed to interpret these features.</li> <li>• Involve the local community to enhance the hikers experience in the farmland part of the walk. They will be interested to know about which crops are grown, medicinal plants and their relationship with UMNP.</li> <li>• At the waterfalls there is a good opportunity to place an interpretation poster to explain the importance of the Udzungwa Mountains for water supply and the nations electricity.</li> <li>• Design, print and distribute trail leaflet/brochure, including information about the trail, a good map, and features of interest along the route.</li> </ul>

## 4.2 Sumbugulu -Msolwa – Sanje Trail

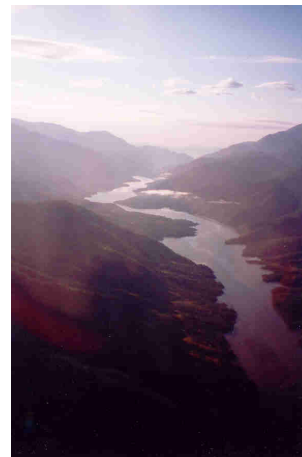
<b>Trail Name:</b>	Sumbugulu - Msolwa – Sanje Trail
<b>Proposed entry / exit points :</b>	Sumbugulu Village (UTM 37 271625 E 9145595 N) Msolwa Village UTM 37 Sanje Waterfall (UTM 37 269800 E 914150 N)
<b>Distance:</b>	Unknown
<b>Time:</b>	Unknown
<b>Difficulty:</b>	Difficult – expected very steep
<b>Habitat Types:</b>	Miombo Lowland / Submontane / Montane Forest
<b>Attractions:</b>	Sanje Waterfall Primates Forest
<b>Positive features:</b>	<ul style="list-style-type: none"> <li>✓ This trail could provide an alternative access point for Sanje Waterfall, reducing the pressure on the existing Sanje Trail.</li> <li>✓ This trail could provide opportunities for primate watching in particular Mangabeys.</li> <li>✓ The location of the trail may spread the positive effect of visitors to Msolwa Village, e.g. potential source of income for guides, decreased illegal harvesting etc.</li> <li>✓ Would provide visitors a greater choice of trails in the Eastern Zone.</li> </ul>
<b>Negative features:</b>	<ul style="list-style-type: none"> <li>✗ No locally known trails exist.</li> <li>✗ The terrain is very steep, with deep gullies.</li> <li>✗ The trail would require a lot of digging to create a flat walking surface along the steep sides of the slopes.</li> <li>✗ Expensive trail to create and maintain.</li> <li>✗ Increasing access to closed forest areas.</li> <li>✗ Increasing number of trails in the core preservation zone</li> </ul>
<b>Information / Description:</b>	<p>The consultant team interviewed selected village elders (with a knowledge of the forest area) and the Mwenyeketi of Msolwa and Sumbugulu Villages. The general consensus was that trails from Sumbugulu and Msolwa went into the park heading west. It was suggested that although possible, it would be very difficult walking parallel to the edge of the park south towards Sanje. On the basis of this information the team decided to focus attention on the other trails.</p> <p>However at the end of the fieldwork period discussions with Sebastian (assistant Mangabey researcher for the ecology department) suggested his research team had found a way to cross from Sanje to Msolwa. It is likely that this trail is useful for researchers but too difficult to be of use as a tourist trail. The possibilities of this trail should be investigated further.</p>

	<p><b>Msolwa</b></p> <p>An alternative at Msolwa village is to develop activities around a group of Mangabeys that are frequently seen near the village, presumably they are reasonably used to humans. If this group could be further habituated, this would provide an excellent opportunity for tourists to view Mangabeys, and provide an extra UMNP attraction. A similar system is in operation in Jozani forest (Unguja Island – Zanzibar) with many tourists visiting specifically to see the Red Colobus monkeys. It would be useful for UMNP tourism staff to visit Jozani and see how this aspect of tourism is managed.</p> <p><b>Sumbugulu</b></p> <p>The wazee informed us that near Sumbugulu Village there is an old German Road that leads into the park towards the Lofia River. Assuming long-range trails become popular in UMNP, this route may prove to be an interesting trail as it could connect up with the Mbatwa trail via the Lofia Valley or exit the park onto Kidatu Lake.</p>
<b>Recommendations:</b>	<ul style="list-style-type: none"> <li>• Investigate ‘researchers’ trail from Sanje to Msolwa using Sebastian (assistant to UMNP Ecology Department).</li> <li>• Study tour (Tourism Officer and Ecologist) to Jozani Forest, Zanzibar to develop ideas of using a habituated monkey group as a tourist attraction.</li> <li>• Undertake a feasibility study and an Environmental Impact Assessment of using the ‘Msolwa Mangabey Group’ as a tourist attraction.</li> <li>• Design, print and distribute trail leaflet/brochure, including information about the trail, a good map, and features of interest along the route.</li> </ul>

### 4.3 Access to Kidatu Dam Lake for management and tourism purposes.

#### 4.3.1 Meeting with Kidatu Plant Manager

A meeting was held at Kidatu with the Plant Manager, Mr Tesha, to discuss the possibility of tourist access to Kidatu Lake. In principal Mr Tesha felt there would be no problem developing tourism in and around Kidatu Lake, but he emphasised the fact that this issue is not his decision and TANESCO headquarters need to be contacted. A full description of the meeting is given in Appendix 3, and an outline of the potential tourism use of the lake detailed below.



**Photograph 25** Aerial view of Kidatu Lake

#### 4.3.2 Kidatu Dam

Kidatu dam is managed for hydro-electricity production by TANESCO, and borders the north-western sector of UMNP (managed by TANAPA). UMNP protects a significant area of water catchment for the lake and virtually eliminates manmade erosion in this catchment area. Kidatu (together with its storage dam Mtera) is one of the most important hydro electrical production plants in Tanzania. As such a high security status has existed at Kidatu, particularly around the dam wall and electrical power installations since its construction in the 1970s (conversely Mtera dam is not afforded such a high security status). Although the lake and surrounding area have not been surveyed for their biodiversity, there is evidence to suggest the dam and the immediate surrounding area are important for wildlife. The lake and the surrounding hills form an area of natural beauty. The lake also holds locally important stocks of fish, which are caught by local artisanal fisherman operating with permits issued by the Kidatu management (Tesha pers. comm.).

#### 4.3.3 Tourist potential

Since Kidatu shares a large common border with UMNP there is a potential interface between the activities of UMNP and Kidatu. Within UMNP the main activities occurring include tourism, ecological research and anti-poaching patrols. In and around Kidatu lake activities include maintenance of the installation, management of artisanal fishing with issuing of permits. It is trail design teams' opinion that there is potential for tourism at Kidatu if combined with the tourism activities of the UMNP. The dam provides the potential for recreational boating with its road access and large lake area. The types of recreational boating activity might include:

1. *Wildlife viewing, camping and boat safaris*

It is known that there is large wild game in the UMNP as well as interesting bird life, primates other animals and plants. These include some very rare and endangered species found only in UMNP. TANESCO personnel reported to the trail design team seeing large animals crossing the lake towards the north where they were then reportedly hunted. Red colobus are easily seen at the Kidatu management offices. With a boat, tourists could quietly and unobtrusively observe, photograph and enjoy the lakes' biodiversity. Animals, which are normally quite shy when seen in foot, are less disturbed when observed by people in boats (pers. ob.). Tourists could be offered boating safaris around the lake with a stop off at designated camping sites on the lake edge and resume the safari the next day, either to another campsite, or take a short walk into UMNP, or return back to the road.

## 2. *Fishing*

The dam is known to hold stocks of large sized tilapia, catfish and tiger fish, which are prized species by sports and recreational fisherman. The security status of the dam and UMNP has probably ensured that the lake has not been over-fished and this protection has allowed fish to attain quite large sizes. Tiger fish are a particularly prized 'game fish' species with a reputation amongst fisherman internationally. Kariba dam in Zimbabwe for example, is a very popular fishing destination for sports fisherman wanting to catch tiger fish and other species. Boating access would allow paying tourists to fish for these species. Interest from some expatriates to operate a boat and fish the lake has already been expressed, but was rejected on security grounds (Tessa pers. comm.). If tourists' fishing activities are strictly managed, by zoning and licensing, large fish size can be maintained, and secure areas remain unencroached.

## 3. *Trail pickup point*

Boat access to the northern boundary of UMNP on Kidatu lake would enable UMNP to offer a greater variety of experiences in the national park. For example visitors could walk from Sumbugulu village over the Gologolo mountains to a collection point on the dam (probably where the Lofia R. enters the lake), from where they can be transported in a relaxed fashion back to the road. Road access to the lake may be possible from the north-western end of the lake, near the bridge crossing the Dar – Iringa Road, this needs further investigation. If this exit point is not possible road access to the lake depends on TANESCO allowing strictly managed access via the dam road.

### 4.3.4 Management implications and benefits to TANAPA and TANESCO

The key element of the potential opening up of Kidatu dam is visitor boat access. This has traditionally been banned by TANESCO for security reasons. TANESCO used to operate a patrol boat to enforce security regulations but it has since ceased to operate. There are potential benefits to allowing boat access on the lake for both TANESCO and TANAPA. A boat could be used for patrolling purposes, which would have the following benefits for Kidatu and UMNP.

For TANESCO:

1. Security of the dam installations can be enhanced.
2. Farming and timber cutting on the northern side can be monitored for catchment damage and protection.



3. Activities such as fishing can be monitored for improved management.
4. Potential revenue creation from tourism.

#### For TANAPA

1. A boat operating on the lake would ensure much improved access to the park for patrolling operations.
2. An additional tourism product can be offered to increase park revenue.
3. Tourism activities could have a positive effect on controlling poaching by their presence in the area.

The Kidatu dam complex also has an abandoned technical school, the buildings of which now stand unused. Several applications (Tesda pers. comm.) to utilise the buildings by various public and private concerns have already been lodged but rejected by TANESCO on security grounds. These buildings may have a potential use for the proposed activities. The recently created 'environmental department' of TANESCO might also keen to support such initiatives.

#### 4.3.5 Conclusions

Kidatu dam and the lake has tourism potential. Further TANESCO and TANAPA as stewards of this unique wild area share common management concerns and enhanced collaboration between UMNP and Kidatu may address some of these issues. A first positive step in this collaboration may be the provision of boat for joint patrolling activities. This will assist the management of Kidatu dam and this area of UMNP. Also granting access to tourists would provide an additional and interesting product and so create extra revenues. Further collaboration between TANESCO and TANAPA could also extend to expertise sharing such as catchment conservation, tree planting and community based conservation.

A full dialogue process between the TANESCO and TANAPA management should be initiated as soon as possible to discuss issues of mutual interest other others for the positive long term management of the area.

#### 4.3.6 Recommendation

In order to develop this idea, UMNP and TANAPA head quarters need to officially contact the director of TANESCO, at the headquarters in Dar es Salaam and propose the idea. The trail design team suggests sections 0 - 4.3.5 of this report could form the basis of a concept note to be proposed to TANESCO.

#### 4.4 Ruipa Ranger Post

The trail design team conducted a short visit to Ruipa Ranger Post. At present there are no visitor facilities at Ruipa Ranger Post. The main attraction for visitors at Ruipa would be the opportunity to view wildlife, including birds, primates, crocodiles and hippopotamus on the Ruipa river. At present the trail to the river is very short, and does not allow access along the riverbank.

Access to Ruipa Ranger Post is currently being improved, this is essential as the present road conditions and distance may prevent all but the keenest of visitors. Due to time restrictions it was not possible to thoroughly explore the Ruipa area to investigate the tourism potential of the surrounding area. It is likely that the riverbank could provide the basis for an interesting trail providing the opportunity for visitors to view wildlife. Due to the presence of hippopotamus and crocodiles, this could only take place with an armed ranger. As the Ranger Post is approximately five kilometres from the border of UMNP, any short trails developed in this area will actually lay outside the national park and complicate the permit payment situation.

At present the demand for long-range trails is unknown. The GMP suggests that a trail from Udekwa to Ruipa be developed. However due to the cost of establishing a trail such as this we recommend that an attempt to quantify the demand for long-range trails is undertaken first. If as hoped, with appropriate marketing and advertising long-range trails become popular in UMNP, we recommend that Ruipa is linked to the Lumemo Trail first and then to Udekwa via a path following the Ruipa River. Further intensive survey of both of these routes will be required.

The development of Ruipa as a visitor's destination needs careful thought, at present the Ruipa post involves a long journey, on a bad road with little to offer tourists **inside** UMNP. In the short term, we recommend UMNP consider developing a visitor campsite at Ruipa Ranger Post and short trails (1 or 2 days) following the river. Further survey work is required to establish these.



**Photograph 26 Ruipa River near Ruipa Ranger Post**

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#### **4.5 Kiberege Trails**

Two meetings were held in Kiberege village, the first with the Mwenyeketi, Village Secretary, Ward Councillor, a representative of the Environmental Committee, and Mzee Kalongola. The second meeting was held with Mzee Kapella, recommended by the village officials as being most familiar with the area of UMNP nearest Kiberege village. Full details of the first meeting are given in Appendix 4. The village officials were positive about the idea of developing trails in the Kiberege area, and although unaware of any suitable sites, welcomed the idea of a campsite in the area.

Mzee Kapella suggested that there is a route to the Lumemo River, used many years ago when that area was still inhabited. In addition, Mzee Kapella suggested there is a route to Mwanihana, that does not reach as far west as the Lumemo, instead skirting around a small peak south of Mwanihana. Although a little unsure, Mzee Kapella thought this route would take two days to Mwanihana if the trail was clear, or three days in its current overgrown state. Unfortunately due to time restrictions it was not possible to explore either of these trails. It is recommended that prior to establishing any visitor facilities in the Kiberege area, these trails be investigated fully. Mzee Kapella also mentioned that there is a reasonably large waterfall, just outside UMNP, that may provide a suitable location for a campsite. All issues related to access still require detailed investigation.

## 4.6 Campsites

Within UMNP there are five permanent campsites with facilities of some kind, all were visited (see table below).

Campsite/Facilities	Water supply	Latrine	Washing block
Campsite 1.	Mwaya River	Cement block, pit	None
Campsite 2.	Mwaya River	Cement block, pit	None
Campsite 3.	Piped	Cement block, pit	Cement block
Njia panda	Stream	Grass thatch, no roof, pit	None
Mizimu	Stream	Grass thatch, no roof, pit	None

These campsites require various levels of improvement to cope with anticipated increases in visitor numbers. To assess the types of improvements needed and to gain a feel for what else is available to tourists in the 'southern circuit' a few commercial campsites were visited. Here facilities were noted and where possible the management was asked about their experiences in operating the camps. The discussions are summarised below:

### 4.6.1 Kisolanza Farm

Kisolanza campsite, located in between Mafinga and Iringa is run by Mrs. Nicola Ghau. The campsite mainly receives travellers passing through on their way to and from other destinations such as South Africa and Kenya.

Special features	From an early stage in the establishment of the campsite individual travellers e.g. parties of 1-4, and families were separated off into a different campsite from the 'overland 'trucks', which bring up to 20 people at a time.
Facilities	<ul style="list-style-type: none"> <li>- Long drop (non-flushing) toilets.</li> <li>- Shower and washing block</li> <li>- Wood fuel water heater - wood is grown on the farm.</li> <li>- Campsites</li> <li>- Shade bandas</li> <li>- Cement fire places for cooking</li> <li>- Bandas with beds for those not camping.</li> </ul>
Activities	<ul style="list-style-type: none"> <li>- Walking</li> <li>- Fishing on farm dams</li> <li>- Mountain biking</li> <li>- Horse riding</li> </ul>
Additional products for sale	<ul style="list-style-type: none"> <li>- Fresh farm produce including fruit, vegetables, cakes bread and meat products</li> <li>- Handicrafts</li> <li>- Bar</li> <li>- Fire wood and charcoal (made from planted eucalyptus trees on the farm)</li> </ul>

### Management issues raised.

1. Visitors arriving in overland trucks are very costly in terms of management and facilities deterioration. Providing enough fuel, littering the site, oil and diesel spills from the trucks and environmental degradation are all problems cited when dealing with 'overland trucks'. Visitors arriving solo or as small groups are much more responsible about these issues and as a result the campsite was well wooded (whereas the 'overlanders campsite' was denuded of many trees and shrubs) and the facilities in better condition leading to lower running costs.
2. Firewood supplies were grown on the farm and were therefore sustainable.
3. Water heaters, which were sourced from Kenya and were said to be very efficient, were *not* encouraged for the UMNP due higher potential wood fuel use.
4. Ablution blocks were painted every 4 months with gloss paint to make them clean.
5. Locally produced products can be sold at a premium to raise considerably more revenue.
6. Cost. Camping fees were set at \$3USD per head, and more for the bandas.

#### 4.6.2 Riverside Campsite

Riverside campsite is owned David Moyer, and is located a few kilometres before Iringa. The visitors are mainly people passing through combined with people wanting a pleasant place to stay near Iringa. There are various activities on offer, birding and naturalist trips are promoted in the surrounding area including to the area west of UMNP (Nyumbanito, Ndundulu Mountains).

Special features	Not designed specifically for 'overland trucks', smaller groups are encouraged. Scenically situated next to the Little Ruaha river.
Facilities	<ul style="list-style-type: none"> <li>- Long drop (non-flushing) toilets</li> <li>- Shower and washing block</li> <li>- Wood fuel water heater</li> <li>- Campsites site on grassy lawns</li> <li>- Large acacia shade trees</li> <li>- Brick barbecue and oven facility</li> </ul>
Activities	<ul style="list-style-type: none"> <li>- Walking and bird watching</li> <li>- Mountain biking</li> <li>- Horse riding provided by a nearby farm.</li> <li>- Guided bird watching tours can be arranged in the campsite facility and further a field in the region.</li> </ul>
Additional products for sale	<ul style="list-style-type: none"> <li>- Cold drinks.</li> </ul>

#### 4.6.3 Mountain View Lodge

Brief informal talks were held with the management of the Mountain View lodge located close to UMNP park HQ at Mang'ula. Whilst no figures were available the lodge staff said most of the visitors visited Sanje water falls, fewer climbed Mwanihana peak and fewer still walked the other trails in the eastern UMNP. Most visitors stayed for one or two nights but rarely stayed longer than that.

Some of the visitors staying at the Mountains View Lodge were also interviewed informally. Most said that the forest trails and UMNP was very enjoyable, interesting and different to other parts that they had seen in Tanzania. On the negative side visitors said the trails could be designed to be less steep. Many felt that the guides were not as knowledgeable and/or enthusiast as expected, especially since they had paid a \$10 guide fee. Two visitors on the camp three trail were told that it was 'too long' to finish in one day even though they had left early in the morning and they had to turn back less than halfway around the trail.

#### 4.6.4 Twiga lodge

Twiga lodge is another source of accommodation for visitors at Mang'ula and is cheaper than the Mountain Lodge. Again the lodge staff said most visitors went to the Sanje falls, fewer to St. Bernard's falls. Since this lodge is popular with backpackers and volunteers in Tanzania several arrive at UMNP with camping equipment and are keen to hike into the park. One group said the trails were too steep to Mwanihana and that they would not mind wading further if the trails were less steep. Another commented that the guide was unenthusiastic and seemed determined not to lead them to the top of Mwanihana peak, eventually elephant presence prevented their ascent.

#### 4.6.5 Tour operators

Several tour operators were asked about trails in UMNP. The Sanje trail was considered the most popular, where most age groups of visitors could safely complete the trail, enjoy the views at the top of the falls within their timeframe. Most tour operators bring visitors to UMNP as part of a larger tour itinerary to parks such as Mikumi and Ruaha National parks. Fewer brought visitors to climb Mwanihana peak since it takes more than two days and some said that the camping facilities are not comfortable enough for many visitors. Since permanent tented camps will not be permitted in UMNP e.g. at Njia panda, this situation will remain the same for the foreseeable future.

## 5 Discussion

### 5.1 Trail design in UMNP with reference to the GMP

In the GMP (TANAPA, 2001) nine trails were proposed (see Table 1), these were based on conceptual ideas to expand tourism to other areas of the park, researchers' experiences in the park and local knowledge of the surrounding communities. These factors combined to produce a mosaic of proposed trails, which were mostly unknown for their potential as possible tourist routes. During preliminary discussions with UMNP park staff, and the trail design teams experience of the area it quickly became apparent that it would not be possible to walk all of these proposed trail in the given timeframe. Table 1 summarises the action taken on each of the trails.

Several problems were encountered when interpreting the proposed trails in the GMP, for example the often cited place of Igunga is not on the maps of the area, not did park staff or local people seem to know of it. It is likely that it is known by another name. It seems that many of these trails were recommended without undertaking any fieldwork. Another difficulty is that the 'tourism profile' of UMNP (i.e. what are types of tourists visit the park in terms of their physical ability, spending power, and available time), is unknown. Thus the demand for particular trail types (specifically long-range trails) is unknown

It is strongly suggested that the tourism department re-work the proposed network of trails based on accumulating experience of the park. Additional experience has already suggested new routes (see). As was concluded in the preliminary meetings with UMNP trail design and development is a long-term and on-going process, it is of necessary to work towards a planned eventual network of trails.

Due to the short timeframe the selection of trails to be surveyed was prioritised. The trails surveyed were chosen after consultation with TANAPA parks staff and other individuals with experience of walking in the area, for their perceived suitability as tourist routes. The trails not surveyed were either not conducted due their perceived levels of suitability, difficulty and inaccessibility, or they were trails that had already been walked by TANAPA parks staff and other researchers.

The resulting trails designed during the work period therefore differ a little to those proposed in the GMP (TANAPA, 2001).



**Figure 3** Summary of Trails.

<b>Proposed Trails in General Management Plan</b>		
	Trail Route	Summary
1	Mbatwa – Mwanaluvele Caves – Igunga	Mbatwa – Mwanaluvele Trail walked, demarcated and mapped. Recommendations made.
2	Udekwa – Luhombero – Igunga	Udekwa – Luhombero Trail walked (previously), described and recommendations made.
3	Udekwa – Luhombero – Mang’ula	Udekwa – Mang’ula trail walked (by David Moyer and team), described, and recommendations made.
4	Udekwa – Luhombero – Ruipa	Not yet surveyed. Very long distance trail through hot, dry miombo woodland.
5	Udekwa – Luhombero – Lumemo	Route considered and described.
6	Sanje – Mizimu	Route attempted, not viable as link trail, but good as an alternative trail in the east zone.
7	Sanje – Njia Panda	Route attempted, not viable for visitors.
8	Sumbugulu- Msolwa – Sanje	Route discussed with village elders – deemed not viable (although other possibilities recommended for investigation).
9	Kiberege – Mwanihana	Route discussed with village elders – possibly viable but requires further exploration.
<b>Existing Trails in UMNP</b>		
10	Sonjo Waterfall Trail	Walked, mapped, described and extension proposed to create a loop trail.
11	Sanje Waterfall Trail	Walked, mapped, described and recommendations made.
12	Campsite 3 Trail	Walked, mapped, described and recommendations made.
13	Prince Bernhard Waterfall Trail	Walked, mapped, described and recommendations made.
14	Mwanihana Trail	Partly walked, mapped and described. Ascent to peak still needs surveying.
<b>Additional Trails Proposed</b>		
15	Mbatwa – Lualla Ngung’umbi Swamp	Walked, mapped, described and recommendations made.
16	Mbatwa Day Loop Trail 1	Partly walked, mapped and described. Extension route recommended but still needs surveying.
17	Mbatwa – Mwanaluvele Caves Long Loop 2	Route recommended.
18	Mwanaluvele Caves Short Loop 3	Route recommended.
19	Lumemo Long-range Trail	Walked, mapped, described and recommendations made.
20	Njokamoni Trail	Partly walked, mapped and described. Extension routes recommended but still needs surveying.

### 5.1.1 Short-range trails

All of the trails currently offered to tourists are short-range trails mostly taking one day and only one of the trails requires camping. These are very popular because they are within the physical capabilities and the time frame of the majority of tourists who also often combine a big game safari in parks such as Mikumi and Ruaha in their itineraries. These short-range trails, are likely to be increasingly popular and if developed will attract increasing numbers of tourists to UMNP.

Generally each short trail has a focal attraction such as a waterfall or a peak as an ‘incentive’ to complete the trail. Tourists are thus often surprised how the interesting and rewarding other sights and sounds experienced during the walk are. ‘Selling’ trails therefore largely rely on emphasising certain key attractions along the route. Some attractions on their own do not justify a trail made to get to it e.g. Mwanaluvele caves. In such cases it is important that trails are extended to incorporate additional attractions e.g. a good view.

Short-range trails start and finish on the edge of the UMNP, where there is an opportunity for local communities to gain some benefits from tourism. These benefits can take the form of paying porters and guides to selling food items and curios.

### 5.1.2 Long-range trails

Long-range trails are by definition longer and more arduous, but also very challenging and rewarding. The obvious safety concerns and feasibility assessments are outlined in the trail profiles. More pertinent questions are who and how many people will walk these trails? These trails require specifically targeted marketing to attract ‘adventure tourists’ who are both physically capable and willing to pay the high costs that are required. One tour operator consulted made the following comments:

1. These trails could be niche marketed at adventure tourists via specific hiking magazines and the Internet, since UMNP is not well known yet in the ‘hiking community’. TANAPA should for free or at low cost facilitate promotion trips to writers for these magazines and websites and representatives of the hiking industry in order to have UMNP wilderness trails publicised.
2. The fee structure should be reviewed to lower the costs to visitors of these long trails.

As design, establishment and maintenance of these long-range is likely to be very costly, it is suggested that the long-range trail network is developed ‘pole pole’, starting with the Lumemo Trail. Depending on the success of this trail and the demand for new trails the network can be expanded to include connecting routes e.g. Udekwa – Mang’ula, Udekwa – Kiberege.

## 5.2 Impact of trails – negative effects of increased tourism

When considering tourism in a park like UMNP, which was established for conservation purposes, the impacts of the trails have to be considered carefully. This is especially true when designing facilities to increase the current number of tourist trails within pristine areas, that have not experienced tourism previously. The GMP uses the principal of Limits of Acceptable Use (LAC) and zoning to ensure a balance is achieved. These principals need to be carefully adhered to when expanding tourism in UMNP

The positive aspects of trail development for increased tourism include:

1. Increased revenue for TANAPA and the Tanzania government.
2. Revenue generated in some UMNP adjacent villages.
3. Private hotel and tour operators have more tourist products to offer.
4. Certain illegal activities such as poaching and timber cutting may be deterred.
5. Trail development may assist ecological research and monitoring.
6. Increased awareness of the general public about the importance of mountain habitats, biodiversity and water conservation.

The negative aspects if trail development for tourism include:

1. Trails may cause erosion on ecologically sensitive slopes and areas designated as core preservation zones.
2. High densities of tourists around major attractions such as Sanje falls may cause litter problems, erosion and detract from the pristine nature of the Udzungwa Mountains that UMNP is designed to preserve.
3. Income to adjacent communities may only go to a few people and thus have a limited benefit.
4. Exposure to large numbers of visitors may change or harm the cultural values of local communities.
5. Some of the trails particularly on the eastern side may only encourage firewood collectors and poachers deeper into the park.

If managed carefully the expansion of walking trails in UMNP can be positive. Some have argued that UMNP has paid for its self many times over without the need for tourism by protecting a vital water catchment, which in turn generates large revenues through electricity generation, agricultural irrigation and human drinking water supplies. However TANAPA as the managing authority does not directly receive revenues from the water consumer and for the moment views tourism as a vital income-generating tool to cover running costs.

### 5.3 Campsites

Developing campsites requires considerable thought and planning as they can lead to considerable environmental problems if not properly designed and managed. Considerations include access, capacity, availability of firewood, water supply, shade, siting of latrines and ablution blocks, refuse management, and perhaps most importantly campsites need to be located in an 'attractive' site. From discussions held with commercial campsite operators (see section 4.6) the following conclusions drawn are also important to take into consideration when planning campsites:

- Ablution facilities need to be managed properly and *regularly* maintained for people to use them (see photographs below).
- A separate purpose built campsite catering for large groups is necessary.
- Overland truck parties should not be encouraged until facilities exist to cater for them and management structures are in place to deal with them e.g. a strict booking system with clear guidelines.
- Unless a sustainable source of wood fuel is found, hot water heating for washing should be discouraged. Solar heaters should be considered for the permanent campsites.
- Fire wood usage for cooking and heating fires should be assessed.
- The most important things for a tourist campsite in a remote area such as inside a national park is a clean source of water and toilets (Ghaui pers. comm.).



**Photograph 27** Kisolanza Farm Campsite Toilet (left)



**Photograph 28** Kisolanza Farm Campsite wash block (right)

Campsites in UMNP can be divided into two types, permanent camps and fly camps, these are dealt with separately below.

### 5.3.1 Permanent camps

Permanent campsites as the name suggests are permanently established and have facilities such as flat camping pads, water supply, refuse collection points, ablution blocks, and simple shelters against rain and sun. Photograph 29 is an example of an 'attractive permanent campsite'.

There are five existing permanent campsites in UMNP. General comments that applies to all UMNP campsites is that toilets in whatever state of repair need cleaning regularly so that on visitor arrival the facilities are not full of leaves and cobwebs! Although functional the current facilities constructed from iron sheeting are a bit of an eyesore. It is recommended that where possible permanent structures are built using local materials e.g. rock / stone, for example as in Photograph 30.

If fires are allowed in the campsites, it is strongly recommended that fire pits be installed. These will ensure that fires are kept under control and that the campsites are not scarred by numerous burn marks. Firepits can be as simple as a shallow hole with rocks around, or more substantially a concave concrete base about 1.5m in diameter. Njia panda campsite is the busiest campsite currently operating in UMNP and improvements are urgently required here. Specific recommendations for each campsite are detailed below.



**Photograph 29** Riverside Campsite.



**Photograph 30** Riverside Campsite  
Ablution Blocks

Campsite/Facilities	Suggested improvements.
<b>Campsite 1</b>	This camp should be either be abandoned or totally redesigned and or relocated.
Small campsite next to Mwaya river.	If redesigned the toilets need extensive repairs, camping pads (6-8) need to be properly levelled and a firepit installed.
Toilet	
Near to UMNP staff accommodation.	This site could be use as a picnic site instead, if benches and tables can be provided.

Campsite/Facilities	Suggested improvements.
<b>Campsite 2</b>  Nice campsite next to Mwaya river.	Toilets need improving and maintenance. Immediate repairs required - the wooden frame is rotting away, if possible replace iron sheet door with a wooden one, the floors and walls need painting. The road to the campsite is rutted in places, requires maintenance. Install firepit (s).
<b>Campsite 3</b>	Toilets need improving and maintenance. If possible replace iron sheet door with a wooden one, the floors and walls need painting. Tent spaces need to be properly levelled and landscaped to fit in with the environment.
<b>Njia Panda</b>	Camping pads need to be increased in number and properly demarcated and levelled. It is suggested that at least two clusters of camping pads are created, these should be slightly separate, to allow some privacy if there is more than one group camping at a time. Camping pads need to be moved away from the area currently used. The toilets need redesigning with a permanent cement structure put in place. Consider installing simple wash-block. Install fire pits for each group of camping pads.
<b>Mizimu</b>	The current site should be left as a research camp only.

#### 5.3.1.1 Proposed new permanent campsites

New permanent campsites should be sited at Mbatwa and Lumemo at the locations suggested in the trail profiles (see Map 2 and Map 3). These should have the following facilities:

- Water supply either piped, or conveyed in buckets from a river, or brought in by vehicle.
- Washing block (assuming the water supply is established)
- Toilet block
- Shade
- Flat camping pads
- Sheltered cement fire/cooking places.

Each site needs to be planned and designed according to the specific locality requirements. In Mbatwa water supply might be a problem due to the salinity of the nearest water source (see discussion in trail profile). At the Lumemo site the road to the proposed site needs to be re-opened.

### 5.3.2 Fly camps

Fly campsites are cleared areas of ground sited near a stream along a trail. They should have a long drop toilet built, cement fire pits and areas levelled for tents. The locations of the fly camps are listed in the relevant trail profile section. Visitors should be encouraged to the 'fly campsites' on the long-range trails to limit the impact of visitors in the wilderness zone. It is essential therefore that guides know where each 'fly' camp along the trail is. UMNP could consider creating extra campsite to cater for groups that walk slower of faster than average. The size of each camp will depend on its location, but the minimum number of camping pads should be five.

## 5.4 Interpretative materials

UMNP presents the visitor with many interesting challenges, one of which is to understand the complex processes of a mountain ecosystem. Imparting such information to the visitor is very important to educate the general public about UMNP, forests in general and the Eastern Arc Mountains as a globally important area for their high levels of unique biodiversity. Visitors also enjoy a safari much more having learned a few interesting facts about the area that they have visited.

Within UMNP there are a variety of habitats including: dry *Commiphora* sp /*Adansonia* sp. thicket, different woodland types, swamp, forest and riverine ecosystems. Transforming the often detailed information about the area, into an easily digestible form for the visitor is therefore very challenging. Interpretative materials already exist e.g. tree species labels, the booklet entitled the 'Udzungwa Mountains' (WWF, 1999), tee-shirts, and various posters at UMNP reception. A marketing leaflet on UMNP is also in production. Expanding, relocating and redesigning the amounts and types of interpretative materials will greatly improve the visitor experience to UMNP. Other types of interpretative materials that may be used include; all weather posters located at popular sites e.g. Sanje falls, audio visual displays at a purpose designed visitors centre, postcards, 'biofact' sheets, postcards, 'where to see the endemic species' leaflets and trail leaflets. Well designed interpretative materials will in turn, help to attract more visitors and be positive educational experience as well.

The following is a list of some of the suggested interpretative materials that can be implemented in UMNP.

### 5.4.1 Display Boards

Large professionally produced waterproof display boards placed inside the visitors centre, and placed at key locations around UMNP, could convey a variety of information about a particular place to the visitor. These display boards should include text, pictures, maps and diagrams, they should be easy to understand (English and Kiswahili versions) and 'attractive to the eye'. If good quality materials are sourced display boards have the advantage of being robust, low maintenance and produced only once.

### 5.4.2 Leaflets

Leaflets are a useful and familiar means of conveying information as they can be read when convenient and referred to many times, in addition they are an informative 'souvenir'. A leaflet is currently being designed for UMNP, summarising useful



information about the park for visitors. At present the leaflet is in English but should be translated into Kiswahili as soon as possible, and translations into other major tourist languages (e.g. French, Italian and Japanese) should be considered.

Leaflets can also be used to convey more detailed information about a particular aspect, for example in UMNP the importance of water and forest, and the diversity of primates could form the basis of separate leaflets. In addition it is strongly recommended that each walking trail has its own leaflet that should include a trail description, a good map, a list of GPS points (for the long-range trails), and details of features and issues they highlight along the trail.

#### 5.4.3 Maps

At present there is no single map of the whole park available to visitors. Maps are very important to give visitors an overview of the park and assist them to plan their time, they can also be used to convey additional information about the park. An especially designed map is required to provide visitors detailed and up to date information.

A series of nine topographical map sheets published by the Mapping and Survey Division cover the national park (JB 216/2, 217/1, 217/2, 217/3, 217/4, 216/4, 234/2, 235/1, 235/2). However it is not easy for visitors to purchase these, as they are not available at UMNP. As the topographic sheets pre-date the national park they do not show the park border or any of the trails, thus topographic sheets are only really useful for visitors undertaking the long-range trails. It is recommended that UMNP design trail maps to show where the trails are located, how long they are and over what type of terrain the trails pass through. The maps can also be used to convey other useful information, for example pictures of some of the rare species in UMNP.

UMNP with support from WWF commissioned the Mapping and Survey division to produce a 1:100,000 map which incorporates the information on the topographic sheets (i.e. this is a new map using old data). This park boundary has been superimposed on this map making this a useful large-scale (not very detailed) map of UMNP. Currently there are very few copies of this map available. Mapping and Survey division will produce extra copies in bulk (minimum order not yet identified) at 10,000 Tsh per sheet. It is highly recommended that additional copies are printed for UMNP staff use, and display purposes. In addition as many visitors commented on the visitor questionnaires that they would have liked a map of the park, this 1:100,000 map would probably be popular if put on sale at UMNP HQ. In the short term extra copies could be printed and sold for a marginal profit or even at cost price. Long-term however, as a map adapted to show trails, species and areas of interest would be more useful for visitors, it is recommended that UMNP commission the design and printing of a new visitors map.

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## **Examples of other nature reserves with interpretative information materials available to visitors.**

### **5.4.4 Jozani Forest, Unguja, Zanzibar**

Jozani forest is well known as the last stronghold for the Zanzibar Red Colobus *Procolobus kirkii*, which occur in the forest and on the forest edge in farmland. The forest is also home to many other rare species of plant and animal. The Zanzibar authorities opened Jozani forest to tourists over ten years ago, and it has become since become a popular destination. The major attraction has been the Zanzibar Red Colobus, since one very habituated troop allows visitors to get very close to them and observe their behaviour. This particular troop of monkeys (other Red colobus troops in the forest are much less habituated) were habituated through a process of being exposed to local farmers in the area who did not hunt them and then researchers and then increasing numbers of visitors. This troop also has the unusual behavioural trait of spending a lot of time on the ground searching for old fragments of charcoal to aid their digestion. This has enabled people to get unusually close to them instead of having watching them up in the trees. This troop is also very accessible since they are located close to the Forest reception area and the main road.

The Red Colobus acts as a ‘flagship species’ for the forest by attracting many visitors, who otherwise may be less uninterested to visit a forest where animals are generally hard to see. The visitors having seen the Red Colobus are then enticed to see more of the forest. A network of walking trails has been designed in Jozani forest and visitors are provided with a simple leaflet showing what they might see along the trail and a sketch map. The trail trained guides are enthusiastic in their explanation of the forest and some can speak Italian and French. At the reception area a visitor’s centre has been designed to interpret the biodiversity of the forest. Visitors can read posters (in English, Kiswahilli and some in Italian) which are illustrated with pictures, photographs, and text boxes in an informative, clear and attractive way. Other exhibits such as skulls and tree seeds are also on display. The type of information conveyed includes, biodiversity facts, ecology, and conservation issues such as forest clearance and hunting. Visitors can also relax on comfortable chairs and buy cold drinks, snacks and local handicrafts and spices grown on the island.

### **5.4.5 Mountain Gorilla tourism in Uganda.**

Mountain Gorillas are perhaps the most enigmatic primates in the world and attract thousands of visitors to their remote mountain forest habitats. Gorillas are ground dwelling, so habituated troops can be easily viewed by visitors. Due to the risk of disease transmission between humans and gorillas, trained park staff strictly supervise visitors to ensure they do not get too close to the animals. In Bwindi Impenetrable National Park two troops of gorillas are habituated for visitors and only one group of six visitors are permitted to visit the gorillas each day. No trails are established in the forest, instead park staff locate the gorillas and then guide tourists through the forest to them. Given the small numbers allowed to see the gorillas a high premium is charged (about \$250USD per person). The gorilla viewing tours both in Uganda, Rwanda and the DRC are very popular and visitors do not mind the physical hardships involved to get to see the gorillas. Various schemes

operate in order that communities near the park benefit from the financial benefits of the tourism.

#### 5.4.6 Chimpanzee tourism in Kibale forest Uganda and Gombe Stream National Park, W. Tanzania.

In Kibale forest reserve Uganda, tourists are guided around a trail network to view the forests' biodiversity. Kibale forest has the advantage of being mostly flat which makes walking easier. The main attraction is the resident chimpanzee population, of which one troop is habituated. Visitors are accompanied by trained guides who know how to find the chimps, but in addition know about the other five monkeys species, nocturnal primate species and some of the bird species. Tree species are labelled, and the guide explains some for the medicinal properties of the plants. Guided night walks are available, for visitors to see bushbabies and pottos. A visitor's centre at the reception building has posters about the forest and leaflets, tee shirts and postcards are also available.

#### **Primate tourism: a controversial but effective tool.**

These examples highlight a number of important issues when dealing with primates as a major Forest Park attraction.

1. One very habituated troop of rare and enigmatic primates can be a popular tourist attraction, drawing in visitors.
2. Even if some of the other rare but hard to see animals are not seen by visitors a 'flagship primate' can be enough to draw tourists into a forested area. The presence of a habituated group of rare monkeys gets the visitors' attention and provides enthusiasm to learn more about the protected area.
3. The troop of primates has to be well habituated and readily accessible. (In UMNP the most habituated troop of Udzungwa red colobus occurs around the park HQ and whilst not allowing visitors to get as close as the Jozani red colobus still provides enough interesting views, but they are not always accessible.)
4. Visitors must follow a strict protocol whilst watching primates at close range due to the concerns of disease transmission and disturbance. Rules must be enforced to prohibit feeding the monkeys and possible abuse that would disturb their daily habits.
5. Habituating primates is a long and difficult task, which is often conducted by researchers. Some troops are naturally habituated due to their associations with local people on the forest edge especially if they are not hunted. Primate viewing can help to ensure a troop of primates remains habituated in the long term, which can be useful for research purposes. In UMNP a troop of Sanje Mangabeys is said to be partially habituated to humans near Msolwa A village, reportedly they sometimes come out of the forests in the farmland. This situation could be utilised for tourism purposes, and useful revenues can be directed towards both TANAPA and the community.

Despite the high diversity of primates within UMNP, primate viewing is still not a major attraction for visitors. If a troop of Red colobus or Sanje mangabeys could be fully

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habituated and guided visitors allowed to get close to them, this would diversify the tourist attractions available in UMNP.

## 5.5 Firewood

The issue of fire wood use in and around UMNP is a very important one, particularly on the eastern side of the park where human pressures are greatest and visitor numbers are most concentrated. In terms of trails, firewood collection may have some detrimental effects.

### Tourist use

Unless alternative sustainable sources of firewood are found, increasing numbers of tourists depending on firewood collected in UMNP is likely to cause a negative ecological impact, and send out the wrong message to adjacent communities whose access to fuelwood is being restricted. Fires are lit for cooking food and generating heat, particularly at higher altitudes. Uncontrolled harvesting of firewood by visitors can result in denuded campsites where all available firewood has been burnt, although current low visitor number to UMNP may mean this is not yet a problem this issue still needs to be addressed.

A partial solution would be to recommend that visitors to permanent camps use alternative fuel cookers (e.g. kerosene). This should be encouraged from the start at new campsites (e.g. Lumemo and Mbatwa) and implemented immediately at existing permanent campsites. This system is in use on Mt. Kilimanjaro where fuel wood sources became very low and environmental degradation has started to occur. If this policy is to be implemented it is essential that UMNP advertise this fact widely, and initially at least provide a source of kerosene cookers for hire and kerosene for sale.

Campfires for generating heat is a harder problem to solve. Other protected areas in Africa deal with fuelwood problems by park authorities managing the supply of firewood, and selling bundles to visitors very cheaply e.g. 2 – 5 US dollars per bundle. Whilst this does not remove the problem completely it gives park authorities the chance to manage where and when fuelwood is harvested.

It is recommended that UMNP decide the policy on firewood use by visitors and start implementing measures before lack of fuelwood and denuded campsites become a problem.

### Local use

People from local communities on the eastern side of UMNP are allowed to collect dead firewood on Fridays and Sundays. Many trails are being created through the forest as a result and are a concern in terms of erosion and improving access for illegal hunting activities. These trails are unregulated and unplanned. Existing tourist trail routes are also being used by firewood collectors to penetrate further into UMNP. A small issue relevant to trail design and maintenance, is that fire collectors leave many small pieces of wood on the trail at their collection points creating ‘hazards’ on the trail that easy to trip over.

## 5.6 River crossings

Many of the trails involve numerous river crossings. To a certain extent shallow river crossings are ‘fun’ and do not pose a problem to visitors’ experience of a trail. However crossing swift currents of deep water (e.g. in the rains) over slippery rocks can be at best irritating, and at worst dangerous.

It is recommended that where-ever possible on all trails river crossing are made easier by the modification of natural river crossings e.g. stepping stones and logs. Crossing points using natural materials found in the vicinity are cheaper, and less of an eyesore. For example, river crossings on the Mwanihana trail especially, can be greatly improved if stepping stone type crossings are created. It is suggested that trail maintenance workers move large boulders and stones to create easier river crossings during their frequent clearing duties. Care should be taken to ensure that stones are reasonably spaced and provide a level surface on which to tread. It will be necessary to continue this activity as heavy rains will cause high river levels and may move the boulders.

Some of the river crossing points need more attention e.g. Sanje river above the falls. Attempts to establish a bridge at Sanje have been washed away each rainy season, at the moment there are slippery rocks and logs to negotiate in order to cross to the other side. It is recommended that as Sanje is a major attraction and will likely be receiving increasing numbers of visitors, a more permanent footbridge should be constructed a little way upstream. The first (if you are ascending) Sonjo river crossing on the Mwanihana trail also requires attention, a feasibility study into the building of a bridge or a stepping stone type crossing is required.

## 5.7 Marketing

The UMNP has unique qualities to attract a certain levels and types of tourists and the rising levels of tourist visits since the parks establishment reflects these qualities. However there is currently a lack of data to show more precisely what these levels and types of tourists may be, which hampers the effective planning and marketing of tourism in the UMNP. The UMNP essentially offers a wilderness hiking experience in a scenically beautiful and varying landscape. Added to this there is the attraction of many unique species that will attract the niche market of nature tourism. However the UMNP is competing in a world market and the managers (TANAPA) need to fully realise the parks qualities as compared to similar tourist products around the world. The other famous hiking park in Tanzania, Kilimanjaro National Park does not reflect the ‘real’ tourism hiking market since is so unique and globally famous that it would be misleading to compare the UMNP and Kilimanjaro. A different approach is required for UMNP.

A major issue is the current pricing structure, which discourages two important tourist groups; the local expatriate community, and backpackers. These groups tend to be looking for more than the standard ‘big five’ vehicle based safaris but anecdotal evidence suggests that they are being discouraged by the pricing structure. They are a potentially valuable tourist groups as they tend to be much less effected by the vagaries the world tourist market and the current security situation which is badly effecting East Africa. This is particularly relevant to the levels of uptake on the longer range hiking trails. The

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experiences of the Kenya Wildlife Services and other wildlife managers in Africa should be ascertained to learn how various market sectors are attracted to their 'products' i.e. parks and protected areas.

A market survey should be conducted to ascertain the present status and potentials of tourism in the UMNP. Data is needed to show the following:

1. the socio economic status of tourists currently visiting UMNP.
2. the levels of the current global tourist hiking market that might want to visit UMNP.
3. what facilities and expectations tourists require
4. what is a pricing structure that actually reflects the levels of market demand.
5. what is environmentally sustainable tourism in the UMNP.
6. how local UMNP adjacent communities can benefit from tourism in an environmental and culturally sensitive way.

Armed with more market survey data tourism can be more effectively planned and marketed for the financial benefit of the UMNP/TANAPA and the local communities in a sustainable way.

## 6 Conclusions

UMNP is conserving a globally important biodiverse ‘hotspot’, vital water catchment areas, and also has a high potential for tourism. Tourism numbers have increased greatly since the park first opened in 1994. The need to expand these numbers still for revenue creation needs to be carefully planned especially into the core preservation areas where the main forests are. Tourism is also a potential tool to benefit local communities on the forest edge.

In order to expand tourism numbers there is a need for existing trails to be improved and additional trails to be created. The new trails proposed in this document aim to spread visitors around the park and reduce pressure on the eastern side of UMNP, which currently receives most of the tourists.

- Nine trails were proposed in the general management plan (TANAPA, 2001), of these three were walked during this survey period, two have been described from previous survey work, two were discussed with village elders and deemed not suitable for tourists and two still require surveying.
- There are five existing trails in UMNP these were walked, mapped and described in full (with the exception of the Mwanihana trail which was partly completed.)
- Six additional trails are recommended, two were walked, mapped and described in full, two have a recommended route and two have been partly walked, mapped and described and have a route recommended.
- A communication system (radio) that can link rangers to each other and ranger posts is required to assist in ensuring the safety of visitors undertaking long-range trails.
- All five existing campsites were visited, and recommendations for their improvement have been made.
- Locations of new permanent and fly campsites have been proposed.
- UMNP staff were taken to visit other commercial campsites in order to gather ideas for construction of new facilities, and an appreciation of management and maintenance issues.
- Management and regular maintenance of camping facilities is required to make them a popular tourist facility. The most important aspect about a campsite is its cleanliness and water availability.
- The policy regarding use of firewood by visitors in UMNP should be reviewed. If there is an over use of firewood then kerosene or gas cooking stoves must be used when camping in the park.
- Interpretative materials currently available are limited to small guide to UMNP and T-shirts, a general leaflet is currently being produced and there are plans to develop a visitor centre. Suggestions are made on possible interpretative materials – e.g. specific trail leaflets.
- Trained, well-informed enthusiastic guides are essential to the success of UMNP trails. Additional training is required.
- A habituated troop of primates such as the rare Udzungwa red colobus or the Sanje mangabey may be an additional tourist attraction in the UMNP. At present only partially habituated troop of red colobus are known to occur around the park headquarters and Msolwa Village.

- A market survey is required to ascertain the current tourism market in terms of the product that UMNP offers, to improve planning and maximise revenue potentials in an environmentally sustainable way.

## 7 References and Bibliography

**Ashton, R.M & Ashton, P. (1993).** An introduction to Sustainable Tourism (Ecotourism) in Central America: Paseo Pantera Ecotourism Program. Gainesville, FL: Wildlife Conservation International. In: Higgins 2002 [http....](http://www.ecotourism.org/statement_on_un.html)

**California State Parks (2002)** Trail Shorts-A cursory Look at Trail Maintenance. <http://www.foothill.net/fta/work/mainnotes.html>

**Eagles, P. (2002)** Essential Reading in Ecotourism: A personal selection of very important papers. [http/](http://www.ecotourism.org/statement_on_un.html)

**Frontier Tanzania, (2001)** West Kilombero Scarp Forest Reserve – Botanical and Forest Resource Use Report. Doody, K.Z., Howell, K.M. & Fanning, E., (Eds.). *Report for the Udzungwa Mountains Forest Management and Biodiversity Conservation Project, MEMA, Iringa, Tanzania.* 1 – 145 pp.

**Griffiths, G. J. (1993)** The geological evolution of East Africa. In: Lovett, J.C. & Wasser, S.K. (1993) *Biogeography and ecology of the rain forests of eastern Africa.* Cambridge University Press, pp 9-12.

**Lehmberg, T. & Dinesen, L. (2001)** The Eastern Arc Mountains. In: Frontier Tanzania, (2001) West Kilombero Scarp Forest Reserve – Botanical and Forest Resource Use Report. Doody, K.Z., Howell, K.M. & Fanning, E., (Eds.). *Report for the Udzungwa Mountains Forest Management and Biodiversity Conservation Project, MEMA, Iringa, Tanzania.* pp. 17 - 18.

**Lovett, J.C. (1993)** Eastern Arc moist forest flora. In: Lovett, J.C. & Wasser, S. K. (1993) *Biogeography and ecology of the rain forests of eastern Africa.* Cambridge University Press, pp 33-35.

**Lovett, J.C. & Wasser, S.K. (1993)** *Biogeography and ecology of the rain forests of eastern Africa.* Cambridge University Press.

**Sournia, G. (1996)** Wildlife Tourism in West and Central Africa. *Ecodecision* 20: 52 – 4. In: Eagles (2002) Essential Reading in Ecotourism: A personal selection of very important papers. [http/](http://www.ecotourism.org/statement_on_un.html)

**Norman, W., Frauman, E., Toepper, L., Sirakaya, E. (1997)** Green Evaluation Program and Compliance of Nature Tour Operators. (TIES website.)

**Higgins, B. (2002)** The Global Structure of the Nature Tourism Industry: Ecotourists, Tour Operators and Local Businesses. (TIES [http://www.ecotourism.org/statement\\_on\\_un.html](http://www.ecotourism.org/statement_on_un.html))



## 8 Appendices

### Appendix 1 List of UTM 37 points per trail

#### Campsite 3 Trail

<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
267513	9134422	Start/finish on main road
267356	9134458	trail point miombo woodland
267208	9134441	Miombo woodland
267007	9134455	Miombo woodland, several <i>Steculia africana</i> trees
266911	9134370	Miombo woodland, wood collection point, crowned eagle seen, switchback starts
266588	9134409	Mixed woodland, switchbacks end
266488	9134376	Mixed woodland
266247	9134514	Clearing, SW on approach, MFW
266247	9134514	View point
266156	9134581	MFW, bracken clearings
266047	9134610	Sanje mangabey group 5-10, black cuckoo shrike, YVB, collared sunbird
266021	9134728	MFW
265864	9134726	MFW
265579	9134619	2ndary submontane forest, BW colobus, birds: grey cuckoo shrike, monarch flycatcher
265397	9134582	2ndary submontane forest (SMF), birds: green headed oriel, montane white eye,
265077	9134419	Good submontane forest, crowned eagles
264963	9134470	Clearing, edge of good SMF
264397	9134384	Good submontane forest, crossing of Njokamoni R.
263921	9133999	Unreliable fix?
263125	9133367	Left Njokomoni R., start to head downhill
264094	9133287	Heading downhill, some good views.
263309	9132879	Meet Mwaya R. and tributaries African violets along this stretch to next fix
264248	9132525	Mwaya R., 100m or so to the left (N)
264281	9132331	Mixed SMF and tangles, bad and steep path
264345	9132214	Mixed SMF and tangles, bad and steep path
264950	9132068	Red colobus, S mangabeys in Parinari forest edge
265111	9132076	Trails outside forest in open grassy glades with out forest clumps, path not clear slippery.
265436	9131963	Trails outside forest in open grassy glades with out forest clumps, path not clear slippery.
265436	9131855	Stream crossing Mwaya tributary, trails outside forest in open grassy glades with out forest clumps, path not clear slippery.
265559	9131872	Start of cleared path and miombo woodland
265835	9131901	Borassa palm
266295	9132014	Miombo
266735	9132014	Camp 3, trail head/end

### **Njokamoni Proposed Trail**

<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
267273	9133205	Start of trail on main road
267225	9133216	1st crossing of Njokamoni R. in shamba area, a bit boggy needs small bridge/stepping stones etc.
267080	9133358	Shamba
267103	9133464	Shamba land, tall grasses good farm land birds, buffalo bean.
267029	9133555	Tall grass
266973	9133575	National Park boundary
266889	9133597	Miombo
266777	9133608	Miombo forest mix
266671	9133597	Miombo forest mix
266613	9133663	Miombo on ridge path
266346	9133932	Miombo forest mix
266245	9134045	Miombo forest mix
266125	9134140	Miombo forest mix
266046	9134156	Crossing small tributary, signs of poachers here
265960	9134114	Rocky cliffs near waterfall
265932	9134084	Njokamoni waterfall 1. There is another apparently behind this one. Waterfall about 10m tall and 1.5 m wide
265793	9133963	Above water falls on trail that goes down and another that cuts off to Mwanihana apparently
265645	9133886	Near mangabey research camp, also junction to Mwanihana. We head E back down slope to the road
265819	9133817	Steep rocky down slope train NOT for tourists!
265861	9133775	Steep rocky down slope in secondary forest
266075	9133719	Steep slope, thicket forest
266166	9133616	Supposed junction to Prince Bernhard water falls and water intake pipe, but through 2ndary vegetation
266293	9133527	Closed canopy forest, firewood collectors path
266440	9133438	Closed canopy forest of Msoweto (Letowiathas spp?) trees, firewood collectors path.
266615	9133371	Junction with water pipe on the Njokamoni r.
266683	9133194	National park boundary and a crossing of the Njokamoni. Stepping stones need
266822	9133077	Shambas start
267067	9132948	End of trail on main road

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**Mwanaluvele Caves Trail**

<b>Eastings</b>	<b>Northing</b>	<b>Notes</b>
236234	9161332	Start
236045	9162846	Near caves
236096	9162782	Cave Entrance
236232	9161331	npta1
236350	9162144	npta10
236403	9161971	npta 11
236383	9161812	npta12
236380	9161735	npta13
236314	9161630	npta14
236256	9161467	npta15
236148	9162328	npta8
236199	9162202	npta9
236050	9162849	npta2
236097	9162785	npta3c
236049	9162717	npta4
235981	9162632	npta5
235956	9162598	npta6
236073	9162462	npta7

**Mbatwa Proposed loop 1**

238000	9156350
239000	9156400
239300	9156450
239750	9157300
240150	9157400
240400	9157700
240300	9158300
239700	9158800
239550	9159600
239100	9160200
238128	9159670

**Mbatwa Proposed loop 2**

239100	9160200
239300	9160900
239200	9161700
238700	9162100
238000	9162600
237000	9162800
236096	9162782

**Mbatwa Proposed loop 3**

234000	9162050
234400	9162300
234750	9162700
235000	9162700
236096	9162782

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**Lualla Ngung'umbi Trail**

<b>Eastings</b>	<b>Northing</b>	<b>Notes</b>
236995	9154038	campsite recommend
237958	9159416	camp
237682	9159138	view
237344	9158888	saddle
236813	9158488	trail
236703	9158322	view ikula
236705	9157363	bump
237010	9156653	on trail
237282	9156511	trail
237788	9155392	nalawe
237648	9154930	rock
236895	9153878	river
236900	9153876	river camp
236973	9153585	trail ikula
237194	9153108	trail
237180	9152903	trail
237290	9152562	trail
237194	9152210	trail view
236988	9151158	Bidens sp.
236691	9150754	Forest
236715	9150724	Lualla Ngungumbi
237194	9152271	
236998	9153478	old house site
236815	9158490	aloe
237798	9155391	open ground
236987	9153460	grassland
237191	9153067	
237295	9152566	view to nalawe
237196	9152209	looks into bowl Isafa swamp
236994	9151161	forest edge
237966	9159423	potential campsite above mrp
236689	9150752	secondary for leopard + buff trail
236702	9150719	Lualla Ngungumbi

**Sanje - Mwanihana Attempt**

<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
268291	9141059	Sanje
266468	9141845	Forest
266411	9141840	Forest
265978	9141828	Forest
265458	9141825	Forest
265810	9141875	Forest
265268	9141821	Forest
265086	9141772	F16
264980	9141692	Forest
267963	9140915	Junction of Sanje long trail
267621	9141084	F3
267502	9141112	F4
267270	9141235	F5
267051	9141338	Camp
266921	9141432	River Junction
266679	9141752	F8
266548	9141840	F9
268290	9141059	Sanja falls
267973	9140927	Trail mark
267664	9141025	Trail mark
267501	9141105	Trail mark, near trail jnc. Yellow throated woodland wabler, collared sunbird, olive sunbird.
267021	9141348	Research camp site
266533	9141873	Trail mark on ridge path
266483	9141892	Trail mark on ridge path
266500	9141867	Trail mark on ridge path
266412	9141856	Good picnic site on ridge
265949	9141846	Trail mark on ridge path
265798	9141839	Trail mark on ridge path
265528	9141737	Trail mark on ridge path
265196	9141709	Trail mark on ridge path
265044	9141695	Trail ended near the start of the Sanje river in good submontane forest. We decided here that this would not be a viable tourist trail for the near future

**Sanje Loop Trail**

<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
268785	9139373	2e
268451	9139746	3e
268164	9140179	4e
267963	9140109	E 5 butress
267856	9140314	6e
268050	9140667	7e
267908	9140771	8e
268320	9141024	9 Sanje falls
268283	9141171	10e
268783	9141313	11e
268919	9141239	12e
269052	9141126	13 view
269351	9141160	14e
269574	9141090	15 border
268824	9141097	16 e
268704	9141099	17e
268628	9141073	18 e
268576	9141048	19 pools
268968	9139130	Sanje ranger post, start of Sanje loop trail
268800	9139378	Trail mark
268450	9139737	Trail mark
268016	9140340	Trail mark
268079	9140688	Trail mark
268247	9140989	Trail mark
268268	9141034	Sanje water falls
268938	9141276	Trail mark
268913	9141239	Trail junction
269045	9141157	View of Sanje water falls
269052	9141120	Trail mark
269370	9141161	Trail mark
269571	9141048	Near Sanje village

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**Sonjo Loop Trail**

<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
267951	9136592	1
267775	9136527	2
267656	9136547	3
267456	9136697	4
267396	9136672	5
267115	9136753	6
266373	9137171	7
266624	9137057	8
266694	9137048	9
266975	9137021	10
267098	9136969	11
267279	9136920	12
267415	9136877	13
267678	9136710	14
267905	9136671	15

**Lumemo Trail**

<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
243101	9114605	Lumemo Ranger Post
243143	9117305	3
243274	9119556	Possible campsite
243403	9115865	Trail
243686	9119419	Grassed woodland (GW), camp 1, near first proposed Lumemo ranger post
243690	9119429	dudu camp
243814	9118742	border
244627	9120940	GW, river rapids site
244736	9120039	Grassed woodland (GW), small sandy river beach with otter signs eg prints & fish scales
244739	9120042	trail
244891	9124698	Kimaro fall
244897	9125181	Turn
244904	9125177	Leave Lumemo up tributary
245037	9123825	Siting of 2 Pels' fishing owls who were disturbed from a tree at 8m up
245111	9123648	Elephant soil digging point
245823	9126590	Camp 2, old poachers camp by tributary, in small area of riverine thicket/forest surrounded by tall grassland
245825	9126593	Campsite 2
246266	9127696	Woodland
246670	9128200	Tall grassland
246670	9128207	Pools
247274	9129247	15
247366	9129379	GW, crossing of Lumemo tributary near waterfall with strange worm creature
247400	9132500	Hill
247649	9130020	16
247981	9130748	Riverine forest in steep valley, blue monkeys, trumpeter hornbills
247987	9130745	Crest
248064	9131174	18
248064	9134160	Return to Lumemo at ole elephant crossing, we cross here to left bank, water buck
248069	9134159	Lumemo
248070	9131179	Riverine forest
248177	9133472	Elephant path so old its makes cutting 2m deep through hill, 1st view of Luhomero
248186	9134910	Campsite 3
248186	9134910	Camp 3, Good campsite by smooth flowing part of river, giant kingfishers, bushbabies.
248196	9133479	View Luhomero
248260	9133125	Tall grassland, marshy area with elephant and buffalo wallow
248262	9133103	Grassland
248473	9132614	20



**Lumemo Trail Continued**

<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
249152	9135898	Stream
249231	9136365	Top of hill in woodland after fail short cut following milk colored stream.
249245	9136364	Bad section (do not include)
249268	9136381	Water cascades, hamercop nest, view of Luhomero, lunch stop
249765	9136088	River again
249766	9136094	Arrive back at Lumemo R.
250251	9135941	Cascade
250253	9135938	River side view
250721	9136598	3 rivers
251248	9138552	camp 4
251258	9138539	Camp 4, by fast shallow point of river, animal crossing point.
251269	9136983	large Albezia tree, lunch stop by river
251293	9136974	32
251363	9137264	33
251378	9139017	Luhomero confluence with Lumemo R.
251383	9139016	river
251415	9138223	36
251550	9137847	35
251569	9137680	River trail point
251590	9137703	34
251594	9139257	pot
251649	9139308	First tributary of Lumemo after confluence on the left bank, start to climb ridge
251671	9139332	crossing
252483	9139496	ridge
252611	9139382	Ridge top, Lumemo on right heading east
253171	9139478	42
253383	9139523	view of waterfalls SE
253421	9139550	Ridge top, near elephant and buffalo wallow, water fall visible on Lumemo
254219	9139762	Left ridge to cross stream to the north then rejoined ridge, 1 elephant seen in valley
254591	9139604	44
254592	9139602	Ridge
254910	9139501	Grassy marshland, start of patchy submontane forest, lunch stop
255004	9139432	lunch
255941	9139382	46
256298	9139404	Left miombo ridge down old ele trail in grassland
256887	9139529	47
257131	9139477	48
257834	9139115	49
258248	9139034	camp 5

**Lumemo Trail Continued**

<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
258264	9139055	Camp 5, good site next to stream, flat shady, elephant seen grazing here
258578	9139099	51
258684	9139155	52
258720	9139125	Followed stream then cut up to ridge, tall grass area
258992	9139011	Grassy clearing, elephant drinking point
258993	9139007	53
259182	9138817	54
259197	9138721	55
259199	9138722	Crossed Lumemo for last time, going towards gap to next watershed
259635	9138554	56
260156	9138489	Njiapanda camp site
260165	9138456	Njia Panda camp
260167	9138455	Meet with main Nia panda to main road path
261152	9138179	58
261153	9138182	3 way stream meet in the Sonjo system, camer trap point
262323	9137709	Sonjo R. 'couldran' water fall
262324	9137720	cascade view sonjo
263015	9136778	Mizimu
263023	9136773	Mizumu camp site
263076	9137576	60
263118	9137079	60
263152	9137570	Cut right leave Sonjo temporarily
265848	9137059	Trail end/head
266373	9137171	h7
266624	9137057	h8
266694	9137048	h9
266975	9137021	h10
267098	9136969	h11
267279	9136920	h12
267415	9136877	h13
267678	9136710	h14
267905	9136671	h15

**Sanje - Mizimu Trail**

<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
264454	9138690	39J
264511	9138726	Stream crossing, elephant and buffalo wallow/drinking hole
264515	9137799	Thick braken grassland 1m+, good views of Mwanihana peak
264516	9137803	46J
264518	9139501	Secondary forest
264533	9137876	45J
264539	9137879	Thick braken grassland 1m+, good views of Mwanihana peak
264557	9139550	36J
264558	9139572	Forest stream crossing, buffalo trail
264564	9139196	37J
264569	9138962	Secondary forest, trying to switch over ridge to descend to Sojo R.
264576	9138985	38J
264606	9138661	39
264612	9138644	40J
264615	9137459	Nearly at the bottom of a very steep descent to reach Sonjo R.
264616	9137978	43J
264639	9137482	47J
264643	9138501	Following elephant path contouring around ridge inbetween Mkula and Sonjo rivers, good views east
264650	9138504	41J
264701	9137318	48J
264707	9138010	Woodland/forest mix, red duiker seen by KD, BW and red colobus
264709	9138008	42J
264710	9137065	49J
264721	9139798	35J
264725	9139798	Open meadow, good views, down hill,
264748	9137072	Reached Sonjo R.
264749	9138134	Following elephant path contouring around ridge inbetween Mkula and Sonjo rivers, good views east
264749	9139897	34J
264751	9139897	Open meadow, good views, down hill, 15-20 red colobus seen
264781	9138052	Left elephant path to cut over ridge in grassy woodland
264858	9139930	Stream crossing, Mkula R. tributary
264866	9139945	33J
264909	9139912	31J
264913	9139914	Near stream possible camp site, going NW
264966	9139881	30J

**Sanje - Mizimu Trail continued**

<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
265027	9139856	Steep descent down ridge, old elephant route, going NW, sub montane forest, parinari, ablezia
265105	9139843	29J
265109	9139832	Steep descent down ridge, old elephant route.
265245	9139985	Crossed stream, good parinari forest, picked up ridge going west
265258	9140012	28J
265363	9140059	27J
265381	9136911	50J
265480	9140084	Small grssy ridge in forest, pitfall trap?
265483	9140096	26J
265586	9140084	Poachers camp
265637	9140046	Meet submontane forest, start to descend, near poachers camp, BW and Red colobus, 2.2m elephant rubbing post, parinari forest
265645	9140043	24J
265687	9139986	Sharp ridge top, buffalo spore
265689	9139993	22J
265706	9139818	Sharp ridge top
265723	9139740	Ridge
265767	9139700	Sharp ridge top, going NW
265807	9137015	51J
265913	9139551	Ridgetop Herbaceous
265916	9139549	Sharp ridge top
265993	9139677	Open patch
266028	9139662	In bowl at the stream head, open grassy/boggy glade, before climbing up and out to the ridge top
266094	9137005	52J
266233	9139728	Good view point towards sanje falls, Kilombero sugar co. and Selous GR.
266282	9139681	Camp
266293	9139684	Camp 1 (Daniela de Luca's camp site) Ridge top in the sart of scrubby forest, braken, bramble zone.
266308	9137131	53J
266385	9139636	17J
266389	9139631	Ridge top in scrbby forest near stream
266710	9139551	Upaca Woodland
266713	9139547	Ridge top in wapaka
266951	9139552	Upaca Woodland
266952	9139544	Ridge top in wapaka
267337	9139631	Miombo
267345	9139624	Ridge top in pure wapaka woodland, views south
267592	9139552	Ridge top in pure wapaka woodland
267594	9139556	Miombo
267647	9139405	Meeting with Daniela's path

**Sanje - Mizimu Trail continued**

<b>Easting</b>	<b>Northing</b>	<b>Notes</b>
267654	9139414	Contouring, good views, Wapaka spp. woodland, meet ridge path going west
267655	9139425	Miombo
267668	9139429	Good views, sanje vill, Sanje ranger post
267686	9139540	Miombo
267717	9139538	No trail contouring south
267813	9139619	After 1 hr break to survey route ahead move on to the south
267815	9139624	9J
267918	9139647	Miombo, turn leftish
267947	9139613	8J
268013	9139569	7J
268016	9139551	Miombo forest mix, ridge path, views
268082	9139514	Miombo forest mix, ridge path
268083	9139506	6J
268155	9139509	5J
268156	9139501	Kuni collection point, eroded path, miombo woodland starts here
268269	9139134	4J
268291	9139438	Ridge top, fruiting fig tree with blue monkeys
268387	9139441	Forest, steep hill climb
268402	9139417	3J
268482	9139408	Leave MNR up ridge path in forest.
268747	9139278	Jnc of sanje path
268756	9139285	Leave Sanje trail to follow Mkula Ndogo R. in forest
268924	9139151	Sanje RP
268968	9139130	Sanje ranger post, start of Sanje loop trail

## Appendix 2 List of recommended ‘resource’ people.

Name	Village	Notes
Habibu Mingale Mbele. Also known as Mzee Mluaha	Msosa	Talkative, reasonably knowledgeable, knows the history of Mbatwa area. Knows trails Mbatwa area.
Peter Malingumu	Msosa	Good Porter, not very familiar with Mbatwa area yet.
Mitwango	UMNP Ranger	Excellent guide, familiar with Mbatwa area (and other areas in UMNP). English needs practising.
Maganga Mchembe	Lumemo	Good Porter. Strong, friendly and uncomplaining. Has walked the Lumemo Trail. Limited English language skills.
Mzee Patrick Mumanyuangi	Lumemo	Good guide and porter. Good knowledge of trails in the Lumemo and Mwanihana Areas Strong, friendly and uncomplaining. Has walked the Lumemo Trail. No English language skills.
Johaya Hussein	Lumemo	Good Porter. Strong, friendly and uncomplaining. Has walked the Lumemo Trail. No English language skills.
Expedito Juma	Lumemo	Good porter and guide. Exceptionally hard working. Good knowledge of trails in the Lumemo and Mwanihana Areas Strong, friendly and uncomplaining. Has walked the Lumemo Trail. No English language skills.
Hamisi K.	Lumemo	Good Porter. Strong, friendly and uncomplaining. Has walked the Lumemo Trail. No English language skills.
Danni Amandus	UMNP Ranger	Reasonably good guide, familiar with Lumemo area (and other areas in UMNP). English needs practising.
Felix Festo	Mwaya Village	Good Porter, helpful, friendly and some spoken English skills
Wakotha	Sanje Village	Reasonably good Porter. No English language skills.

Magawa	Sanje Village	Reasonably good Porter. No English language skills.
Saidi Baridi	Sanje Village	Reasonably good Porter. No English language skills.
Saidi	Sanje	Reasonably good Porter. No English language skills.
Sebastian ?	Assistant to UMNP ecology department	Useful guide as he knows many of the research trails in the Mwanihana and Sanje areas.

### Appendix 3: Meeting Notes - Kidatu

<b>Date:</b>	19th June 2002	<b>Location:</b>	Kidatu Dam
<b>Participants:</b>	Mr Tesha Godson Kimaro Andrew Perkin Kathryn Doody		Kidatu Plant Manager Head of Tourism Department Consultant Consultant

**Objective:**

To discuss with Mr Tesha the possibilities of developing recreational activities around Kidatu Dam with the intention of offering visitors a wider range of activities in Udzungwa Mountain National Park (UMNP).

Kimaro briefly introduced AP and KD, and explained the purpose of our visit. Mr Tesha welcomed us and discussion followed, the main points were:

- Officially Kidatu is a security area, and therefore no recreational activities are allowed. There have been previous requests for access, from various sources including local companies and other institutions.
- There is an abandoned technical school near the dam, requests by institutions to use the buildings, or re-establish the technical school were declined for security reasons.
- There is a process by which local fishermen can obtain permission to fish in the lake, this involves being issued with some kind of identification. The dam contains many large fish (Tilapia and Tiger fish) that represent an opportunity for sport fishing.
- TANESCO previously had a boat, but due to lack of funds it is now inoperable, there is no access to the upper parts of the lake for TANESCO staff.
- Mr Tesha mentioned that other dams in Tanzania have many activities taking place.
- In principle Mr Tesha had no objection to the idea of developing tourism in the area of the Kidatu Lake. However he is not able to grant permission, this has to come from the headquarters of TANESCO. He suggested that we make a proposal to the Managing Director in Dar es Salaam.
- Mr Tesha mentioned the formation of an environment team at headquarters – it would be useful for UMNP to make contact with this department.
- Kimaro asked if Mr Tesha had any idea how revenue from visitors might be shared. Mr Tesha suggested that support could be given to the school and dispensary. In addition provision of a boat and engine would greatly assist TANESCO (for security purposes) and TANAPA (for patrols and facilitating recreational activities). By granting permission for access to the lake, TANESCO would be contributing to the conservation of the water catchment area of the dam.
- The team visited the dam site, and observed habitat degradation on the northern side of the dam (outside the National Park).

**Action:** Kimaro, AP and KD should outline brief proposal of activities, and present to TANESCO (via TANAPA channels).

**Other Notes:**

Red Colobus observed from office window. Red colobus, crocodiles, buffalo, hippos and antelope are found around the lake.

The dam is located at UTM 37M 0266639E 9155458N

Contact Address: Managing Director, TANESCO, PO Box 9024, Dar es Salaam.



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#### Appendix 4 Meeting Notes – Kiberege Village

**Date:** 28th June 2002

**Location:** Kiberege Village

**Participants:**

Richard  
Kathryn Doody  
Omari Kalongola

Mwenyeketi Kiberege Village  
Village Secretary  
Ward Councillor  
Village Environmental Committee Secretary  
UMNP Tourism Department  
Consultant  
Mzee

**Objective:**

To identify possible trails out of Kiberege Village to various locations in UMNP. Also to identify suitable persons to advise or guide the team on such trails.

All parties introduced themselves and we explained the reason for our visit. We were welcomed by the village and discussion followed, the main points were:

Few people in the village know the trails leading into UMNP, it was thought that it is possible to reach Mwanihana from Kiberege Village.

It was suggested that we speak to Mzee Kapella who has assisted TANAPA with boundary issues and is the most familiar with UMNP. Mzee Kapella lives in Kiberege juu also known as Utundufula Village.

An appointment was made for Sunday midday to meet with Mzee Kapella.

Omari Kalongola informed us that prior to the 1950's there was a village located on both banks of the Lumemo River, during the 1950's this village moved further up the valley to the Lofia river, then in 1974/5 this village disbanded and people moved to Sumbugulu, Msolwa and Mbuyuni. Some of the original Lumemo inhabitants moved to Kiberege, none are alive today.

The village officials did not know of a proposed campsite or of any designated area for one. Again it was suggested we speak to Mzee Kapella about the possible location of campsite. The environmental committee secretary suggested that village would welcome such a development, as it would provide the opportunity for employment of villagers.

Action: Meet with Mzee Kapella in Sunday at midday in Kiberege village.

**Other Notes:**

Kiberege is a large village with over 7000 inhabitants.