

## **Summary Report:**

# **Biodiversity, Conservation and Cultural Heritage Importance of the Mavhuradonha Wilderness Area in the Muzarabani district, northern Zimbabwe**

**October 2016**

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**LIST OF ABBREVIATIONS AND ACRONYMS**

CAMPFIRE	Communal Areas Programme for Indigenous Resources
CITES	Convention for the International Trade in Endangered Species
EMA	Environmental Management Agency is responsible for all environmental protection, the reviewing of Environmental Impact Assessment reports, policing and checking on Environmental Management and Monitoring, especially water quality.
IBA	Important Bird Area – this is an internationally recognized site for globally threatened or restricted range bird species
IUCN	International Union for the Conservation of Nature
m.a.s.l	Metres above sea level
MWA	Mavhuradonha Wilderness Area was designated a protected area in 1988 under the Communal Lands Act.
ZPWMA	Zimbabwe Parks and Wildlife Management Authority is mandated through the Parks and Wildlife Act to protect all indigenous plants and animals.
RDC	Rural District Council. Each council should have a Natural Resources sub- committee whose role is to protect and conserve the natural resources in the district.

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## EXECUTIVE SUMMARY

The Mavhuradonha Wilderness Area is located in the north of Zimbabwe, near the towns of Guruve and Centenary. It covers approximately 600km<sup>2</sup> of wild and rugged country along the Zambezi Escarpment. It was declared a protected area by the Muzarabin Rural District Council in 1988 in recognition of its scenic beauty and conservation value. The area is currently leased by safari operators who have developed a series of tourist activities, all designed to maintain the atmosphere of the wilderness.

The mountains intercept rain bearing winds and there are numerous wetlands (vleis), springs, streams and rivers which add to the scenic beauty as well as providing an important source of clean water to the surrounding communities. The Utete river forms the western boundary and the Tingwa river flows through the centre of the area joining the Musengezi river which cuts a gorge through the mountains to flow into the Muzarabani Communal Land in the Zambezi Valley below.

The area includes the northern section of the Great Dyke, and the complex geology has created an assemblage of different soils which in turn are reflected in the flora. There are 20 endemic plant species and several restricted range species. The plant checklist is incomplete and currently stands at over 500 species.

The mountains are an Important Bird Area (IBA) which means it is a national and regionally important site for threatened birds: 3 globally threatened and 21 specially protected species. The current total checklist is 229 bird species.

There is a diversity of wildlife and 41 large mammals occur here, of which 5 are IUCN Red Data List species: Pangolin (Haka), Elephant (Zhou), Lion (Shumba), Leopard (Ingwe), Brown Hyaena (Bere). Over the past three years the existing wildlife populations have been supplemented by the introduction of over 1000 head of eland, zebra, impala, wildebeest by the lessee.

Mavhuradonha is steeped in ancient Stone Age and pre-colonial history, as well as recent history, thus having a high cultural significance to the whole nation. The area was a central part of the Mutapa State (Mwene Mutapa) and is the location of burial grounds for the elite. Even in present day the area is still important to several spirit mediums who regard some of the natural features such as springs, waterfalls, trees, rocks as being sacred sites.

This area with high biodiversity, conservation and cultural heritage value is under threat from uncontrolled environmental degradation caused by prospecting and mining. The mining activities result in:

- Loss of important habitats (wetlands, springs, streams)
- Loss of Specially Protected Plants (Raffia Palms, endemic *Aloe ortholopha*)
- Pollution of streams and rivers leading to poisoning of wildlife and threatening downstream users of the water
- Environmental degradation through clearing of land and roads leading to increased siltation of rivers
- Increased threat to Cultural Heritage sites (desecration of rock art, caves, shrines, graves) and lack of respect for traditional values
- Increased poaching of wildlife, species of particular concern are Pangolin and Elephant

- Increased illegal tree cutting
- Increased incidents of arson and bush fires
- Increased noise and disturbance to sensitive wildlife leading to reduced breeding success
- Loss of tourism potential
- Increased spread of human disease as miners do not have ablution facilities

In order to mitigate this environmental destruction and to prevent future damage, the relevant authorities urgently need to enforce the legislation, specifically the Environmental Management Act, National Museums and Monuments Act, Parks and Wildlife Act, Water Act. Failure to enforce these laws makes a mockery of Zimbabwe's commitment to environmental protection, the Convention on Biodiversity and Convention to Combat Desertification, amongst other international agreements.

## 1. INTRODUCTION

Zimbabwe is a signatory to the Convention on Biodiversity and the Convention to Combat Desertification and in line with the Millennium Development Goals and these international conventions, Zimbabwe developed a series of national policies and legislation aimed at protecting the natural and cultural resources of the country for future generations. Foremost of this legislation is the Environmental Management Act, administered by the Environmental Management Agency through the Ministry of Environment, Water and Climate Change. Other significant legislation is the Parks and Wildlife Act, National Museums and Monuments Act, Mines and Minerals Act, Water Act and the Rural District Councils Act.

This report outlines how a designated Protected Area, the Mavhuradonha Wilderness Area (MWA), which has a high biodiversity and conservation value, as well as being culturally important is being threatened by land degradation due to the poor implementation and lack of enforcement of the laws that are in place for its protection.

The report is intentionally written for the layman with the objective of raising awareness about the value of, and threats to the Mavhuradonha Wilderness Area. Should the reader require more detailed scientific information, please refer to the References and Selected Bibliography at the end of this report.

### 1.1. Location

The Mavhuradonha Wilderness Area (approximately 600 km<sup>2</sup>) is part of the Mavhuradonha Mountains which form the eastern Zambezi Escarpment lying north of the towns of Guruve and Centenary. It falls under the administration of the Muzarabani Rural District Council and is a CAMPFIRE area.

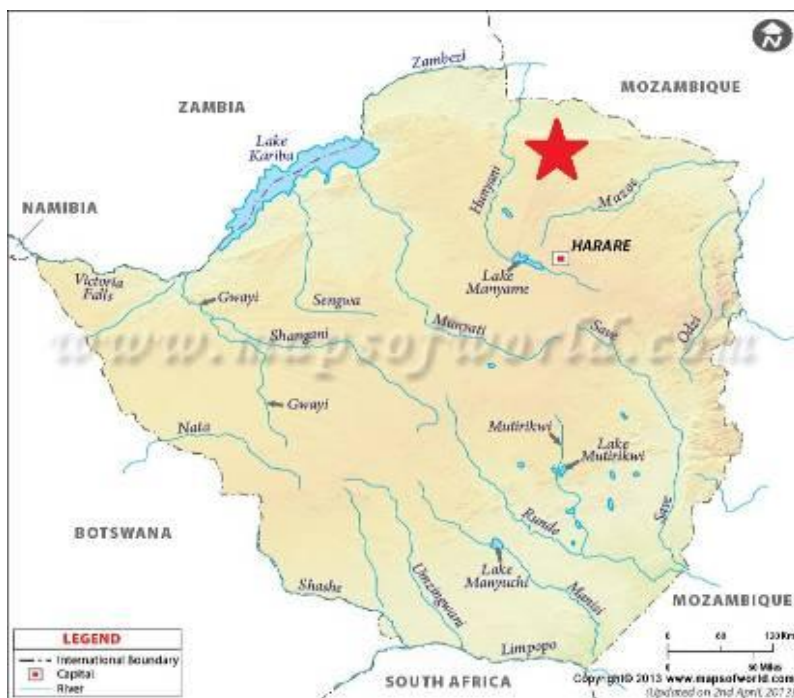


Figure 1.1 Red Star shows the location of Mavhuradonha Wilderness Area (Map adapted from [www.mapsofworld.com](http://www.mapsofworld.com)).



The eastern boundary borders on former Centenary commercial farms, and the Horseshoe Block farming area forms the southern boundary. The Horseshoe area is administered by the Guruve South Rural District Council. Muzarabani and the Dande districts lie to the north of the MWA.

## 1.2 Protected Area Status

In recognition of its value as a wilderness and wildlife refuge with high tourism potential, it was declared a Protected Area by the Muzarabani Rural District Council under the Communal Land Act in 1988. See attached copy of General Notice 369 of 1988 in the Appendices.

## 2. BIODIVERSITY

### 2.1 Geology, landscape and drainage

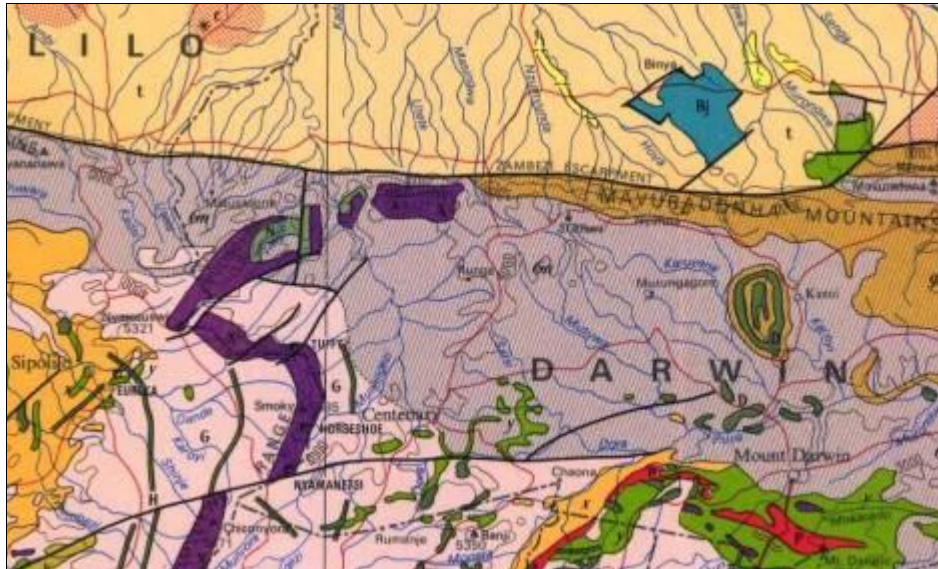


Figure 2.1 Geology map showing Great Dyke and Zambezi Escarpment

KEY: Grey = gneiss; Purple = serpentinite and pyroxenite; Pink = granite; Dark green = dolerite

The Great Dyke is a unique geological formation running across the country with a distinctive flora (Barclay-Smith 1964; Wild 1965). It is therefore of international, not just national significance

Mavhuradonha is at the intersection of the northernmost section of the Great Dyke with the Zambezi Escarpment (Figure 2.1). Here the highly mineralised rocks of the Great Dyke overlap with the granites and gneisses of the escarpment, interspersed with narrow dolerite intrusions.

The terrain is rugged with the steep sided hills and narrow valleys of the escarpment rising up over 1000 m above the flat, hot dry Zambezi Valley below. The highest peak is Banirembezi, in the east, with an altitude of 1622 masl.

The mountains intercept the rain bearing winds, and as the name suggests, it is a “place of falling water” giving rise to numerous streams and rivers that ultimately flow into the Zambezi river. Perennial and seasonal wetlands or vleis and springs line the valley floors providing a vital supply of clean fresh water. The Utete river flows along the western edges of the wilderness area. The Tingwa (or more correctly the Timbwha) river runs through the south/ centre of area to join the Musengezi river which cuts a deep valley and gorge into the escarpment before flowing down to Muzarabani where it supplies water for small and large scale irrigation and agriculture.



Figure 2.2 The Mawari river and waterfall is not only beautiful, it is also a sacred place (see section on cultural heritage)



Figure 2.3. Rock pool in the Mavhuradonha

## 2.2 Vegetation and Flora

The varied geology of the Great Dyke in the western section of the wilderness area gives rise to a complex assemblage of soil types, which is reflected in the diverse and unique flora. The granite and gneiss areas carry a well developed miombo woodland and contain the southern- most range of some of the *Brachystegia* species, which are otherwise found in Zambia. The rivers and streams are bounded by waterberry trees and occasional tall forest trees such as Red Mahogany (*Khaya anthotheca*).

On the northern section of the Great Dyke there are 532 species of plants found within the Wilderness Area including over 20 endemics, the most ecologically interesting occurring on the toxic soils derived from serpentinite; *Pearsonia metallifera*, *Euphorbia monteiri*, *Lasiocorys hephaëstis* (Wild, 1965), *Ozoroa longipetiolata* and *Aloe ortholopha* (Hoare *et al.* 2002), the Zambezi endemic *Combretum kirkii* and *Xylotheca tettensis*, a rare plant in Zimbabwe (C. Chapano, National Herbarium).

An endemic species is one that is unique to a locality and occurs nowhere else in the world. Endemic species therefore have a very high biodiversity value.





Figure 2.4. *Aloe ortholopha* is an endemic plant found only on the Great Dyke. All aloes are Specially Protected Plants.



Figure 2.5. A Dyke endemic *Pearsonia metallifera* and one of the terrestrial orchids, *Disa aconitoides* (below).



Immediately adjacent to the Wilderness Area on the Tingwa river is the Tingwa Raphia Palm Botanical Reserve (Second Schedule, Section 26, Parks and Wildlife Act). This area has been designated because of the large number of *Raphia farinifera* palms that line the river and springs. These palm trees also have a cultural significance to the local people.

## 2.3 Fauna

### 2.3.1 Birds

The updrafts from the Mavhuradonha Mountains provide an important route for migratory and soaring birds (such as raptors and storks) that use the thermals to move along the edge of the escarpment. Mavhuradonha is an Important Bird Area (IBA) (Childes & Mundy, 1998) and supports 3 species of birds on the IUCN Red Data List: Hooded Vulture, White backed Vulture and Taita Falcon. In addition there are 21 Specially Protected Species (Sixth Schedule, Parks and Wildlife Act) and 13 intra-African and palaeartic migrants recorded. A total of 229 bird species are so far recorded in the area (see Appendices for full list)



Figure 2.6 Ayre's Hawk Eagle is one of the many raptors that fly above Mavhuradonha (Photo courtesy of Dirk Human <http://www.laine-dirk.co.za/photos/13800014/13800014.html>)

### 2.3.2 Other Animals

Herds of elephant move through the area, although their numbers have been depleted in the past few years due to hunting and poaching pressure. Other large mammals include eland, zebra, giraffe, sable antelope, kudu, bushbuck and predators such as lion, leopard, hyaena, and jackals. A checklist of the larger mammals is given in the Appendices. There are 5 IUCN Red Data List Threatened Species: Pangolin, Lion, Leopard, Elephant, Brown Hyaena; 2 Specially Protected Species: Sable Antelope, Pangolin and 8 CITES Appendix I, II and III species.

Conservation Status refers to the IUCN Red List of Threatened Species. CR = Critically Endangered; EN = Endangered; VU = Vulnerable; NT = Near Threatened; and LC = Least Concern (Lower Risk)

Specially Protected Species are those listed under the Parks and Wildlife Act (2002).

CITES Appendices refer to the level of protection in international trade. Appendix I = all trade is banned; Appendix II = limited trade; Appendix III = trade permitted but the species is under possible threat.

Of special conservation concern is the presence of Pangolin (Haka) which are seriously endangered through illegal trade to Asia. Elephants are also under threat through ivory poaching.



Over the past three years an intensive anti-poaching programme has been put in place to protect the wildlife. In addition, a large 10 000 hectare area has been fenced and established as a wildlife breeding unit and there have been re-introductions of over 1000 head of eland, wildebeest, zebra and impala at a value of over \$450 000 to augment the existing populations .



Figure 2.7 Sign at entrance to the Mavhuradonha Wilderness Area.



Figure 2.8 Recently re-introduced zebra and eland in the wildlife breeding unit at Mavhuradonha. Notice the Raffia Palms in the background. These are a Specially Protected Plant species and are reputed to have been brought into the area by early Arab traders.



Figure 2.9 Giraffe are resident in the area.

Bat Cave on the Tingwa river houses the largest colony of the Egyptian Fruit Bat, *Rousettus aegyptiacus* in Southern Africa.



Figure 2.10 Egyptian Fruit Bats roost in the caves during the day and emerge at night to forage for fruit, flowers and nectar.



African Rock Python (Specially Protected Species) are found in the numerous rocky outcrops and pools.



Figure 2.11. African Rock Python in one of the sacred pools (See Cultural Heritage Section below).

The numerous moist vleis and wetlands support a variety of frog species.



Figure 2.12. Darling's Golden backed Frog



Figure 2.13 Bubbling Kassina

### 3. CULTURAL HERITAGE

The mountains are steeped in ancient and recent history and have a high cultural significance to the whole nation. The area was a central part of the Mutapa State from 1400's onwards and is the location of burial grounds for the elite. Even in present day the area is still important to several spirit mediums (Figure 3.1).

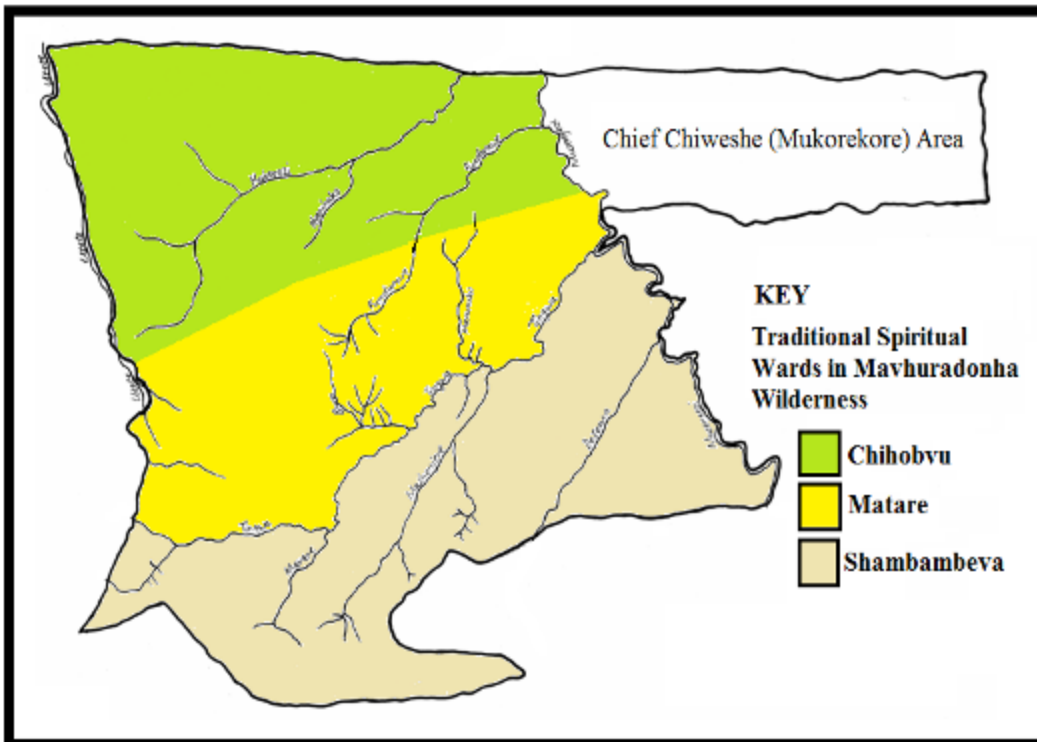


Figure 3.1 Spiritual Wards in the Mavhuradonha Cultural Landscape (Marufu, Magadzike and Mukabeta, 2013).

A recent archaeological survey by National Museums and Monuments (2013) revealed that the “Cultural heritage in the Mavhuradonha wilderness comprises of the following: sacred water sources (wetlands, natural springs and pools), sacred hills, dry-stone structures, farming communities settlement sites, Stone Age sites, rock paintings, liberation heritage and refuge archaeology”. **The report listed a series of recommendations, including listing the area as a National Cultural Landscape and applying for UNESCO World Heritage Site status.**

Figure 3.2 below shows the distribution of archaeological and cultural sites in the Mavhuradonha Wilderness Area detailed in the above report. Many of the significant sites are associated with the natural features of the landscape: springs and waterfalls, certain trees, mountain tops. All cultural sites and natural heritage, including wetlands in the Mavhuradonha wilderness are considered to be sacred and collectively give spiritual significance to the entire landscape. The site known as Tuuyu Tesere is reputed to be the burial ground for the legendary *Mwene-mutapa*, Nyatsimba Mutota, who is said to have died in 1467 and was buried on Chitako Hill. His grave was marked by a circle of eight baobabs surrounded by a low stone wall (Mullin, 2003). Another site known as Mutota's Ruins lies on the northern boundary of the MWA, near the edge of the escarpment. The ruins consist of low stone walling covering approximately 1,000m<sup>2</sup> and are associated with a sacred baobab tree, which is declared National Monument No.124 (Marufu, Magadzike and Mukabeta, 2013).

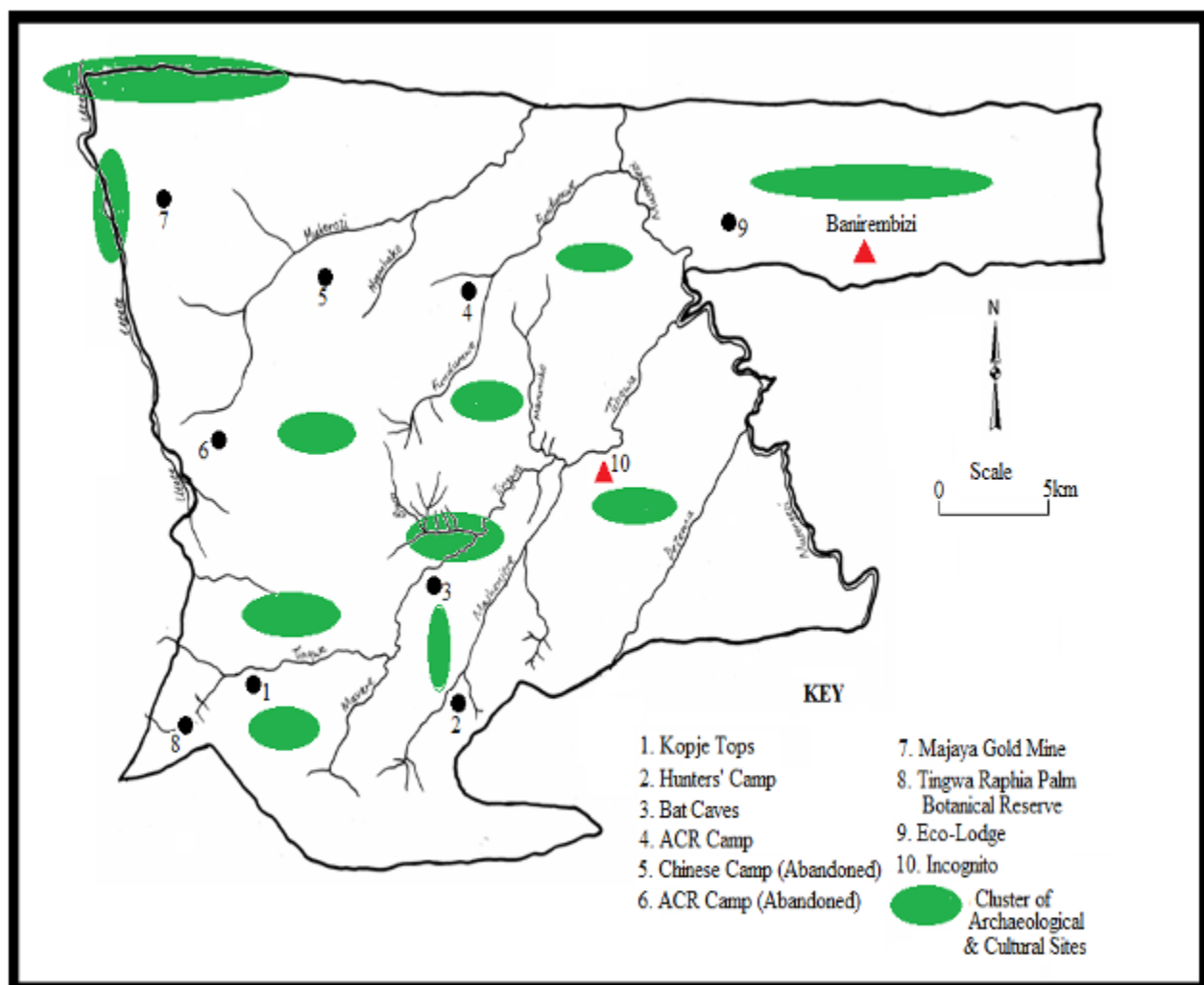


Figure 3.2 Map showing distribution of main cultural heritage sites in the Mavhuradonha Wilderness Area (from Marufu, Magadzike and Mukabeta, 2013).





Figure 3.3 There are numerous Rock Art sites in caves and overhanging rocks throughout the area



Figure 3.4: Clay pots in a cave. Many of these caves also contain Stone Age artefacts indicating centuries of use.



Figure 3.5 Dry stone walling from fortresses on hill tops and date back to the Refuge Period (post 1600's).

## 4. TOURISM

Mavhuradonha is a CAMPFIRE area offering both consumptive (safari hunting) and non-consumptive tourism (photographic safaris, horse back safaris, cycling, hiking etc). It is an ideal tourism destination for those who seek outstanding scenery, diverse natural history, cultural heritage with relatively easy access from Harare. The main focus of tourist operations in this area is therefore to maintain the wilderness experience.



Figure 4.1 Horse back safaris are a unique way to game view.

Varden Safaris currently hold a 25 year lease from the Muzarabani Rural District Council, dated 1 January 2012. Critical to the marketing and sustainability of the tourist operations is the maintenance of the wilderness quality of the area. According to the Memorandum of Agreement with the Council:

***(iii) That the Council agrees to maintain the Joint Venture Area free from human settlement and construction of any type for the duration of this agreement. The council also agrees to maintain the area free from miners, mineral panners or prospectors for the duration of the period, and to abide by all EMA and Minerals and Mining Act laws.***

The long term plan of Mavhuradonha is to divide the leased area into 3 or 4 sections to support different consumptive and non consumptive tourism operations. These different areas will be fenced with suitable electrified Bonnox ® fence to control the movement of buffalo and hence the Foot and Mouth Disease (FMD). In the southern section of the Area, a 10 000Ha (FMD) free area has been fenced as a plains game breeding unit, at a cost of \$75 000. This section is essentially a high intensity breeding zone for FMD free animals for relocation to other parts of the Wilderness Area and for sale to interested parties. This section also caters for walking safaris, outdoor living entertainment for guests, cycling tours etc. Water, grazing and browse resources are abundantly available throughout the year and wildlife populations are increasing. The total cost of purchase, capture and re-location of the animals released into this area has so far totalled approximately \$450 000.

There has been a great deal of expenditure (\$200 000+) in the refurbishment of dilapidated infrastructure over the last 4 years. The camps have been rebuilt, with many of the lodges having been previously burned down. There has also been a large amount of work done in the development of the road infrastructure of the area. This work is ongoing.





Figure 4.2 Current and planned fencing for wildlife breeding areas and hunting areas within the MWA

Fence	Description	Distance
	Southern fence farming Zone exclusion fence mostly built	50km
	Internal Breeding Zone exclusion fence increased to 10 000ha	12km
	Internal Dangerous game breeding and consumptive Zone	21km
	Western Fence Utete River To be built	25km
	Eastern Fence along Musengezi River To be built	20km
	Zambezi Valley Floor 25km To be built	25km
	Main Road through eastern section To be built	10km
	Banirembizi Eastern Highveld section* To be built	45km
Total		208km



Figure 4.3 Kopje Tops Safari Camp: designed to maintain the aesthetic appeal of the area.

## 5. LOCAL COMMUNITIES

The surrounding communities benefit directly through employment in the Wilderness Area projects such as helping in the construction of fences, thatching, building camps, and roads. Indirect benefits are derived from the revenue accrued to CAMPFIRE and the RDC.

**A factor that is frequently forgotten or not understood is that through protecting the watershed in the Wilderness Area, all the downstream communities receive the direct benefit of perennial supplies of clean fresh water.**



Figure 5.1 Upgraded classrooms at Siya Lima school on the southern boundary of the MWA.



Figure 5.2 Soccer time at Siya Lima school.

## 6. THE PROBLEM.

The mineral rich geology of the area has attracted the attention of several prospecting and mining firms over the years. The problem is that uncontrolled and un-mitigated mining is totally incompatible with a wilderness as it compromises the biodiversity, cultural heritage and tourism value of the area considerably.

The following section highlights some of the serious environmental issues that the MWA is currently threatened with.



Figure 6.1 This wilderness with beautiful scenery and fresh clean streams is currently being seriously degraded by mining in the valley.

Excavations, open cast mining, trenches, poorly aligned roads, crushing of rock and processing of ore all lead to a drying up of water sources, siltation and poisoning of streams and sources of water for both the adjacent communities and the wildlife. A recent study on the water quality of the Utete River, upstream and downstream of Lakebye chromium mine found lower pH values, an increase in conductivity and total dissolved solids (TDS), increased chemical oxygen demand (COD) and increased biological oxygen demand (BOD) and well as changes in the aquatic macroinvertebrate fauna below the mine effluent discharge point (Nheta, 2016). These results are a clear indication of water pollution caused by the mining activities. Although this particular mine is not within the MWA, similar results of water pollution can be expected for the mines operating within the wilderness area (See map below).



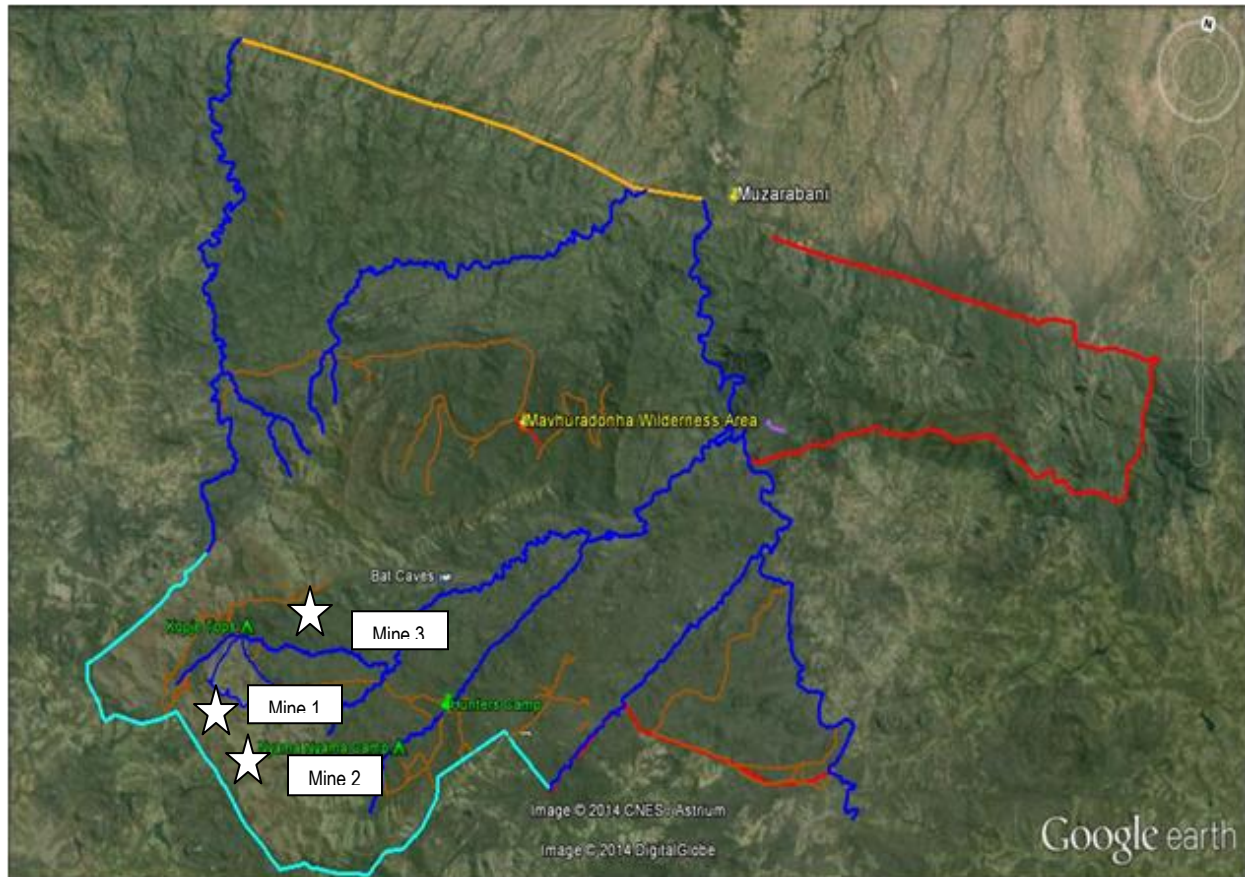


Figure 6.2 Location of currently operating mines within the Mavhuradonha Wilderness Area. (October 2016).

Currently there are 3 mines operating within the Wilderness Area and another “exploration” is underway.

The Mines and Minerals Act Chapter 21:05 sets out in very clear terms the procedures that the prospector and miner is legally required to follow as well as the rights of the land owner/occupier. According to the Mines and Minerals Act, before a mine can be developed, a sequence of events must take place. In summary these are as follows:

- Exclusive Prospecting Order (EPO) should be issued by the Mining Commissioner
- Prospecting Licence (EPL) should be carried by all prospectors who are required to show their written authority to prospect and indicate the boundaries of the area in which they wish to prospect.
- Prospectors should advise the land owner/occupier of their Notice of Intention to Prospect
- An Environmental Prospectus and Environmental Management Plan should be approved by EMA before prospecting can commence. This plan must include rehabilitation and mitigation measures and show proof of stakeholder consultation.
- Following sample testing and mining evaluation, the company then applies for a Special Mining Grant. The claim areas should be clearly marked. There are specified maximum areas for claims, depending on the type of mineral.

- Before mining operations commence, an Environmental Prospectus / Scoping Report followed by a detailed Environmental Impact Assessment should be approved by EMA. Stakeholder consultation is an essential part of the EIA process. The EIA should also include a Monitoring Programme and proof of this monitoring and of the rehabilitation should be submitted to EMA.
- The land owner/occupier should receive a commission on all minerals extracted from the area (as per S.I.11 of 2012).

Despite repeated request by the lessee for documentary proof that the due process has been followed, no evidence has been forthcoming, leading to the conclusion that the mining and environmental laws have not been adhered to.

The following excerpts of a report by Mr A Henderson document the intensity and extent of environmental damage caused by prospecting and mining in the MWA:

### **MINE 1**

Mine 1 is a large open cast mine which started in the Guruve area and has spread rapidly into the MWA. This mine is now over 24Ha within the area and has completely reduced the valley to a dust bowl and encroached upon a favourite grazing area for the Zebra herds. This area was fenced out by the lessee to protect and control the re-introduced wildlife, but the miners caused the fence to collapse and allowed a large number of animals to escape. The cost of fixing this damaged fence has been borne by the lessee of the area. Further to this, the mine has now been abandoned without any rehabilitation leaving extreme environmental degradation.







Figures 6.3-6.4. Environmental Degradation at Mine 1 (24Ha within Mavhuradonha Wilderness Area)



Figure 6.5– 6.6 Large Mining Pit still unfilled. No rehabilitation work done.



This damage to the valley has caused the formerly perennial spring to dry up from August to December. This spring supplied water to local communities adjacent to the MWA.

## **MINE 2**

Having destroyed the first valley within MWA, and with no reclamation as per the photos above, the miners have simply left and started to open up the next valley which again is partly within the boundary of the MWA.

Photographs of the current damage being done by Mine 2





Figure 6.7 Clearing of topsoil in the Raffia Palm belt. Note that Raffia Palms are a Specially Protected Plant (Parks Act).

In 2012 miners dug a large illegal road straight through the Tingwa Raffia Botanical Reserve with no consequences.



Figure 6.8 Aerial view of Mine 2 showing clearing of topsoil in valley which has a highly negative impact on stream flow.

### Mine 3.

Mine 3 is an old mine which has been re-opened by the Chinese group Afrochine. It is situated very close to the main Kopje Tops tourist camp and is located within the fenced wildlife breeding paddock. There has been a recent marked increase in mining activity within the MWA area by Afrochine especially at Mine 3 and its close vicinity. *This is despite a signed agreement between the Muzarabani RDC and the lessees stating that the Council will not support any prospecting or mining within the MWA area under any circumstances.*

In July 2016, a large group of 18 eland that had been purchased (Value \$17,280) and reintroduced into the area escaped from the breeding unit through the fence damaged by the Afrochine miners and no one has been made accountable by council.

In September 2016 a Muzarabani Council staff member proceeded to the front gate of the MWA and broke the lock to allow the miners to gain entry into the wildlife breeding paddock. Then instead of simply doing exploration, the miners proceeded with full scale mining operations including heavy blasting and large removal of ore using large lorries. This has had a very significant negative impact on the wildlife within the area: the sensitive sable antelope (a Specially Protected Species (Parks Act), which lived and bred in this area, have moved out completely and many other smaller species have moved away.

At times this mine has had up to 25-30 employees entering the MWA through the front gate or by simply climbing over or under the fence. This severely compromised the fence and badly damaged it. The cost of fence repairs was

borne by the lessee. It is clear that Afrochine is intent on escalating the mining operations within the area which will be to the extreme detriment of the MWA, its beauty and the animals and its cultural heritage.

In summary, the presence of prospectors and miners in the MWA lead to:

- Loss of important habitats (wetlands, springs, streams)
- Loss of Specially Protected Plants (Raffia Palms, endemic *Aloe ortholopha*)
- Pollution of streams and rivers leading to poisoning of wildlife and threatening downstream users of the water
- Environmental degradation through clearing of land and roads leading to increased siltation of rivers
- Increased threat to Cultural Heritage sites (desecration of rock art, caves, shrines, graves) and lack of respect for traditional values
- Increased poaching of wildlife, species of particular concern are Pangolin and Elephant
- Increased illegal tree cutting
- Increased incidents of arson and bush fires
- Increased noise and disturbance to sensitive wildlife leading to reduced breeding success
- Loss of tourism potential
- Increased spread of human disease as miners do not have ablution facilities

## 7. SOLUTIONS and DISCUSSION

The Muzarabani Rural District Council is to be commended for their pro-active step in conservation through the gazetting of the Mavhuradonha Wilderness Area in 1988 in recognition of its biodiversity and cultural importance. But over time the reasons for the protection have been forgotten and ignored to the detriment of both wildlife and local communities. The Council and CAMPFIRE need to ensure that the conservation and cultural heritage value of the area is understood and fully appreciated.

Zimbabwe has well crafted legislation protecting our natural resources and cultural heritage through the Environmental Management Act and the National Museums and Monuments Act. Even the Mines and Minerals Act, recognizing the severe impact of mining upon the natural environment, has clear procedures that need to be followed in order to undertake prospecting and mining. The Parks Act lists plant and animal species that are considered threatened and prohibits their destruction. The Water Act regulates the use of water and the control of effluent discharge and water pollution. Yet it is extremely worrying that little or no effort appears to have been made by any of the relevant authorities to enforce these laws. This makes a mockery of the legislation and tarnishes Zimbabwe's image, nationally and internationally.

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- Useful website links:
- Flora Zimbabwe
- [http://zimbabweflora.co.zw/speciesdata/location-display.php?location\\_id=76](http://zimbabweflora.co.zw/speciesdata/location-display.php?location_id=76)
- [http://zimbabweflora.co.zw/speciesdata/utilities/utility-location-query.php?location\\_id=76](http://zimbabweflora.co.zw/speciesdata/utilities/utility-location-query.php?location_id=76)
- Bird Life Zimbabwe: [www.birdlifezimbabwe.org](http://www.birdlifezimbabwe.org)
- Environmental Management Agency: [www.ema.co.zw](http://www.ema.co.zw)
- Chamber of Mines: [www.chamberofminesofzimbabwe.com/](http://www.chamberofminesofzimbabwe.com/)

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## **APPENDICES**

1. Government Notice designating Mavhuradonha Wilderness Area
2. Checklist of Plants found in and around Mavhuradonha and the northern Great Dyke
3. Checklist of Birds
4. Checklist of Mammals



