



environmental affairs

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Dear Ms Rössler

SUBMISSION OF THE STATE OF CONSERVATION REPORTS FOR THE MALOTI-DRAKENSBERG PARK (C/N 985bis) AND THE FOSSIL HOMINID SITES OF SOUTH AFRICA (STERKFORTEIN, SWARTKRANS, KROMDRAAI, AND ENVIRONS COMPONENT) (C 915bis)

The World Heritage Committee Decision 41 COM 7B.38 and Decision 41 COM 7B.72 hereby refers: •

The above mentioned Decisions requested the State Party of South Africa and the Kingdom of Lesotho to among other things submit to the World Heritage Centre by **01 December 2018**, reports on the State of Conservation of the Fossil Hominid Sites of South Africa (Sterkfontein, Swartkrans, Kromdraai, and Environs component) and the Maloti-Drakensberg Park world heritage properties.

We hereby attach the State of Conservation reports for examination by the 43rd session of the World Heritage Committee meeting.

In the event that you require more information on this matter, you can contact Ms Thumeka Ntloko, Director: World Heritage Management at Tel: 012 399 9531 or email: tnlloko@environment.gov.za.



Batho pele- putting people first



**SUBMISSION OF THE STATE OF CONSERVATION REPORTS FOR THE MALOTI-DRAKENSBERG PARK
(C/N 985bis) AND THE FOSSIL HOMINID SITES OF SOUTH AFRICA (STERKFORTEIN, SWARTKRANS,
KROMDRAAI, AND ENVIRONS COMPONENT) (C 915bis)**

Yours Sincerely

Ms Nosipho Ngcaba

Director-General

Department of Environmental Affairs

Letter signed by: Mr Shonisani Munzhedzi

Designation: Deputy Director-General: Biodiversity and Conservation

Date: 30/11/2018

STATE OF CONSERVATION REPORT
FOR THE
MALOTI-DRAKENSBERG PARK WORLD HERITAGE SITE
LESOTHO AND SOUTH AFRICA

SUBMITTED
BY THE GOVERNMENTS OF THE KINGDOM OF LESOTHO AND REPUBLIC OF SOUTH
AFRICA

DECEMBER 2018



IDENTIFICATION OF THE PROPERTY

Name of property: Maloti–Drakensberg Park (C/N 985 BIS)

State Party and Province: Lesotho, Qacha's nek District

State Party and Province: South Africa, KwaZulu- Natal Province

Criteria: (i)(iii)(vii) and (x)

1. EXECUTIVE SUMMARY OF THE REPORT

This report is the response of the States Parties of the Kingdom of Lesotho and the Republic of South Africa to **Decision 41 COM 7B.38** of the World Heritage Committee that requested the two States Parties to continue attending to various state of conservation issues including those noted in the Decisions 37 COM 8B.18 and 39 COM 7B.33, adopted at its 37th (Phnom Pehn, 2013 and 39th (Bonn, 2015) sessions respectively, and to submit to the World Heritage Centre, by 1 December 2018, an updated report on the State of Conservation of the property, for examination by the World Heritage Committee at its 43rd Session in 2019.

Whilst the States Parties are currently in the process of aligning the submitted plans with the Maloti-Drakensberg Park Joint Management Plan which is currently being reviewed, these plans and the strategy are already being jointly implemented.

The process of delineating a buffer zone south of the Sehlabathebe National Park on the South African side has now been finalised and the approved boundary modifications will be forwarded to the World Heritage Centre.

In addition to using the findings of the Rock Art and Baseline Archaeological surveys to refine the Statement of Outstanding Universal Value, the State Party of Lesotho has developed a programme for the implementation of the recommendations of the survey which will be complemented by ongoing training of staff. While the implementation of the programme and the training of staff is taking place, the States Parties commit themselves to continue with the moratorium on non-urgent conservation interventions at the rock art sites.

Whilst the Environmental and Heritage Impact Assessments for the cableway project have not yet been initiated, the State Party of South Africa commits itself to submit the completed assessments, with a specific section focusing on the potential impact of the project on the Outstanding Universal Value (OUV) of the property, to the World Heritage Centre for review by the Advisory Bodies before making any decision.

The State Party of Lesotho acknowledges the delay in finalising the Biodiversity Resources Management Bill and commits itself to finalising the Bill and submitting it to the World Heritage Centre as soon as it is approved.

The State Party of South Africa has become aware of a permit issued for technical assessment for Shale Gas exploration within the buffer zone of the property.

2. RESPONSE TO THE DECISION OF THE WORLD HERITAGE COMMITTEE

- 2.1. Requests the States Parties to complete the above-mentioned documents through appropriate stakeholder consultations, to carefully align them with the revised Maloti-Drakensberg Joint Management Plan for the property, and to submit all documents to the World Heritage Centre for review by the Advisory Bodies.**

The States Parties have after going through the appropriate stakeholder consultation process finalized the following documents:-

- (a) The Joint Fire Management Plan as well as the integrated Alien and Invasive Species (AIS) Management Plan.
- (b) The Sehlabathebe National Park Oral History, the Cultural Heritage Management Plan for Sehlabathebe National Park and the Rock Art and Baseline Archaeological Survey of the Sehlabathebe National Park
- (c) The Joint Cultural Heritage Management Plan, and
- (d) The Sustainable Tourism Strategy

The above mentioned plans will be aligned with the Maloti-Drakensberg Park Joint Management Plan, which is currently being reviewed. These plans are being submitted to the World Heritage Centre together with this report for review by Advisory Bodies.

The State Parties will continue with their existing community conservation programmes around the property.

- 2.2. Welcomes the continuing transnational collaboration and efforts towards establishment of a buffer zone to the south of Sehlabathebe National Park, and reiterates its request to the States Parties to continue involving the local communities, and to submit to the World Heritage Centre a minor boundary modification to recognize the buffer zones, as soon as they have been formalized.**

The State Party of South Africa has concluded the consultation process with local communities and finalised the process of establishing a buffer zone to the south of Sehlabathebe National Park. The application for a minor boundary modification will be submitted to the World Heritage Centre.

- 2.3. Commends the State Party of Lesotho for preparing the Rock Art and Baseline Archaeological Survey and the potential cultural contribution of landscape elements and also requests State Party of Lesotho to prepare and submit to the World Heritage Centre, for review by the Advisory Bodies, a programme for implementation of the recommendations of the Rock Art and Baseline Archaeological Survey**

The State Party of Lesotho has prepared a programme for the implementation of the recommendations of the Rock Art and Baseline Archaeological Survey which is being submitted to the World Heritage Centre together with this report.

2.4. Further requests the States Parties to review the findings of these surveys, with a view to refining the Statement of Outstanding Universal Value (OUV) for the property and incorporating this information into the above-mentioned revised Joint Management Plan

The States Parties have finalised the process of refining the Statement of Outstanding Universal Value (OUV) incorporating the findings of the Rock Art and Baseline Archaeological Surveys. The findings of these surveys will also be incorporated into the Joint Management Plan which is currently under review. The refined Statement of Outstanding Universal Value (OUV) is being submitted to the World Heritage Centre together with this report.

2.5. Encourages the State Party of Lesotho to continue with and further expand the training of staff within the Sehlabathebe management base and to expedite the development of the Biodiversity Resources Management Bill, and requests it furthermore to provide a copy of this Bill to the World Heritage Centre, as soon as it is approved

The process of training of staff is ongoing at Sehlabathebe, with the following training undertaken:-

- Rock Art documentation and basic interpretation by Amafa Amafa / Heritage KwaZulu Natal and the University of Witwatersrand
- Business Planning for World Heritage Sites by the Earthwatch Institute.
- People-Centred approach towards conservation of nature and culture by the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM).
- Safeguarding of intangible cultural heritage for African countries by Central Academy of Cultural Administration of China (CACAC).
- Oral history research by National University of Lesotho (NUL).
- Roles, responsibility and capacity building needs by the World Heritage Leadership Programme (WHLP).

Whilst the States Parties acknowledge the delay in the finalisation of the Biodiversity Resources Management Bill, the State Party of Lesotho commits itself to finalising the Bill and submitting it to the World Heritage Centre as soon as it is approved.

2.6. Also reiterates its request to the States Parties that the moratorium on non-urgent conservation interventions at the rock art sites is continued, pending completion of staff training and instigation of a programme for implementation of the recommendations of the Rock Art and Baseline Archaeological Survey

The States Parties confirm their commitment to continuing with the moratorium on non-urgent conservation interventions at the rock art sites pending the completion of staff training and instigation of a programme of implementation of the recommendations of the Rock Art and Baseline Archaeological Survey.

- 2.7 Also notes the State Party of South Africa's renewed commitment to carry out an Environmental Impact Assessment (EIA) for the proposed cableway, including a detailed Heritage Impact Assessment (HIA), in accordance with the guidelines of IUCN and ICOMOS and further reiterates its request to the State party of South Africa to submit the completed assessments, with a specific section focusing on the potential impact of the cableway project on the OUV, to the World Heritage Centre, for review by the Advisory Bodies, before making any decisions that would be difficult to reverse, in accordance with Paragraph 172 of the Operational Guidelines**

The State Party of South Africa confirms that whilst it has developed the Terms of Reference (ToR) for Environmental and Heritage Impact Assessments in line with IUCN's World Heritage Advice Note on Environmental Assessment and ICOMOS' Guidance on Heritage Impact Assessment for Cultural World Heritage Properties, the impact assessments have not yet been carried out since the development of the Terms of Reference. No other progress has been made with the planning towards the project.

- 2.8. Finally requests the States Parties to submit to the World Heritage Centre, by 1 December 2018, a joint updated report on the state of conservation of the property and the implementation of the above, for examination by the World Heritage Committee at its 43rd session in 2019.**

The State Party has provided updated information on the State of Conservation of the property as per the contents of this report.

3. OTHER CURRENT CONSERVATION ISSUES IDENTIFIED BY THE STATE PARTIES WHICH MAY HAVE AN IMPACT ON THE PROPERTY'S OUTSTANDING UNIVERSAL VALUE

The States Parties are not aware of any conservation issues which may affect the Outstanding Universal Value of the property.

- 4. IN CONFORMITY WITH PARAGRAPH 172 OF THE OPERATIONAL GUIDELINES, DESCRIBE ANY POTENTIAL MAJOR RESTORATIONS, ALTERATIONS AND/OR NEW CONSTRUCTIONS INTENDED WITHIN THE PROPERTY, THE BUFFER ZONE, AND/OR CORRIDORS OR OTHER AREAS, WHERE SUCH DEVELOPMENTS MAY AFFECT THE OUTSTANDING UNIVERSAL VALUE OF THE PROPERTY INCLUDING AUTHENTICITY AND INTEGRITY.**

The State Party of South Africa has become aware that a Technical Cooperation Permit for Shale Gas Exploration has been issued to Rhino Oil and Gas Exploration South Africa (Pty) Ltd for an area within the proposed buffer zone of the world heritage property (uKhahlamba Drakensberg component). Rhino Oil and Gas Exploration South Africa (Pty) Ltd has also lodged an application for an Exploration Right (ER) to explore for "Petroleum and Gas" with the Petroleum Agency South Africa (PASA) in terms of section 79 of the Minerals and Petroleum Resources Development Act, 2002 (MPRDA) in the proposed buffer zone. The company will as of 03 December 2018 conduct public consultation on the Scoping and Environmental Impact Assessment (S&EIA) process.

The State Party will inform the World Heritage Centre of any further developments in this regard.

5. PUBLIC ACCESS TO THE STATE OF CONSERVATION REPORT

The State Parties have no objection against the uploading of the State of Conservation report on the World Heritage Centre's State of Conservation Information System, thereby providing public access towards the report.

6. SIGNATURE ON BEHALF OF THE STATE PARTIES

South Africa

Date:

Kingdom of Lesotho

Date:

ALIEN AND INVASIVE SPECIES MANAGEMENT PLAN

for the
**Maloti-Drakensberg Park
World Heritage Site**



Version 1.0, 2018

About the cover picture:

American bramble *Rubus cunifolius* is arguably the biggest single threat to the objectives of the Maloti-Drakensberg Park World Heritage Site... (Photo: Ian Rushworth)

Suggested Citation:

Ezemvelo KZN Wildlife & MTEC. 2016. Alien and Invasive Species Management Plan for the Maloti-Drakensberg Park World Heritage Site. Ezemvelo KZN Wildlife and MTEC, Pietermaritzburg & Maseru, 48 pp.

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Table 2: Status, management strategies and targets for alien animal species

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Appendix 2: Alien plants recorded from SNP, January 2018 (list compiled by Mabari Lebamang, Samuel Lerotholi, Agatha Mokakatelela, Mamonyane Ranthimo, Ian Rushworth & Michael Cheek)

Appendix 3: Alien animals recorded from the MDP WHS as at 2016 with associated category in National Environmental Management: Biodiversity Act (10/2004): Alien and Invasive Species List

Appendix 4: The top 23 'current' emerging alien plant invaders of the Maloti-Drakensberg Bioregion (adapted from Carbutt, 2012)

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DEFINITIONS OF TERMS

Alien species: as per the National Environmental Management: Biodiversity Act (Act 10 of 2004) an alien species is (a) a species that is not an indigenous species; or (b) an indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention; where 'indigenous' means a species that occurs, or has historically occurred, naturally in a free state in nature in that area, but excludes a species that has been introduced into the Republic as a result of human activity. Alien species presence may be due to intentional or accidental introduction as a result of human activities. Also variously referred to as exotic, introduced, non-indigenous or non-native species.

Extraordinary Conservation Value: biological assets considered to be of extremely high value, such as Red Data species, threatened vegetation types and endemic species.

Follow-up treatment: clearing of areas previously treated to deal with alien plants which were initially missed, those that may have recovered from the initial treatment, and seedlings which have germinated since the initial work was conducted. Hand pulling of seedlings and foliar sprays of re-growth are common methods employed. At least two follow-up operations are normally required before the next phase is reached.

Initial treatment: is the first treatment of an area where alien plants occur. It is the most costly part of the programme because of the number, size and density of alien plants present.

Invasive alien species: Invasive alien species are plants, animals, pathogens and other organisms that are not natural components of an ecosystem, that spread and establish free-living populations beyond where intentionally established, and which may cause economic or environmental harm or adversely affect human health. Environmental harm may include changes to natural ecosystems, ecosystem processes, habitats and/or species; some invasive species transform the habitat into which they invade, whilst others may be abundant but do not significantly alter the invaded system. A biogeographical focus is important because the same species may exhibit quite different levels of invasiveness in different environments. Also variously referred to as naturalised, noxious, pest or transformer species.

Maintenance phase: is the stage reached when the number of alien plants found in late summer is very low and one worker can cover many hectares a day (less than 1 shift/ha), controlling scattered individuals. In the Drakensberg context, maintenance is defined as when the cover of alien plants is less than or equal to 0.5%. In natural grassland, the use of fire will help with the control of weed seedlings and rate of growth during the maintenance phase.

Monitoring, Control and Eradication Plans: refers to the Invasive Species Monitoring, Control and Eradication Plans as required and termed in the National Environmental Management: Biodiversity Act (Act 10 of 2004).

Park: Maloti-Drakensberg Park World Heritage Site

Shift: is a production unit that is equal to the work one person can do in one day (shift = person day).

ABBREVIATIONS

| | |
|-----------------|--|
| ACU | Alien Clearing Unit |
| CCU | Clearing Contract Units |
| DEA | South African Department of Environmental Affairs |
| ECV | Extraordinary Conservation Value |
| EDRR | Early Detection and Rapid Response |
| Ezemvelo | Ezemvelo KZN Wildlife |
| IAS | Invasive Alien Species |
| KZN IASP | KZN Invasive Alien Species Programme |
| MDP WHS | Maloti-Drakensberg Park World Heritage Site, being the combined area of the uKhahlamba Drakensberg Park, South Africa, and the Sehlabathebe National Park, Lesotho |
| MTEC | Lesotho Ministry of Tourism, Environment & Culture |
| MUCP | Management Unit Clearing Plan |
| PA | Protected Area |
| SANBI | South African National Biodiversity Institute |
| SNP | Sehlabathebe National Park, Lesotho |
| UDP | uKhahlamba Drakensberg Park, South Africa |
| WfW | Working for Water |
| WIMS | Water Information Management System |

1. INTRODUCTION

The uKhahlamba Drakensberg Park (UDP) World Heritage Site was proclaimed as a World Heritage Site under the World Heritage Convention Act on 18 December 2007 (Gazette No. 30590, Notice 1199). The 37th session of the World Heritage Committee in June 2013 approved the inclusion of the Sehlabathebe National Park (SNP) in Lesotho as an extension of the uKhahlamba Drakensberg Park into a “transnational World Heritage Site” called the Maloti-Drakensberg Park (MDP WHS).

The Park is large (249313 ha, 307 km from north to south) and part of the rugged Drakensberg Escarpment. It is an international asset due to its unique natural and cultural values, and as such it has been listed as a World Heritage Site of dual significance. It has a complex biogeographic history and diverse range of ecological niches resulting in a rich biodiversity and a high number of endemic species.

The Maloti-Drakensberg catchment area is of major economic importance as it contributes significantly to the flow of the Senqu, uThukela, uMkhomazi and uMzimkhulu Rivers. Accordingly, the entire uKhahlamba Drakensberg Park was declared as a Ramsar Site in 1996. In addition the area supports livelihoods through the sustainable use of natural resources, and by serving as a core destination for the tourism industry.

Invasive alien species have been identified globally as one of the most significant threats to biodiversity, second only to habitat destruction. Invasive species can have devastating impacts on native species, causing extinctions and affecting natural ecosystems by transforming the structure and species composition of ecosystems by repressing or excluding indigenous species.

In 2002, the Conference of the Parties to the Convention on Biological Diversity, agreed “to achieve, by 2010, a significant reduction of the current rate of biodiversity loss”. Protected areas are crucial to countering the continuing loss of ecosystems and species, and to protecting a representative sample of the earth’s biodiversity. Invasive alien plants are however one of the biggest single threats to South African protected areas, and have been identified as the most important threat to the biodiversity and water production objectives of the uKhahlamba Drakensberg Park (Carbutt and Goodman 2010).

The 39th Session of the World Heritage Committee in Bonn, Germany, in 2015 requested the State Parties of South Africa and Lesotho to ensure that the management of invasive alien species was adequately provided for in the management plan of the site. That was reiterated in the 41st Session of the World Heritage Committee in Krakow, Poland, in 2017. The IUCN World Heritage Outlook report (IUCN 2015) identifies invasive alien plant species as one of the two “most significant threats to the biodiversity values of the site”.

The SNP Management Plan (draft) section 6.2 makes provision for the development of management strategies and plans for alien and invasive species. Alien species are listed as a threat and significant management challenge in the UDP Integrated

Management Plan, and the need to have an Alien and Invasive Species Management Plan and to implement a phased programme to reduce alien species densities, and to remove alien plants from resort gardens and office complexes, are identified.

This plan is designed to *inter alia* address the requirements and concerns of the World Heritage Committee and IUCN, to meet the requirements of domestic legislation, and to achieve the SNP and UDP Management Plan requirements for a strategy and plan to address alien and invasive species.

The successful management of invasive alien species is therefore essential, requiring sustained and coordinated management interventions.

This plan is structured to highlight existing alien invasions, threats of future invasions, and to outline the policies and strategies for cost-effective management of invasive alien species, both plants and animals, and to provide specific and measurable targets for control and reporting.

Alien diseases and their impacts will be addressed in a separate disease management plan.

2. LEGAL IMPERATIVE

South Africa

The National Environmental Management: Biodiversity Act (Act 10 of 2004), section 76(1) states that the management authority of a protected area preparing a management plan for the area in terms of the Protected Areas Act must incorporate into the management plan an invasive species control and eradication strategy.

“76. (1) The management authority of a protected area preparing a management plan for the area in terms of the Protected Areas Act must incorporate into the management plan an invasive species control and eradication strategy.”

Subsection (2)(a) states that all organs of state in all spheres of government must prepare an invasive species monitoring, control and eradication plan for land under their control. These ‘Control Plans’ have to cover all Listed Invasive Species in terms of Section 70(1) of that Act.

“(2)(a) All organs of state in all spheres of government must prepare an invasive species monitoring, control and eradication plan for land under their control, as part of their environmental plans in accordance with section 11 of the National Environmental Management Act.”

The management of alien and invasive species in terms of the National Environmental Management: Biodiversity Act (10 of 2004) are provided for in the Alien and Invasive Species Regulations, 2014, which came into effect on 1 October 2014. The list of alien and invasive species was published at the same time as the Alien and Invasive Species List, 2014. The lists are dynamic and will be regularly updated in order to

correct nomenclature, add additional species, and/or change the categories of listed species.

Guidelines for the development of Control Plans, with a generalised Table of Contents, were published on 30 September 2015. However, deviations from this template to meet the particular requirements of the area for which the plan is being drawn up are permitted.

Control Plans for Protected Areas have to be compiled and a copy of the plan submitted to DEA and SANBI. This Alien and Invasive Species Management Plan is equivalent to, and designed to meet the requirements of, a Control Plan as per the Act, Regulations and Guidelines.

Lesotho

The Biodiversity Management Bill makes some provision for the management of alien species, but is not yet enacted. The new authority to be established for protected areas shall (must) identify and control alien and invasive species.

*“5 The authority shall
(n) Identify and control alien and invasive species.”*

Sections 35(1) and (2) will make provision for the establishment of Regulations pertaining to the management of alien species in protected areas.

The National Parks Act 11 of 1975¹ section 7(2)(b) gives the board the authority to take steps to protect the plants and animals of a national park. This provides the legal authority for the development of this Alien and Invasive Species Management Plan which is intended to inter alia protect the animals and vegetation of SNP from the negative effects of alien species.

*“7 (2) The Board may within a National Park –
(b) Take such steps as will ensure the preservation and security of animals and vegetation.”*

The National Parks Act 11 of 1975 section 16(3) gives an officer the power to destroy alien plants introduced or brought into a national park without permission.

“16(2) Any vegetation introduced into a National Park in contravention of the provisions of this Act may, by order of the Board or any officer or servant of the Board duly authorised by it in that behalf, be destroyed.”

The current Environment Act 2008 for Lesotho does not have many specific provisions for managing alien species. The Act does however require that an Environmental Impact Assessment is required for the introduction of alien fauna or flora into national conservation areas. Therefore no alien species may be introduced into SNP by staff or any member of the public without an authorised Environmental Impact Assessment.

¹ To be repealed when the Biodiversity Management Bill is enacted

“TYPES OF PROJECTS AND ACTIVITIES FOR WHICH AN ENVIRONMENTAL IMPACT ASSESSMENT IS REQUIRED

12. National conservation areas including -

(c) introduction of alien species of fauna and flora into ecosystems;”

Section 61 prohibits the introduction of alien plants into wetland and riparian areas without permission of the Director. Much of SNP is classified as wetland or riparian areas, and therefore no staff or members of the public may introduce alien plants into these areas without the express permission of the Director.

“Protection of rivers, riverbanks, wetlands etc.

61 (2) No person shall in relation to a river, riverbank, lake, lakeshore or wetland and without prior approval of the Director carry out the following activities -

(c) introduce or plant any part of a plant, plant specimen whether alien or indigenous, dead or alive in a river, riverbank, lake, lakeshore or wetland;”

Section 66 of the Act also makes provision for the Director to issue guidelines for prohibiting or controlling the introduction of alien species, but this provision has not been utilised. However, this management plan goes some way towards developing guidelines for the management of alien and invasive species in a national conservation area.

“Conservation of biological resources in situ

66. (1) The Director shall, in consultation with the relevant Line Ministry -

(b) issue guidelines for -

(v) prohibiting or controlling of the introduction of alien species;”

The Director may also prepare guidelines for the management of alien species where these threaten the environment or livelihoods of people (environmental disaster), but this provision has not (needed to have) been utilised.

“Guidelines for environmental disasters

35. (1) The Director shall, in consultation with the relevant Line Ministry, prepare guidelines for the management of environmental disasters including -

(d) natural disasters including floods, droughts and major pests infestation, or other intrusion of alien species of fauna and flora”

3. PURPOSE OF THE MDP WHS ALIEN AND INVASIVE SPECIES MANAGEMENT PLAN

Given the risks, concerns and legal imperatives in respect of invasive alien species the **purpose** of the MDP WHS Alien and Invasive Species Management Plan is to:

- Provide principles, policy direction and management actions to ensure that the:
 - Outstanding Universal Value of the World Heritage Site is protected;

- Vision, Mission and Objectives of the two parks are not threatened by the presence of alien and invasive species; and
- Production and supply of water from the catchments in the Park are maintained and enhanced.
- Ensure the Park is compliant with the legal requirements for the monitoring, control and eradication of invasive species in terms of the South African National Environmental Management: Biodiversity Act (Act 10 of 2004) and the Lesotho Environment Act 2008.
- Quantify for stakeholders the total resource requirements for effective invasive alien species management, and provide assurance of efficient and effective use of resources; likewise, quantify the impacts to decision makers of not allocating sufficient resources.
- Provide strategic direction and guidelines for Park management on how to manage invasive alien species and how to prioritize areas for clearing, thereby maximizing efficiency and effectiveness of management interventions.
- Ensure that tourism and management operations do not exacerbate the establishment and impact of alien species.
- Provide for management of invasive species in such a way as to maximise socio-economic benefits to neighbouring communities.

4. ALIEN AND INVASIVE SPECIES TARGETS FOR THE MDP WHS

In order to protect the OUV and achieve the Park vision and objectives the 10 year **targets** are to:

- Ensure that alien plants cover no more than 0.5% of the Park as a whole, with no management compartment with more than 1% cover, by 2028.
- Maintain a 100 m buffer clear of all alien plants around publically open cultural heritage sites, a 50 m buffer around all important cultural heritage sites, and ensure that no cultural heritage sites are negatively impacted by alien species (by 2020).
- Eradicate Formosa Lily (*Lilium formosanum*), Hypericum (*Hypericum pseudohenryi*), Lantana (*Lantana camara*), Pyrocantha (*Pyrocantha angustifolia*), Cotoneaster (*Cotoneaster pannosus*), Scotch Broome (*Cytisus scorparuis*), Pampas grass (*Cortaderia selloana*), Privet (*Ligustrum japonicum*), Ginger Lily (*Hedychium* sp.), Giant Reed (*Arunda donax*), Crack Willow (*Salix fragilis*)² and European Gorse (*Ulex europaeus*), by 2020.

² Except a limited number to remain at the SNP campsite until replacement indigenous species are large enough to provide shade

- Achieve substantial control of invasive alien plants within a 1 km buffer of the Park boundary (by 2023); this should be extended to 2.5 km for bird- or primate-dispersed species in time.
- Ensure all resorts/lodges and management nodes are free of alien plants and have appropriately landscaped gardens representative of the natural vegetation of the area (by 2022), unless specific agreements are in place and documented for keeping specific non-invasive alien plants.
- Have the appropriate human capacity in place to (1) plan and manage invasive alien species operations in the Park, and (2) to solicit and manage funding for alien plant control (including external funding).
- Ensure that all relevant staff³ are trained in alien species identification, reporting processes and control methods through the implementation of regular training and mentorship, starting from 2018.
- Ensure that adequate operational budget is in place to undertake maintenance-level control, following the use of external funds to reduce existing invasions to $\leq 0.5\%$ cover.
- Manage threats to the genetic integrity of the Drakensberg population of Cape Eland and other indigenous species through appropriate policy, permitting, awareness and control measures.
- Ensure that construction activities and new building designs minimise opportunities for establishment of alien species (by 2020).
- Ensure appropriate education and awareness materials and programmes for public and staff are in place (by 2018).
- Ensure early detection and rapid response capabilities are in place for invasive alien plants and animals (by 2019).
- Given the inability of the KZN Province to supply adequate budget, re-instate nationally funded clearing programmes in the UDP (as soon as possible).
- Engage with the Lesotho Department of Forestry to ensure that invasive species are not promoted or planted, and eradicated where necessary, in the buffer zone of the SNP (start process in 2019).

5. MANAGEMENT PRINCIPLES

³ Protected Area Managers, Field Rangers, General Assistants, Hospitality Managers, Ecologists

The key **principles** for the management of invasive alien species in the MDP WHS are:

- To consider invasive alien species as a serious threat to the Outstanding Universal Value and water production objectives of the Park requiring resources and sustained management interventions. As such, the cost of control operations should form part of the operational budget of each management unit of the Park.
- Each alien species and/or area must have a management objective/target, with resources allocated accordingly, and progress should be measured and reported on at least annually.
- An integrated approach to management must be adopted, taking into account inter alia that it is cheaper to prevent than control invasions, the efficiency of control at the initial stages of invasion, the need to work with and not against natural processes and ecological principles, and the importance of integrating chemical, mechanical and biological control options.
- Prevent or at least minimise the risk of additional invasions by placing appropriate controls, monitoring, awareness and rapid response capability in place.
- Gardens of visitor facilities and management infrastructure should be used for interpretative and educational purposes, and to encourage indigenous gardening. As such all alien species in tourism and management nodes must be removed and where necessary indigenous gardens established (with appropriate management/maintenance plans in place and implemented);
- Introductions of new or supplementation of populations of existing alien species are prohibited.
- Focus on keeping uninvaded or lightly invaded areas free of alien species;
- Conduct follow-up operations timeously and at optimal intervals.
- In determining spatial priorities, all else being equal, start clearing of alien plants at the top of the catchment.
- Eradicate 'emerging' invasive species before they become established invaders.
- Wilderness principles will be considered in the management of alien species in Wilderness Zones (cross-reference to UDP WHS Wilderness Management Plan); however, where wilderness principles cannot be cost-effectively adhered to then achieving alien species management targets takes precedence.
- Maximise socio-economic benefits to neighbouring communities resulting from alien and invasive species management.

- Cleared areas should be restored to their original state through a process of active rehabilitation where necessary, with special care taken to avoid soil erosion. Costs of rehabilitation must be included in the clearing budget. Given the difficulty and costs of successful grassland restoration, it is important to clear alien vegetation stands before they get dense enough to shade out indigenous species.
- Monitoring programmes of alien species, their impacts and results of control efforts must be resourced and implemented.
- Information on alien species distribution and control efforts must be properly captured and maintained in an electronic database system, and readily accessible to management.
- Maximise the use volunteer groups to assist with alien plant management.
- The Park is a national and international biodiversity, cultural heritage and tourism asset, and the water produced is a key strategic national asset, and therefore the costs of management of alien species should be subsidised from national and not only provincial sources.

6. EXISTING ALIEN AND INVASIVE SPECIES AND THEIR IMPACTS

6.1 PLANTS

UDP

Alien invasive plant species have been identified as the most important threat to the biodiversity and water production objectives of the Park (Ezemvelo KZN Wildlife, 2012), and therefore require serious and sustained management interventions. Whilst significant time and resources have historically been allocated to law enforcement, insufficient attention has been given to managing the greater long term threat of invasive species. Some areas of the Park, especially those areas that were previously farmed and/or added more recently to the Park, are heavily infested, whilst the majority of the Park still has relatively low densities of alien plants (that are however increasing in abundance exponentially). A total of 289 alien species have been noted in the Drakensberg as a whole (Trevor Edwards, unpublished data), with at least 147 species of alien plant recorded within the UDP (Appendix 1).

The most important alien invasive species in the Park is American Bramble (*Rubus cuneifolius*). This species is increasing exponentially, with large biodiversity, tourism and water production impacts. Much of the growth is vegetative, but fruit are dispersed long distances by birds, baboons and humans. It is estimated that brambles are producing approximately 132 billion seeds annually within the Park (Pollard & Rushworth, in prep), so there is major propagule pressure and potential for rapid

expansion. It is possible to reduce fruit production by burning more frequently (annually or biennially), but this needs to be carefully considered given the multiple objectives of the Park. Other key species threatening the park include Black Wattle (*Acacia mearnsii*), Silver Wattle (*A. dealbata*), gums (*Eucalyptus spp.*) and pines (*Pinus spp.*). In recent years Lantana (*Lantana camara*) has moved up the valleys in the northern Drakensberg and the species has already established small populations in Royal Natal and Cathedral Peak. This is a priority species to eradicate in the park and control within 2.5 km of the park boundary.

Many dense infestations/previous plantations of Black Wattle, Silver Wattle, gums and pines have now been cleared, but their impact remains as these areas are generally either dominated by *Eragrostis curvula* which was planted to stabilise the soil and create a fuel load for burning seedlings, or are covered in other weed species. The areas planted to *Eragrostis* essentially remain as monocultures of a genetically modified species with almost no evidence of replacement with indigenous species even after 40 years (Grainger 2006). So, whilst the water production potential of these cleared areas is restored, the biodiversity is essentially not rehabilitated.

There are a number of 'emerging' invasive species within the Park i.e. those that have recently arrived or were previously benign but are now showing signs of spreading. Four of the most important species in this respect are *Hypericum pseudohenryi*, Formosa Lily (*Lilium formosanum*), Lantana (*Lantana camara*) and Pampas Grass (*Cortaderia selloana*). It is essential to eradicate these species before they become serious invaders.

A number of smaller herbaceous species are spreading widely or are demonstrating signs of being invasive but are generally overlooked e.g. Mexican Richardia (*Richardia brasiliensis*), Purple Top (*Verbena bonariensis*), Khakiweed (*Tagetes minuata*), Blackjack (*Bidens bipinnata*) and Cosmos (*Cosmos bipinnatus*). Pompom weed (*Campuloclinium macrocephalum*) has recently been recorded close to the boundary of the Park (Cathkin Valley) and this species has the potential to transform large areas if not eradicated immediately.

In terms of grasses, Tall Paspalum (*Paspalum urvillei*) is well established in disturbed lowland areas, and it is anticipated that Spear Grass (*Nacella neesiana*) will become a major problem in the future as it has the potential to transform large areas of grassland. Managers should be able to identify the latter species and report it whenever seen.

A number of species now spreading in the Park have originated from tourism and management nodes. These species include Silver-leaf Cotoneaster (*Cotoneaster pannosis*), *Hypericum pseudohenryi*, Formosa Lily (*Lilium formosanum*), Camphor Tree (*Cinnamomum camphora*), pine trees (*Pinus patula*) and Privet (*Ligustrum japonicum*). All the Pampas Grass in the Injesuthi River floodplain between Injesuthi Resort and the Park boundary originated from plantings in the resort and/or staff gardens, as did the 1400 ha area along the Bushman's River infested with *Hypericum pseudohenryi* in Giants Castle.

It is essential that alien species in tourism and management nodes are removed (and replaced with locally appropriate indigenous species), and that no further introductions

of species not indigenous to the Drakensberg are permitted. A few species used by management for soil stabilisation purposes such as Weeping Love Grass (*Eragrostis curvula*) and Kikuyu (*Pennisetum clandestinum*) are showing limited signs of spreading into undisturbed grasslands and into scrub patches and watercourses respectively. Kikuyu used in camps and management nodes must be clearly demarcated and not allowed to spread beyond this boundary.

Scotch broome (*Cystus scorparius*) was introduced into Highmoor by the Department of Forestry in the early 1970s for experimental erosion donga control (Forestry File Reference Number R3790/510/8, 2 February 1972) and has spread from there. The pine trees in Cathedral Peak all originated from windblown seeds from the hydrological experiments in Catchments II and III, and other plantings by the Department of Forestry when they still managed the area.

The invasion status of the area is predominantly negatively correlated with altitude and positively correlated with local disturbance such as the presence of roads (Kalwij et al. 2008, 2015). Long term monitoring of alien plants at Sani Pass (Kalwij et al. 2015) has demonstrated that the richness of annual alien plants increased by 3.9 species per year and that the upper elevational range limits of established exotics ascended by 24.5 m/year for annuals (n = 17 species), and by 9.7 m/year for perennials (n = 26). These upward trends were too rapid to be explained by slow-acting drivers such as climatic change or time since species introduction, indicating that human-mediated dispersal of propagules, especially along roads and near dwellings, is speeding up the invasion process. Easily accessible parts of the Drakensberg are much more susceptible to invasions than previously assumed, due to a combination of anthropogenic disturbance and ongoing propagule pressure (Kalwij et al. 2015); this has implications for the upgrading of the Sani Pass road and the building of the proposed cableway in particular.

SNP

SNP is remarkably free from alien plants at present, with 33 species recorded thus far (Appendix 2; only limited surveys undertaken). The single biggest threat is from Crack Willow (*Salix fragilis*) that occurs in the vicinity of the office complex and the old lodge, particularly along water courses. This species is actively spreading with evidence of many younger plants along watercourses. This species, if not eradicated will in time pose a threat to both the Maluti Minnow (*Pseudobarbus quathlambae*) and *Aponogeton ranunculiflorus*, two of SNP's highest priority species.

A single *Rubus cuneifolius* plant was found at the old police border post in 2018. This is the first record in SNP, but likely to be the first of many as SNP is within flying distance of frugivorous birds feeding on fruit of this species within the UDP. It is absolutely essential to eradicate this plant and monitor for further establishment, with the high risk areas being below fence lines, under trees, in damp areas such as seeps and edges of wetlands, and near old buildings.

There are a number of herbaceous alien plants in SNP, predominantly associated with disturbed sites. The two species that are actively spreading beyond disturbed sites are *Cirsium vulgare* and *Echium vulgare*. It is essential that there are programmes to treat these species; *Cirsium* is wind dispersed and treatment should take place well before

seeds mature. *Erigeron sumatrensis* (*Conyza albida*) has established after construction of the office complex and tourist lodge and should be eradicated before it spreads further.

Eragrostis curvula has established following construction at the office complex and tourist lodge, as well as along the road to the old lodge. While it is abundant there is limited evidence of it spreading beyond the road verges into undisturbed vegetation at this stage. However there is undoubtedly a large seed bank and this species needs to be monitored. Other alien grasses include *Bromus catharticus*, also limited to previously disturbed sites such as roads and to the old police border post.

There are a few invasive alien species near SNP but not yet recorded in the park. The most worrying of these is *Rosa rubiginosa*, but there are also several pine tree species (with seeds that are wind dispersed). Ideally all *Rosa* plants within 3 km of the SNP boundary should be treated in an ongoing community-based control programme, and an early detection programme initiated within the park.

One species of water weed has been reported (*Azolla filliculoides*) – this is a threat to two key priorities for SNP, namely the Maluti Minnow (*Pseudobarbus quathlambae*) and *Aponogeton ranunculiflorus*.

General

Single disturbance events and increased water run-off from roads may cause road verges to become entirely and persistently invaded by exotics, and it is therefore of critical ecological importance that future road construction minimises disturbance and erosion caused by water run-off onto adjacent land (Kalwij et al. 2008). Construction work must be followed by a habitat restoration programme that includes the eradication of exotics at an early stage of their development to prevent establishment of seedbanks.

Increased traffic volumes in the future is likely to result in increased propagule pressure of established as well of new alien species, which could result in more alien plants invading the adjacent landscape and reaching even higher altitudes (Kalwij et al. 2008).

While many invasive alien plant species in southern Africa are well established (and also well documented), a host of other species (emerging invasive species) are at an early stage of their invasion (either only recently introduced and/or are entering a phase of rapid population expansion).

6.2 ANIMALS

At least 601 alien animal species, including deliberately released bio-control agents, occur in South Africa (Picker & Griffiths 2011).

UDP

No systematic surveys have been undertaken for alien animals in the UDP, and only eight alien animal species are recorded in the Biodiversity Database. However, at least

14 species excluding livestock and dogs have been recorded in the UDP (Appendix 3).

SNP

Only one invasive alien animal species has been recorded in SNP, Rainbow trout (*Oncorhynchus mykiss*). This species occurs as a breeding resident in the Tsoelikana River below the waterfall, and were previously stocked in the dam near the old lodge above the waterfall. Given the presence of Maluti Minnow it is absolutely essential that the Tsoelikana River above the waterfall never gets stocked with trout, and that the dam is never re-stocked. As far as we are aware the last time the dam was stocked was in the 1970's. There is evidence at present that Maluti Minnow are surviving below the waterfall, but it is not known what the population density is relative to original conditions nor what the population trend is.

Overview of some species or groups of alien animals in the MDPWHS:

6.2.1 TROUT

Trout were deliberately introduced for fishing into many rivers and dams in the UDP since the late 1800s, and have established free-living populations in most river systems. Rainbow Trout were introduced into the Tsoelikana River river and the dam in SNP in the 1970s, and the previous king used to fish for trout in the park. Introduced trout have been shown to have negative impacts on biodiversity throughout the world (Cambray 2003) as well as locally within the Drakensberg (Pike and Tedder 1973; Cambray 2003; Karssing 2010; Karssing *et al.* 2012, Jackson *et al.* 2016). Whereas Crass (1960) did not consider that trout had contributed to the demise of the Maloti Minnow *Pseudobarbus quathlambae* in its type locality, the Umkomazana River in the Sani Pass area of the Park, Pike and Tedder (1973) considered that both trout and habitat degradation had contributed to its extinction there. The remaining populations of *P. quathlambae* in Lesotho are now under threat from alien trout (Cambray 2003), and more recently from other introduced fishes (Shelton *et al.* 2017). In addition to impacts on aquatic ecosystems, trout have detectable impacts on terrestrial food webs because they represent new competitors to terrestrial riparian predators. Dietary overlap and resource competition across the aquatic–terrestrial ecotone should thus be considered as a likely driver of the cross-ecosystem impacts of invasive fishes (Jackson *et al.* 2016).

In addition to the impacts of trout on aquatic systems, the activity of trout fishing can have negative impacts such as disturbance of Wattled Crane pairs leading to breeding failure (possibly the case at Highmoor), or habitat loss where riparian areas have been dammed and modified for fishing (e.g. Kamberg).

6.2.2 BIO-CONTROL AGENTS

Since 1913, a total of 284 entities (species and their biotypes) of natural enemies have been studied in South Africa as part of biological control attempts against 74 invasive alien plant species. Of these, 270 entities (95%) were intentionally introduced, while 14 (5%) were found to be present in the country, either as indigenous or as inadvertently-introduced aliens. The majority (83%) of the 284 natural enemies considered have been phytophagous insects, five (2%) of the agent species are mites (Acari), and 42 (15%) are plant-pathogenic organisms (Klein 2011). It is not known

however how many agents, if any, have been introduced into the Park. There have been a number of releases of the Black Wattle seed feeder *Melanterius maculatus* close to the Park, but seemingly not in the Park itself. *Melanterius maculatus* and *Dasineura rubiformis* need to be introduced along the UDP boundary and into the UDP as part of the integrated control strategy for wattle.

6.2.3 CATS AND DOGS

The Domestic Cat is one of the 100 worst invaders in the world (Picker & Griffiths, 2011). In the Park they are associated primarily with human habitation but can be found anywhere in the eastern parts of the Park. Breeding populations are likely to be associated with human habitation. Other than their predatory habits, domestic cats are a threat to the genetic integrity of the African wild cat (Wiseman *et al.* 2000). Domestic dogs in the Park are normally found accompanying poachers but do come in and hunt on their own; it is unlikely that any true feral populations exist that live permanently in the Park.

6.2.4 RODENTS

There have been records of Black Rat *Rattus rattus* in Royal Natal since at least 1992 (Durban Natural Science Museum collection records). Whilst this species is not considered as much of a threat as *R. norvegicus* along the coast, it still may displace other rodent species through competition for food resources. It is relevant that the first records of this species were in association with management infrastructure. The species originated in tropical Asia and spread through the Near East in Roman times before reaching Europe by the 1st century and spreading with Europeans across the world.

6.2.5 INVERTEBRATES

Alien earthworms have been recorded, most likely introduced through gardening activities in resorts and management nodes. The extent, or ecosystem or soil community impact, is unknown but it is anticipated that the further reaches of the Park are largely uninvaded at present. In Queen Elizabeth Park, an urban protected area in Pietermaritzburg, 96% of the earthworm biomass, and eight out of nine species, consist of alien species and it is likely that some indigenous species have been displaced (Nxele 2012). Alien molluscs have been recorded from the Park - their impacts are unknown but anticipated to be small to insignificant at present.

Varroa destructor is an alien external parasitic mite that attacks honey bees *Apis mellifera*. The disease caused by the mites is called varroaosis. *Varroa destructor* can only reproduce in a honey bee colony. It attaches to the body of the bee and weakens the bee by sucking hemolymph and, in this process, viruses such as the deformed wing virus spread to bees. A significant mite infestation may lead to the death of a honey bee colony, and the Varroa mite has a pronounced economic impact on the beekeeping industry. It may be a contributing factor to colony collapse disorder, as research shows it is the main factor for collapsed colonies in various parts of the world.

Given the potential serious consequences for pollination if honey bees were lost or severely reduced in the Park, monitoring was initiated in 2002. Very low infestation

rates were recorded in Kamberg, but monitoring hives failed to establish at Monk's Cowl (Craigie *pers. comm.*). However, it now appears that African honey bees are quite resistant to Varroa, and for the moment Varroa is not considered a significant threat to the Park. However, ongoing monitoring should be considered.

BIRDS

As of 2002 no alien bird species had been recorded for SNP (Kopij 2002) and this has been confirmed to be the status as at 2018. Four species have been recorded from the UDP, mainly associated with development nodes or neighbouring settlement areas (Common Myna, Rock Dove (Feral Pigeon), House Sparrow and Common Starling). At current densities none of these species is thought to pose any risk to biodiversity, but this could change in the future. Common Starlings are probably the biggest threat and need to be eradicated on sight in and adjacent to the park; Common Mynahs are increasingly common along the eastern boundary of the UDP associated primarily with the expanding human settlements.

6.3 ECOSYSTEM SERVICE IMPACTS

The Drakensberg region serves as southern Africa's premier water catchment. These catchments are critical sources of water for the major urban, agricultural and industrial centres in Gauteng, KZN and the Eastern Cape. The water resources of many of these catchments are already over-utilised and have insufficient water to meet socio-economic demands (DWAF 2004). Hydrological monitoring and modelling, including from the catchment experiments at Cathedral Peak, have demonstrated the negative impact of alien trees on water yield (e.g. Bosch & Hewlett 1982; Everson 2001; Dye and Jarman 2004). Alien plant invasions could therefore have significant impacts on these catchments (Le Maitre *et al.* 2004). Hydrological modelling has demonstrated that the State will save money on investment in water infrastructure by investing in maintaining catchments free of alien trees (MDTP 2007).

In attempting to quantify the value of ecosystem services and the extent to which these values are reduced by invasions, Higgins *et al.* (1997) showed that the cost of clearing alien plants was very small (< 5%) compared to the value of the services provided by these ecosystems. Their conclusion was that proactive management could increase the value of these ecosystem services by at least 138%. The most important ecosystem service is water, and much work has been done on developing models for assessing the value (in monetary terms) of allocating management resources to clearing invasive plants from watersheds.

Given the strategic role of the Drakensberg in terms of water production, there is a powerful argument for investing more money in alien plant control. Therefore, the expansion of clearing efforts in the Drakensberg catchment area is critical for South Africa's water supply.

At current densities there is no evidence that alien species are having any impact on water supply from the Park (although this has not been measured). However, in the absence of a well-resourced alien plant clearing programme water supply would

become negatively affected. Alien trees like wattle, gums and pines would utilise more water, and species like bramble would become so dense that they would shade out the grasses and other plants that provide good basal cover, resulting in increased soil erosion and changes to fire behaviour, which in turn would promote the establishment of woody species that utilise more water.

7. EMERGING INVADERS

An 'early detection'-based desktop study has identified 23 taxa as 'current' emerging invasive alien plants in the Drakensberg Alpine Centre (DAC) and suggests a further 27 taxa as probable emerging invaders in the future (Carbutt 2012, Appendices 3 and 4). These 50 species are predicted to become problematic invasive plants in the Park because they possess the necessary invasive attributes and have access to potentially suitable habitat that could result in them becoming major invaders. Most of the 'current' emerging invasive alien plant species of the area are of a northern-temperate affinity and belong to the families Fabaceae and Rosaceae (four taxa each), followed by Boraginaceae and Onagraceae (two taxa each). In terms of growth form, most taxa are shrubs (9), followed by herbs (8), tall trees (5) and a single climber.

Global change drivers, such as increased temperature and carbon dioxide, are predicted to render the environment more susceptible to alien plant invasions due to enhanced competitive ability and pre-adapted traits (Carbutt 2012). The ability to identify all emerging invasive alien plants is essential to bring about swift management interventions to reduce the threat of such biological invasions. Alien plant monitoring and management programmes should therefore not only target well-established invaders; they must also pay attention to emerging invaders that pose as significant threats in the foreseeable future (refer to Appendices 4 & 5).

Past invasions by major invaders are also likely to be facilitating invasions of many of the emerging invader species through disturbance of natural habitats (Nel *et al.* 2004). The overall objective should therefore be to proactively halt the invasion process – minimising opportunities for introductions, early detection, rapid response - which will afford significant 'savings' in terms of minimising biodiversity losses and minimising overall management costs (Carbutt 2012).

Pompom weed *Campuloclinium macrocephalum* was recorded for the first time in January 2010 in the Champagne Valley at the foothills of the Drakensberg and despite some control efforts had expanded its range by 2018. Pompom weed is one of the most serious threats to the conservation of grasslands in general, and the Drakensberg in particular. In KwaZulu-Natal a few 'emerging weeds' teams have been established to deal with new threats and an 'emerging aliens' database has been established to provide awareness of new threats and to provide management guidelines, often where there are no registered herbicides for these species (Rushworth, *pers. comm.*).

Watch List

Didymo

Didymosphenia geminata (Didymo, Rock Snot), a freshwater diatom (a type of alga), originating from North America, is a major problem in places like New Zealand where fast flowing mountain streams (much like the Drakensberg) are being invaded. Didymo can attach itself to stream, river and lake beds by stalks, and can form a thick brown layer that smothers rocks, submerged plants and other materials. It forms flowing 'rats tails' that can turn white at their ends and look similar to tissue paper. As the 'tails' of the alga get longer they become white in colour.

Birds

The Mallard duck, Indian House Crow and Parakeet are three species that have established feral populations in KZN and which could end up in the Park. The Mallard, in particular, is a threat through hybridization to the population of African Black Duck in the Park. In New Zealand a local species of duck had gone extinct due to extensive hybridization with Mallards. The invasion pathway of Indian House Crows is likely to be through urban or traditional settlements, not commercial farm lands, and have recently been reported from the town of Winterton, close to the park boundary. Conversely, Mallards may gain a foothold using extensive farm dams on commercial farms. Exotic and hybrid guineafowl are a significant threat to the genetic integrity of the resident Helmeted Guineafowl.

Mammals

Himalayan Thar established self-supporting populations in Table Mountain National Park in the Western Cape. This species, if it ever establishes in the Park, will compete with klipspringer and impact on cliff vegetation communities. Experience has shown that this species is very difficult to eradicate once established, and in the Drakensberg it will be extremely expensive and almost impossible. Barbary Sheep have established a strong feral population of over 1000 animals in the Stormberg Mountains in the Eastern Cape and could, over time, spread to the Drakensberg.

Fish

The Tugela-Vaal Pump Storage Scheme is likely to introduce fish from the Vaal system into the Thukela system. There are currently Vaal River fish species in the Kilburn Dam but as far as can be ascertained these have not got out of that dam into the larger Thukela system. If they do (likely when the dam is 'de-watered' for maintenance or for a 'black start' if the entire grid goes down) then it is possible that the lower parts of some of the larger rivers may gain an additional alien species. An even higher risk is the potential for hybridization with the local species. African catfish (*Clarias gariepinus*), a species not previously recorded from within the Park, have been recorded recently above the Clifford Chambers weir (Goosen pers. comm.) and may move into the Park.

8. HISTORY OF ALIEN SPECIES CONTROL AND EFFICACY OF PREVIOUS INTERVENTIONS

The Park has been established over the past 110 years through consolidation of different pieces of land with different management histories. No complete history of alien species control in the Park has been compiled. It is important to note however that (1) there has never been an overarching strategy for alien species management, and (2) that in the last two decades virtually all (>99%) alien plant clearing has been undertaken using externally-funded EPWP programmes (WfW, WoF, KZN IASP and SANBI). Volunteer groups have been assisting with pine tree eradication in the northern UDP, and SANBI and KZN IASP-funded projects have been addressing one of the priority emerging invasive species *Hypericum pseudoheynyi*.

Alien plants have over the years received much more attention than alien animals, although only a small proportion of the Park is currently receiving alien plant treatment.

Most animal invasions in the Drakensberg are assumed to be in their early stages and/or are primarily associated with the activities of man. The plant focus was therefore justifiable and defensible, but the prevention of new animal invasions is a high priority, as is management of establishing populations.

The focus of alien plant management has been on woody water-using species such as wattle, pines and gums. Bramble has been comparatively neglected despite covering a much larger area of the park; initially this was due to bramble not being seen as a threat to water resources and therefore not qualifying for funding through the Working for Water programme.

Any alien bird control that may have taken place has been undertaken on a completely *ad hoc* basis.

Ezemvelo took the decision to close the last remaining trout hatchery within the Park (Kamberg) in the 2000s in line with modern thinking that it is inappropriate for conservation agencies to breed and spread invasive species. This reflects the gradual shift in thinking from the 1950s where trout were protected in legislation and using state resources, to a situation where conservation resources are directed towards the conservation of indigenous species. There was an attempt to reopen the hatchery at Kamberg again in 2017 linked to the Phakisa process but this was rejected.

Action:

- Compile a detailed history of alien species control for the Park.

9. GENETIC PERSPECTIVE

Locally adapted gene complexes can be compromised by the introduction of animals of the 'same species' from other areas. In some cases different genetic stock may not be recognized taxonomically, sometimes loosely as variants, and sometimes more obviously enough as subspecies. In terms of the Park's biodiversity objectives, it is essential to maintain the specificity of locally-adapted gene complexes.

The Drakensberg population of Cape Eland (*Taurotragus oryx capensis*, 1500-1800 animals) is threatened by genetic mixing with Livingstone's Eland (different subspecies) introduced outside the Park. No fences are eland proof and it is only a matter of time before animals move into the Park or mix with Drakensberg Cape Eland populations that move outside the boundaries of the Park. Eland have relatively recently arrived at Royal Natal but the genetic origin of these is unknown. (Cross-reference to the Drakensberg Eland Management Strategy).

There is also genetic structuring known in oribi, bushbuck, rock hyrax (dassies), mountain reedbuck, baboon, Vervet monkeys and Bearded Vulture – so inappropriate introductions/re-introductions into the Park or outside of the Park may threaten these species. Inter-basin transfer of Vaal River fish species into the Thukela River system may result in hybridization. There is some concern regarding Grey Crowned Cranes because of the (recent?) import of Black Crowned Cranes into KZN.

Because of the risk to genetic integrity no rehabilitated/orphan animals are permitted to be brought into or released within the Park (except those that were originally sourced from the Park), and there must be careful consideration of genetic stock for any animal introductions or for use in any captive breeding programmes (e.g. Bearded Vulture conservation breeding programme).

Alien *Celtis* (*Celtis australis/sinensis*?) trees have been planted in and surrounding the Park in the past. These will hybridise with the indigenous White Stinkwood *Celtis africanus* which is a dominant species in indigenous forests in the Park; in the long run this will threaten the integrity of forests. Many neighbouring properties have alien *Celtis* trees (often mistakenly sold by nurseries as the indigenous *Celtis africanus*) and hence alien pollen is likely to be brought into the Park, resulting in hybrid offspring being produced within the Park.

Kalwij *et al.* (2008) identified a possible hybrid between the indigenous bramble *Rubus rigidus* and the exotic *R. cuneifolius* on Sani Pass. This species was observed at very high densities at some places, especially at the 1500 m altitudinal level.

10. PRINCIPLES AND PROCEDURES FOR DETERMINING SPATIAL PRIORITIES FOR ALIEN PLANT CONTROL

Priority should be given to keeping areas free or with a very low infestation of alien plants in an uninvaded state, and conducting follow-up operations in previously cleared areas timeously and at optimal intervals. Only then, in general, should resources be allocated to sites scheduled for initial clearing. Newly or rapidly expanding infestations of invasive alien plants should be dealt with as quickly and effectively as possible once they have been detected. Known source areas, such as riparian zones and current/past human dwelling or infrastructure within the Park, should be regularly inspected and cleared of all invasive alien plants.

It is acknowledged however that for various reasons that original clearing may have been done in the wrong (non-priority) areas, and hence it may be necessary to re-evaluate and delay follow-ups till other areas have been tackled. Any decision to delay follow-ups must be endorsed by the management team, including the Park Ecologist and funder (where appropriate). For example, a large wattle plantation above Kamberg resort was cleared, necessitating repeated follow-ups at the bottom of the catchment at the expense of allowing scattered light infestations higher in the catchment to expand (and provide a seed source to re-infest the lower area anyway).

To assist in prioritising areas for clearing the following procedural approach has been adopted for the Park:

1. Divide the Park into manageable units, called Alien Clearing Units (ACUs). These subdivisions should ideally be done on a mini catchment basis, with watersheds separating them, and/or on the basis of other practical boundaries that may be man-made such as property boundaries, roads, trails etc. Each unit should be of a manageable size (typically never larger than what can be treated in a single budget year) and it is essential that the boundaries of these units are easily identifiable on the ground by staff and contractors. Generally, fire management compartments

are too large to be ACUs and one management compartment may contain more than one ACU (up to 3 or 4), but ACUs should not overlap management compartment boundaries i.e. much like the relationship between District Municipalities (= management compartments) and Local Municipalities (= ACUs).

It may be necessary to divide the ACUs into smaller clearing contract units (CCUs) if the management unit is larger than what can be treated by a single clearing contract or if the target area is a small site of extraordinary conservation value (ECV) site. Ultimately, however, the unit of planning and control is the ACU and the aim must be to operate at that scale.

2. Determine the following for each alien plant species in each ACU:
 - 2.1. Density (according to standard classes);
 - 2.2. size class (according to standard classes);
 - 2.3. treatment stage (initial or nth follow-up);
 - 2.4. susceptibility to invasion (high susceptibility, medium susceptibility, low susceptibility); and
 - 2.5. note the presence of any priority biodiversity or cultural heritage features, referred to as Extraordinary Conservation Value (ECV) assets.
3. Determine the number of *shifts per ha* for each ACU, using the '*Recommended clearing norms and treatment methods*' document or better norms if any are available. In situations where an ACU has been divided into smaller CCUs, use the weighted average as the *shifts per ha* for that particular ACU.
4. Prioritise each ACU for clearing.
 - 4.1. First priorities to receive treatment are sites of Extraordinary Conservation Value (ECV), regardless of the density of the invasive alien plants occurring within them or the stage of treatment.
 - 4.2. All sites that are follow-up treatment areas should also be considered as a top priority (but see note in the introduction to this section).
 - 4.3. Thereafter, sort the remaining sites (initial treatment, non-ECV sites) according to a combination of their susceptibility to invasion by alien plant species and existing extent of invasion. Areas of high susceptibility must be given higher priority than those of low susceptibility, and the least infested areas (low shifts per ha) being scheduled for clearing before areas with higher infestations (high shifts per ha) (Table 2). However, in the Drakensberg context it is essential to prevent alien species getting to over approximately 20% canopy cover, as after that there are significant losses of indigenous plant cover and then active restoration becomes essential. This is very expensive, and largely ineffective.

Table 1: Prioritisation of areas for clearing based on a combination of existing extent of invasion and susceptibility to (further) invasion

| | | Susceptibility to invasion | | |
|-----------------------------|--------|----------------------------|---------------|----------------|
| | | Low | Medium | High |
| Existing extent of invasion | Low | <i>Low</i> | <i>High</i> | <i>Highest</i> |
| | Medium | <i>Low</i> | <i>Medium</i> | <i>High</i> |
| | High | <i>Lowest</i> | <i>Medium</i> | <i>High</i> |

Note: **All MUCP's that are at a maintenance level (desired state of <0.5 shifts/ha or <0.5% cover) must be treated as often as is necessary to prevent them from worsening to above maintenance levels of invasion.** In other words, all ECV sites, follow up treatment sites and sites that are at a maintenance level **must** receive treatment. Work up until and including this threshold represents the minimum funding levels for the Park. Insufficient funds to cover these ACUs will in effect result in regression (rate of spread exceeding rate of control, the situation the Park is in at present).

5. The following scenarios and/or factors should also be considered in order to fine tune the prioritisation ranking, by either moving a particular ACU up or down the priority ranking:
 - 5.1. ACUs that contain known infestations with high priority emerging alien species that must be prevented from spreading to uninfected areas. These sites should be moved up and assigned a top priority ranking (**must** receive treatment).
 - 5.2. ACUs that contain newly/rapidly expanding infestation of invasive alien plants (e.g. disturbances such as road works and good rains, often create favourable conditions for local explosions in otherwise clear areas). These sites should be moved up the priority ranking.
 - 5.3. ACUs that are likely to be easily maintained over the long term once cleared (with the assistance of burning programmes). These sites should be moved up the priority ranking.
 - 5.4. ACUs that have significant clean and well maintained areas immediately neighbouring them. These sites should be moved up the priority ranking.
 - 5.5. ACUs that contain infestation/species that are presently easily controlled where they currently occur and/or that do not require rehabilitation work in order to achieve the desired management goal (such as erosion control or replanting). These sites should be moved up the priority ranking.
 - 5.6. ACUs that contain any of the following could also be moved up the priority ranking:
 - 5.6.1. areas that have weed infestations that could significantly exacerbate the potential fire hazard which may result in the risk of damage to property or life;
 - 5.6.2. areas that are important in terms of cultural heritage or tourism;
 - 5.6.3. areas that are important in terms of public awareness (e.g. roadsides, public areas such as picnic sites or viewing points);
 - 5.6.4. areas that are of aesthetic importance; and
 - 5.6.5. areas that by clearing them will improve tourism relations.
 - 5.7. ACUs that primarily contain weed species for which there are effective bio-control agents available should be moved down the priority ranking.
 - 5.8. ACUs that are part of zoned Wilderness Areas should be moved up the priority ranking.

Prioritisation of ACUs using the criteria above must be done by the full management team, including the OiC, Park Ecologist and IAS Project Manager, with oversight by the Park Manager, Manager Ecological Advice and the IAS Area Manager.

Action:

- Boundaries of Alien Clearing Units for the Park must be reviewed and converted to digital format at a 1:10 000 scale to facilitate accurate contract generation (currently at approximately 1:50 000 scale).
- Attributes of area, walking time and underfoot conditions need to be assigned to each ACU.

11. EARLY DETECTION AND RAPID RESPONSE

One of the most important principles for successful alien species management is to be able to detect alien species very early after introduction/establishment, and to be able to eradicate (or bring under control) prior to them becoming well established and widespread. Early detection of the presence of an invasive species can make the difference between being able to employ offensive strategies (eradication) and the necessity of retreating to a defensive strategy that usually means an infinite financial commitment (Panetta *et al.* 2011). Costs are exponentially lower and success rate much higher for small infestations. Nevertheless, depending on the potential impact of individual invaders, even infestations larger than 1000 ha should be targeted for eradication effort or, at least, substantial reduction and containment (Rejmenk *et al.* 2013).

It is essential that the Park has the capability to detect alien species soon after introduction, and to then be able to respond rapidly and decisively. The resources for this must be within the permanent staff establishment and operational budget, and must not rely on externally funded programmes which often have job creation objectives not compatible with this type of operation, and which generally have a long lead in time. That being said, there are existing government funded programmes specifically designed towards early detection and rapid response, and the Park needs to make use of these opportunities.

Actions:

- All relevant staff must be trained and have identification materials for all priority emerging species, and there must be clear reporting and data management procedures in place.
- Ensure there is a budget for rapid response: this to include temporary labour, herbicides and personal protective equipment (PPE). A mechanism to keep stockpiles of herbicide for targeted species should be found, and sufficient traps and/or rifles of appropriate calibres with telescopes should be available to use for alien animal control.
- Develop a MoU with DEA (the section responsible for emerging species management following the termination of the SANBI Early Detection & Rapid Response (EDRR) programme) and the KZN IASP for support to clear priority emerging species within and adjacent to the Park e.g. Formosa Lily, Scotch Broome and Pompom weed.

- Establish a specialist clearing team with a geographical focus on the Park to deal with emerging and other important weeds.

12. PARK ALIEN AND INVASIVE SPECIES POLICIES

The policies of the Park with respect to alien species are grouped into the logical categories based on best practice for alien species management *vis.* prevention of new invasions, rapid response capability, genetic management, management of existing established species, monitoring and research.

12.1 PREVENTION OF NEW INVASIONS

There is a high risk of introducing alien earthworms, snails and slugs in potting soil and on plants purchased from nurseries (almost guaranteed), therefore no plants, indigenous or otherwise, are to be brought into the Park from any source for landscaping gardens. All plants for landscaping and rehabilitation must come from locally sourced seed/propagation material grown in nurseries within the Park (job creation opportunity) or under strict conditions by contractors adjacent to the Park.

Building sand ('uMngeni sand') is a potential source of alien plant seeds and alien animal introductions. Measures must be put in place to minimize this risk, including inspection and treatment of sites where building sand has been deposited.

Visitors and staff may bring alien organisms into the Park in mud on boots and vehicles. Visitors must be encouraged to ensure their boots have been thoroughly washed prior to entering the Park (awareness required), and to ensure their socks and laces are free of alien plant seeds.

Visitors and staff can introduce organisms (e.g. Giardia) into water sources through urinating or defecating in or close to water. People must be educated and instructed not to urinate or defecate within 100 m of a water course.

All staff must be trained to identify and report invasive alien animals and plants. Visitors must also be made aware of these species and the need to report them, as well as explaining the risk they pose, and the relevant control methods.

Livestock contain alien plant seeds in their digestive tracts and attached to the body. Intestines of livestock brought into the Park must be removed prior to putting carcasses out for vultures. Vulture feeding sites must be inspected at least three times per year and all weedy species treated.

Thatch for buildings must be sourced within the Park or within 50 km of the Park and be from areas clear of alien plant species. All thatch coming into the Park must be deseeded prior to being brought into the Park. Where possible, existing thatched buildings should be converted to other materials, and no new thatch roofed buildings should be built (there are also fire risk and economic reasons to support this change).

A condition of project registration for any research involving soil sampling must be that all augers and digging equipment must be thoroughly washed prior to being brought into the Park (to minimize risk of introducing alien plant seeds and alien earthworm and molluscs); any research involving waterbodies must adopt appropriate sanitary controls to prevent introduction and spread of infectious diseases. Likewise, any road construction machinery must be thoroughly washed down with high pressure sprayers prior to coming into the Park.

Horses are documented as major vectors of alien plant introduction and spread into protected areas. This is one of the reasons private horses and horse trails are not permitted within the Park. Horse food and bedding materials are also major sources of alien plant seeds, and a number of major invasive species in South Africa were originally introduced in horse feed. Therefore, when police or military horses are brought into the Park for security operations no bedding material (hay) or lucerne may be brought in, and careful consideration of processed horse feed is required.

The continual movement of cattle and donkeys/mules through the Park poses a risk of introduction of alien plant seeds, and the recent increase in Blackjacks (*Bidens pilosa*) in the Ndedema Valley at Cathedral Peak is likely to have been caused by a combination of seed import and soil disturbance caused by illegal livestock movement. Measures must be instituted to decrease the movement of livestock through the Park.

12.2 GENETIC MANAGEMENT

The genetic structuring of animal species translocated by the organization or game farming industry must be understood, and animal movement regulated accordingly through the permitting system. A precautionary approach must be adopted in the absence of evidence as it is virtually impossible to undo any genetic introgression once it has taken place. Translocations of inappropriate genetic material outside the Park may impact the Park through animal movement between the Park and neighbouring areas.

Hybridisation of Domestic cat and African Wild Cat, between Mallard duck and African Black Duck and Yellow-billed Duck, and between domesticated and wild Guineafowl, must be prevented by eradicating all cats, Mallard ducks and domestic Guineafowl. Any suspected hybrids should be destroyed. All existing staff cats must have a certificate of sterilization, and no new cats are allowed.

No rehabilitated wild animals are permitted into the Park unless there is absolute certainty that they originated in or adjacent to the Park, and unless disease issues have been addressed. Only the Park Manager can authorise such introductions.

Actions:

- Undertake genetic analysis on *inter alia* oribi, eland, grey rhebok and mountain reedbeek to determine appropriate genetic boundaries. The Kamberg black wildebeest population needs to be tested for genetic purity.
- Test genetics of all eland herds introduced within 30 km of the Drakensberg, remove genetically non-compatible animals and replace where necessary with Drakensberg eland. The permitting process must consider this. Donation/sale

of Drakensberg eland must be prioritized to landowners within 40 km of Park boundary, then eastern Free State and north-eastern Eastern Cape, to meet demand for eland with local genetic material; only after local sources are satisfied can eland be sold beyond this area (cross reference with Drakensberg Eland Management Strategy).

- Create awareness materials for neighbours highlighting the risk and to assist in the identification and removal of alien *Celtis* trees; all alien *Celtis* trees and any suspected hybrids in the Park must be removed as a matter of priority.
- Incorporate these requirements into the Internal Rules for the Park.

12.3 MANAGEMENT OF EXISTING POPULATIONS

Guidelines for animal groups:

Fish:

Despite the anticipated and recorded impacts, it is considered impractical to implement any large scale eradication of trout, including because of the risks associated with the use of piscicides. It is also acknowledged that trout have limited economic value to the Park.

The Park therefore acknowledges that trout have had, and are probably continuing to have, some impacts on aquatic systems, but recognise that no large scale eradication is feasible or indeed possibly even desirable. A number of natural barriers to the upstream movement of trout have been identified and these can serve as places above which eradication operations can take place in future if the need is demonstrated; eradication of trout from rivers without natural barriers is impossible because of constant reinvasion from outside the Park. The use of piscicides would only be permitted after careful consideration and where the benefits outweigh the impacts.

Drought periods with lower water levels and higher water temperatures result in population declines of trout and the years thereafter may serve as periods where indigenous species can recover. The policy is therefore not to re-stock any rivers already stocked with trout. No closed season, bag- or size-limits will be enforced, and fishermen will be encouraged to keep all fish caught rather than catch-and-release.

Anticipated warming of water as a result of global change will reduce the amount of good trout habitat within the Park, but may create more favourable conditions for other invaders such as bass.

Fishing must be regulated where there is a risk of disturbance of priority species e.g. Wattled Cranes on the dam in Highmoor and on the Stillarust wetland.

Stocking of existing dams (Kamberg, Highmoor, Royal Natal) with trout may continue where there is low probability of movement of fish upstream or downstream. No new

dams for fishing are to be constructed within the park and any dams currently without trout must not be stocked.

The dam in SNP near the old lodge should not be restocked with trout due to the risk of escape and establishment of trout in the refuge for Maluti Minnow in the river above the waterfall.

No Park brochures should display trout in a positive light but may advertise fishing opportunities in the dams. The advertising and product offering focus of Kamberg should change to rock art and biodiversity, away from fishing.

There needs to be careful consideration about adding a fish ladder to the Clifford Chambers weir on the Thukela River – in contrast to initial recommendations for a fish ladder to be constructed, it may be better NOT to have a fish ladder in order to prevent the movement of Vaal River yellowfish and other species into the upper reaches of the Thukela.

Birds:

Shoot on sight for all alien bird species except house sparrows which are associated only with human habitation and are thought to have no impact on indigenous species. Each station should have a silenced .22 or .22 air rifle available, but shooting must be (1) by accredited rifle users only, (2) with due regard for animal welfare and human safety, and (3) out of the public eye as far as is possible, and where public do witness this activity then use the opportunity to do education and awareness should be used. Posters must be displayed at each station and tourist facility providing identification guides for all invasive bird species.

Infrastructure must be designed and modified where necessary to reduce nesting opportunities for alien birds.

Mammals:

Domestic cats are ranked in the top 100 invaders on the planet. All feral domestic cats and feral domestic dogs to be captured and removed, or where not possible, then destroyed. Carcasses with bullets in them must not be left where scavengers have access to them due to risk of lead poisoning. Dogs far from management nodes must be dragged under bush/rocks so vultures do not see or have access to them. Ideally, lead-free ammunition should be used. Poisons of any type are not to be used.

Staff ownership of domestic cats is prohibited; however, where staff already have cats then these must be sterilized and proof thereof provided. Private horses owned by staff may be stabled only by special permission of the Park Manager.

Alien rodent control in tourism and management infrastructure must **not** use Wafrin-based multiple feed baits because of non-target impact to owls, other raptors and small predators. Only products with no or limited secondary poisoning impacts may be used; alternatively Sherman or snap traps may be used. Owl nesting boxes and roosting sites should be provided to reduce rodent problems in stables and store rooms.

Management strategies and targets for alien animal species are summarised in Table 2.

Table 2: Status, management strategies and targets for alien animal species

| Species | Status (2016) | Management strategy | Target | Notes |
|--------------------|--|--|--|--|
| Common Mynah | Scattered small populations at tourism/management nodes in the east of the park (RN, CP, MK, Cobham) | Shoot on sight; destroy nests | Prevent establishment of viable populations through active shooting | Continual reinvasion from outside the Park, populations increasing especially in larger towns and informal settlements |
| Common Starling | Several pairs at Cobham | Shoot on sight; destroy nests | Eradicate existing birds | |
| Domestic cat | Low densities associated with infrastructure and along the eastern margin of the Park | Trapping and removal or shooting | Maintain low densities; minimize opportunities for hybridisation | |
| Feral domestic dog | Temporary incursions by (feral) hunting dogs, unlikely to be resident | Destroy dogs unaccompanied by humans | No dogs; awareness of no dog rule for visitors | |
| Trout | All mainstream rivers and tributaries until natural barriers | Prevention of further introductions; prevention of population supplementation (restocking); increased harvest through fishing; local eradication from river stretches will only be considered where trout impact, determined through a scientific process, determined to be not acceptable | Population to self-regulate in presence of increased fishing pressure | Spotted-necked Otters feed on fish and population status may have been enhanced |
| Earthworms | Status not assessed; assumed to be established in eastern lowlands in association with human impact | Prevent further introductions or population/genetic supplementation by prohibiting the import of plants grown in nurseries outside the park | Surveillance of population size and distribution through periodic systematic surveys | |
| Molluscs | Status not assessed; assumed to be established in eastern lowlands in association with human impact | Prevent further introductions or population/genetic supplementation by prohibiting the import of plants grown in nurseries outside the park | Surveillance of population size and distribution through periodic systematic surveys | |

| Species | Status (2016) | Management strategy | Target | Notes |
|---------|---|--|--------|-------|
| Rats | Royal Natal, but may be present at other resorts and management nodes | Trapping where damage to infrastructure or goods takes place; place owl nesting boxes near stables and other infrastructure where alien rats likely to occur | None | |

12.4 BIOLOGICAL CONTROL

It is Park policy not to use the Park as release sites for new biological control agents undergoing establishment and efficacy testing; this must rather be done outside the Park. The reason for this is to prevent the need to set aside areas from clearing for agents that may fail to establish, and which therefore may result in seed production and spread of alien species. However, the Park must make optimal use in integrated control programmes of biological control agents demonstrated to be effective.

Actions:

- *Melanterius maculatus*, a seed feeding weevil for Wattle seeds, needs to be introduced outside the Park (priority areas: Culfargie, Witteberg, Hillside, uMkhomazi, Lotheni and Cobham areas).
- *Dasineura rubiformis*, a flower feeding insect for Black Wattle, must be introduced on the eastern boundary of the Park as a matter of urgency. Initial introductions to the Midlands were made in 2013.
- Develop agreements with ARC PPRI and DEA Natural Resource Management for optimal release of biocontrol agents.
- The Park should champion the need to re-establish biocontrol research for bramble, including undertaking a cost-benefit analysis.

12.5 CHEMICAL CONTROL

It is accepted that in order to overcome the threat posed by alien plants the use of herbicides is essential. Given that herbicides can have negative impacts if not used correctly, the Park will:

- adopt and comply with Ezemvelo and Working for Water (WfW) Herbicide Policy;
- use herbicides for their registered use only⁴;

⁴ In the case of emerging alien plants there is often no registered herbicide. The Park must conduct herbicide trials (if none being done elsewhere) and liaise with the relevant authorities to get a limited use registration.

- ensure that all conservation managers and herbicide applicators are appropriately trained;
- prohibit the use of herbicides that persist and/or move in soil;
- minimise the use of herbicides and diesel near water courses; and
- ensure that all herbicide stockpiles are stored in appropriate facilities with adequate access control, and that herbicide containers are disposed of according to the Herbicide Policy.

13. PLANNING

Given the size, remoteness and complexity of the Park, effective planning of alien plant control operations is not a simple exercise. Sufficient time and resources must be allocated to planning in order to be effective. A key aspect of planning is to have current, accurate maps of species distribution and density. These need to be updated at least every five years.

Actions:

- Develop an updated alien plant distribution and density map for the Park for planning and budgeting purposes.
- Develop a computerised spatially explicit scenario planning tool which allows for different approaches to be tested and budget/resource needs to be calculated in relation to specific objectives.
- Develop remote sensing methods to map and monitor rate of change of key alien species, especially bramble (*Rubus cuneifolius*), pines (*Pinus* species) and wattle (*Acacia* species).
- Set up appropriate coordination mechanisms with NRM WfW and the KZN IASP.

14. MONITORING AND EVALUATION

As part of the adaptive management approach of the Park it is essential for effective monitoring and evaluation to be in place. The change in status not only of areas undergoing control, but, importantly, those not receiving treatment, must be monitored. In this way progress towards achieving park invasive alien species targets can be assessed.

The existing manpower budget does not allow for mapping at the required standard to be done; specific operational budget needs to be set aside to employ mapping teams. All alien species control work, whether internally or externally funded, must be mapped and recorded, and captured into a geospatial database. The Park has adopted the use of WIMS as the planning and data storage database standard. Appropriate surveillance needs to be in place within the Park and in the buffer zone for early detection of emerging alien plant and key alien animal species.

Actions:

- Develop a formal monitoring programme according to organisational standards for effective monitoring of alien species distribution, rate of spread and effectiveness of control operations.
- Undertake surveys of alien animals focussing on rodents, earthworms, molluscs, slugs and other invertebrates.
- Undertake surveys of herbaceous alien plants using relevant experts.
- Establish early detection capabilities for emerging species.
- Attempt to ensure that any external project funding received has some provision for monitoring built into it.
- Develop a MoU with SANBI for rapid response and for provision and management of data on emerging species.

15. RESEARCH

There are many unanswered questions, *inter alia*, as to the (potential) impacts of alien species on Park objectives, the effect of climate change on invasion potential, and optimal integrated control approaches.

Actions:

- Key research questions to be defined and published on the web site. Priorities include (1) development and testing of remote sensing for landscape-scale mapping, and (2) determining and predicting impacts of alien species on biodiversity and water production.
- Investigate establishment of a research fund (R100 000) for undertaking key research on invasive alien species; this must be a 'special project' that can carry over until students are found; appropriate research facilities must be provided.
- Sign MoU with Centre for Invasion Biology (CIB) for assistance with defining key research questions, and for finding funding and students.

16. COST IMPLICATIONS/BUDGET

The costs of alien plant control in the Park are higher than other areas because of the difficult terrain and general inaccessibility of the infested areas. As with all control situations, it is essential to implement clearing at the early stages of invasion – both because of cost-effectiveness and because, in the case of Drakensberg grasslands, the difficulty and expense of rehabilitating cleared areas.

Historically, the Park has been unable to allocate sufficient resources to alien plant control, and in the recent past no internal budget has been allocated for this purpose. Almost all work undertaken in the last two decades has been from external job-creation funds. Whilst approximately R2.4 Million per annum is being spent at present in the UDP, creating many job opportunities (404 jobs), it is estimated that the required budget to achieve alien species targets is at least four times larger.

A computer model that incorporates spread parameters is being developed to better predict control and rehabilitation costs, and how different funding and clearing strategy scenarios affect the outcome. This tool will help fine tune the control strategy for bramble in particular, and will allow the water production implications of different clearing scenarios to be evaluated.

Actions:

- Develop a detailed costing for achieving the park IAS objectives within the timeframes.
- Motivate for a larger proportion of the KZN IASP and/or Ezemvelo IASP allocation for the MDP WHS.
- Motivate to DEA NRM programmes to reinitiate clearing programmes in the Park, and to focus projects within the buffer zone, and specifically within the first kilometre of the Park boundary.
- Ensure that a number of High Altitude Teams are available through the Working on Fire programme to focus on pines and other alien species growing in difficult-to-access areas.

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18. APPENDICIES

Appendix 1: Alien plants recorded in the UDP WHS as at 2018 (from Rushworth, Cheek, Nanni and Goosen, unpublished data; Kalwij et al. 2008, Kalwij et al. 2015); Categories 1a and 1b are priorities for substantial control or eradication, while Categories 2 and 3 must be managed and locally eradicated where possible (but refer to specific Park targets); where category is blank then the species is not listed in the National Environmental Management: Biodiversity Act (10/2004): Alien and Invasive Species List, 2014

| Species | Common name(s) | Category | Known Localities |
|---|------------------------------|----------------------------------|---|
| <i>Acacia dealbata</i> | Silver wattle | 2 | Widespread, Sani Pass |
| <i>Acacia decurrens</i> | Green wattle | 2 | Widespread, Sani Pass |
| <i>Acacia mearnsii</i> | Black wattle | 2 | Widespread, Sani Pass |
| <i>Acacia melanoxylon</i> | Blackwood | 2 | Lotheni, Kamberg, Giants Castle offices and camp, Royal Natal, Sani Pass |
| <i>Acanthospermum australe</i> | | | Sani Pass |
| <i>Acer buergerianum</i> | Chinese Maple | 3 | Cathedral Peak |
| <i>Acer palmatum</i> | Japanese Maple | | Thendele |
| <i>Achyranthes aspera</i> | Burweed | | Monk's Cowl |
| <i>Agave americana</i> | Spreading century plant | | Sani Pass |
| <i>Agave sisalana</i> | Sisal | 2 | Cathedral Peak |
| <i>Agrimonia procera</i> | | | Sani Pass |
| <i>Agrimonia procera</i> | Scented agrimony | 1b | Sani Pass |
| <i>Amaranthus viridis</i> (?) | Slender amaranth | | |
| <i>Argemone ochroleuca</i> subsp. <i>Ochroleuca</i> | White-flowered Mexican poppy | 1b | |
| <i>Arundo donax</i> | Giant reed | 1b | Sani Pass |
| <i>Avena fatua</i> | Common wild oats | | Kamberg, Sani Pass |
| <i>Bambusa balcooa</i> | | | Sani Pass |
| <i>Betula pendula</i> | Silver birch | | |
| <i>Bidens pilosa</i> | Blackjack | | Widespread |
| <i>Bromus catharticus</i> | | | Sani Pass |
| <i>Bromus pectinatus</i> | | | Sani Pass |
| <i>Bryophyllum delagoense</i> | Chandelier plant | 1b | Royal Natal |
| <i>Buddleia davidii</i> | Buddleia | 3 | Kamberg rock art centre, Cobham entrance gate |
| <i>Canna indica</i> | Indian shot | 1b | Royal Natal, Sani Pass |
| <i>Cannabis sativa</i> | Dagga | | Associated with dwellings |
| <i>Capsella bursa-pastoris</i> | | | Sani Pass |
| <i>Celtis australis</i> (hybrids?) | European hackberry | 3 | Royal Natal |
| <i>Chenopodium album</i> | | | Sani Pass |
| <i>Cinnamomum camphora</i> | Camphor tree | 1b | Royal Natal |
| <i>Cirsium vulgare</i> | Scotch thistle | 1b | Highmoor, Kamberg, Cathedral Peak (Catchment IX), Sani Pass |
| <i>Citrus limon</i> | Lemon | | Staff housing throughout the Park |
| <i>Conyza albida</i> | Tall fleabane | | Widespread |
| <i>Conyza canadensis</i> | | | Sani Pass |
| <i>Coreopsis lanceolata</i> | Tickseed | 1a | Cobham, Cathedral Peak staff accommodation |
| <i>Cortaderia selloana</i> | Pampas grass | 1b | Kamberg, Injesuthi, top of one of the passes (Richard Lechmere-Oertel pers. comm.), Sani Pass, Highmoor offices |
| <i>Cosmos bipinnatus</i> (= <i>Bidens formosa</i>) | Cosmos | Not listed but priority for Park | Kamberg, Cathedral Peak entrance, Royal Natal?, Sani Pass |
| <i>Cotoneaster franchetii</i> | Cotoneaster | 1b | Sani Pass |
| <i>Cotoneaster pannosus</i> | Silver Leaf Cotoneaster | 1b | Giants castle – camp and Bushman's River, Cathedral Peak, Thendele camp, Sani Pass |
| <i>Crepis capillaris</i> | | | Sani Pass |
| <i>Crepis hypochoeridea</i> | | | Sani Pass |
| <i>Cuscuta campestris</i> | | 1b | Sani Pass |
| <i>Cytisus scoparius</i> | Scotch Broom | 1a | Highmoor, Kamberg |
| <i>Dactylis glomerata</i> | | | Sani Pass |
| <i>Dahlia</i> sp. | | | Sani Pass, Kamberg |
| <i>Datura stramonium</i> | Common thorn apple | 1b | Sani Pass |
| <i>Duchesnea indica</i> | | | Sani Pass |
| <i>Eragrostis curvula</i> hybrids | Eragrostis | | Widespread |
| <i>Erigeron karvinskianus</i> | Mexican daisy | | Kamberg, Witteberg |

| Species | Common name(s) | Category | Known Localities |
|---------------------------------|---------------------------|--------------------|---|
| <i>Eriobotrya japonica</i> | Loquat | 1b in Forest Biome | Royal Natal |
| <i>Eucalyptus</i> spp. | Gum trees | 1b | Cobham, Kamberg, Cathedral Peak |
| <i>Euphorbia helioscopia</i> | Umbrella milkweed | | Kamberg camp, Sani Pass |
| <i>Euphorbia prostrata</i> | | | Sani Pass |
| <i>Fallopia convolvulus</i> | | | Sani Pass |
| <i>Fraxinus</i> sp. | Ash | | Highmoor office and campsite |
| <i>Galinsoga parviflora</i> | | | Sani Pass |
| <i>Gamochaeta pensylvanica</i> | | | Sani Pass |
| <i>Gleditsia triacanthos</i> | Honey locust | 1b | Injesuthi |
| <i>Ginkgo bilboa</i> | Maidenhair Tree | | Royal Natal |
| <i>Hedychium</i> sp. | Ginger lily | 1b | Cathedral Peak (staff accommodation and near hotel) |
| <i>Helianthus annuus</i> | | | Sani Pass |
| <i>Hemerocallis fulva</i> | | | Sani Pass |
| <i>Hibiscus trionum</i> | | | Sani Pass |
| <i>Holcus lanatus</i> | | | Sani Pass |
| <i>Hypericum pseudohenryi</i> | 'St. John's wort' | | Monk's Cowl, Kamberg, Witteberg, Cathedral Peak (Didima), Cobham (Sani Pass and offices), Hillside (management offices), Lotheni (boundary) |
| <i>Hypericum perforatum</i> (?) | St. John's wort | 2 | Hillside offices (?) |
| <i>Hypochaeris radicata</i> | Cat's ear | | Sani Pass |
| <i>Ipomoea purpurea</i> | Morning glory | 1b | Kamberg, Royal Natal, Cathedral Peak offices, |
| <i>Jacaranda mimosifolia</i> | Jacaranda | 1b | Royal Natal |
| <i>Jasminum polyanthum</i> | Jasmine | | Kamberg, Royal Natal |
| <i>Juglans regia</i> | | | Sani Pass |
| <i>Juncus</i> sp. | | | Sani Pass |
| <i>Lantana camara</i> | Lantana | 1b | Royal Natal |
| <i>Leptospermum scoparium</i> | | | Giants Castle resort |
| <i>Leucanthemum vulgare</i> | | | Sani Pass |
| <i>Ligustrum japonicum</i> | Privet | 1b | Kamberg, Royal Natal, Cathedral Peak office area, Didima Resort |
| <i>Ligustrum sinense</i> | | 1b | Sani Pass |
| <i>Lilium formosanum</i> | St Joseph's /Formosa lily | 1b | Monk's Cowl, Giant's Castle Camp |
| <i>Liquidambar</i> sp. | Liquidambar | | Royal Natal |
| <i>Lolium perenne</i> | | | Sani Pass |
| <i>Lonicera japonica</i> | | | Sani Pass |
| <i>Malus domestica</i> | | | Sani Pass |
| <i>Malus pumila</i> | | | Sani Pass |
| <i>Medicago polymorpha</i> | | | Sani Pass |
| <i>Melia azedarach</i> | Syringa | 1b | Royal Natal |
| <i>Modiola caroliniana</i> | | | Sani Pass |
| <i>Morus alba</i> (?) | Mulberry | 3 | Royal Natal |
| <i>Nicandra physalodes</i> | | | Sani Pass |
| <i>Oenothera rosea</i> | Rose evening primrose | | Kamberg camp, Sani Pass |
| <i>Oenothera glazioviana</i> | | | Sani Pass, Kamberg, Injesuthi |
| <i>Opuntia ficus-indica</i> | Sweet prickly pear | 1b | Injesuthi on cliffs near old dipping tank |
| <i>Opuntia stricta</i> (?) | Prickly Pear | 1b | Royal Natal |
| <i>Parietaria debilis</i> | | | Sani Pass |
| <i>Paspalum dilatatum</i> | | | Sani Pass |
| <i>Paspalum notatum</i> | | | Sani Pass |
| <i>Paspalum urvillei</i> | Tall paspalum | | Widespread in wetter areas in lowlands and where disturbance |
| <i>Passiflora edulis</i> | Granadilla | 2 | Royal Natal around CMNU house |
| <i>Pennisetum clandestinum</i> | Kikuyu | 1b | Planted widely, spreading in Witteberg, Cathedral Peak, Sani Pass |
| <i>Persicaria lapathifolia</i> | | | Sani Pass |
| <i>Phalaris canariensis</i> | | | Sani Pass |
| <i>Physalis angulata</i> | | | Sani Pass |
| <i>Phytolacca octandra</i> | Forest inkberry | 1b | Common, Sani Pass |
| <i>Pinus patula</i> | Patula pine | 2 | Cathedral Peak, Monk's Cowl, Culfargie, Injesuthi, Cobham, Royal Natal (Mahai and spreading from there) |
| <i>Plantago lanceolata</i> | Buckhorn plantain | | Sani Pass |
| <i>Plantago major</i> | | | Sani Pass |
| <i>Platanus x acerifolia</i> | Plane tree | | Royal Natal |
| <i>Poa annua</i> | Wintergrass | | Widespread |

| Species | Common name(s) | Category | Known Localities |
|------------------------------------|----------------------------|----------|---|
| <i>Polygonum aviculare</i> | | | Sani Pass |
| <i>Pontederia cordata</i> | Pickerel weed | | Monk's Cowl visitor centre |
| <i>Populus x canescens</i> | Grey poplar | 2 | Cathedral Peak (old campsite, Didima, entrance gate to hotel) |
| <i>Portulaca oleracea</i> | | | Sani Pass |
| <i>Prunella vulgaris</i> | | | Sani Pass |
| <i>Prunus persica</i> | Peach | | Royal Natal, Cathedral Peak, Giant's Castle, Cobham, staff housing, Sani Pass |
| <i>Pyracantha angustifolia</i> | Pyracantha | 1b | Witteberg – camp and Bushman's River, Injesuthi, Sani Pass |
| <i>Quercus robur</i> | English oak | | Kamberg, Royal Natal, Sani Pass |
| <i>Richardia brasiliensis</i> | Mexican richardia | | Widespread |
| <i>Rubus cuneifolius</i> | American bramble | 1b | Everywhere |
| <i>Rubus fruticosus</i> | | 2 | Witteberg |
| <i>Rumex acetosella</i> | | | Sani Pass |
| <i>Rumex crispus</i> | | | Sani Pass |
| <i>Salix babylonica</i> | Weeping willow | | Sani Pass, Kamberg, Lotheni, Cobham camp area, RNNP |
| <i>Salix fragilis</i> | Crack willow | | Sani Pass, Royal Natal |
| <i>Sambucus nigra</i> | Elderberry | 1b | Kamberg camp |
| <i>Senna septemtrionalis</i> | Smooth senna | 1b | Monk's Cowl |
| <i>Schkuhria pinnata</i> | | | Sani Pass |
| <i>Solanum mauritianum</i> | Bugweed | 1b | Widespread – esp Royal Natal, Monks Cowl |
| <i>Solanum pseudocapsicum</i> | | | Sani Pass |
| <i>Solanum sisymbriifolium</i> | Dense-thorned bitter apple | 1b | Sani Pass |
| <i>Sonchus oleraceus</i> | | | Sani Pass |
| <i>Sesbania punicea</i> | Red sebania | 1b | Royal Natal along the Mahai river below the treatment plant and Pocolan |
| <i>Sisymbrium turchaninowii</i> | | | Sani Pass |
| <i>Spergularia media</i> | | | Sani Pass |
| <i>Stellaria media</i> | | | Sani Pass |
| <i>Tagetes minuta</i> | Khakibos | | Widespread in disturbed sites, Sani Pass |
| <i>Taraxacum officinale</i> | Dandelion | | Sani Pass |
| <i>Taxodium distichum</i> | Swamp cypress | | Royal Natal |
| <i>Trifolium repens</i> | | | Sani Pass |
| <i>Ulex europaeus</i> | European gorse | 1a | Kamberg (Game Pass, Kamberg Camp) |
| <i>Urtica urens</i> | | | Sani Pass |
| <i>Verbena aristigera</i> | Fine-leaved verbena | | Mikes Pass (Cathedral Peak) |
| <i>Verbena bonariensis</i> | Verbena | 1b | Widespread |
| <i>Verbena brasiliensis</i> | | | Sani Pass |
| <i>Veronica anagallis-aquatica</i> | | | Sani Pass |
| <i>Vinca major</i> | Periwinkle | 1b | Kamberg, Hillside |
| <i>Viola tricolor</i> | | | Sani Pass |
| <i>Vitis vinifera</i> | | | Sani Pass |
| <i>Xanthium spinosum</i> | | 1b | Sani Pass |
| <i>Xanthium strumarium</i> | | 1b | Sani Pass |

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Appendix 2: Alien plants recorded from SNP, January 2018, list compiled by Mabari Lebamang, Samuel Lerotholi, Agatha Mokakatlela, Mamonyane Ranthimo, Ian Rushworth & Michael Cheek (yellow = to be confirmed)

| Species | Common name(s) - English | Common name(s) - Sotho | Known Localities |
|--|------------------------------|------------------------|--|
| <i>Argemone ochroleuca subsp. ochroleuca</i> | White-flowered Mexican poppy | | Associated with buildings and infrastructure |
| <i>Avena fatua</i> | | | Alongside roads |
| <i>Azolla filiculoides</i> | Red water fern | | Wetland near confluence of the stream from Thamathu pass and the stream from Thaba-Ntso |
| <i>Bidens pilosa</i> | Blackjack | Bohome bo botso | Around buildings |
| <i>Bromus catharticus</i> | | | Around rock pools, especially in association with old cattle posts; headquarters; along main road to old lodge; at old police border post (Ngongoana); disturbed areas |
| <i>Cannabis sativa</i> | Dagga | | Headquarters |
| <i>Cirsium vulgare</i> | Scotch thistle | Hlabahlabane | Vicinity of any infrastructure but isolated plants anywhere |
| <i>Erigeron sumatrensis (Conyza albida)</i> | Tall fleabane | | Construction sites associated with office and tourist; identification confirmed by Michael Cheek |
| <i>Datura ferox</i> | Fierce thorn apple | | Disturbed areas around buildings |
| <i>Datura stramonium</i> | Common thorn apple | | Disturbed areas around buildings |
| <i>Echium vulgare</i> | Viper's bugloss | | Spreading into undisturbed grassland |
| <i>Eragrostis curvula hybrids</i> | Eragrostis | | Headquarters, along roads |
| <i>Lolium multiflorum/perenne</i> | | | Widespread |
| <i>Myriophyllum aquaticum</i> | | | In river below old lodge |
| <i>Oenothera rosea</i> | Rose evening primrose | | Old lodge |
| <i>Oenothera tetraptera</i> | | | Widespread |
| <i>Paspalum dilatatum</i> | | | Mainly damp areas near rivers |
| <i>Paspalum notatum</i> | | | Mainly damp areas near rivers |
| <i>Paspalum urvillei</i> | Tall paspalum | | Below waterfall, near Ntloana tsoana |
| <i>Pennisetum clandestinum</i> | Kikuyu | | Aaround White House (weather station area) |
| <i>Phytolacca octandra</i> | Forest inkberry | | Headquarters and Ngongoana |
| <i>Plantago lanceolata</i> | Buckhorn plantain | | Disturbed areas |
| <i>Plantago major</i> | | | Disturbed areas |
| <i>Poa annua</i> | Wintergrass | | Along road |
| <i>Prunus persica</i> | Peach | perekisi | Along roads, occasional |
| <i>Richardia brasiliensis</i> | Mexican richardia | | Near staff accommodation |
| <i>Rosa rubiginosa</i> | Wild rose | 'Morobei | A single sighting near Head Quarters |
| <i>Rubus cuneifolius</i> | American bramble | Monokotsoai | Ngongoana |
| <i>Salix fragilis</i> | Crack willow | Moluoane | Headquarters, weather station, old lodge, Tsoelikana River |
| <i>Tagetes minuta</i> | Khakibos | Setlabocha | Disturbed areas near buildings |
| <i>Taraxacum officinale</i> | Dandelion | Leshoabe | Widespread |
| <i>Verbena bonariensis</i> | Verbena | | On way to weather station |

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Appendix 3: Alien animals recorded from the MDP WHS as at 2016 with associated category in National Environmental Management: Biodiversity Act (10/2004): Alien and Invasive Species List, 2014; NL = Not Listed; DNSM = Durban Natural Science Museum

| Class | Group | Scientific Name | Common Name | Source | Category (RSA) | Notes |
|--------------|------------------------|----------------------------------|--------------------------|-------------------------|----------------|--|
| Arachnida | Arachnids | <i>Varroa destructor</i> | Varroa mite | John Cragie, monitoring | 1b | UDP |
| Clitellata | Earthworms and Leeches | <i>Amyntas diffringens</i> | | Biodiversity Database | NL | UDP |
| Clitellata | Earthworms and Leeches | <i>Pheretima (complex)</i> | | Biodiversity Database | NL | UDP |
| Insecta | Insects | <i>Ctenolepis malongicaudata</i> | Grey silverfish | Rushworth, pers. obs. | NL | UDP |
| Insecta | Insects | <i>Periplaneta americana</i> | American cockroach | Rushworth, pers. obs. | NL | UDP |
| Osteichthyes | Bony fish | <i>Lepomis macrochirus</i> | Bluegill sunfish | Biodiversity Database | 1b | UDP |
| Osteichthyes | Bony fish | <i>Oncorhynchus mykiss</i> | Rainbow trout | Biodiversity Database | NL | UDP & SNP; this is the only alien animal recorded from SNP, below the waterfall and previously in the dam near the old lodge |
| Osteichthyes | Bony fish | <i>Salmotrutta</i> | Brown trout | Biodiversity Database | NL | UDP |
| Aves | Birds | <i>Acridotheres tristis</i> | Common Myna | Rushworth, pers. obs. | 3 | UDP |
| Aves | Birds | <i>Columba livia</i> | Rock dove (Feral Pigeon) | Biodiversity Database | 3 | UDP |
| Aves | Birds | <i>Passer domesticus</i> | House sparrow | Biodiversity Database | 3 | UDP |
| Aves | Birds | <i>Sturnus vulgaris</i> | Common starling | Rushworth, pers. obs. | 3 | UDP |
| Mammalia | Mammals | <i>Felis catus</i> | Domestic cat | Staff observations | NL | UDP |
| Mammalia | Mammals | <i>Rattus rattus</i> | House rat | DNSM | NL | UDP |

Appendix 4: The top 23 ‘current’ emerging alien plant invaders of the Maloti-Drakensberg bioregion (adapted from Carbutt, 2012)

| Species | Family | Common name |
|---|----------------|--|
| <i>Argemone ochroleuca</i> subsp. <i>Oroleuca</i> | Papaveraceae | White-flowered Mexican Poppy |
| <i>Cirsium vulgare</i> | Asteraceae | Bull/Spear Thistle |
| <i>Cotoneaster pannosus</i> | Rosaceae | Silver-leaf Cotoneaster |
| <i>Cuscuta campestris</i> | Convolvulaceae | Common/Field Dodder |
| <i>Cytisus scoparius</i> | Fabaceae | Scotch Broom |
| <i>Echium plantagineum</i> | Boraginaceae | Patterson’s Curse/Purple Viper’s-bugloss |
| <i>Echium vulgare</i> | Boraginaceae | Blue Echium/Viper’s-bugloss |
| <i>Gleditsia triacanthos</i> | Fabaceae | Honey Locust |
| <i>Hypericum pseudohenryi</i> | Hypericaceae | ‘St. John’s Wort’ |
| <i>Juniperus virginiana</i> | Cupressaceae | Eastern Red Cedar |
| <i>Ligustrum japonicum</i> | Oleaceae | Japanese Wax-leaved Privet |
| <i>Nasturtium officinale</i> | Brassicaceae | Watercress |
| <i>Oenothera rosea</i> | Onagraceae | Pink Evening Primrose |
| <i>Oenothera tetraptera</i> | Onagraceae | White Evening Primrose |
| <i>Opuntia ficus-indica</i> | Cactaceae | Sweet Prickly Pear |
| <i>Pyracantha angustifolia</i> | Rosaceae | Narrow-leaved/Yellow Firethorn |
| <i>Quercus robur</i> | Fagaceae | Common/English Oak |
| <i>Richardia brasiliensis</i> | Rubiaceae | Brazil Pusley/Tropical Mexican Clover |
| <i>Robinia pseudoacacia</i> | Fabaceae | Black Locust |
| <i>Rosa multiflora</i> | Rosaceae | Multi-flora rose |
| <i>Rosa rubiginosa</i> | Rosaceae | Eglantine/Sweet Briar |
| <i>Salix fragilis</i> var. <i>Fragilis</i> | Salicaceae | Crack/Brittle Willow |
| <i>Ulex europaeus</i> | Fabaceae | European Gorse/Gorse |

Appendix 5: The top 27 ‘future’ emerging alien plant invaders of the Maloti-Drakensberg bioregion (adapted from Carbutt, 2012)

| Taxon | Family | Common name | Growth form |
|--|----------------|-------------------------|---------------------------|
| <i>Acacia elata</i> | Fabaceae | Peppertree wattle | Tall tree |
| <i>Achillea millefolium</i> | Asteraceae | Common yarrow/milfoil | Herb (forb) |
| <i>Anredera cordifolia</i> | Basellaceae | Madeira vine | Climber |
| <i>Arundo donax</i> | Poaceae | Giant reed | Grass/reed (graminoid) |
| <i>Campuloclinium macrocephalum</i> | Asteraceae | Pompom weed | Herb (forb) |
| <i>Coreopsis lanceolata</i> | Asteraceae | Lance-leaved tickseed | Herb (forb) |
| <i>Cortaderia selloana</i> | Poaceae | Pampas grass | Tall grass (graminoid) |
| <i>Eucalyptus camaldulensis</i> | Myrtaceae | Red river-gum | Tall tree |
| <i>Glyceria maxima</i> | Poaceae | Reed sweet grass | Herb (graminoid), aquatic |
| <i>Lythrum hyssopifolia</i> | Lythraceae | Hyssop loosestrife | Herb (forb) |
| <i>Nasella tenuissima</i> | Poaceae | White tussock | Grass (graminoid) |
| <i>Nasella trichotoma</i> | Poaceae | Nasella tussock | Grass (graminoid) |
| <i>Oenothera stricta</i> | Onagraceae | Sweet sundrop | Herb (forb) |
| <i>Phytolacca octandra</i> | Phytolaccaceae | Inkberry | Shrub |
| <i>Pinus halepensis</i> | Pinaceae | Aleppo pine | Tree |
| <i>Pinus radiata</i> | Pinaceae | Radiata pine | Tree |
| <i>Pinus taeda</i> | Pinaceae | Loblolly pine | Tall tree |
| <i>Populus alba</i> | Salicaceae | White poplar | Tree |
| <i>Populus deltoides</i> | Salicaceae | Match poplar/cottonwood | Tall tree |
| <i>Populus nigra</i> var. <i>italica</i> | Salicaceae | Lombardy poplar | Tall tree |
| <i>Pyracantha crenulata</i> | Rosaceae | Himalayan firethorn | Shrub |
| <i>Richardia stellaris</i> | Rubiaceae | Field madder | Herb (forb) |
| <i>Rosa canina</i> | Rosaceae | Dog rose | Shrub |
| <i>Rubus phoenicolasius</i> | Rosaceae | Wineberry | Shrublet/shrub |
| <i>Solanum pseudocapsicum</i> | Solanaceae | Jerusalem cherry | Shrublet/shrub |
| <i>Xanthium spinosum</i> | Asteraceae | Spiny cocklebur | Herb (forb) / shrublet |
| <i>Xanthium strumarium</i> | Asteraceae | Large cocklebur | Herb (forb) / shrublet |

Cultural Heritage Management Plan
for Sehlabathebe National Park
Kingdom of Lesotho

Prepared for

Ministry of Environment, Tourism and Culture
Kingdom of Lesotho

Prepared by

Sam Challis

Rock Art Research Institute, University of the Witwatersrand

Cultural Heritage Management Plan Sehlabathebe National Park Kingdom of Lesotho

Executive Summary

This document is a Management Strategy to aid the decision-makers at Sehlabathebe National Park (SNP) World Heritage Site¹ in protecting and presenting the Cultural Heritage Sites in their care, especially those sites ranked High Significance in the Rock Art and Baseline Archaeological Survey of the Sehlabathebe National Park, Kingdom of Lesotho, Final Report to the World Heritage Committee of the United Nations Educational, Scientific and Cultural Organization (UNESCO)² of 2015.

It is designed in conjunction with and to accompany the Maloti Drakensberg Park World Heritage Site Cultural Heritage Resources Management Plan for the South African Properties³, since the SNP is an extension of that World Heritage Property. Further, it is based on, and intended as a companion volume to, the Rock Art and Baseline Archaeological Survey prepared for the Ministry of Tourism, Environment and Culture (MTEC) insofar as it refers to and replicates some of the data in that report.

The new Maloti-Drakensberg Cultural Heritage Management Plan is still in its draft stages, but the executive author, Celeste Rossouw, has kindly allowed us to preview its contents in order that the Wits MARA team⁴ can advise MTEC as to how best to proceed. It is an extensive document – the result of several years of consultation, preliminary study and background investigation. The plan will be used to guide the day-to-day management of individual sites and any changes to relevant policies.⁵

The sites that will be opened to the public in the SNP have not yet been chosen, because the decision is pending the submission of the aforementioned survey report, and the Cultural Heritage Management Plan set out in this document, that form part of the terms of reference for the survey contract. Therefore this document sets out a suggested strategy for site management based on the findings of the report, the sites that have been ranked High Significance, and the professional opinion of the archaeologists as to which of these High Significance sites are suitable for public visits and which sites are not.

¹ United Nations Educational, Scientific And Cultural Organization (UNESCO) Convention Concerning The Protection Of The World Cultural And Natural Heritage World Heritage Committee Thirty-seventh session Phnom Penh, Cambodia 16 – 27 June 2013, Property Sehlabathebe National Park Decision: 37 COM 8B.18 [extension of “Ukhahlamba /Drakensberg Park”, South Africa, (i)(iii)(vii)(x), Paris 5th July 2013.

² Challis, S., Mullen, A., and Pugin J. 2015. Rock Art and Baseline Archaeological Survey of the Sehlabathebe National Park, Kingdom of Lesotho, Final Report to the World Heritage Committee of the United Nations Educational, Scientific and Cultural Organization (UNESCO).

³ Rossouw, C. n.d. Maloti-Drakensberg Park World Heritage Site Cultural Heritage Resources Management Plan for the South African Properties. Unpublished draft document produced by KwaZulu Natal Heritage Resources Agency, Amafa, Pietermaritzburg.

⁴ Matatiele Archaeology and Rock Art programme at the Rock Art Research Institute, University of the Witwatersrand.

⁵ Rossouw, C. Maloti-Drakensberg Cultural Heritage Resources Management Plan.

It should be noted that both this document and the Final Report were designed to fit the brief set out by UNESCO in its requests to the State Party of Lesotho – that is to say to document and classify in order of significance the rock art sites – the SNP contains much else in the order of cultural heritage that was not given prominence. There are a multitude of stone walls within the park, for example, which are testament to the settling of the region by Basotho, Baphuthi and others in historical times. These sites are included in the Final Report; however they are not a part of what gives the SNP its Cultural Heritage Significance in terms of UNESCO’s criteria for Outstanding Universal Value (OUV).⁶ for this Property. Recommendations are made in line with the ICOMOS Burra Charter – a conservation document formulated in Australia and increasingly adopted by rock art management practitioners worldwide.⁷ The Burra Charter also guides the principles of the more expansive CHMP for the draft Maloti-Drakensberg WHS.

Before proceeding, however, it should be noted that we recommend MTEC create a post for a Senior Heritage Officer for the SNP, and that this officer be tasked with integrating this Management Strategy into the exiting, as yet unpublished, Management Plan for the South African properties, taking into account the specific requirements of Cultural Heritage within the SNP – such as the results of consultation with the Sehlabathebe local community, the Intangible Heritage study, and the National Heritage Resources Act of 2011 which vests all Cultural Heritage in Lesotho in state.⁸ Ideally it would integrate both nations’ properties in one document that would accord with trans-border co-operation.

In any case, agreements must be entered into between all parties responsible for the safeguarding of Cultural Heritage in the SNP and its surrounds. Therefore we recommend MTEC adopt a similar system to that outlined in the draft Maloti-Drakensberg Cultural Heritage Resources Management Plan and sign an MoU with Ezemvelo and Amafa – and suggest that MTEC sign a similar MoU with SAHRA in order that the South African Heritage Resource Agency become fully aware that only in collaborative efforts can sites be truly protected.

⁶ Jokilehto, J. 2008. *The World Heritage List. What is OUV? Defining the Outstanding Universal Value of Cultural World Heritage Properties* (Vol. 16). Hendrik Bäßler Verlag.

⁷ The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013.

⁸ National Heritage Resources Act 2011 (Act 2 of 2012) Kingdom of Lesotho. p95

Goals and Principles

The following goals and principles are those set out by the Amafa-led collaborative management group of stakeholders, some of which are given verbatim and others paraphrased.

The Goals

The goals of the Cultural Heritage Resource Management Plan are to:

- a) Ensure the long term conservation of heritage resources,
- b) Promote public appreciation of heritage resources
- c) Explore the educational and
- d) socio-economic value of heritage resources in a sustainable manner that does not impact on the cultural and religious integrity of these sites.

The reader will notice that goals a) and d) are closely linked and that the PRIMARY goal of Cultural Heritage Resource Management is CONSERVATION. Promoting public appreciation is important, although secondary. Education and socio-economic value are also given great importance but these factors must never infringe on the integrity of the resources themselves.

In the case of the SNP we are talking about bringing people to rock art sites. In some cases, alerting people to the presence of rock art, or other archaeological, sites can be the most dangerous thing to do. Once a place is known, and visitors are not supervised by a qualified guide, much damage can be done by people touching the art, scratching or writing (sometimes painting) over the art, chipping or removing paint (sometimes for traditional medicine) , lighting fires, removing surface objects or even removing the rock art panels themselves. More damage can be done through publicity than if the heritage site were not brought to the public attention. The mention of the site of Ha Baroana in Lesotho should be sufficient warning. All rock art is protected in Lesotho under the National Heritage Resources Act of 2011 and visits to sites by members of the public should only be made under the supervision of a qualified guide.

Guides need to be employed. If there are no guides, there can be no visits to the rock art. Facilities advertising rock art should only do so as guided tours. Visitors may not be allowed to visit rock art sites by themselves unless they are qualified Cultural Heritage practitioners or if in possession of a permit.

Visitor groups at rock art sites are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

The Key Principles

The key principles for the conservation of the cultural heritage can be summarised as follows:

- Minimum intervention into the archaeological and historical fabric or disturbance of it. All intervention must be reversible.
- Conservation of the chief archaeological, historical and other heritage elements of the Park through suitable management systems and services.
- Presentation of the heritage resources in a way which enhances its significance.
- Conservation is to be of recognised international and institutional standards in respect of site management, monitoring, maintenance, physical control and visitor management.

Amafa point out that in the trans-frontier, or trans-boundary conservation project, the staffing of the SNP in terms of Cultural Heritage custodianship is woefully inadequate:

The Ministry of Tourism, Environment and Culture, Kingdom of Lesotho, has two District Cultural Officers whose responsibility it is to preserve and manage both tangible and intangible cultural heritage resources, but at present there is no rock art specialist based in Lesotho and there is a reliance on foreign consultants.⁹

Amafa currently has two staff members dedicated to the management of the rock art sites in the Park. A **Senior Heritage Officer** is dedicated to the management of the rock art in the Park, while a Rock Art Monitor assists field staff in the physical and practical aspects of rock art management. The Deputy Director: Research, Professional Services and Compliance (DD: RPSC) supervises and manages the Rock Art function and promotes institutional co-operation on all aspects of cultural heritage managements in the Park. Amafa's Archaeology and Built Environment Section are also available to provide management and conservation advice.

Sustainable utilization of heritage resources

With respect to goal d), above, one of the Park management's core goals is the sustainable utilization of heritage resources. This requires that the economic attributes of a heritage resource/site be used in such a way as to benefit all affected and interested parties without compromising the attributes that impart significance. Twenty two rock art sites are currently open

⁹ Rossouw, C. Maloti-Drakensberg Cultural Heritage Resources Management Plan. 16

to the public in the South African part of the Park. The public may visit these if in possession of a permit, or if accompanied by accredited custodians. In terms of heritage legislation, **access to rock art sites is restricted**. In order to overcome the conflict created between the desire of the public to access rock art, and the management desire to limit access, as well as other management issues, a number of policies have been developed. There are currently policies in place that addresses site access to rock art sites by the public, researchers, educational visitors, the media for filming and publications and to local communities for ritual purposes.

Code of Conduct

A Code of Conduct is set out in an addendum to the document. This relates to behaviour at rock art sites has been developed and this information should be made available to all visitors to rock art sites.

Monitoring

Monitoring of the rock art sites is carried out in regular inspections by both Amafa and EKZNW staff. Over 96 **Field Rangers** are employed within the MDP WHS to carry out a variety of functions. Their work entails law enforcement, biological and cultural heritage monitoring. Rock art sites are monitored at different frequencies depending on whether they are opened to visitors or have no access. Open sites, which allow access for the public access under the direct supervision of an Amafa accredited Custodian, are inspected on a monthly basis, sites that are threatened by illegal visitation are monitored on a quarterly basis and those threatened by fire bi-annually. Closed sites are inspected annually. A new Cluster Monitoring Programme is currently being introduced throughout the MDP WHS, which means that the sites will be monitored more frequently.

Security in Sehlabathebe National Park

On the occasion when the Honourable Minister of Tourism, Environment and Culture, Mme Tampane visited the SNP and had the opportunity to speak to the members of the Wits MARA Programme conducting the survey, the issue of security was raised. The Honourable Minister and the Principal Secretary, Ntate Sehloho were both very concerned about unauthorised access to the park and the prevalence of cross-border smuggling and stock theft as well as poaching the Park's game animals. Smugglers and stock thieves, as well as ordinary villagers grazing their livestock, are responsible for making fire in the rock art shelters and the subsequent damage to the rock art sites.

Proper policing of the park by a dedicated team of **Field Rangers** is a very necessary action that should be implemented by MTEC in collaboration with the existing border patrols. SNP Field Rangers need to be employed, and need to be prepared to engage with persons using the park in ways that affect the conservation of this World class Cultural Heritage.

San descendants

Important, although something that was not discussed or discovered by the survey team, is the issue of living San descendants with connections to the SNP and its environs. This, we understand, falls under the remit of the **Intangible Heritage Survey**. For San Descendants, however, the rock art in the shelters of the Maloti-Drakensberg constitutes a very tangible heritage. On the Ukhahlamba side, Amafa advises that San descendants should be major stakeholders in the cultural resources of the MDP WHS. The managers of the Park acknowledge this and have started a process of promoting and respecting in living heritage associated these people. EKZNW do not allow the collection of animals from protected areas for traditional use, but allowances have been made and the Park makes two eland per year available for traditional ceremonies for San descendants.

The High Significance sites of the Sehlabathebe National Park

A. Sites recommended for public visitation

- B01
- B31
- B33
- C17
- D04a
- D28
- E01
- F15
- F22
- J01
- J04
- J10
- Z04

B. Sites possible for public visitation

- B29
- D23
- F18
- H05
- J02
- J05

C. Sites not to be opened to the public

- B05
- B16a Burial Site
- D25
- H20
- J08
- S03

The sites listed above constitute all those Cultural Heritage sites of significance that have been ranked by the University of the Witwatersrand MARA team's Rock Art and Baseline Archaeological Survey of the Sehlabathebe National Park, Kingdom of Lesotho, Final Report to the World Heritage Committee of the United Nations Educational, Scientific and Cultural Organization (UNESCO).

In the following section we give all the site details and the condition assessment record as well as site-specific recommendations to assist MTEC/Park authorities to commence with the work of preparing the sites for visitation.

We stress that no site should be opened to the public without first contracting a qualified rock art conservator to assess, advise and carry out such conservation measures that will ensure its safety.

Interpretive material. It is not recommended that any rostrums, plaques, panels or any other installation of interpretive material be used at any of the sites in the SNP WHS. The visitor/education centre will be able to provide guests with an overview, and the guide that must at all times lead any visitor group will be able to provide information at a site-specific level. Further to this a visitor booklet should be issued to any visitor and included in the entrance fee to the Park. A good example of this is the guidebook for the UNESCO inscribed WORLD HERITAGE site at Alta in Norway – a 30 page booklet with reproduced images (for clarity) and several paragraphs about every rock art panel that is open to the public within the Site.¹⁰

¹⁰ Helskog, K., 2012. Guide: the rock carvings at Hjemmeluft/Jiepmaluokta. Bjorkmanns: Alta.

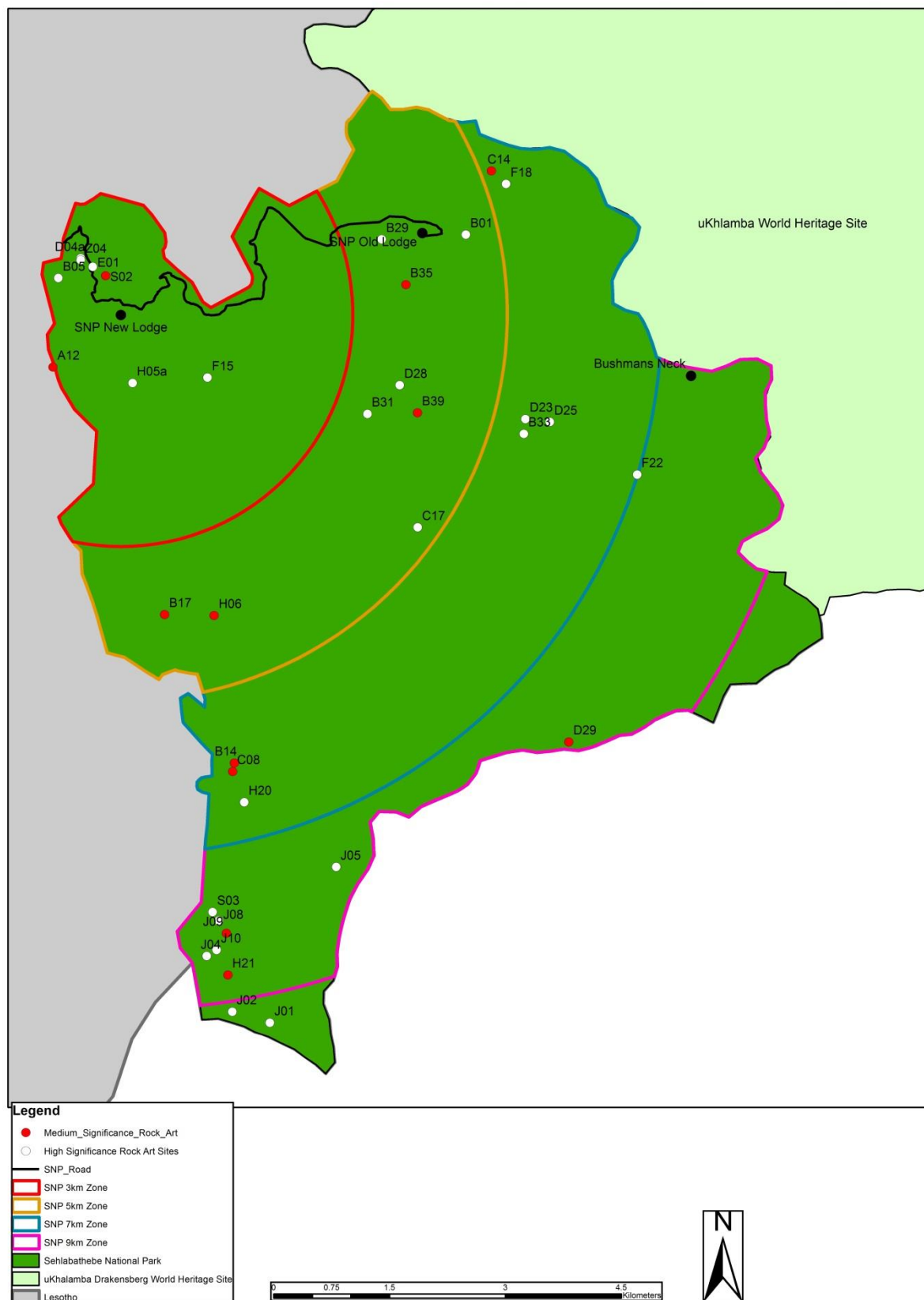


Figure 1. Map to show High Significance sites with 3, 5, 7 and 9km radius from the New Lodge. This may be used to estimate hiking and horse trail distances and visitor itineraries.

A. Sites recommended for public visitation

Measures to be taken at B01

Visitation. Site B01 is recommended for public visits because of its proximity to the Old Lodge and to the Park road. It also lies very close to one of the Park's more popular hiking trails.

Situation. It contains one image that is naturally protected from wild and domestic animal damage because of its high position – although this does not protect it from bird droppings and other avian or insect processes. Nor does it protect it from human interference, as can be seen in the scratched graffiti.

Access. The image can still be accessed by people scaling the rockface and working their way along the ledge originally used by the San artists. It is recommended that access to this ledge be deterred by putting in place a non-intrusive barrier.

The floor of shelter B01 is strewn with natural rock debris and there is a natural deposit that may contain archaeological remains. However, the low finds density and shallow deposit exclude B01 as a potential excavation site. The shelter floor is enclosed by a stone wall that may under no circumstances be moved or altered because it is itself a Cultural Heritage artefact.

Dust created by visitors to the site should be kept to an absolute minimum, although the potential for creating dust at Site B01 is not very great. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. Although the graffiti is noticeable from close-up, it is barely visible from the shelter floor level where visitors will be standing. However, MTEC/Park authorities may consider requesting the conservator to clean the image of any surface dust and bird droppings, and to camouflage the scratching.

B01 – Rock art and stonewalled site

[ARAL 184]



Figure 2. Locating shot of B01 looking north



Figure 3. Site B01, oblique shot of panel A

SIGNIFICANCE:

Ranking: HIGH (complexity: low, visibility: high, vulnerability: high, rarity: low, research potential: low)

This site contains rock art, Later Stone Age artefacts, Iron Age/ Historical artefacts and a kraal. Although there is little potential for archaeological excavation, owing to the absence of significant sub-surface archaeological deposits it is rated HIGH significance for its clarity and its vulnerability: there is only one image, but it is very clear and is located close to the old lodge buildings and to a tourist hiking trail. It is well-known by tourist guides and these factors make the site vulnerable to further damage. Vulnerability is apparent in the (fortunately faint) scratched graffiti on and around the image. This site would be recommended as a tourist visitor site, if appropriate conservation measures are taken.

SITE LOCATION - 29°52'08.4"S, 029°07'19.0"E

B01 is a south-west-facing shelter measuring 29m in width across the rock face, with a 10m high overhang recessing up to 7m into the rock face. The site is situated approximately 20m above the course of a small stream flowing east-west and has a steep talus that slopes down to the stream 25m to the south. The Old Lodge buildings are visible to the west.

Rock art and stonewalled site B01 contains two panels of rock art, panels A and B.

PRESERVATION

Panel A is in a good state of preservation, though the head of the polychrome eland is affected by washes and has faded somewhat. There is also scratching over the image. Panel B is a smudged, indeterminate patch of paint.



Figure 4. ARAL photograph 1980



Figure 5. MARA photograph 2015

ARAL COMPARISON

It appears there has been very little deterioration in the polychrome eland since the ARAL photograph (only one picture) was taken in 1980. The extent of salt washing appears to be the same, both on the hindquarters and on the head. The line of the stomach is perhaps a little less clear in the 2015 photograph. Graffiti above and to the right of the eland are not visible for comparison in the ARAL picture because it was tightly framed.

PANEL A

See photo register: 6014-6017, 6020-6023, 1176-1191

Panel A is located on the rear wall of shelter B01, on the western side of the shelter above a ledge 5m from the shelter floor. It contains a single polychrome eland in a standing position facing south (right). This eland is 30cm in length. The head and neck are somewhat faded, but the rest of the animal is very clear.

PANEL B

See photo register: 6019, 6024-6032, 1197-1201

Panel B is located on the eastern end of B01 on a fallen section of rock on the shelter floor. No representational images, only smudging of paint.

STONEWALLING

See photo register: 6033-6039

One structure (A) present at B01. A is a stonewall measuring 1.5m in height which runs east-west under the drip line of the shelter, enclosing it at either end of the shelter.

ARTEFACTS

See photo register: 6031

Occasional artefacts found on surface. These include CCS and quartzite flakes, possible burnt bone and a length of rusted metal

DEPOSIT

Deposit depth is shallow: >10cm in depth. Bedrock is visible. The low finds density and shallow deposit exclude B01 as a potential excavation site.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|--|------------|---|---|
| <u>General Site Information</u> | | | |
| Site #: B01 | | Site name: | |
| Panel #: A | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29°52'08.4"S 029°07'19.0"E | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 27/05/2015 | | Time: 15:20 | |
| Weather: CLEAR AND FINE | | | |
| Dimensions: Height: 10M Depth: 7M | | Width: 15M | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): RED, WHITE | |
| Aspect & angle: S +/-90° | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA A: 6014-6017, 6020-6023 CAMERA J: 1176-1191 | |
| Overlays: NONE | | | |
| Existing documentation: (e.g. ARAL?) ARAL 184 | | | |
| Topography/general site description: Mountainous. Refer to site record sheet and pictures | | | |
| General description of images and their condition: Refer to site record sheet and pictures | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y:✓ | N: | Seeps: Y:✓ N: |
| Damp areas: | Y:✓ | N: | Other water related conditions: Water used in past recordings of rock art |
| Soluble salts: | Y: | N:✓ | Insoluble salts: Y:✓ N: |
| Cleaving: | Y: | N:✓ | Exfoliation: Y:✓ N: |

| | | | | | |
|---|---|--|---------------------------|-------------|-------------|
| Granulation: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Wind erosion: | Y: | N: ✓ | Dust: | Y: ✓ | N: |
| Vegetation: | Y:✓ | N: | Lichen: | Y: | N: ✓ |
| | above image | | | | |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y: | N: ✓ | Bacteria: | Y: | N:✓ |
| Animals: | Y: | N:✓ | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: ✓ | N: |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: | N: ✓ |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N: ✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |

| | |
|--|-----------------|
| <u>Other Observations</u> Shelter formed on underside of exposed sandstone outcrop. Rock art exists on ledge that is somewhat protected by fallen rocks. This ledge is still accessible and graffiti is present. | |
| Past treatments: | Y: |
| N:✓ | |
| General comments: Site is vulnerable because it is located very close to the Old Lodge. Provision must be made for its protection. | |
| Recommendations: If the site is included on a visitor route provision needs to be made to protect the rock art further. Good site for visitors due to raised rock art panel. Scratched graffiti may be removed or camouflaged by a qualified rock art conservator. ` | |
| ASMIS Site Condition Assessment Value: | Good: |
| Fair:✓ | Poor: |
| Destroyed: | Unknown: |
| Assessor: SAM CHALLIS | |
| Affiliation: WITS - (MARA) | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
 J. Claire Dean
 Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at B31

Visitation. Site B31 represents an excellent example of the varying types of cultural resources present within the park, and would therefore be of interest to visitors. It is an impressively large sandstone shelter in a setting of outstanding natural beauty. The rock art, however, is vulnerable due to exposure to human activity and the fragility of the rock face.

Situation. As will be apparent from the site record below there are many images in site B31. For the most part they are arranged along the back wall at head height and just above head-height. Most of the panels are very flaked by natural erosion processes but the images are still clearly visible. The rock art conservator will be able to advise as to which panels are most suitable for visitors, but we recommend Panels G, H and I (see site record below). The shelter floor is enclosed by a stone wall that may under no circumstances be moved or altered because it is itself a Cultural Heritage artefact.

Access. The main challenges at this site are natural water seepage and dust. While little can be done about the former, the latter must be kept to an absolute minimum by ensuring that the guide informs visitors that they keep to the designated walkways. It is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust or scrambling around the many boulders and ledges in the site. Importantly, visitors should not be allowed to interfere in any way with the archaeological stone walling.

The floor of shelter B31 is covered in artefacts. There is likely to be a reasonably deep deposit in the shelter that may have potential for excavation. Therefore, just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. Although visitors may wish to see examples of the artefacts on the shelter floor they may not be allowed to touch any – except for those selected and issued by the guide while at the site. No material may be removed from the site and visitors must be issued with a warning that any offence is punishable by fines and/or imprisonment under Lesotho's National Heritage Resources Act of 2011.

B31 – Rock art and stonewalled site

[ARAL 240]



Figure 6. Locating shot of B31 looking south.



Figure 7. Locating shot of B31 looking north.

SIGNIFICANCE

Ranking: HIGH (visibility: clear, vulnerability: potentially high)

B31 represents an excellent example of the varying types of cultural resources present within the park. It is therefore a prime target for development as a visitor site. This places it immediately in the high-vulnerability bracket. Rock art images in centre panels G, H and I contain the highest concentration of paintings and the most clearly visible. These panels would be suitable for visitor display although we recommend that the panels be traced and redrawn for greater interpretive impact.

SITE LOCATION - 29°53' 23.8"S, 29°06' 31.6"E

See photo register: 1534-1535, 1537-1554

Rock art and stonewalled site B31 is an extremely large sandstone shelter, measuring 100m in width. This site faces east and lies on a relatively steep slope of hillside. There is a stream running in the valley below B31 (north - south-east) towards the Tsoelikane River. Refer to co-ordinates. This site has been extensively used by people and contains two stonewalled dwellings, an enclosing kraal wall running the length of the shelter and a smaller enclosing kraal inside the shelter.

The rock paintings at shelter B31 are spread intermittently across the majority of the length of the 100m shelter, places upon the back wall and in natural recesses in the rock face from the left (south) to the north (right side). There are no paintings at the extreme north end of shelter B31 in the vicinity of the stonewalled dwelling. The art has been divided into 15 panels (panels A-O).

PRESERVATION

This site has considerable evidence for intensive human occupation and various factors are affecting the preservation of the site. The rock face is covered in dust, there has been animal rubbing along the back wall and there appears to be calcite build-up on some of the panels, contributing to the flaking of paint from the rock face. The surface of the rock face appears also to be friable, and large sections of it have flaked off and lie on the shelter floor – although none with paint could be discerned.



Figure 8. ARAL image 1980, B31 panel G



Figure 9. MARA image 2015, B31 panel G

ARAL COMPARISON

Close inspection of the images of the eland in panel G suggests that in this panel at least, there has been little change in the state of preservation in the last 35 years. Other panels show signs of having gathered more dust and some further spalling was observed. Please see condition assessment forms.

PANEL A

See photo register: 8429-8451, 8549-8461

Panel A is located at the extreme left (south) end of shelter B31. This panel consists only of large, bright red splodges. These are possibly paint smears from goat/sheep identification paint. These are located on the ceiling of a recess. On the bottom right of panel A are possible red finger dots.

PANEL B

See photo register: 8452-8458

Panel B is located +/- 1.5m from panel A, close to the shelter floor. It consists of red indeterminate figures that are very faded.

PANEL C

See photo register: 8462-8470

Panel C is located 1m from panel B on the back wall of shelter B31. This panel consists of more red paint smear similar to panel A and one deliberate red finger dot

PANEL D

See photo register: 8471- 8489

Panel D is located under a fallen boulder at back wall of shelter, protected by another boulder in front of it. In panel D are a collection of faded bending forward human figures painted in red and black. They have elongated arms and legs with large calf muscles. Also in panel D are indeterminate black painted forms.

PANEL E

See photo register: 8490--8496

Panels E, F and G, H and I are located within the stonewalled kraal on the centre-right side of shelter B31. They are placed upon the back wall of the shelter, about 1.6- 1.8 metres above the shelter floor. Panel E is a single image on about 2.5 m left of panel F. This single image is one bright red paint mark

PANEL F

See photo register 8497-8501

Panel F is 2.5m to the right of panel E. This panel consists of three human figures (+/- 10cm in height) painted in dark red. The left image is facing to the left and only its torso is very clear, the centre figure is facing to the right and appears to be walking, as does the human figure on the right, though this image is more faded than the other two. Below and slightly to the right of these figures, on the 'ceiling' of a recess in the rock face there is another red paint mark.

PANEL G

See photo register: 8502-8515

Panels, G, H and I are immediately next to one another about 1.5m from panel F on the back wall of the shelter and are the panels with the highest concentration of paintings. Panel G extends across the rock face for +/- 1.3m. From left to right: Indeterminate orange quadruped and faded (by dust) row of kaross-clad figures in red, each about 12cm in height. Centre: row of 15 (?) on top of panel, superimposed on left by bichrome orange and white eland with no head visible, Line of human figures superimposed on right by shaded bichrome eland with red forelock, white head, white legs. Bottom right: row of 5 (?) faded human figures in seated postures with karosses.



Figure 10. General shot of panel H in relation to panel G.

PANEL H

See photo register: 8516-8538

Panel H is on an angled outcrop of the rock face, facing south, immediately to the right of Panel G. This panel contains a concentration of red human figures in clear red paint. Some of these are quite large; one human figure appears to bend around the top of the panel. Others hold sticks and have tassels attached to extremities.

PANEL I

See photo register: 8538-8544

Panel I is on the back wall of the shelter facing outwards and contains a group of human figures in red and dark red. In the top centre of panel I are two human figures with thin bodies, elongated arms and thin legs in dynamic postures. These appear to be running. There are about five other human figures below these and portions of red and white flaked paint.

PANEL J

See photo register: 8544-8554

This panel is extensively damaged by flaking and calcite; the left hand of panel J is mostly destroyed. In the centre of the panel is a faded dark red quadruped, 4 dark red flaked lines next to one another and on the right of panel J is a row of seated kaross-clad figures and hunting bags. This panel is +/- 1.2m long.

PANEL K

See photo register: 8555-8587

Panel K is located close to the shelter floor in B31. It consists of indistinguishable dark red paint that has been flaked extensively.

PANEL L

See photo register: 8558-8560

Panel L is to the right of panel K and contains only 3 bright red finger dots.

PANEL M

See photo register: 8561- 8569

To the right of stone walling in shelter B31, and upon a ledge accessible from the shelter floor in a natural alcove is panel M. This panel is very unclear and faded but contains a line of finger stripes next to one another on the left wall (south) of the alcove. On the opposite (right/north) wall of this small recess is another indeterminate red mark.

PANEL N

See photo register: 8571-8580

On the same ledge above the shelter floor, 1.5m from panel M are faded indeterminate red, dark red and light red bovid shapes

PANEL O

See photo register 8581-8587

On ledge above shelter floor 6m from panel N is panel O, containing (on left) red finger smears and on right 2 (?) large bovid shapes.

STONE WALLING

See photo register: 1544-1554, 1569-1588. 1606-1617

The most striking feature of B31 is the large stone wall built along the drip line of the shelter, stretching almost the entire length of the shelter. This wall survives to a maximum height of 2.5 m and is constructed with selected sub-angular blocks. Some upright stones measure 1m in height each. This wall is dry-stone-built and is more than double wall in some places. The walling has intermittent drainage holes at the bottom of the wall (possibly for water drainage and for disposal of dung build-up).

Within the shelter, built against the perimeter kraal wall and running to abut the back wall of the shelter is a smaller stone enclosure measuring about 6m. This kraal is irregularly shaped and divides the site. It is dry stone and well built, surviving relatively well.

STONE DWELLINGS

See photo register: 1555-1557

At B31 there are 2 stonewalled dwellings, at the far north end of the shelter. They fall outside of the large kraal wall. The first is built abutting the large perimeter wall to the east and the back wall of

the shelter to the west. This dwelling survives to a height of 2m and its entrance faces east. The second stone dwelling is more dilapidated and collapsed, surviving to a height of approx. 1m. This dwelling's entrance faces south-east. Both are well-built with selected sandstone rocks and are dung-mortared.

DEPOSIT

B31 can be divided into 4 sections (A-D) for assessment of deposit, because the site varies in use and structure, therefore making deposit depths and excavation potentials different in each section.

Section A:

Section A is located at the far south end of shelter B31 within the boundary of the large kraal wall. This section stretches for a quarter of the length of the site. The sediment has largely away and the find density in this area is very low: only 1 bone fragment and 1 lithic artefact. Therefore, the excavation potential is low.

Section B:

Section B is located within the confines of the smaller kraal structure within the shelter. The deposit in this area appears well preserved and has been contained by the walling. The finds density in section B is highest at B31: +/- 15 CCS lithics, +/- 10 animal bone fragments and 7 pieces of rusted metal. This area had the highest excavation potential.

Section C:

This area encompasses the portion of the shelter to the north of the smaller kraal structure but contained within the large perimeter kraal wall. Sediment is only visible in a small area near the back wall of the shelter and the rest of the floor appears to be bedrock. Excavation potential, therefore, is very low. 4 lithics and 1 piece of metal were observed on the surface.

Section D:

Section D is made up of the stone dwellings outside of the large kraal wall on the far north of B31. There is no sediment on either the surface outside of the dwellings, nor build-up of deposit inside either of the structures. Any deposit is likely to have washed down the slope towards the stream in the valley below as at this point the slope falls steeply away. Even so, surface finds include stone artefacts, bone and glass fragments.

ARTEFACTS

See photo register: 1558-1568, 1588-1605

Artefact-density is moderate, with surface artefacts occurring over the entire area within the shelter. These finds include metal artefacts, glass fragments, multiple animal bones, CCS and hornfels flakes

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|---|-------------|---|---|
| <u>General Site Information</u> | | | |
| Site #: B31 | | Site name: | |
| Panel #: A | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: - 29°53'23.8"S 29°06' 31.6"E | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 30/05/2015 | | Time: 15:20 | |
| Weather: Clear and Fine | | | |
| Dimensions: Height: >8 Depth: >10m | | Width: >100m | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): RED, DARK RED, WHITE, ORANGE, BLACK | |
| Aspect & angle: S +/-90° | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA A: 8429-8587 CAMERA B: 7841-7537 CAMERA J: 1532-1618 | |
| Overlays: NONE | | | |
| Existing documentation: (e.g. ARAL?) ARAL 240 | | | |
| Topography/general site description: Mountainous check site record sheet and pictures | | | |
| General description of images and their condition: Check site record sheet and pictures | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: | N: ✓ | Seeps: Y: N: ✓ |
| Damp areas: | Y: | N: ✓ | Other water related conditions: |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: ✓ N: |

| | | | | | |
|---|---|-------------|--|-------------|-------------|
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: ✓ |
| Granulation: | Y: ✓ | N: | Abrasion: | Y: ✓ | N: |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: | N: ✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: | N: ✓ | Bacteria: | Y: | N: ✓ |
| Animals: | Y: ✓ | N: | Birds: | Y: ✓ | N: |
| Bats: | Y: | N: ✓ | Insects: | Y: ✓ | N: |
| Other natural deterioration: | Y: | | | N: ✓ | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: ✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N: ✓ | Scratched: | Y: | N: ✓ |
| Abraded: | Y: | N: ✓ | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: | N: ✓ |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: | N: ✓ |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | Y: | | | N: ✓ | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |
| Theft: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |
| Litter: | Y: | N: ✓ | Camp fires: | Y: | N: ✓ |
| Staining: | Y: | N: ✓ | Visitor wear/tear: | Y: | N: ✓ |
| Other artificial/cultural deterioration: | Y: ✓ | | | N: | |

| | |
|---|-----------------------|
| <u>Other Observations</u> | |
| This site has considerable evidence for intensive human occupation and various factors are affecting the preservation of the site. The rock face is covered in dust, there has been animal rubbing along the back wall and there appears to be calcite build-up on some of the panels, contributing to the flaking of paint from the rock face. The surface of the rock face appears also to be friable, and large sections of it have flaked off and lie on the shelter floor – although none with paint could be discerned. | |
| Past treatments: | Y: N: ✓ |
| General comments: Rock art and stonewalled site B31 is an extremely large sandstone shelter, measuring 100m in length. This site faces east and lies on a relatively steep slope of hillside. There is a stream running in the valley below B31 (north - south-east) towards the Tsoelikane River. Refer to co-ordinates. This site has been extensively used by people and contains two stonewalled dwellings, an enclosing kraal wall running the length of the shelter and a smaller enclosing kraal inside the shelter. | |
| Recommendations: Site is vulnerable due to exposure to human activity and the fragility of the rock face. Provision must be made for its protection. It would make for an extremely impressive visitor site if it could be ensured that visitor groups are small (no more than five plus compulsory guide) and that dust is kept down. | |
| ASMIS Site Condition Assessment Value: | Good: |
| Fair: ✓ | Poor: |
| Destroyed: | Unknown: |
| Assessor: SC/AM/JP | |
| Affiliation: WITS - (MARA) | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:

J. Claire Dean

Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at B33

Visitation. Site B33 is currently used as a visitor site. Not only is it on the route to the waterfall, but the site is particularly popular because the paintings are very clear. At the moment there are no measures in place to protect the site and it is advised that no further visitation take place until such measures are implemented.

Situation. The site overlooks a wetland adjacent to the Tsoelikane river. It is a location of outstanding natural beauty and lies on the route of the hiking/horse trail to the waterfall. There are many images in Site B33. They are for the most part very low down and so visitors would be encouraged to get into this low-ceilinged shelter in order to appreciate the rock art.

Access. Access will have to be sensitively controlled because the ceiling is low and a floor of paving stones may have to be introduced (see previous site recommendations at B01 and B31). Alternatively, a geotextile may be preferable in this instance making sure, of course, that any installation process is completely reversible. Just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Conservation. All of the measures listed above will contribute towards the site's protection. The site is well protected from prevailing elements, except perhaps for the damp conditions created by the wetland it overlooks. This may enable plants to grow here which could scratch the rock art, although this threat is currently minimal. For presentation to the public, large plant clearance is advised, but only under the supervision of a conservator.

B33 – Rock art site

[ARAL 194 and 195]



Figure 11. Locating shot of B33 looking north-west and showing Kepising mountain beyond.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, visibility: clear)

B33 is within a high-vulnerability bracket because it is currently on a tourist route and is well known to tour guides and park managers, being on the trail to the waterfall. This increases the chance of deterioration owing to human action. Not only is it on the route to the waterfall, but the site is particularly popular because the paintings are very clear.

Rarity and potential for further research are moderate but this site must be maintained if it is to continue to be used as a park attraction.

SITE LOCATION - 29°53'32.1"S, 029°07'47.1"E

See photo register: 2607-2612

Rock art site B33 is located on a low-lying kranline 40m away (to the west) from the Tsoelikane River. The area is marsh-like. Rock art and stonewalled site D23 is visible to the north-east, on the opposite side of the river. The two shelters that make up B33 are both east-facing. In total they are 27m wide, and have maximum heights of 2m and depths of 1.5m.

The rock art at B33 is spread across two east-facing shelters one next to the other (shelters A and B). Both shelters are low-ceilinged and shallow. The paintings are executed mainly in red, dark red and white, though light red, bright red and black occur as well. Shelter A is divided into 8 panels: A-H, while shelter B contains 6 panels A-F.

PRESERVATION

Much of the art in B33 is faded. The site is affected by washes, salt-seepage and animal activity. B33 is located very close to the Tsoelikane River. This proximity to the river appears to contribute to damp conditions within the site as a whole.



Figure 12. Above: ARAL image 1980. Below: MARA image 2015.

B33 shelter A, panel G.

ARAL COMPARISON

Scrutiny of the ARAL photographic record does not reveal any panels in which there has been marked deterioration since 1980. Natural weathering processes such as salt washes seem to have incrementally advanced, and there are still many plants growing in cracks in the rock surface. In most instances these seem to have done no harm.

SHELTER A

PANEL A:

See photo register: 2614-2621

Panel A is located on the far right (south) of shelter A, approximately 10cm from shelter floor and consists of a single human figure in red of approximately 4cm in height. This figure is running and holds a stick.

PANEL B

See photo register: 2626-2628

Panel B is located approximately 2.5m to the right (north) of panel A. 7 light red possible thumb prints or possible human figures, difficult to identify.

PANEL C

See photo register: 2631-2645

Approximately 80cm right (north) of panel B and 20cm from shelter floor. There are three images in panel C, 2 of which are polychrome. 1 polychrome eland (30cm in length) facing right with 2/3 smaller antelope. One of these may be a hartebeest, while the other is a diagnostic eland.

PANEL D

See photo register: 2645-2649

Panel D is to the right (north) of panel C, 50cm from the shelter floor. This panel contains only unidentifiable/indeterminate red paint patches.

PANEL E

See photo register: 2650-2653

Painted on the roof of shelter A, towards the mouth of the shelter. This panel contains faded, rubbed and flaked remnants of red paint. There are possible human figures but they are too damaged to make positive identification.

PANEL F

See photo register: 2654-2661

Panel F is painted to the right of panel E, below the remains of a swallow's nest approximately 80cm from the shelter floor. This panel contains red patches of paint. No identifiable images.

Panel G

See photo register: 2662-2682

Panel G contains the highest concentration of paintings in shelter A. These are to be found approximately 60cm from the shelter floor, above naturally-eroded recesses in the rock face.

From left to right: Procession of 15/16 human figures in red and white ranging from 5cm to 10cm in height. Many of these figures are standing with their legs crossed. Some hold sticks/bows. They appear to have large calf muscles and some have distended stomachs. On the far right is a single figure in red wearing a kaross. Either the colour that once filled the kaross has faded or this figure is hollow-bodied. Above the procession, in the centre of the panel, is a bichrome eland in red and white measuring 14cm in length.

PANEL H

See photo register: 2683-2690

Panel H is the most northerly (right) and final panel within shelter A. Herein are 12 human figures in red and dark red. The postures in which these human figures are painted vary. One figure has an elongated torso and legs. This figure bends forward and holds a stick above its head. This figure is incredibly delicately painted. Its limbs are extremely fine. Others are painted in running postures. A less clear, quite smudged, figure to the right of the bending-forwards figure appears to have rather thick, muscular arms.

SHELTER B

PANEL A

See photo register: 2691-2707

Panel A, shelter B is the furthest left of all paintings within shelter B. The panel is approximately 30cm from the shelter floor. This panel extends rightwards (north) for 1.2m. Part of panel A is on the ceiling of the shelter, while the remainder are found on the back wall. Paintings on the ceiling include: 5/6 human figures in red; three of these are 7cm in height, one measures 15cm in height and is painted in a running posture. This figure also holds a stick. Above this running figure (next to which is another smaller human figure) is an unidentifiable antelope (probably rhebok) in white with legs tucked under body

Paintings on the back wall: To the right and below these images on the back wall of the shelter are 3 rhebok alongside one another. These rhebok are painted in white and appear to be of considerable age.

PANEL B

See photo register: b2708-2713

Found to the right (north) of panel A (white rhebok), panel B contains (left to right): 1 polychrome mountain reedbuck in white light red and red (there may be a second, extremely faded mountain reedbuck to the right of this but it is too faded to make out), 1 human figure in red and 1 unidentifiable antelope painted in white.

PANEL C

See photo register: 2713-2739

Panel C is to the right of the mountain reedbuck in panel B. It contains a multitude of rubbed (animal activity), faded and wash-damaged images. Left: 1 dark red quadruped with very thin tail. Centre: +10 dynamic human figures in red. Above and to right of group of human figures are at least two human figures painted in white an indeterminate red and black paint marks. These have no identifiable characteristics. Above all and to the right is an indeterminate red figure (possibly animal or human) measuring 12cm in length.

PANEL D

See photo register: 2740-2746

Found on the sloping ceiling of shelter B to the right of panel C. is a single polychrome eland, measuring approximately 15cm in length. Its front half, including the front legs, neck and head has been severely damaged by wash.

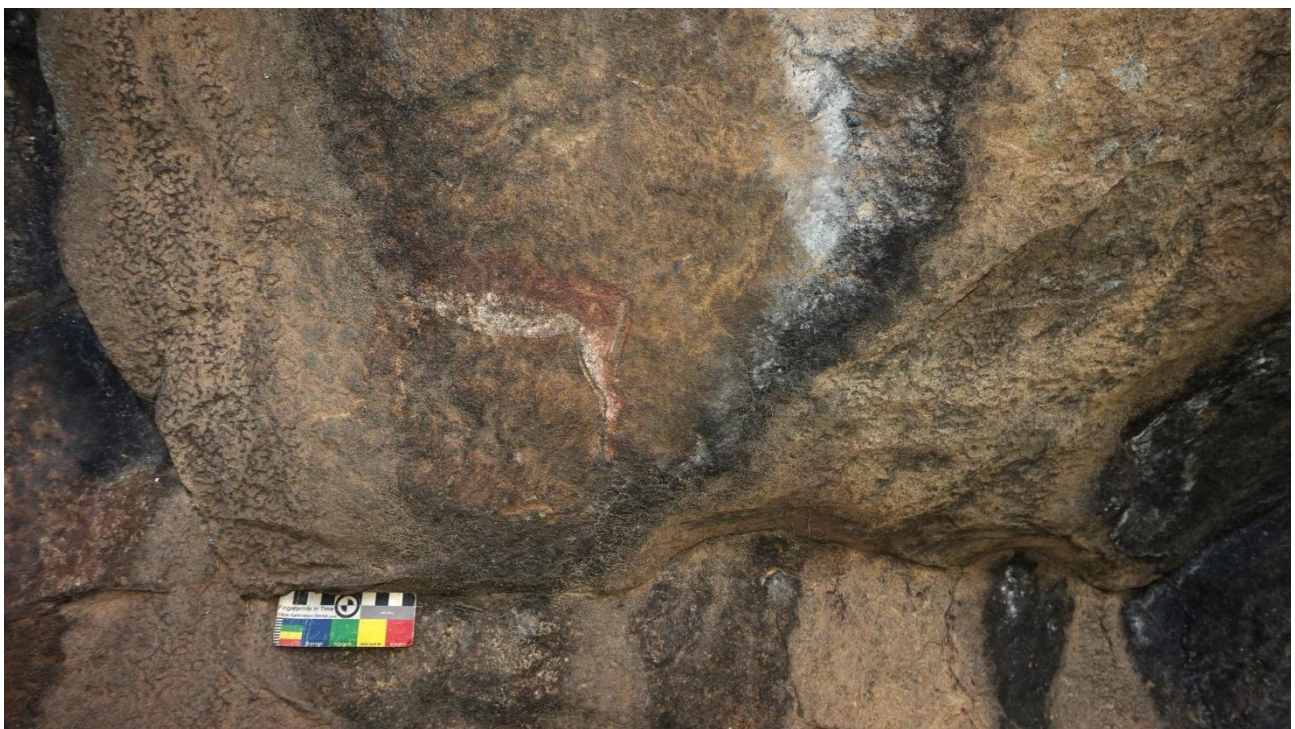


Figure 13. B33 shelter B, panel D. Very clear hindquarters of shaded polychrome eland. The head has been removed naturally by water running down the rockface.

PANEL E

See photo register: 2747-2762, 0022-0070

Panel E contains a large concentration of paintings. It extends for 4m left to right (south-north) along the back wall of the shelter. Much of the art has been damaged by wash, rubbing and soot. Obvious different painting events have occurred here with superpositioning of images evident.

Bottom left: faded and rubbed group of human figures and antelope in red, dark red and light red.

Left: above these images 40+ running human figures in red (most +/- 3cm in height) painted superimposing and around indeterminate antelope and larger human figure in red holding a stick. To the immediate right: +15 faded human figures in red holding sticks. The human figures measure +/- 7cm in height. They are extremely faded.

Right: more human figures in red and dark red, at least 4 faded polychrome rhebok in running postures. These rhebok appear to form the earliest/oldest painting event and appear to be of considerable age. They are painted beneath other images. Also 1 bright red human figure in running posture with a stick.

Right end: human figures in red and bright red, one with quiver and possibly 2 very faded antelope.

Bottom centre- right panel E: human figures in red and dark red. These are very faded by wash. 1 large (30cm long) polychrome eland: back legs and hindquarters have faded away. At the far right of the bottom of the panel are 2 separate white areas of paint. These are certainly paint but have no identifiable features. The left-hand area of white paint is 8cm in height while the right-hand measures 12cm in height.



Figure 14. B33 shelter B, panel E.

PANEL F

See photo register: 0071-0080, 7263-7289

Painted at the far right of shelter B. The images are extremely faded.

Left to right: 1 dark red faded antelope, 1 seated human figure in red (possibly 2 more of these – too faded to be positive).

Centre: The highest number of paintings is concentrated in the centre of the panel; a large group of human figures in red with white details. Many of these human figures have elongated, stick-like bodies often in strange positions. They have accentuated round calf muscles. White arrow shafts

with red tips, quivers, white bowstrings, white lines along their legs, white lines along their stomachs and some figures have white faces.

SITE DESCRIPTION

Both shelters are low-ceilinged and very shallow. These shelters extend for over 20m north-to-south, but are only 2m deep and 1.5m high. The shelter floor is flat and slopes gently out from the drip line for 10m, whereupon the slope becomes steeper towards the Tsoelikane River 40m below to the east.

STONEWALLING

No stonewalling at B33.

DEPOSIT

Although no artefacts were found at B33, the deposit within the shelter appears well-preserved. Excessive erosion does not appear to have occurred and the slope of the hillside outside of the shelter is gentle.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| <u>General Site Information</u> | | | |
|---|-------------|---|---|
| Site #: B33 | | Site name: | |
| Panel #: A | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS: 29°53'32.1"S 029°07'47.1"E | | Assessment level: Basic: ✓ Intermediate: Detailed: | |
| Date: 07/03/2015 | | Time: 15:20 | |
| Weather: Clear and Fine | | | |
| Dimensions: Height: 2m Depth: 1.5m | | Width: 27m | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): RED, DARK RED, WHITE | |
| Aspect & angle: S +/-90° | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA A: 2607-2762 CAMERA S: 0022-0080 | |
| Overlays: NONE | | | |
| Existing documentation: (e.g. ARAL?) ARAL 194 and ARAL 195 | | | |
| Topography/general site description: Mountainous check site record sheet and pictures | | | |
| General description of images and their condition: Check site record sheet and pictures | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: ✓ N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: Y: ✓ N: ✓ |

| | | | | | |
|---|--|---|---------------------------|------|------|
| Granulation: | Y: ✓ | N: | Abrasion: | Y: ✓ | N: |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: ✓ | N: | Lichen: | Y: ✓ | N: |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y: | N: ✓ | Bacteria: | Y: | N:✓ |
| Animals: | Y: ✓ | N: | Birds: | Y: ✓ | N: |
| Bats: | Y: | N:✓ | Insects: | Y: ✓ | N: |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: ✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: | N: ✓ |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N: ✓ |
| Other artificial/cultural deterioration: | | Y: ✓ | N: | | |

| | |
|--|-----------------|
| <u>Other Observations</u> Much of the art in B33 is faded. The site is affected by washes, salt-seepage and animal activity. B33 is located very close to the Tsoelikane River. This proximity to the river appears to contribute to damp conditions within the site as a whole. | |
| Past treatments: | Y: |
| N:✓ | |
| General comments: Rock art site B33 is located on a low-lying kranline 40m above (to the west) of the Tsoelikane River. The area is marsh-like. Rock art and stonewalled site D23 is visible to the north-east, on the opposite side of the river. The two shelters that make up B33 are both east-facing. | |
| Recommendations: This site is recommended for public visitation. The site is well protected from prevailing elements, except perhaps for the damp conditions created by the wetland it overlooks. This may enable plants to grow here which could scratch the rock art, although this threat is currently minimal. For presentation to the public, large plant clearance is advised, but only under the supervision of a conservator. | |
| ASMIS Site Condition Assessment Value: | Good: |
| Fair:✓ | Poor: |
| Destroyed: | Unknown: |
| Assessor: SAM CHALLIS | |
| Affiliation: WITS - (MARA) | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
 J. Claire Dean
 Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at C17

Visitation. Site Park authorities might consider opening this site to visitors as part of a hiking or horseback trail. It could be combined with visits to Site D28 which is very nearby. The site has a beautiful aspect, interesting paintings with interesting interpretive potential.

Situation. Images are arranged along the back wall at head height and below. The main panel flaked by natural erosion processes but the images are still clearly visible. There is scratching on some of the images. The shelter floor is enclosed by a stone wall that may under no circumstances be moved or altered because it is itself a Cultural Heritage artefact.

Access. The main challenges at this site are natural water seepage and dust. While little can be done about the former, the latter must be kept to an absolute minimum by ensuring that the guide informs visitors that they keep to the designated walkways. It is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust. Importantly, visitors should not be allowed to interfere in any way with the archaeological stone walling.

There is likely to be a reasonably deep deposit in the shelter that may have potential for excavation. Therefore, just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise the scratch marks by camouflaging them to match the rockface and the images. Although visitors may wish to see examples of the artefacts on the shelter floor they may not be allowed to touch any – except for those selected and issued by the guide while at the site. No material may be removed from the site and visitors must be issued with a warning that any offence is punishable by fines and/or imprisonment under Lesotho's National Heritage Resources Act of 2011.

C17 – Rock art and stonewalled site

[ARAL 205]



Figure 15. Locating shot of C17 looking south-west.



Figure 16. Locating shot of C17 looking north-west.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, visibility: clear, potential for future research: high, rarity: high)
Images are clear, even though fading of white paint has occurred. Subject matter is rare and may offer potential for future research: the grouping of eland bodies. It may prove an important site for furthering our understanding of the art. The site has been affected by human action in the form of scratching. Previous human activity also includes wall-building activity and fire-making. Further damage must be prevented. This site must be treated with extreme care should it be included as a tourist site.

SITE LOCATION – 29°54'11.5"S, 029°06'55.9"E

See photo register: 0335-0343, 7546-7563

Rock art and stonewalled site C17 is a southeast facing sandstone shelter on the top of a gently sloping hill to the west of the Tsoelikane River. The site faces across a wide valley where the river snakes to the south. In view of the site is a confluence of two streams of the river. The site is approximately 125m west of the river. The shelter itself, at the drip line, is 6m in height, but slopes downwards towards the back wall. The height of the shelter at the back wall is <2m. It is 25m in length and 4m in depth.

PRESERVATION

Salt and water washes appear to be main factors affecting preservation at C17. Consequently, the site is extensively flaked and very faded. Panel C, however, is extremely clear.



Figure 17. ARAL image (wet) 1980, C17, panel C. Circles indicate areas to compare with the 2015 image



Figure 18. MARA image 2015, C17, panel C. Circles indicate areas where an increase in spalling was detected

ARAL COMPARISON

Close-up photographs taken by ARAL were done so when wetted by spray, making it difficult to assess on a like-for-like basis. However, close scrutiny of the ARAL images shows that there has been some deterioration in the last 35 years – illustrated in the slight increase in spalling shown in the images above.



Figure 19. C17 panels C and D

The rock art site C17 contains four panels (A-D) located on the back wall of shelter. Panels extend for 8 metres over the centre of shelter C17. See photograph register: 0345, 0346 , 7564, 7565

PANEL A:

See photo register: 0347-0358, 7569-7583

Panel A is the leftmost panel at C17.

Top: the top section of this panel contains four very faded polychrome eland in dark red, red and white (most of white paint has now faded away). Two out of four eland (two at far right) are painted on top of the other. There is a dark red polychrome eland on top of a red polychrome eland. The tail and hind section of the red eland are visible.

Bottom: To the bottom right of eland are indeterminate figures in red. These too are faded, and are possibly the remnants of human figures, the rightmost image possibly a human figure in a kaross.

PANEL B:

See photograph register: 0359-0367, 7584-7597

Panel B is approximately 30cm to the right of panel A.

This panel contains five red human figures <10cm in height. Three human figures are painted directly above two others. The rightmost human figure in the top half of panel is extremely faded and flaked. The three top figures have headdresses/hair and possible arrows. The leftmost bottom figure has both arms raised and crossed over its head, and the body has flaked away.

PANEL C:

See photo register: 0371-0384, 7598-7615, 9328-9338

Panel C is the largest and most densely painted panel at C17. It is approximately 1.2m from the shelter floor and is +/- 1 metre in length.

Contains + 30 eland in dark red. On the left side of panel C is a collection (+28) of small (<10cm in length) eland bodies in a group painted in red and white. Many of the white heads have faded away. Some of these eland have horns. They are in curled postures. To the right of this group are 5 larger (>10cm in length) eland, some very flaked, one with definite horns. Also in this top section of the panel are human figures.

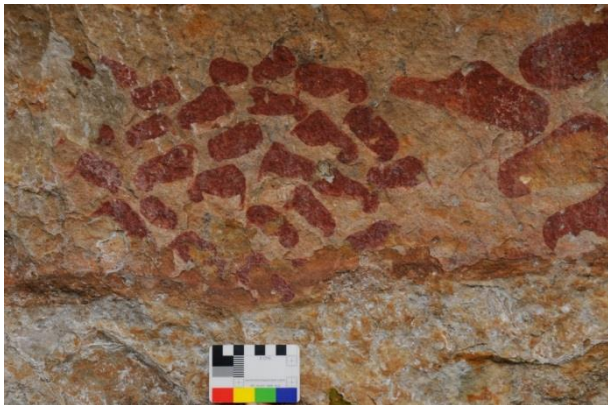


Figure 20. C17 panel C (left).

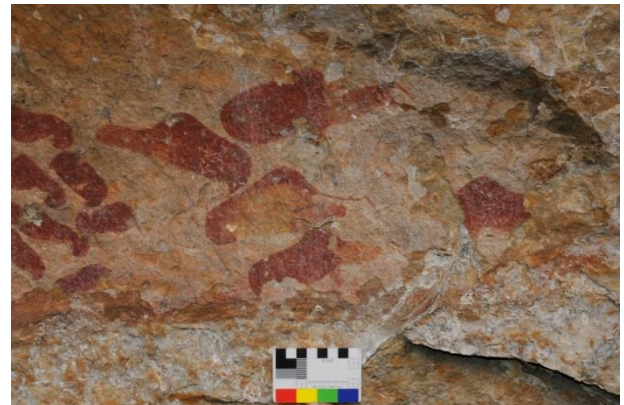


Figure 21. C17 panel C (right).

PANEL D

See photo register: 0386-0396, 7617-7629

Panel D is the rightmost panel in C17. It is located diagonally above and to the right of panel C.

There are three dark red human figures and some indeterminate red paint smears to the left of these human figures. The leftmost human figure is bending forward with arms raised towards face, its legs have flaked off, and the centre figure is en-face with arms raised with its right leg lifted sideways. The figure on the right is seated with its knees bent, partially flaked away and its arm raised.

STONEWALLING

See photo register: 7546-7554, 0335-0345

There are two dry stonewalled structures present at C17. One, on the western end of the shelter is a large (+/- 20 metres in length, maximum height of 1m, 6m in depth) dry stone kraal. It has collapsed in some places.

At the eastern end of the shelter, built into the shelter and against the back wall is a collapsed semi-

circular dry stonewalled dwelling. The dwelling is approximately 2m in height, 3m in length and 2m deep.

DEPOSIT

The deposit, including a dung crust, slopes gently from the back wall to the drip line. Bedrock is visible within the shelter, therefore the deposit is shallow.

The deposit slopes more steeply from the exterior of the stonewalled kraal and there appears to be sediment built up within the wall of the kraal. The excavation potential has been estimated as 'medium' due to this build-up.

ARTEFACTS

See photo register: 0399-0400, 7630, 7633, 7634

The density of artefacts recovered at C17 is very low, and finds are sparse.

4 CSS flakes, 3 pieces of animal bone and 1 piece of metal.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| <u>General Site Information</u> | | | |
|---|-------------|---|---|
| Site #: C17 | | Site name: | |
| Panel #: A | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS: 29°54'11.5"S 029°06'55.9"E | | Assessment level: Basic: ✓ Intermediate: Detailed: | |
| Date: 13/03/2015 | | Time: 15:20 | |
| Weather: Clear and Fine | | | |
| Dimensions: Height: >2m Depth: 4m | | Width: 25m | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): RED, DARK RED | |
| Aspect & angle: S +/-90° | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA A: 2607-2762 CAMERA S: 0022-0080 | |
| Overlays: NONE | | | |
| Existing documentation: (e.g. ARAL?) ARAL 194 and ARAL 195 | | | |
| Topography/general site description: Refer to site description | | | |
| General description of images and their condition: Refer to panel description | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: ✓ N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: Y: ✓ N: |
| Granulation: | Y: | N: ✓ | Abrasion: Y: ✓ N: |

| | | | | | |
|---|---|-------------|--|-------------|-------------|
| Wind erosion: | Y: ✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: ✓ | N: | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: ✓ |
| Animals: | Y: ✓ | N: | Birds: | Y: ✓ | N: |
| Bats: | Y: | N: ✓ | Insects: | Y: ✓ | N: |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: ✓ | N: | Scratched: | Y: ✓ | N: |
| Abraded: | Y: | N: ✓ | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: | N: ✓ |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: | N: ✓ |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | | Y: | N: ✓ | | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |
| Theft: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |
| Litter: | Y: | N: ✓ | Camp fires: | Y: | N: ✓ |
| Staining: | Y: | N: ✓ | Visitor wear/tear: | Y: | N: ✓ |
| Other artificial/cultural deterioration: | | Y: ✓ | N: | | |
| <u>Other Observations</u> Salt and water washes appear to be main factors affecting preservation at C17. Consequently, the site is extensively flaked and very faded. Panel C, however, is extremely clear. | | | | | |
| Past treatments: | | Y: | N: ✓ | | |

| | |
|--|-----------------|
| General comments: A recommended site for visitors – A beautiful aspect, interesting paintings with interesting interpretive potential. The site already lies on a horse trail. The paintings are, however, quite vulnerable. There is a site at Thule shelter on the S.A. side of the border that contains similar images – something to consider for transfrontier study. | |
| Recommendations: Park authorities might consider opening this site to visitors as part of a hiking or horseback trail. It could be combined with visits to Site D28 which is very nearby. This site must be treated with extreme care should it be included as a visitor site. A qualified rock art conservator must be brought in to advise on its protection and presentation. | |
| ASMIS Site Condition Assessment Value: | Good: ✓ |
| Fair: | Poor: |
| Destroyed: | Unknown: |
| Assessor: SC/AM | |
| Affiliation: Wits - MARA | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
J. Claire Dean
Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at D04a (and b)

Visitation. Site D04a (and b) is extremely vulnerable because it is located very close to the main road, in close proximity to very popular visitor site E01 and is directly below an area with existing wooden walkway in an area proposed for development as a biodiversity garden. It is currently a visitor site although no specific measures have been taken to protect it. It is recommended that no further visitation takes place until conservation measures have been implemented.

Situation. The shelters are formed within a complex of eroded natural cisterns in Clarens formation sandstone. The particular cistern of which shelter D04a forms a part eroded through, and was drained naturally in prehistory. At some point, presumably before the inception of the Park in 1970, a dam was built to retain water in the rock cistern. The dam no longer retains large quantities of water but has led to the build-up of silt and the creation of a miniature wetland or marsh. This has probably intensified the already-damp conditions of the shelter floor and walls. It is, therefore, an extremely sensitive site.

Images are located on the back walls, relatively low down. The main panel is flaked by natural erosion processes but the images are still clearly visible. The shelter floor of Site D04b is retained by a stone wall that may under no circumstances be moved or altered because it is itself a Cultural Heritage artefact.

Access. It is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust/deposit. Importantly, visitors should not be allowed to interfere in any way with the archaeological stone walling. Just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire. Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. The main challenges at this site are natural water seepage and the semi-artificial water seepage created by the damming of the rock cistern. While little can be done about the former, the latter must be kept to an absolute minimum by ensuring that the dam is not allowed to retain any more water than at present. The dam wall should most likely be left in place because we are unsure as to the outcome of any major intervention. A rock art conservator, in conjunction with a geologist and hydrologist should be called in to advise. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned.

NB. Great care must be taken in the development of the biodiversity garden located immediately above this site. No further introduction, or change in natural levels, of water are permissible. The same applies to any further work to be undertaken at the nearby Visitor Reception Gate, especially concerning plumbing or any other work that may affect the immediate environment.

D04a – Rock art site

[ARAL 246]



Figure 22. Locating shot of D04 environs, showing retaining/dam wall that has created marsh conditions.



Figure 23. Site D04a, with D04b behind and to the left.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, rarity: high, visibility: high, potential for future research: high).

D04a and b are extremely vulnerable due to their proximity to the park road, to the visitor reception gate and to popular tourist site E01. They are also in close proximity to the area proposed for development as a biodiversity garden. The images are very clear and the rarity of their subject matter is high. They are very likely to contribute to future research: the single seated figure is unique. Because of its visibility and rarity, it has the potential to become a tourist visitor site, however this cannot happen without sufficient further assessment by a rock art conservator. It is ESSENTIAL that this site be protected.

SITE LOCATION – 29°52'18.5"S, 029°04'13.2"E

See photo register: 1997-2001, 7977-7978

Both D04a and D04b are located in a marshy area between three rock outcrops. The sites face east. It is +/- 30m east of the main gravel road running north-south through the park and 100m east of the security check-point into the Park. It is also east of the wooden walkway running east-west which is the proposed site for a biodiversity garden. D04a and are lower than this area. It appears that the area between the outcrop was once dammed. There is a high concrete wall of the northern end of the site. The ground is very damp.

PRESERVATION

Although the human figure is clear and appears largely undamaged, the floor of the shelter is very damp. There are wash-zones surrounding the image and foliage growing below it. These may in future affect the preservation of the image.



Figure 24. ARAL image 1984. D04a panel A.



Figure 25. MARA image 2015. D04a panel A.

ARAL COMPARISON

Close-up photographs taken by ARAL were done so when wetted by spray, making it difficult to assess on a like-for-like basis. However, close scrutiny of the ARAL images shows that there has been some deterioration in the last 35 years – illustrated in the slight increase in spalling circled in the images above.

D04a contains 1 image in a single panel (panel A). This human figure is located in roughly the centre of a small, low shelter created by a natural recess in a rock outcrop. This recess measures 5m in length, 3m in depth and 2m in height. The single image is located 80cm from the shelter floor.

PANEL A

See photo register: 7979-7997, 2002-2010

Located in the centre of the shelter D04a, at a height of +/- 80cm from the shelter floor is a single human figure in red. This figure is unique. The human figure is painted in a squatting/seated position with its elbow bent at the sides and the forearms raised to head-level. The head of this human figure is 6m high and diamond-shaped. It has only been outlined; the interior remains hollow or blank. However, natural white on the rock face appears to have been used by the painters to divide the face in two.



Figure 26. General shot of panel A, D04a. Showing rock art in the centre of the picture and foliage growing in very damp conditions. Note also the extensive water action and algae on the rock face.



Figure 27. Close-up shot of unique and very detailed human figure at D04a.

STONEWALLING

An historical dam wall on the north side of the site. See D04b for retaining stone wall in adjacent shelter.

ARTEFACTS

Sparse CCS flakes found on shelter floor. Vegetation may be obscuring artefacts but it does not appear likely that the density of artefacts is higher than 'sparse'.

DEPOSIT

There does not appear to be any deposit build-up at D04a but the marsh-like vegetation covering the ground surface prevents a throughout assessment of the deposit depth. The potential for excavation is low

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|---|-------------|--|---|
| <u>General Site Information</u> | | | |
| Site #: D04a | | Site name: | |
| Panel #: A | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29° 52' 15.5" S 029° 04' 13.2" E | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 01/06/2015 | | Time: 15:20 | |
| Weather: CLEAR AND FINE | | | |
| Dimensions: Height: 13cm Depth: | | Width: 10cm | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): RED | |
| Aspect & angle: E +/-90° | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA A: 7986-7994 CAMERA J: 2003-2006 | |
| Overlays: NONE | | | |
| Existing documentation: (e.g. ARAL?) ARAL 246 | | | |
| Topography/general site description: Refer to site description | | | |
| General description of images and their condition: Refer to panel description | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: Historical dam creating marsh like conditions outside shelter |
| Soluble salts: | Y: | N: ✓ | Insoluble salts: Y: ✓ N: |
| Cleaving: | Y: | N: ✓ | Exfoliation: Y: ✓ N: |

| | | | | | |
|---|---|------------|---|--|------------|
| Granulation: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Wind erosion: | Y:✓ | N: | Dust: | Y: | N:✓ |
| Vegetation: | Y:✓ below image | N: | Lichen: | Y:✓ | N: |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y:✓ | N: | Bacteria: | Y: | N:✓ |
| Animals: | Y: | N:✓ | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N:✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y:✓ Path worn and visitor activity has flattened vegetation N: | |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |

| | |
|--|-----------------|
| <u>Other Observations</u> Shelter formed within complex of eroded natural cisterns in Clarens formation sandstone. The particular cistern of which the shelter forms a part of eroded through and was drained naturally in prehistory. | |
| Past treatments: | Y: |
| N:✓ | |
| General comments: Dam no longer retains large quantities of water but has led to build-up of silt and creation of a miniature wetland or marsh. Damp conditions of floor and walls. | |
| Recommendations: Site is extremely vulnerable as it is located very close to the main road, in close proximity to very popular visitor site E01 and is directly below an area with existing wooden walkway in an area proposed for development as a garden. Provision must be made for its protection. | |
| ASMIS Site Condition Assessment Value: | Good: |
| Fair:✓ | Poor: |
| Destroyed: | Unknown: |
| Assessor: ALICE MULLEN AND SAM CHALLIS | |
| Affiliation: WITS - MARA | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
 J. Claire Dean
 Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at D28

Visitation. Site Park authorities might consider opening this site to visitors as part of a hiking or horseback trail. It could be combined with visits to Site C17 which is very nearby. The site has a beautiful aspect, interesting paintings with interesting interpretive potential.

Situation. Images are arranged along the back wall at head height and below. Some images are flaked and faded by natural erosion processes but there are still plenty of images that are clearly visible. Part of the shelter is enclosed by a stone wall that may under no circumstances be moved or altered because it is itself a Cultural Heritage artefact.

Access. It is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust. Importantly, visitors should not be allowed to interfere in any way with the archaeological stone walling. It is not recommended that visitors go inside the section that is enclosed by stone walling. The images on the back wall of this section are, at any rate, too faded and damaged by animals to be seen clearly.

There is likely to be a reasonably deep deposit in the stonewalled section of the shelter that may have potential for excavation. Therefore, just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise any scratch marks by camouflaging them to match the rockface and the images. Although visitors may wish to see examples of the artefacts on the shelter floor they may not be allowed to touch any – except for those selected and issued by the guide while at the site. No material may be removed from the site and visitors must be issued with a warning that any offence is punishable by fines and/or imprisonment under Lesotho's National Heritage Resources Act of 2011.

D28 – Rock art and stonewalled site

[ARAL 206]



Figure 28. View across rock art shelter D28 facing Southwest.



Figure 29. General view towards rock art site D28. Facing Northwest.

SIGNIFICANCE

Ranking: HIGH (complexity: high, vulnerability: high rarity: high, potential for future research: high,)

Site D28 is located in relative proximity to a horse and hiking trail that takes visitors to the waterfall. It is potentially a good site for visitors on horseback but not until adequate provision has been made for its protection. D28 contains a panel of images that fit with the Underberg style of nineteenth century rock art made by hybrid groups of Bushman raiders. Further research may well bear this out.

SITE LOCATION

See photo register: 0406-4010, 7638-7649

Rock art and stonewalled site is located in a naturally eroded shelter underneath an extremely large boulder atop a ridge to the west of the Tsoelikane river. A well-known landmark, Qilaone Hill lies to the southeast of the shelter, in view. The shelter is southeast-facing. D28 is approximately 300m west of rock art site C17.

The rock art at site D28 located on the back wall of shelter D28. This site is divided into 7 panels (A-G). The art is located towards the eastern end of the shelter, mainly to the east of stone dwelling. See photo register: 0412-0473, 7650-7666

PRESERVATION

The majority of the art (bar panel C) is faded and subject to various forms of damage including dust, wash and flaking. Panel A is located within a stonewalled structure and it is therefore likely that human presence in this dwelling has contributed to damage.



Figure 30 ARAL image 1980. Close-up of left half of panel D including possible large finger-smear and 'seated' or bending-forward human figure in red with crossed arms and arrows above shoulder.



Figure 31. MARA image 2015. Close-up of left half of panel D including possible large finger-smear and 'seated' or bending-forward human figure in red with crossed arms and arrows above shoulder.

ARAL COMPARISON

Many of the close-up shots at D28 taken by ARAL in 1980 were done so when the rock face had been wetted, therefore it is difficult to compare images on a like-for-like basis. That said, it appears there has been little deterioration except for an increase in dust on the low-level images within the kraal structure.

PANEL A

See photo register: 0412-0422, 7650-7666, 9216-9234

Panel A is located within the confines of a stonewalled dwelling built into the shelter and abutting back wall. The paintings are very close to the shelter floor in the centre of the dwelling. This panel includes 3 eland

Top left: A faded eland in red with very faint white remnants. The majority of white paint has faded away, giving the impression that this eland was painted with a very thin neck. Horns in red are visible on the head.

Bottom left: beneath the faded eland with horns are two indeterminate figures, very faded.

Centre: in the centre of the panel is an extremely faded eland in red with large proportion of body flaked away.

Bottom: faded eland body in red, also with parts of the body flaked away.

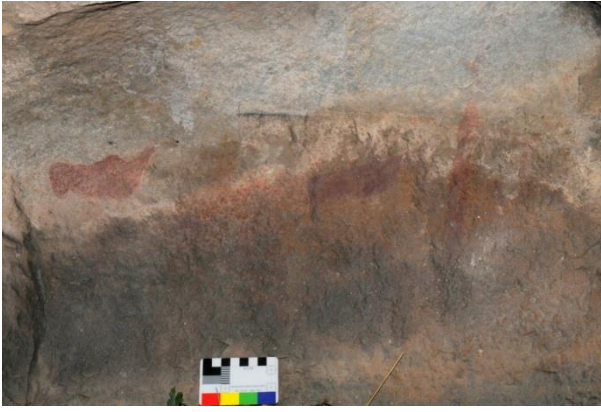


Figure 32. Centre and right hand side of panel B showing eland body (with faded white neck) and probable dark red horse.



Figure 33. Centre and right hand side of panel B showing eland body (with faded white neck) and probable dark red horse. Without scale.

PANEL B

See photo register: 0423-0434, 9235-9263

Panel B is located about 9m from the stone dwelling to the east, roughly 30cm from shelter floor, extending for approximately 1m across the back wall. It is to the east of second rectangular stonewalled structure (kraal). This panel consists of four paintings.

Left: on the far left of the panel is an eland body in dark red, approximately 10cm in length with neck raised. Some remnants of white on its legs are just visible. The head of this eland has flaked off.

Centre: 25cm to the right of first eland is another eland body in slightly lighter red. There also remains some white paint, very faded) around the legs and head of this eland.

Centre-right: to the right of centre eland is a dark red quadruped. This most likely a horse. Our reasoning for this diagnosis is that the images of both eland bodies, and of the dark red (probable) horse accord with the style of rock art well-known in the Underberg and Tsoelike valleys to be associated with mixed ethnicity raider groups such as the AmaTola. This situates the images in this panel in the relatively accurate time frame of the nineteenth century.

Right: on the far right in panel B is an indeterminate red patch of paint, perhaps a finger stripe.



Figure 34. Panel C: polychrome rhebok with legs folded under itself, painted over a human figure which holds a stick.

PANEL C

See photo register: 0435-0446,9267-9282

Panel C is located to +/- 3m right (east) of B. It is the most well preserved. It is located about 15cm from the shelter floor.

Left: Four likely rhebok painted in white, each <10cm in length. The top rhebok's body is painted in a curve. One possible juvenile

Right: To the right of these rhebok, at the top of the panel is a polychrome rhebok with legs folded under itself. This is painted over a possible human figure in red holding a stick. Below this rhebok is one rhebok painted in white, standing, and two very faded and smudged dark red human figures. At the very bottom of panel C is a clearer dark red human figure holding a bow.

PANEL D

See photo register: 0446-0453, 9282-9299

Approximately 1m east (right) of panel C. This panel is approx. 1.2m from shelter floor. These paintings are damaged by salt wash.

Left: The left section of this panel contains an eland body (20cm) in red painted underneath three dark red human figures on left and an indeterminate dark red figure on the right, which resembles ostrich head and torso (but this is just speculation). Also in this panel are several dark red lines painted to appear as if they are emerging from the rock face.

Right: to the right of these figures are two paintings in red. On the left is a 'seated' or bending-forward human figure with arms crossed, holding a bow, with arrows. To the right of this is a possible finger smear.

PANEL E

See photo register: 0454-0458,

Located at roughly same height as D, about 1m to the east(right) of D. This panel contains faded and smeared possible human figures in red and one running human figure in red.

Left: on the left side of the panel are a number of indeterminate red figures, possibly human figures
Right: to the right and slightly below the indeterminate red figures is another red figure, definitely human, in a running posture.

PANEL F

See photo register: 0459-0465, 9302-9307

Below panel E, +/- 50cm from shelter floor.

Top: At the top of this panel are four red human figures in procession, with possible quivers. Rightmost figure is partially flaked away.

Bottom right: Below these four human figures are three red indeterminate figures. Likely human figures but they are very faded.



Figure 35. Panel D: note the dark red lines painted to appear as if they are emerging from the rock face.



Figure 36. Panel G: note the red castellated image and the wavy lines appear to go into cracks in the rockface.

PANEL G

See photo register: 0466-0477, 9308-9323

Panel G is on the furthest right panel at D28. This panel is located about 50cm from the shelter floor. This panel is extensively flaked and damaged by wash.

Left: On the left of this panel is an unidentifiable figure in red. This figure is extremely difficult to classify. It could be one or more large human figures with arm raised, or an antelope. On the far-left of the panel is a red castellated shape and a possible human figure beneath. Right: An extremely flaked and damaged complex image in dark red. The centre of this painting has flaked away but it appears that multiple lines in dark red emanate from the centre of this figure, some of these wavy lines appear to go into cracks in the rockface. Top: above this complex dark red figure is a faded human figure in dark red.

STONEWALLING

D28 exhibits two separate stone walled kraals, one extending from the western end of the shelter, and one on the eastern end of the shelter, within close proximity to panels B-G. These are low, dry stonewalls. Between the two kraal structures and within shelter D28, built against back wall of shelter and to ceiling of shelter is a dry stonewalled dwelling. It has partially collapsed on the outward-facing wall and stands about 2.3m high. Rock art panel A is located within this structure.

DEPOSIT

Within the bounds of the kraals deposit is evident, to a depth of about 10-20cm. There is a dung crust and deposit is even and flat. Within the shelter bedrock is visible and no deposit worth remark

is present. Excavation potential has been estimated as medium within the confines of the stonewalled kraals.

ARTEFACTS

See photo register: 0477-0480

Finds density at D28 is very low, with only sparse artefacts recorded. These include two small bone fragments, two pieces of clear glass and one red, square plastic bead.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|--|-------------|---|---|
| <u>General Site Information</u> | | | |
| Site #: D28 | | Site name: | |
| Panel #: ALL | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29° 54' 15.9" S 029° 06' 47.2" E; ELEVATION 2414 | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 16/06/2015 | | Time: 11:30 | |
| Weather: FINE, SUNNY AND WINDY | | | |
| Dimensions: Height: 3M Depth: 1.5M | | Width: 30M | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): RED, DARK RED, BLACK, WHITE, YELLOW AND SHADED POLYCHROME IMAGES. | |
| Aspect & angle: S | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA J: 3243 CAMERA A: 7658-7666; 9210 CAMERA C: 0406-0480 | |
| Overlays: BLACK PIGMENT OF INDETERMINATE FIGURES OVERLAYS RED ELAND | | | |
| Existing documentation: (e.g. ARAL?) ARAL 248 | | | |
| Topography/general site description: Refer to record sheet and pictures for further details. | | | |
| General description of images and their condition: Refer to record sheet and pictures for further details. | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: | N: ✓ | Other water related conditions: |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: N: ✓ |

| | | | | | |
|---|---|---|---------------------------|-------------|------------|
| Cleaving: | Y:✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y:✓ | N: |
| Wind erosion: | Y:✓ | N: | Dust: | Y:✓ | N: |
| Vegetation: | Y:✓ | N: | Lichen: | Y:✓ | N: |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y: | N:✓ | Bacteria: | Y: | N:✓ |
| Animals: | Y:✓ | N: | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | N:✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: | N:✓ |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |

| | |
|---|-----------------------|
| <u>Other Observations</u> | |
| Panels at site D28 are subject to differential weathering and preservation concerns of several types. The Eland in panel A are very close to the shelter floor, and are within a kraal that has been much-used by animals and humans. The white paint here has all but vanished, and the red is extremely faded – mostly owing to human action. The images in Panel B suffer from similar placement and damage, but less so. In contrast, panels C,D,E,F and G contain images that have largely survived the human and animal damage, and are relatively well preserved. There are several natural salt washes, and rain/water damage appears to be constant but easy to monitor. | |
| Past treatments: | Y: N: ✓ |
| General comments: Some of the paintings are clear but most of them are faded due to washing. | |
| Recommendations: An Ideal site for visitors – A beautiful aspect, interesting paintings with interesting interpretive potential. The site already lies on a horse trail. Further human and animal action must be prevented, whether the site is opened or not. If the site is opened, a conservator must be brought in to advise. | |
| ASMIS Site Condition Assessment Value: | Good: |
| Fair: ✓ | Poor: |
| Destroyed: | Unknown: |
| Assessor: Puseletso Lecheko, Joseph Ralimpe | |
| Affiliation: WITS - MARA | |
| Contact: DR SAM CHALLIS sam@rockart.wits.ac.za | |

Form prepared by:
J. Claire Dean
Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at E01

Visitation. Site E01 is perhaps the richest rock art site in the Park and the most likely to be opened to visitors. It is immediately adjacent to the main Park road, between the Visitor Reception Gate and the New Lodge. It would provide an excellent introduction to the rock art of the Park, and to San rock art in general. However, it is extremely vulnerable to casual visitation and must be policed very strictly and monitored often.

Situation. Images are arranged along the back wall at head height and above and below head height. Some images are flaked and faded by natural erosion processes but there are still plenty of images that are clearly visible. Part of the shelter is enclosed by a stone wall that may under no circumstances be moved or altered because it is itself a Cultural Heritage artefact. The shelter has been subject to fires – most probably before the inception of the Park in 1970. The combination of soot from fires, and algae building up on the water washes has created a blackening effect over many of the images. This problem has been compounded by dust adhering to the rock face. During the intensive recording phase at the site, we discovered a very significant image that has been almost entirely covered by soot and algae. This we managed to digitally ‘clean’ and reveal a rain animal and various human figures interacting with it. This image would make for a very good reproduction in a visitor guide booklet. Notwithstanding, it is advised that the entire site be physically cleaned by a rock art conservator. Many other images in the site are damaged by the build-up of salts which have caused extensive flaking. Of these, most are still visible but they are extremely vulnerable and must not be touched. Further, there are scratch marks and other graffiti that can be removed or camouflaged by the conservator.

Access. It is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms’ reach. It will also prevent people from walking in the dust. Importantly, visitors should not be allowed to interfere in any way with the archaeological stone walling. It is not recommended that visitors go inside the section that is enclosed by stone walling. The images on the back wall of this section are, at any rate, too faded and damaged by animals to be seen clearly.

There is likely to be a reasonably deep deposit in the shelter that may have potential for excavation. Therefore, just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site’s protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise any scratch marks by camouflaging them to match the rockface and the images. Although visitors

may wish to see examples of the artefacts on the shelter floor they may not be allowed to touch any – except for those selected and issued by the guide while at the site. No material may be removed from the site and visitors must be issued with a warning that any offence is punishable by fines and/or imprisonment under Lesotho's National Heritage Resources Act of 2011.

Monitoring. Site E01 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. However, special care must be taken at this site to ensure that no visitors to the park are allowed to visit the site by themselves – it is very easy to get to the site from the road and just one casual visitor can cause damage that may take years to repair.

E01 Rock art and stonewalled site

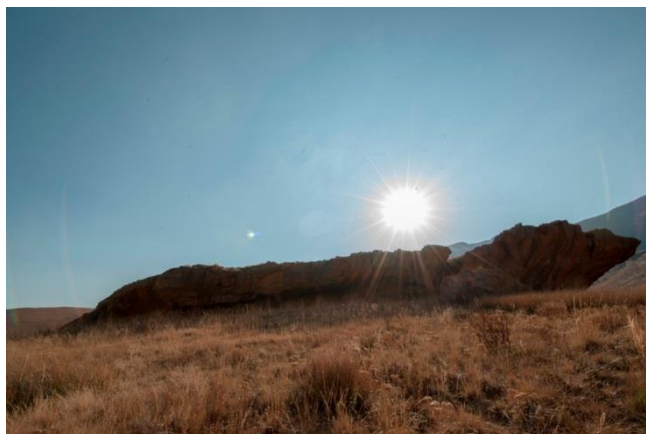


Figure 37. Locating shot of site E01 looking east.



Figure 38. Oblique shot of rock art and overhang looking north.

SIGNIFICANCE

Ranking HIGH: (Complexity: high, Visibility: high, Vulnerability: high, Rarity: high, Research Potential: high)

E01 is an exceptional site and arguably one of the most important in southern Africa. It contains some very complex imagery and some very great detail. It is most probably the best-known site in the SNP not only because of its images, but also because it is positioned on the road. It is already visited by a number of tour guides and by tourists who have experience of the park - whether guided or not. Site E01 is in critical danger of vandalism or accidental damage by human action. It is recommended that immediate steps are taken to safeguard this JEWEL IN LESOTHO'S CULTURAL HERITAGE as soon as is possible. If it is to remain a visitor site, a conservator must be appointed to clean the existing damage (soot, algae, dust) and make provision for its protection.

SITE LOCATION - 29°59'22.02"S, 029°04'19.1"E

See photo register: 1784-1810, 7678-7679

Rock art and stonewalled site E01 is located 200m north of small stream running SE-NW, the Sehlabathebe main park road runs E-W 14m south of E01.

PRESERVATION

All of the panels in E01 are subject to some form of deterioration. The site has been used as a shelter and there is much evidence of fires being made in this shelter as much of the back wall on left half of the shelter wall is covered in soot, obscuring arguably the most significant image in the whole site (an extremely large non-real beast/rain animal). The shelter floor is covered in dust- this has led to a film of dust covering many of the paintings. Tourists visit the site because it is within a few metres of the road. This has exacerbated the dust. In terms of natural deterioration there is a great deal of natural salt seepage which has caused the rock surface to spall or exfoliate in many places. Please see Condition Assessment forms.

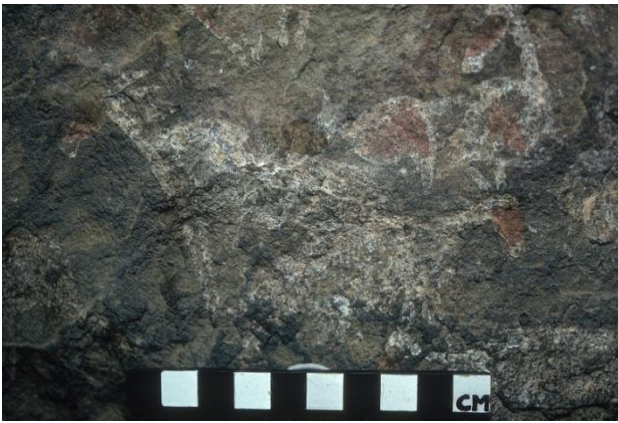


Figure 39. ARAL image 1980, E01 panel F.



Figure 40. MARA image 2015, E01 panel F.

ARAL COMPARISON

The majority of ARAL images accord with those of the MARA survey shots at E01, and little further damage or deterioration has accrued since 1980. However, this is such an important site that a conservator must be brought in to make a detailed appraisal.

The paintings at E01 are spread across the entirety of the rear wall of the shelter. This site has been divided into 12 panels (A-M) and contains a large number of paintings. The panels run from left to right.

PANEL A

See photo register: 7681-7706

Red finger-dots at the far left end of the panel. Four polychrome eland on the far right of the panel, one of which is damaged and covered by soot. Also incorporated in the panel are very dark red and black indeterminate figures.

PANEL B

See photo register: 7707-7725

One faded polychrome eland at the far left hand end of the panel superimposed over several indeterminate figures. On the far right there are three dark red human figures with legs spread wide in a walking position. The heads of these figures are soot-damaged. Below the human figures are several smaller and faded red human figures - four to the left and six on the right. Below these figures is one further human figure in red and a number of indeterminate images. There is graffiti above panels B and C.

PANEL C

See photo register: 7726-7755, 1846 - 1857

Two polychrome eland on the far left of the panel very close to the stone walling and a third shaded polychrome eland on right with many legs and two heads. They are all soot-damaged. Several other indeterminate figures are painted here but they are extremely faded. On the right hand side of the panel there are further indeterminate and soot-damaged images.

PANEL D

See photo register: 7756-7777

Two polychrome eland, one with its head bent and a red hoof.

PANEL E

See photo register: 7778-7784, 1868-1870, 1916-1942

One metre away from panel D. On the left hand side can be discerned an extremely large rain animal with human figures in red interacting with it. This is extensively damaged by a combination of soot/fire, algae and dust. It has now been digitally enhanced. There are various indeterminate figures below the rain animal and one dark red eland. The red human figures are painted in various postures, and all appear to be associated with the rain animal. Some interact directly with it while others are arranged in a circle as if dancing. Still others are arranged around the head of the rain animal as if running with or away from it.

PANEL F

See photo register: 7785-7845, 1943-1951, 1980-1994

Panel F contains large groups of white and bichrome (red and white) rhebok and human figures in red, white and yellow. In the top left of the panel are two bichrome rhebok facing left. In the centre of the panel is a group of ten bichrome rhebok, some lying down in passive behavioural posture, some running. All have red paint shading on their noses. To the top left of the rhebok is a white painted hunting bag and another to the bottom left with white lines or hunting tracks/spoor. In the centre-right are two human figures holding bows. One is white and red while the other is dark red. Next to them are multiple lines of white dots which appear to be spoor/tracks. To the right of these human figures is another highly detailed human figure painted in yellow with red on the head and neck. It also has many red dots on its chest, and lines of red dots on the stomach, arms and legs. There is a red line like a belt around the waist. Above the yellow figure is a bichrome rhebok facing right.

In the second large grouping of rhebok in panel F, also painted in white with red markings on the nose, are another ten animals facing left and right. These are superimposed (on the left hand side of the group) by a gracile dark red human figure with a bow across its shoulders and depicted in a striding or running posture. This figure has white lines coming down from the head. The rhebok are running in either direction both towards and away from the human figure. Some rhebok are lying down with their legs folded underneath them. There is a further human figure in light red on the right hand side of the panel, facing left towards the rhebok and holding bow and arrows.

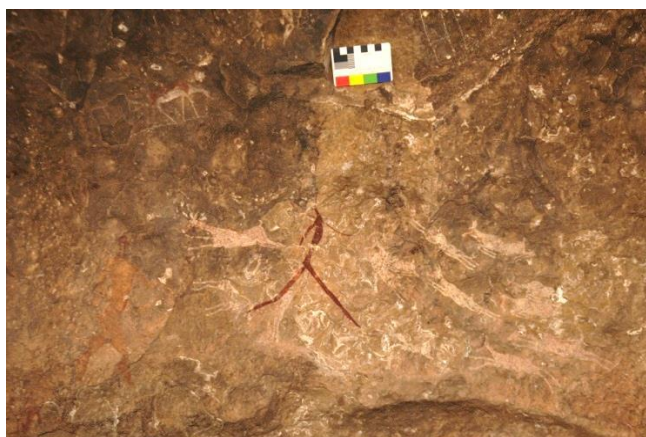


Figure 41. E01 panel F - right hand side.



Figure 42. E01 panel F right hand side close-up.

PANEL G

See photo register: 7846-7872, 1952-1956

Panel G contains polychrome eland antelope, human figures in red and yellow, concentric lines and figures with bags. At the bottom left of the panel is a polychrome animal with a long, neck, short legs, and half a body. At the top right is a dark red running human figure holding an arrow. Beneath that figure are multiple white lines in the shape of feathers or horns... Below the lines is a polychrome eland. In front of the dark red human is an indeterminate figure and below this are concentric circles painted in white. Beneath these concentric circles is a seated human figure painted in light yellow, with a bow protruding from the shoulder, holding at least two arrows. Proximate to this figure are several small, faded eland antelope. At the top centre of the panel is a dark red and white human figure holding a bow and hunting bag. Below this is another dark red human figure to the right and an indeterminate dark red figure. At the bottom right of the panel is an unusual image - an eland head with no body, painted in red and white.



Figure 43. Site E01, Panel H, a leonine feline beast.

PANEL H

See photo register: 7873-7899, 1957-1969

In the top left of panel H is a hunting bag with a clear strap painted in red and white. To the right and below this bag is a leonine beast in shaded light red to orange - arguably a rain animal - and several back lines of other beasts, most of which appear to be eland. The latter are in mid-red and their back lines fade towards their bellies. To the right of the leonine animal is a small yellow human figure with an antelope head. It appears to be holding a large bow and several outside arrows. Below this are at least two seated kaross-clad figures in faded dark red, holding bows. Centre right are several bichrome yellow and white human figures in various postures. The largest is seated with legs apart. They carry bows and arrows. The rightmost figure aims a bow and arrow

at the central seated figure, and appears to have a long, feathered or clawed hand which extends towards the other's face. Centre-right are four eland in various polychrome shades of red and yellow. Two have black backlines and black horns. Underneath them are painted dark red human figures. At the bottom right hand end of the panel there is a rare shaded polychrome rhebok; two human figures in dark yellow, running and holding bows, a dark red human figure holding a bow and several red indeterminates.

PANEL I

See photo register: 7900-7912, 1957-1965

In panel I there are, top-centre, two polychrome eland facing right. The topmost eland has been repainted with yellow ochre. In between these two animals is a patch of multiple red dots. The eland are superimposed on two dark red human figures. To the left of the eland is a strange beast - partly eland in form but with a long neck and a quiver or hunting bag with a bow on its back. By its hooves is a dark red convoluted line. To the right of the eland is a white, hollow-bodied, rhebok. Above all the figures top-centre is a group of bright red finger dots.

PANEL J

See photo register: 7913-7936, 1858-1867, 1970-1979

Panel J consists of a row of kaross-clad seated figures with neck rings and hunting paraphernalia, some polychrome and some outlined in white. They are highly detailed but very damaged by scratching.

PANEL K

See photo register: 7937-7952, 1858-1867, 1972-1979

In panel K there are three large shaded polychrome eland facing right, and below these several further small polychrome eland. In the bottom right of the panel are several indeterminate figures. In the centre and along the bottom of the panel are several (at least five) white rhebok - one of which is depicted en-face. Bottom left there is a dark red hunting bag with arrows.

PANEL L

See photo register: 7953-7963, 1995-1996

Panel L consists of several polychrome eland. The eland top-left is badly damaged by scratching but still quite visible. The remaining four fragmented eland bodies are smaller and affected by salt wash. Further to this there are three inverted 'L' shaped marks in dark red, bottom right.

PANEL M

See photo register: 7964-7977, 1832-1845

Panel M contains one polychrome eland, one large red and white human figure with quiver and a second polychrome eland with many legs. The two polychrome eland face in different directions, towards each other, over the head of a large dark red human figure - approximately 30cm tall. The human figure is very badly flaked by salt seepages, but what remains is exquisite. The figure has one knee raised, a white face, white dots around the neck, and white arrows in its hunting bag, which also contains a bow.



Figure 44. E01 panel M to show very clear, highly detailed, yet badly exfoliated rock art.

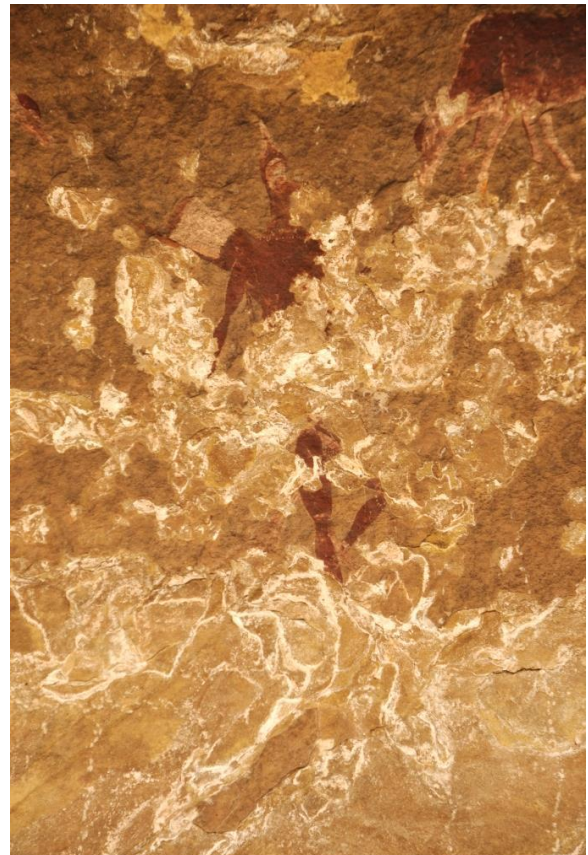


Figure 45. Close-up of E01 panel M to show natural salt build up and subsequent spalling of the rock face.

STONEWALLING

See photo register: 1811-1825

Stonewalling (A) at the eastern end of shelter reaches a height of 2m which continues for 7m along the drip line of the shelter east-west. This walling has two possible phases of construction, the earliest of which is set into the deposit. Stonewalling (B) at the western end of shelter is dry stone built and survives to a height of 0.5m. B encloses a small cell or room of 2.5m in diameter, with the rear wall of the shelter forming the back of this cell.

ARTEFACTS

See photo register: 1826-1831

Occasional stone tools found on surface of shelter floor (averaging 2 p/m²)

1 side scraper

1 concave scraper

1 upper grindstone with burnished outer surface

1 large quartzite core - possibly MSA

Other flakes are CCS and some hornfels

DEPOSIT

Deposit has slight slope towards back wall of shelter with a line at 20cm above ground level which may indicate that this deposit depth may have been removed

This disturbance of the deposit gives the site a tentative 'medium' potential for excavation – although any archaeologist would necessarily have to make a test pit to ascertain this.



Figure 46. Detailed shot E01 Panel H without scale



Figure 47. Oblique shot of Panel F, site E01.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|---|-------------|--|--|
| <u>General Site Information</u> | | | |
| Site #: E 01 | | Site name: LESOTHO NATIONAL PARKS/MTEC | |
| Panel #: A All subsequent panels share the same general information. | | Managing agency: | |
| Location/GPS file: 29° 59' 22.0"S 029° 04' 19.1" E | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 01/06/2015 | | Time: 09:09AM | |
| Weather: Clear sky and sun. | | Temp. & RH: | |
| Dimensions: Height: 2.3M Depth: 5M | | Width: 30M | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): Red, dark red, white, black, orange. | |
| Aspect & angle: S | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: No | | Photos: CAMERA A; 5929-5939 See Photo register for other panels | |
| Overlays: Super positioning | | | |
| Existing documentation: (e.g. ARAL?) ARAL 248 | | | |
| Topography/general site description: Refer to record sheet and pictures | | | |
| General description of images and their condition: Refer to record sheet and pictures | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: | N: ✓ | Other water related conditions: |

| | | | | | |
|---|--|------------|--|-------------|-------------|
| Soluble salts: | Y:✓ | N: | Insoluble salts: | Y: | N: ✓ |
| Cleaving: | Y: | N:✓ | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N:✓ | Abrasion: | Y:✓ | N: |
| Wind erosion: | Y:✓ | N: | Dust: | Y: | N: ✓ |
| Vegetation: | Y:✓ | N: | Lichen: | Y: | N:✓ |
| Fungi: | Y: | N: | Mould: | Y: | N:✓ |
| Algae: | Y: | N: | Bacteria: | Y: | N: ✓ |
| Animals: | Y: ✓ | N: | Birds: | Y:✓ | N: |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | Y: | | | N: ✓ | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y:✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N: | Scratched: | Y: ✓ | N: |
| Abraded: | Y: | N: | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | Y: | | | N: ✓ | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y:✓ | N: |
| Litter: | Y: ✓ | N: | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | Y: | | | N:✓ | |

| | |
|---|----------------------|
| <u>Other Observations</u> | |
| Panel A has grass, bushes and other vegetation immediately at its base. Larger bushes must be kept in check to ensure they do not touch the rock face. However they may be an advantage in deterring animals or visitors from getting too close to the images. In a minimal intervention strategy this may be preferable. | |
| Past treatments: | Y: N:✓ |
| General comments: The site has a relatively deep deposit – which may have excellent potential for excavation – of which the topmost layers have been loosened to form a thick layer of dust. The exposure of the top layers is probably because of animal grazing and, in more recent years, visitors to the site. Because there is water seepage coming through the rock (resulting in a high amount of soluble salt deposit and subsequent exfoliation) the dust adheres to the rock face and obscures the images. This, coupled with the algae that grows on the water seepage and the soot from fires – most likely made before the inception of the Park in 1970 – has added greatly to the deterioration in visibility of the rock art. | |
| Recommendations: Site E01 is already the most-visited rock art site in the SNP. A major threat to rock art, besides graffiti and touching, is the creation of dust when people walk around the site. Thankfully, visitor numbers remain low, but if it is the Park authority's intention to increase visitor numbers, then the size of visiting groups should be kept low, and a daily limit be introduced. Visitor groups should be no more than five persons at a time, plus the compulsory guide – making a total of six. No more than four such groups should be allowed to visit the site in any one day. | |
| ASMIS Site Condition Assessment Value: | Good:✓ |
| Fair: | Poor: |
| Destroyed: | Unknown: |
| Assessor: PL/PN/SC/AM | |
| Affiliation: WITS - MARA | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
J. Claire Dean
Conservator

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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

Site E01 Panel B

| | | | | | |
|---|---|-------------|--|-------------|-------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: | N: ✓ | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: | N: ✓ |
| Cleaving: | Y: | N: ✓ | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: ✓ | N: |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: | N: ✓ |
| Vegetation: | Y: ✓ | N: | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: ✓ |
| Animals: | Y: ✓ | N: | Birds: | Y: ✓ | N: |
| Bats: | Y: | N: ✓ | Insects: | Y: | N: ✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N: | Scratched: | Y: ✓ | N: |
| Abraded: | Y: | N: ✓ | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: | N: ✓ |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: | N: ✓ |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | | Y: | N: ✓ | | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |

| | | | | | |
|---|-----------|-------------|---------------------------|------------|------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N: ✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: Y: ✓ Soot from fires and rubbing N: by animals kraaled in the shelter | | | | | |
| <u>Other Observations</u> Panel B is damaged by soot and there is evidence of fire by previous occupants, most likely from before the inception of the Park. There is also evidence of the rubbing of the rock face by animals and this has meant the disappearance of the rock art that was below the three human figures. | | | | | |
| Past treatments: Y: N:✓ | | | | | |
| General comments: See comments for Panel A | | | | | |
| Recommendations: See recommendations for Panel A | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good: | | |
| Fair:✓ | | | Poor: | | |
| Destroyed: | | | Unknown: | | |
| Assessor: PL, PN | | | | | |
| Affiliation: WITS - MARA | | | | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | | | | |

Form prepared by:
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 Conservator

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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

E01 Panel C

| | | | | | |
|---|---|-------------|--|-----------------|-------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: | N: ✓ | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: ✓ | N: |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: | N: ✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: |
| Animals: | Y: ✓ | N: | Birds: | Y: | N: ✓ |
| Bats: | Y: | N: ✓ | Insects: | Y: | N: ✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N: ✓ | Scratched: | Y: | N: ✓ |
| Abraded: | Y: ✓ | N: | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: ✓ RED | N: |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: | N: ✓ |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | | Y: | N: ✓ | | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |

| | | | | | |
|---|-----------|------------|---------------------------|------------|------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | | Y: | | |
| Other Observations | | | N:✓ | | |
| The panel is extremely faded but at least two large shaded polychrome eland can be discerned. | | | | | |
| Past treatments: | | | Y: | | |
| General comments: | | | N:✓ | | |
| Panel C is badly damaged by soot Please see general comments for Panel A | | | | | |
| Recommendations: Please see recommendations for Panel A | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good:✓ | | |
| Fair: | | | Poor: | | |
| Destroyed: | | | Unknown: | | |
| Assessor: PL/PM | | | | | |
| Affiliation: WITS - MARA | | | | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | | | | |

Form prepared by:
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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

E01 Panel D

| | | | | | |
|--|-------------|---|--|---------------|-------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: | N:✓ | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: | N:✓ | Other water related conditions: | | |
| Soluble salts: | Y:✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: | N:✓ | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N:✓ | Abrasion: | Y: ✓ | N: |
| Wind erosion: | Y:✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: | N:✓ | Lichen: | Y: | N:✓ |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N:✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: ✓ |
| Animals: | Y: ✓ | N: | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: | N:✓ | N:✓ | | |
| <i>(If graffiti are present, complete following sections to record type and form.)</i> | | <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y:✓RED | N: |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |

| | | | | | |
|--|-----------|------------|---------------------------|------------|------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | | Y: | | |
| Other Observations | | | N:✓ | | |
| One of the eland figures is faded but is still identifiable. | | | | | |
| Past treatments: | | | Y: | | |
| General comments: | | | N:✓ | | |
| The panel is very faded See general comments for Panel A | | | | | |
| Recommendations: | | | | | |
| See recommendations for Panel A | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good: | | |
| Fair:✓ | | | Poor: | | |
| Destroyed: | | | Unknown: | | |
| Assessor: PL/PN | | | | | |
| Affiliation: WITS - MARA | | | | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | | | | |

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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

E01 Panel E

| | | | | | |
|---|---|--|--|-------------|-------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: | N: ✓ | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: | N: ✓ |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: ✓ | N: |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: | N: ✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: |
| Animals: | Y: ✓ | N: | Birds: | Y: | N: ✓ |
| Bats: | Y: | N: ✓ | Insects: | Y: | N: ✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: ✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | | |
| Incised/carved: | Y: | N: ✓ | Scratched: | Y: | N: ✓ |
| Abraded: | Y: | N: ✓ | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: | N: ✓ |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: | N: ✓ |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | | Y: | N: ✓ | | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |

| | | | | | |
|---|-----------|------------|---------------------------|------------|------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | | Y: | | |
| Other Observations | | | N:✓ | | |
| | | | | | |
| Past treatments: | Y: | N:✓ | | | |
| General comments: | | | | | |
| This panel contains very important images that have been partially obscured by soot, algae and dust. Please refer to the main site record, especially the photographs of the original image and the digital dust/soot removal and enhancement. | | | | | |
| Recommendations: | | | | | |
| This panel would make an ideal example of what can be achieved with modern recording, digital enhancement and physical cleaning/conservation techniques. If the site is opened to the public it is recommended that this panel in particular be cleaned by a professional rock art conservator. | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good: | | |
| Fair: | | | Poor:✓ | | |
| Destroyed: | | | Unknown: | | |
| Assessor: PN/PL | | | | | |
| Affiliation: WITS - MARA | | | | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | | | | |

Form prepared by:
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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

E01 Panel F

| | | | | | |
|---|-------------|--|--|-------------|------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: | N:✓ | Seeps: | Y: | N:✓ |
| Damp areas: | Y: | N:✓ | Other water related conditions: | | |
| Soluble salts: | Y:✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Wind erosion: | Y:✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: | N:✓ | Lichen: | Y: | N:✓ |
| Fungi: | Y: | N: | Mould: | Y: | N:✓ |
| Algae: | Y: | N: | Bacteria: | Y: | N: |
| Animals: | Y: | N:✓ | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | | Y:✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: ✓ | N: |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |

| | | | | | |
|--|-----------|------------|---------------------------|------------|------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | | Y: | | |
| Other Observations | | | N:✓ | | |
| The panel is well-preserved, although there are large charcoal marks made over some of the images. | | | | | |
| Past treatments: | | | Y: | | |
| General comments: | | | N:✓ | | |
| Please see general comments for Panel A | | | | | |
| Recommendations: | | | | | |
| The charcoal marks can be removed by a qualified rock art conservator. | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good:✓ | | |
| Fair: | | | Poor: | | |
| Destroyed: | | | Unknown: | | |
| Assessor: PL/PN | | | | | |
| Affiliation: WITS - MARA | | | | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | | | | |

Form prepared by:
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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

E01 Panel G

| | | | | | |
|---|---|-------------|--|-------------|-------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: | N: ✓ | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: ✓ | N: |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: | N: ✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: |
| Animals: | Y: | N: ✓ | Birds: | Y: | N: ✓ |
| Bats: | Y: | N: ✓ | Insects: | Y: | N: ✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N: ✓ | Scratched: | Y: | N: ✓ |
| Abraded: | Y: | N: ✓ | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: | N: ✓ |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: ✓ | N: |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | | Y: | N: ✓ | | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |

| | | | | | |
|--|-----------|------------|---------------------------|------------|-------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N: ✓ |
| Other artificial/cultural deterioration: | | | Y: | | |
| Other Observations | | | N:✓ | | |
| | | | | | |
| Past treatments: | | | Y: | | |
| General comments: | | | N:✓ | | |
| <p>The panel is still in good condition, although there are several charcoal marks that should be removed by a qualified rock art conservator.</p> <p>Please see general comments for Panel A.</p> | | | | | |
| Recommendations: | | | | | |
| <p>There are several charcoal marks that should be removed by a qualified rock art conservator.</p> <p>Please see recommendations for Panel A.</p> | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good:✓ | | |
| Fair: | | | Poor: | | |
| Destroyed: | | | Unknown: | | |
| Assessor: PN/ PL | | | | | |
| Affiliation: WITS - MARA | | | | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | | | | |

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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

E01 Panel H

| | | | | | |
|---|-------------|---|--|-------------|-------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: | N:✓ | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: | N:✓ | Other water related conditions: | | |
| Soluble salts: | Y:✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Wind erosion: | Y:✓ | N: | Dust: | Y: | N:✓ |
| Vegetation: | Y: | N:✓ | Lichen: | Y: | N:✓ |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N:✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: ✓ |
| Animals: | Y: | N:✓ | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: ✓ | N: |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N: ✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |

| | | | | | |
|--|-----------|------------|---------------------------|------------|------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | | Y: | | |
| Other Observations | | | N:✓ | | |
| | | | | | |
| Past treatments: | Y: | N:✓ | | | |
| General comments: | | | | | |
| Despite flaking caused by the accumulation of salts carried in the water seepage through the rockface, Panel H is one of the best preserved. | | | | | |
| Recommendations: | | | | | |
| There is a small amount of charcoal - either deliberately or accidentally applied to the rockface – which may be easily removed by a qualified rock art conservator. The images in this panel lend themselves very well to interpretation that will be of interest to the visitor. | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good:✓ | | |
| Fair: | | | Poor: | | |
| Destroyed: | | | Unknown: | | |
| Assessor: PN/LM | | | | | |
| Affiliation: WITS - MARA | | | | | |
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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

E01 Panel I

| | | | | | |
|---|-------------|---|--|--------------------------|-------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: | N: ✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N: | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: ✓ |
| Animals: | Y: | N: ✓ | Birds: | Y: | N: ✓ |
| Bats: | Y: | N: ✓ | Insects: | Y: | N: ✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N: ✓ | Scratched: | Y: ✓ | N: |
| Abraded: | Y: ✓ | N: | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: ✓ RED DOTS | N: |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: | N: ✓ |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | | Y: ✓ | N: | | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |

| | | | | | |
|--|-----------|------------|---------------------------|------------|------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | | Y: | | |
| Other Observations Graffiti: there is a large number of scratch marks – some in the shape of letters – and several patches of abrasion on the images. This presents a considerably greater problem for site restoration for opening to the public. The bright red paint marks need not necessarily be removed. These marks may in fact belong to the historic or contact periods and form part of the biography of the site. | | | | | |
| Past treatments: | | | Y: | | |
| General comments: Please refer to general comments pertaining to the whole site. | | | | | |
| Recommendations: Because scratch and abrasion marks cannot be removed, a professional rock art conservator will have to ‘disguise’ the graffiti using advanced chemical cleaning techniques and the application of stable, permanent, pigments to match those of the original images. The scratched graffiti is a prime example of the reason for the compulsory accompaniment of any visitors by a trained guide. | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good: | | |
| Fair:✓ | | | Poor: | | |
| Destroyed: | | | Unknown: | | |
| Assessor: LM/PN | | | | | |
| Affiliation: WITS - MARA | | | | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | | | | |

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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

E01 Panel J

| | | | | | |
|---|---|-------------|--|-------------|-------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: ✓ | N: |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: | N: ✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N: | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: ✓ |
| Animals: | Y: | N: ✓ | Birds: | Y: | N: ✓ |
| Bats: | Y: | N: ✓ | Insects: | Y: | N: ✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N: ✓ | Scratched: | Y: ✓ | N: |
| Abraded: | Y: | N: ✓ | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: ✓ | N: |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: | N: ✓ |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | | Y: | N: ✓ | | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |

| | | | | | |
|--|-----------|------------|---------------------------|------------|------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | | Y: | | |
| Other Observations | | | N:✓ | | |
| There are scratch marks over/through some of the images. See Panel I | | | | | |
| Past treatments: | | | Y: | | |
| General comments: | | | N:✓ | | |
| See comments for Panel I | | | | | |
| Recommendations: | | | | | |
| See recommendations for Panel I | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good: | | |
| Fair:✓ | | | Poor: | | |
| Destroyed: | | | Unknown: | | |
| Assessor: LM/PN/PL/HP | | | | | |
| Affiliation: WITS - MARA | | | | | |
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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

E01 Panel K

| | | | | | |
|---|-------------|---|--|-------------|-------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: | N: ✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: |
| Animals: | Y: ✓ | N: | Birds: | Y: | N: ✓ |
| Bats: | Y: | N: ✓ | Insects: | Y: | N: ✓ |
| Other natural deterioration: | | Y: ✓ FLAKING | | N: | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N: ✓ | Scratched: | Y: | N: ✓ |
| Abraded: | Y: ✓ | N: | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: | N: ✓ |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: ✓ | N: |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | | Y: | N: ✓ | | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |

| | | | | | |
|--|-----------|------------|---------------------------|------------|------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | | Y: | | |
| Other Observations | | | N:✓ | | |
| Being situated closer to ground level, Panel K has been exposed to greater amounts of dust and domestic animal rubbing. | | | | | |
| Past treatments: | | | Y: | | |
| General comments: | | | N:✓ | | |
| Please see comments for Panel A. | | | | | |
| Recommendations: | | | | | |
| There are abrasion marks and charcoal marks, the treatment of which is the same as mentioned in recommendations for the previous panels. | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good: | | |
| Fair:✓ | | | Poor: | | |
| Destroyed: | | | Unknown: | | |
| Assessor: LM/PL | | | | | |
| Affiliation: WITS - MARA | | | | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | | | | |

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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

E01 Panel L

| | | | | | |
|---|-------------|---|--|-------------|-------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: | N: ✓ | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: | N: ✓ |
| Vegetation: | Y: | N: ✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: ✓ |
| Animals: | Y: ✓ | N: | Birds: | Y: | N: ✓ |
| Bats: | Y: | N: ✓ | Insects: | Y: | N: ✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N: ✓ | Scratched: | Y: ✓ | N: |
| Abraded: | Y: ✓ | N: | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: | N: ✓ |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: | N: ✓ |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | | Y: | N: ✓ | | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |

| | | | | | |
|---|-----------|------------|---------------------------|------------|------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | | Y: | | |
| Other Observations | | | N:✓ | | |
| Serious scratch marks | | | | | |
| Past treatments: | | | Y: | | |
| | | | N:✓ | | |
| General comments: | | | | | |
| Please see comments pertaining to whole site | | | | | |
| Recommendations: | | | | | |
| Serious scratch marks, which cannot be removed but must be disguised – please see comments pertaining to panel I. | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good: | | |
| Fair:✓ | | | Poor: | | |
| Destroyed: | | | Unknown: | | |
| Assessor: PL/LM | | | | | |
| Affiliation: WITS - MARA | | | | | |
| Contact: DR SAM CHALLIS | | | | | |

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**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
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E01 Panel M

| | | | | | |
|---|---|-------------|--|-------------|-------------|
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: | N: ✓ |
| Vegetation: | Y: | N: ✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N: ✓ |
| Animals: | Y: ✓ | N: | Birds: | Y: | N: ✓ |
| Bats: | Y: | N: ✓ | Insects: | Y: | N: ✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N: ✓ | Scratched: | Y: ✓ | N: |
| Abraded: | Y: | N: ✓ | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: | N: ✓ |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: | N: ✓ |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | | Y: | N: ✓ | | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |

| | | | | | |
|---|-----------|------------|---------------------------|------------|------------|
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | | Y: | | |
| Other Observations | | | N:✓ | | |
| The panel is partly covered in soot, and has graffiti in the form of scratch marks. | | | | | |
| Past treatments: | | | Y: | | |
| General comments: | | | N:✓ | | |
| Please see comments pertaining to whole site. | | | | | |
| Recommendations: | | | | | |
| Soot may be removed and scratches disguised by qualified rock art conservator. Please see comments pertaining to Panel I. | | | | | |
| ASMIS Site Condition Assessment Value: | | | Good: | | |
| Fair:✓ | | | Poor: | | |
| Destroyed: | | | Unknown: | | |
| Assessor: HP/PL | | | | | |
| Affiliation: WITS - MARA | | | | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | | | | |

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Measures to be taken at F15

Visitation. F15 is an ideal site to open up to visitors, especially for hiking or horse trails because it is located in relative proximity to the gravel road. Currently the state of preservation is very good and the images are very clear. Opening it up to visitors however immediately places the site in the high vulnerability class.

Situation. Images are located very low down in a small shelter, encouraging the visitor to squat down or to crawl inside. The images are clear and lend themselves to interesting interpretation in a guide booklet.

Access. It is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust. There is good ground cover in the shelter that has kept erosion in check. This is not a substitute, however, for a proper walkway should the site be chosen for visitation.

There may be some deposit in the shelter with potential for excavation. Therefore, just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise any scratch marks by camouflaging them to match the rockface and the images. Although visitors may wish to see examples of the artefacts on the shelter floor they may not be allowed to touch any – except for those selected and issued by the guide while at the site. No material may be removed from the site and visitors must be issued with a warning that any offence is punishable by fines and/or imprisonment under Lesotho's National Heritage Resources Act of 2011.

F15 – Rock art site

[NEW SITE – NO ARAL NUMBER]



Figure 48. View across shelter F15 facing North-Northwest



Figure 49. General shot panel B shelter B with 1m scale.

SIGNIFICANCE

Ranking: HIGH (visibility: high, vulnerability: high, rarity: medium, research potential: medium, complexity: moderate)

F15 is an ideal site to open up to visitors, especially for hiking or horse trails as it is located in relative proximity to the gravel road. Currently the state of preservation is very good and the images are very clear. Opening it up to visitors however immediately places the site in the high vulnerability class. Should it be earmarked for tourism provision must be made for its protection.

SITE LOCATION - 29°53'08.6" S, 029°05'14.4"

See photo register: 8077-8078, 2034-2042.

F15 is a south-facing overhang measuring 3m high, 41m wide and 3m deep. Thaba Ntso is located to the north of F15, F15 approximately 100m NW of sites A12 and B23. It is approximately 500m below the gravel road.

PRESERVATION

Although there is evidence of washes affecting some of the images, and moderate flaking, the general preservation of F15 is good. Thick vegetation on the ground surface may be a risk in the instance of veld fires – however, no significant fire damage is apparent.

ARAL COMPARISON

F15 is a new site, therefore there is no comparison.

The images at rock art site F15 are located under a low overhang. Most images are less than 1m from the floor of the overhang. Two panels (A and B). Panel A is located on the left-hand end of the overhang, while panel B is found on the far right of the site.

PANEL A

See photo register: 8081-8116

Panel A contains (left to right): 1 human figure in red painted furthest left and two human figures, also in red and one red finger stripe. The left-hand human figure in the group of two holds a bag with tassels coming from it, while the right-hand figure has its knee raised. This figure's head is missing.



Figure 50. Portrait close-ups of human figure on left side of panel A.



Figure 51. Portrait close-ups of two human figures and finger stripe, right side of panel A.

PANEL B

See photo register: 8025-8047, 2036-2061

Panel B contains the most interesting composition. It also contains a higher number of images than panel A with wider subject matter. From left to right: kaross-clad human figure in red is the furthest left. On the ceiling of the left side of panel B are two very thin red lines and one red finger dot. At the centre of the panel are indeterminate red shapes and lines. Furthest right is a feline in red, in a running posture. This feline appears to chase a polychrome human being in with a white face and black kaross. This figure appears to flee from the feline. Lastly, at the far right of the panel is some red smudging.



Figure 52. General shot right side of panel B including feline in red, polychrome human figure with white face running from feline and black kaross.



Figure 53. Close-up of right side of panel B including human figure, feline and black kaross.

STONEWALLING

No stonewalled structures at site F15.

ARTEFACTS

No artefacts found at F15. However, there is much vegetation within the shelter and this may be obscuring archaeology on the surface or in the ground.

DEPOSIT

The deposit within the overhang of F15 appears well-preserved, and vegetation appears to have kept erosion in check. The potential for excavation is therefore moderate. The ground slopes gently from the back wall of the shelter, and then more steeply down towards the stream below.

ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University

Sehlabathebe National Park Survey 2015

| | | | | | |
|--|-------------|-------------|--|-------------|-------------|
| <u>General Site Information</u> | | | | | |
| Site #: F15 | | | Site name: | | |
| Panel #: A and B | | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | | |
| Location/GPS file: 29° 53' 08.6" S 029° 05' 14.4" E | | | Assessment level: Basic:✓ Intermediate: Detailed: | | |
| Date: 02/06/2015 | | | Time: 12:00 | | |
| Weather: FINE AND SUNNY | | | | | |
| Dimensions: Height: 3M Depth: 3M | | | Width: 41M | | |
| Petroglyph/Pictograph?: PICTOGRAPH | | | Petroglyph method: | | |
| Pictograph method: SAN FINE-LINE BRUSH | | | Pictograph colour(s): RED, DARK RED AND BLACK | | |
| Aspect & angle: | | | Substrate: CLARENS FORMATION SANDSTONE | | |
| Samples taken: NO | | | Photos: CAMERA A:077; 8082-8116 CAMERA J: 2034-2035 | | |
| Overlays: NONE | | | | | |
| Existing documentation: (e.g. ARAL?) NEW SITE – No ARAL Number | | | | | |
| Topography/general site description: Refer to site record sheet and pictures | | | | | |
| General description of images and their condition: Refer to site record sheet and pictures | | | | | |
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: | N: ✓ |
| Cleaving: | Y: | N: ✓ | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |

| | |
|---|-----------------|
| General comments: Site F15 is very well preserved owing to absence of human and animal action - no kraals or fires. It should therefore be considered for supervised public visits. | |
| Recommendations: F15 is an ideal site to open up to visitors, especially for hiking or horse trails as it is located in relative proximity to the gravel road. Currently the state of preservation is very good and the images are very clear. Opening it up to visitors however immediately places the site in the high vulnerability class. Should it be earmarked for tourism provision must be made for its protection. The site would have to be monitored as a matter of course, and any vegetation encroaching on the paintings would have to be removed. The ground cover vegetation is excellent for keeping the soil intact and reducing dust. | |
| ASMIS Site Condition Assessment Value: | Good:✓ |
| Fair: | Poor: |
| Destroyed: | Unknown: |
| Assessor: | |
| Affiliation: WITS - MARA | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:

J. Claire Dean

Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at F22

Visitation. Site F22 has been given a High significance ranking because it is a good site to open to tourists; the art is very clear, even though the complexity is low. Opening it up to visitors however immediately places the site in the high vulnerability class. The rhebok present at the site is a very nice example of this subject matter. The art appears to be in relatively stable condition. F22 is relatively proximate to the waterfalls to which tourists are taken on horseback.

Situation. Images are located on the back wall, approximately at head height. The images are clear and are very easy for visitors to see.

Access. It is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust. There is good ground cover in the shelter that has kept erosion in check. This is not a substitute, however, for a proper walkway should the site be chosen for visitation.

There may be some deposit in the shelter with potential for excavation. Therefore, just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned.

F22 Rock art site

[ARAL 197]



Figure 54. View towards F22 facing North showing height of shelter.



Figure 55. View across F22 facing West.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, clarity: high, rarity: low, complexity: low, future research: low)

F22 has been given a significance ranking of high because it is a good site to open to tourists. The art is very clear, even though the complexity is low. The rhebok present at the site is a very nice example of this subject matter. The art appears to be in relatively stable condition. F22 is relatively proximate to the waterfalls to which tourists are taken on horseback. Should it be opened to the public, adequate preservation strategies must be implemented to protect the paintings from further damage.

SITE LOCATION: 29°53'49.2" S, 029°08'48.1" E

See photo register: 8035-8042, 8062-8073

Rock art site F22 is located in a low, shallow sandstone shelter. It measures 15m in length, 1.5m in height and 2m in depth. The shelter faces south. 15m below F22 runs a tributary of the Tsoelikane River. This tributary flows from west to east. F22 is on the same level as rock art site C16.

PRESERVATION

The 2 images painted at F22 are in good condition. They are very clear, though the head of the eland on the right of the panel has faded away. This is due to salt seepage and wash

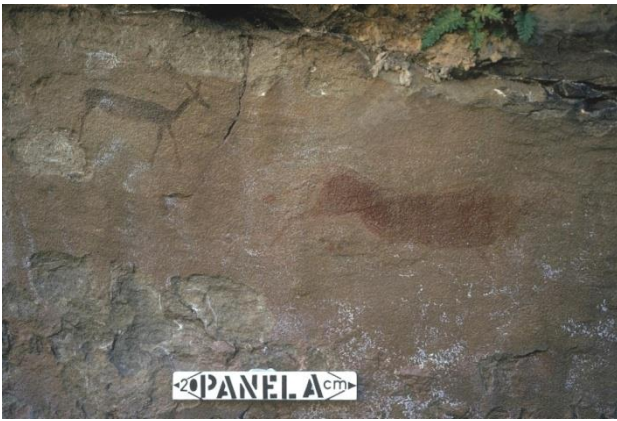


Figure 56. ARAL image 1980, F22 panel A.



Figure 57. MARA image 2015, F22 panel A.

ARAL COMPARISON

Analysis of the ARAL record shows that there has been little appreciable deterioration since 1980. The ARAL image above was taken when wetted with water spray – therefore it is difficult to make a comparison on a like-for-like basis. There may have been a slight increase in the build-up of natural salts on the rock surface – but owing to the ‘wet’ ARAL image this is hard to discern.

Rock art site F22 contains 1 panel (A) including 2 images. These are painted on the left side of a shallow, low shelter. The paintings are approximately 1.3m from the shelter floor.



Figure 58. Close-up right side panel A: bichrome eland, head faded away in relation to rhebok.

PANEL A

See photo register: 8035-8060, 0240-0263, 9342-9355

On the left side of panel is a single rhebok painted in dark red. This rhebok faces east (or right) and measures 13cm from nose to tail. It is clear and does not appear to be too severely damaged. 9cm to the right and slightly lower than the rhebok is a bichrome eland in red and white. The eland has a clear tuft on the end of its tail and is painted as if running. It also faces east (or right). This image is more damaged than the rhebok: the head has faded almost completely and the front legs are also faded.

STONEWALLING

No stonewalled structures present at F22

DEPOSIT

The deposit within the shelter appears level, but not deep. It is approximately 10cm in depth but a more accurate assessment of this depth could not be achieved as vegetation covers most of the shelter floor. The slope of the hillside from the dripline to the stream below is steep, though not as steep as other, higher shelters. Artefacts may have eroded down towards the stream.

ARTEFACTS

No artefacts were found at F22. This may be because vegetation obscures some of the surface. No artefacts were found in the area surrounding the shelter either.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|--|-------------|---|---|
| <u>General Site Information</u> | | | |
| Site #: F22 | | Site name: | |
| Panel #: A | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29° 14.4' 93.6" S 029° 89.7' 01.1" E | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 13/03/2015 | | Time: 15:40 | |
| Weather: CLEAR AND WINDY | | | |
| Dimensions: Height: 1.5m Depth: 2m | | Width: 15m | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): BROWN, RED, DARK RED, ORANGE AND WHITE | |
| Aspect & angle: E +/-65° | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA A:9342-9355 CAMERA B: 8035-8073 CAMERA C:0245-0263 | |
| Overlays: NONE | | | |
| Existing documentation: (e.g. ARAL?) ARAL 197 | | | |
| Topography/general site description: Refer to site record sheet and pictures | | | |
| General description of images and their condition: Refer to site record sheet and pictures | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: Fog/mist; wind-blown rain |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: ✓ N: |

| | | | | | |
|---|--|------------|---|------------|------------|
| Cleaving: | Y: | N:✓ | Exfoliation: | Y:✓ | N: |
| Granulation: | Y: | N:✓ | Abrasion: | Y:✓ | N: |
| Wind erosion: | Y:✓ | N: | Dust: | Y: | N:✓ |
| Vegetation: | Y: | N:✓ | Lichen: | Y: | N:✓ |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y:✓ | N: | Bacteria: | Y: | N:✓ |
| Animals: | Y:✓ | N: | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y:✓ | N: |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: | N:✓ | | N:✓ | |
| | <i>(If graffiti are present, complete following sections to record type and form.)</i> | | <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: | N:✓ |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |

| | |
|---|----------------------|
| <u>Other Observations</u> | |
| Past treatments: | Y: N:✓ |
| General comments: The site is well-protected and rarely visited. Images are relatively clear. There are wash zones around the panel. If on tourist route provision must be made for protection. | |
| Recommendations: No immediate action required. If placed upon tourist route, action must be taken to protect paintings. This site would make a good example to open to visitors on a hiking or horseback trail. | |
| ASMIS Site Condition Assessment Value: | Good: |
| Fair:✓ | Poor: |
| Destroyed: | Unknown: |
| Assessor: JAMES PUGIN | |
| Affiliation: WITS - MARA | |
| Contact: DR SAM CHALLIS sam@rockart.wits.ac.za | |

Form prepared by:
J. Claire Dean
Conservator

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Measures to be taken at J01

Visitation. Site J01 is one of the richest rock art sites in the Park. It is located in the rock art rich valley of the Mofoqoi River. It is located at the opposite end of the park from the Main Entrance and very close to the South African Border. This area is used by people passing through on their way to Bushman's Nek pass and for grazing domestic livestock. It is also prone to poachers and we met several while we were on survey. It is extremely vulnerable to casual visitation and must be policed very strictly and monitored often.

Situation. Images are arranged along two sections of the back wall at head height and below head height. Some image are flaked and faded by natural erosion processes but there are still plenty of images that are clearly visible. There is a second shelter nearby which is associated with this site and is enclosed by a stone wall that may under no circumstances be moved or altered because it is itself a Cultural Heritage artefact. Some images have been washed and thus very faded. Some of the fading may possibly have been caused by the use of water in the previous documentation of the rock art site or by other visitors using water to make the images temporarily clear. Some of the images have been pecked – most probably by traditional healers before the inception of the park. Fading, or poor visibility, has been further compounded by dust adhering to the rock face. It is advised that the entire site be physically cleaned by a rock art conservator. Many other images in the site are damaged by the build-up of salts which have caused extensive flaking. Of these, most are still visible buy they are extremely vulnerable and must not be touched. Further, there are scratch marks and other graffiti that can be removed or camouflaged by the conservator.

Access. Most of the images are protected naturally by the large boulder that fell from the ceiling to create the shelter. It acts as a natural barrier. If visitors stand in front of this boulder they will be able to see the majority of the clear images in the upper panels, while still being kept out of arms' reach so that they cannot touch the paintings.

Just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise any scratch marks by camouflaging them to match the rockface and the images.

Monitoring. Site J01 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. The site is very close to the southern Park boundary and while surveying we encountered illegal poachers with many dogs. The shelter is obviously still used by cross border traffic and poachers. Park security here is critical. Coupled with this the site should be frequently monitored.

J01 – Rock art and stonewalled site

[ARAL 220]



Figure 59. View across J01 looking Southeast.



Figure 60. View across J01 looking North-northwest.

SIGNIFICANCE

Rating: HIGH (complexity: high, visibility: high, vulnerability: high, rarity: high, research potential: high)

Site J01 is one of the most significant in the SNP. It has multiple rows of shaded polychrome eland, rare 'split-bodied' human figures which are specific to the southern Maloti and the Leqoa river area. There are similar figures at Ha Soloja, just outside the SNP. There are other rare figures, described below and in the photo register. The site is, however, very close to the southern Park boundary and while surveying we encountered illegal poachers with many dogs. The shelter is obviously still used by cross border traffic and poachers. Provision must be made for its protection.

SITE LOCATION - 29°57'39.8" S, 029°05'44.8" E

See photo register: 8460-8463, 2425

Rock art and stonewalled site J01 is made up of two sandstone shelters (shelter A and shelter B) immediately next to one another in the middle kranline of the eastern slope of the hillside overlooking the Mofoqoi valley, at the southern-most end of the Sehlabathebe National Park. A tributary of the Tsoelikane flows in the valley beneath J01.

Stonewalled site D30 lies to the south-east of J01. D31 (stonewalled) is located +/- 100m to the northeast - downslope. This is possibly associated with J01.

PRESERVATION

A large proportion of the rock art at J01 is faded. The site is subject to various environmental deteriorating factors such as wind exfoliation, washes and soluble salts. The site has also been damaged by animal rubbing. This is due to it being used as a kraal (stonewalling present at site). There is a large amount of human damage to the site as well. It has been extensively pecked and hit, as well as scratched.



Figure 61. ARAL 1980 wet/spray image. Panel D: dark red eland body superimposed by strange eland body painted on hind legs with head facing ceiling of shelter.



Figure 62. MARA 2015 image. Panel D: dark red eland body superimposed by strange eland body painted on hind legs with head facing ceiling of shelter.

ARAL COMPARISON

Many of the ARAL 1980 close-up photographs were taken when the rockface had been wetted by water spray, making it difficult to compare with the modern record on a like-for-like basis. However, an examination of the ARAL record shows there has been little deterioration since 1980, except for a possible increase in the scratching of some images in panel F. Please see photographic record.

J01 is made up of two shelters: shelter A and shelter B

Shelter B contains 3 panels: A, B & C

The rock art at J01 (shelter A) is located across the entirety of the back sections of wall within the sandstone shelter. It contains 10 panels (A-J)



Figure 63. Site J01, general shot including panels D, E and F.

SHELTER A

PANEL A

See photo register: 8465-8475

Panel A is located on the southern end of shelter A on the ceiling of the shelter. This panel contains a red human figure bending forward with disassociated arms hanging down located below a destroyed and abandoned swallow's nest. Below this human figure is a very faded human bichrome eland in red and white.

PANEL B

See photo register: 8476-8483

Panel B is located on the back wall of shelter A approximately 1m from panel A. This panel includes an indeterminate white figure on the left side of the panel, a black outlined, white in-filled kaross-clad figure with red face, two red lines down body. This figure is very faded and covered in soot and dust.

PANEL C

See photo register: 8484-8492

Panel C: +/- 3 m from Panel D located on flat (parallel to back wall) section of rock face. Left and centre: two faded eland. Right: individual red line possible human foot (?)



Figure 64. Panel D: eland looking over shoulder: facing right but looking left with strange, flat horns. Dark red eland body superimposed by strange eland body painted on hind legs with head facing ceiling of shelter.



Figure 65. Bottom-centre, panel D: a dark red eland body, superimposed by a 'split-bodied' human figure with no head, white triangle on chest and black lines across chest. Three shaded polychrome eland bodies 10-12cm in length.

PANEL D

See photo register: 8493-8527

Approximately 60cm to right of panel C on same surface at same height. Left to right: eland looking over shoulder: facing right but looking left with strange, flat horns. Dark red eland body superimposed by strange eland body painted on hind legs with head facing ceiling of shelter. Also superpositioned over dark red eland is light red human figure with bow and light red finger dot.

Centre: at the bottom of centre panel is a dark red eland body, superimposed by a 'split-bodied' human figure with no head, white triangle on chest and black lines across chest. Three shaded polychrome eland bodies 10-12cm in length: one with black horns and black line on nose

Right: dark red eland below all, strange polychrome eland in red white and black: very strange body shape, light red human figure torso and legs, with white triangle on check and black lines on chest. This figure has no head, arms or legs.

PANEL E

See photo register: 8528-8539

Approximately 1m from panel D on same surface. Left to right: one dark red eland below al, two eland: one shaded polychrome, one light: red with black horns painted across step and crack in rock face, one striding red human figure (large)

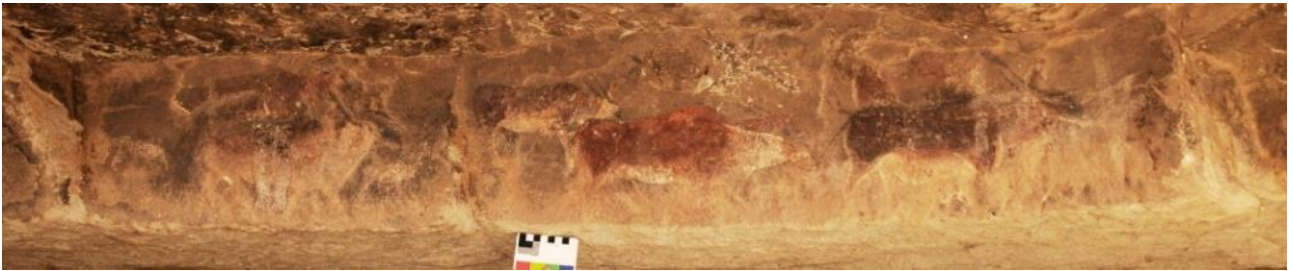


Figure 66. Site J01, panel F.

PANEL F

See photo register: 8540-8556

Immediately to right of panel E

7 shaded polychrome eland, 3 white running rhebok with hunting equipment including bow, 1 very strange animal face in red, white and black, red dots, which appears to be of a cow or a wildebeest – although it may be a non-real beast. This is superimposed over two polychrome eland at left and white finger painted cross on right

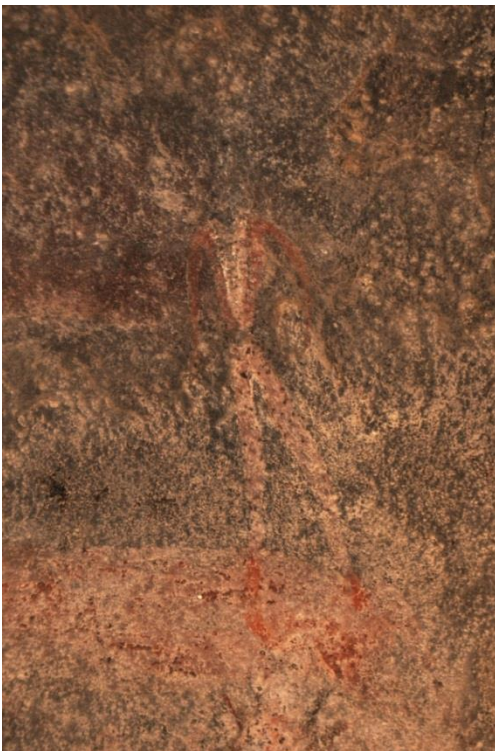


Figure 67. Panel D: a 'split-bodied' human figure with no head, white triangle on chest and black lines across chest.



Figure 68. Panel F: a very strange animal face in red, white and black, red dots, which appears to be of a cow or a wildebeest – although it may be a non-real beast.

PANEL G

See photo register: 8557-8582

Panel G is located below panels D- F on back wall of shelter J01 for 4m above a long, flat boulder that lies on the shelter floor. This panel contains a large group of running and walking shaded polychrome eland, largely facing to the right. In the centre of panel G is a line of hartebeest, and towards the end of panel G are a group of black human figures. This panel is very faded in some places, especially the far left end and has been rubbed by animals.

PANEL H

See photo register: 8583-8584

Panel H is a small panel to the right of panel G on a south-facing outcrop from the back wall of the shelter. This panel is very faded and damaged. it contains a black indeterminate animal shape +/- 20cm in length and red patches of indeterminate red paint.

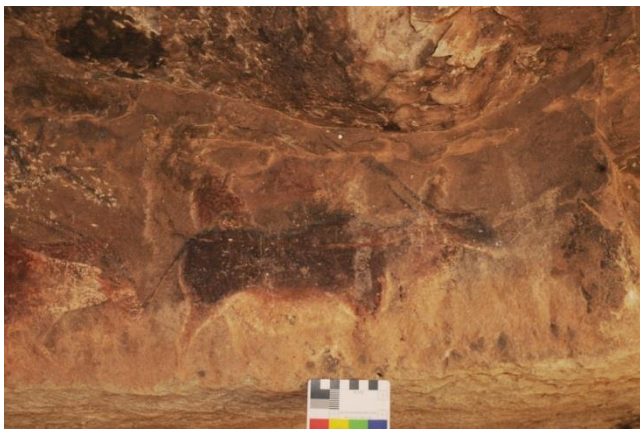


Figure 69. Panel F: large shaded polychrome eland.

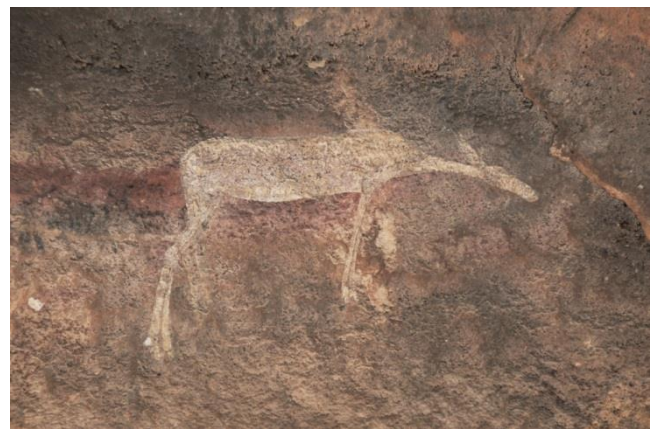


Figure 70. Panel I: large white rhebok with long, thin neck lowered, over two polychrome eland bodies.

PANEL I

See photo register: 8586-8604

Panel I is on the the same level as panel G, approximately 3m to the right of G. Contained in this panel are: 1 large polychrome eland, in front of red walking human figure with arrows, small (6cm) white rhebok below , white human figure just above and to right of large eland head, one large white rhebok with neck lowered, and very long and thin neck over two polychrome eland bodies, at the far right of panel I is another large white rhebok seeming to walk down the rock face. Black and red human figures below this rhebok. right-most of panel I are the remains of another white rhebok

PANEL J

See photo register: 8605- 8613

This panel is the last and right-most panel at J01. It is above and to the right of panel I positioned below a swallow's nest. In panel is a seated human figure in red, one shaded polychrome eland with head and front legs flaked off and a polychrome eland running that is badly damaged by soot

SHELTER B

See photo register: 2425-2437

Shelter B is located next to shelter A to the south. It contains three panels. These are not densely

painted and are faded.

PANEL A

See photo register: 2426-2431

Panel A contains running human figures with small torsos and long legs

PANEL B

See photo register: 2432-2435

Panel B contains 2 shaded polychrome rhebok, one above the other. These rhebok face opposite directions.

PANEL C

See photo register: 2436-2437

Panel C is made up of indeterminate red patches of paint and is the furthest right of the 3 panels within shelter B

STONEWALLING

See photo register: 2438-2439, 2442-2443

Shelter B of J01 contains a stone wall on the southern end of the shelter. This walling is constructed without mortar. It is built within the overhang of shelter B at J01.

DEPOSIT

Sediment appears eroded and slope of hillside is steep towards tributary below. Therefore, there is very little deposit within the site and no artefacts were discovered below.

ARTEFACTS

A single hornfels (?) truncated adz was found on the floor of shelter A of J01. This is the only stone artefact. Also on the shelter floor of A was a rusted length of barbed wire

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|---|------------------------|---|---|
| <u>General Site Information</u> | | | |
| Site #: J01 | | Site name: | |
| Panel #: All | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29° 57' 39.8" S 029° 05' 44.8" E | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 08/06/2015 | | Time: 14:00 | |
| Weather: CLEAR AND FINE | | | |
| Dimensions: Height: 2 M Depth: 5M | | Width: 15M | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): WHITE, RED, DARK RED, LIGHT RED, ORANGE, BLACK and SHADED POLYCHROME IMAGES | |
| Aspect & angle: NE90°-190° OVERHANG | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NONE | | Photos: CAMERA A: 8460-8613 | |
| Overlays: SUPERPOSITIONING | | | |
| Existing documentation: (e.g. ARAL?) ARAL 220 | | | |
| Topography/general site description: Refer to site record sheet and pictures. | | | |
| General description of images and their condition: Refer to site record sheet and pictures. | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ Throughout | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: N: ✓ |
| Cleaving: | Y: ✓ | N: | Exfoliation: Y: ✓ N: |
| Granulation: | Y: | N: ✓ | Abrasion: Y: ✓ N: |

| | | | | | |
|--|--|------------|--|------------|------------|
| Wind erosion: | Y:✓ | N: | Dust: | Y:✓ | N: |
| Vegetation: | Y: | N:✓ | Lichen: | Y: | N:✓ |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y:✓ | N: | Bacteria: | Y: | N:✓ |
| Animals: | Y:✓ | N: | Birds: | Y:✓ | N: |
| Bats: | Y: | N:✓ | Insects: | Y:✓ | N: |
| Other natural deterioration: | | Y: | N: | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y:✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y:✓ | N: | Scratched: | Y:✓ | N: |
| Abraded: | Y:✓ | N: | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y:✓ | N: |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y:✓ | N: |
| Litter: | Y: | N:✓ | Camp fires: | Y: | N:✓ |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |
| <u>Other Observations</u> Animal faeces present below rock art panel. Rubbing of these animals against the rock face has contributed to the erosion of the lower back Panel G. | | | | | |

| | | |
|---|-----------|-----------------|
| Past treatments: | Y: | N:✓ |
| General comments: Some images have been washed and thus very faded. Possible use of water in previous documentation of rock art site or by other visitors using water to make the images temporarily clear. Some of the images have been pecked – most probably by traditional healers before the inception of the park. | | |
| Recommendations: This site is recommended for visitors. Visitor numbers must be kept low to avoid creating dust (no more than five per group plus compulsory guide). If on tourist route, provision must be made for protection. Just as with other sites it may only be opened once a qualified rock art conservator has prepared it for visitation. | | |
| ASMIS Site Condition Assessment Value: | | Good: |
| Fair: ✓ | | Poor: |
| Destroyed: | | Unknown: |
| Assessor: James Pugin and Lineo Mothopeng | | |
| Affiliation: WITS - MARA | | |
| Contact: Dr Sam Challis (sam@rockart.wits.ac.za) | | |

Form prepared by:
 J. Claire Dean
 Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at J04

Visitation. J04 is a very important site. It contains rare and complex subject matter that could potentially add to our understanding of the art. J04 is in close proximity to J10, a very clear site. These could be visitor sites but it is essential that they are protected. J04 is located in the rock art rich valley of the Mofoqoi River. It is located at the opposite end of the park from the Main Entrance and very close to the South African Border. This area is used by people passing through on their way to Bushman's Nek Pass and for grazing domestic livestock. It is also prone to poachers and we met several while we were on survey. It is extremely vulnerable to casual visitation and must be policed very strictly and monitored often.

Situation. J04 is a shelter in a large boulder. Images are placed on the irregular surface in the one section of the boulder that is more-or-less shielded from the rain. However the panel catches both the sun and wind-blown rain. The images are below head height down to the shelter floor. Some image are flaked and faded by natural erosion processes but there are still plenty of images that are clearly visible.

Access. It is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust.

Just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise any scratch marks by camouflaging them to match the rockface and the images.

Monitoring. Site J04 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. The site is very close to the southern Park boundary and while surveying we encountered illegal poachers with many dogs. The shelter is obviously still used by cross border traffic and poachers. Park security here is critical. Coupled with this the site should be frequently monitored.

J04 – Rock art site

[ARAL 227]



Figure 71. Locating shot towards J04 looking West.



Figure 72. View across shelter J04 facing South.

SIGNIFICANCE

Ranking: HIGH (rarity: high, complexity: high, vulnerability: high, potential for research: high, clarity: moderate)

J04 is a very important site. It contains rare and complex subject matter that could potentially add to our understanding of the art. J04 is in close proximity to J10, a very clear site. These could be visitor sites but it is essential that they are protected. The imagery is unique and must be preserved.

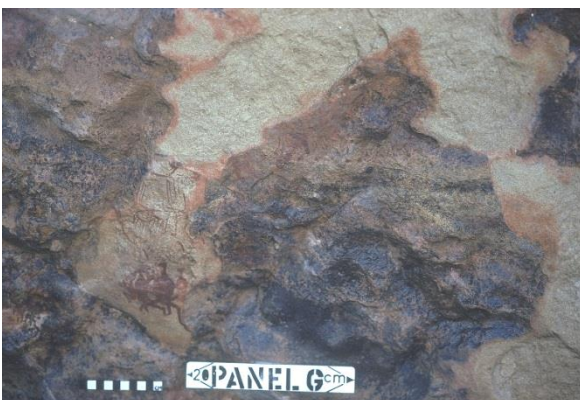
SITE LOCATION: 29°57'11.8" S, 029°05'14.3" E.

See photo register: 2636-2647

Rock art site J04 is a large boulder facing east on above the upper kranline of the western slope of the Mofoqoi Valley. Stonewalled site J03 is located 95m northeast. J10 rock art site is below J04, further downslope and slightly to the north.

PRESERVATION

J04 is relatively well preserved. However, as this boulder does not have a shelter roof, the art is open to the elements and therefore the art is affected by rain, dust and sunlight.



*Figure 73. ARAL image 1980, panel H (ARAL panel G)
General shot panel H: seated human figures, red lines
and red dots.*



*Figure 74. MARA image 2015. General shot panel H:
seated human figures, red lines and red dots.*

ARAL COMPARISON

AN examination of the 1980 ARAL record of site J04 shows little deterioration

J04 is divided into 10 panels (A-J). The paintings are spread across much of the face of the boulder from the shelter floor along the back wall.

PANEL A

See photo register: 2653-2656, 8913-8922

Panel A is on the far left of the boulder face and contains a single indeterminate red patch of paint, with no identifying features .

PANEL B

See photo register: 2657-2664, 8915- 8926

Panel B, to the right of panel A contains 3 human figures in red with white lines decorating their arms and necks, white faces and hooked heads. All figures face right, are standing and have their arms slightly splayed out from their bodies.



Figure 75. Panel B: three human figures in red with white lines decorating their arms and necks, white faces and hooked heads.



Figure 76. Panel C: a group of human figures painted in dark red, variously seated and standing, holding sticks, or arrows and with large red dots above their heads.

PANEL C

See photo register: 2665-2679, 8927-8941

A complex panel. A group of human figures painted in dark red, variously seated and standing, possibly representing a dance 'scene'. These figures hold sticks, or arrows and have large red dots above their heads. Also above these figures are a collection of bags and a curled, supine human figure in dark red. Standing figures concentrate on the left of the panel while seated figures dominate the right side.

PANEL D

See photo register: 2680-2684, 8942-8944

Panel D is to the right of panel C and contains 7 human figures in red and dark red. Some have a hand held above their heads holding sticks and some have the remains of white faces. They face different directions and are dynamic.

PANEL E

See photo register: 2685-2793, 8945-8953

Bottom left: 3 seated human figures with knees bent facing right superimposed over a rhebok in white and strange kinked snake-like line to right and below seated figures and rhebok

Panel description continued in Notes...

PANEL E CONTINUED

Top of panel E is flaked and faded, it contains 2/3 very damaged and faded non-real beings, multiple red flecks, and figure with arms raised: possible 'flying buck'? All of these images are flaked and scratched.

PANEL F

See photo register: 2704-2709, 8954-8958

Panel F is also flaked and damaged. This panel is above panel G. In this panel there is 1 white rhebok and white rhebok head and feet in centre of panel F, top right a red human figure with arms outstretched and red finger stripes and red patch of paint.

PANEL G

See photo register: 2710-2732, 8959- 8970

Panel G is to the right of panel D. Top left: Kaross-clad human figures in dark red with bows. In the centre of panel G is a very large human figure to the right of the kaross-clad figures, painted in dark red. This figure has a white face, very large head, hair tassels with white flecks coming from them and a very long white line extending from the head of this figure for 50cm up the rockface into panel F. To the right of what we can call the Significantly Differentiated Figure (SDF) in the centre of panel G is a feline/antelope conflation with a feline-like body and tail and hooves.



Figure 77. Panel G: a human figure with a white face, very large head, hair tassels with white flecks coming from them and a very long white line extending from the head.

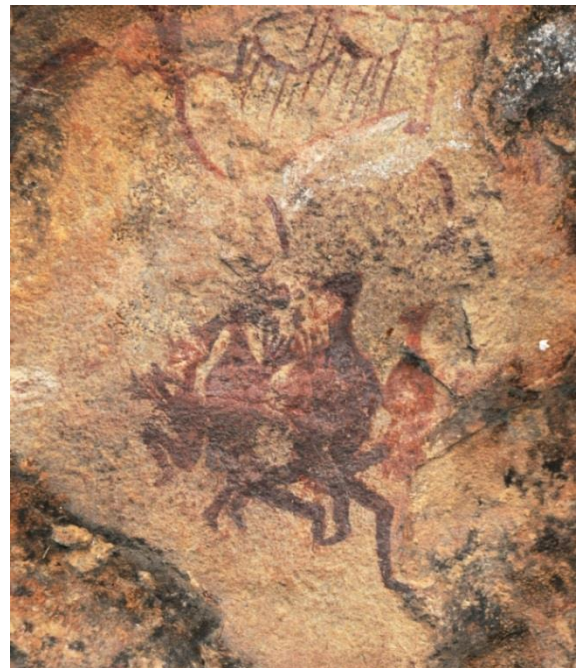


Figure 78. Panel H: seated human figures in dark red clapping hands, some figures' fingers clearly visible in the centre of the panel. Above these figures is an intricate complex of finely painted red lines.

PANEL H

See photo register: 2733-2749, 8971-8977

Panel H is to the right of panel G and contains 4 seated human figures in dark red clapping hands, some figures' fingers clearly visible in the centre of the panel. Above these figures is an intricate complex of finely painted red lines. It is very badly flaked but there has been little apparent increase in flaking since the ARAL record was taken in 1980 – see ARAL comparison above.

PANEL I

See photo register: 2750-2751, 8979

Panel I contains only indeterminate red patches of paint.

PANEL J:

See photo register: 8980-8982

Panel J is the final panel at J04 and is the furthest right on the face of the boulder. within this panel are 3 vertical lines in red, very fine. 1 horizontal red line with a seated human figure in red below this line. This figure has a well-defined head To the left of this figure are 2 figures bending slightly forward, in red.

STONEWALLING

No stonewalled structures found at J04

DEPOSIT

No deposit at J04

ARTEFACTS

See photo register: 2769-2775

Surface finds include: 1 sherd of thin-walled pottery (no rim) measuring 3m in length and >1cm thick.

CCS flakes and cores Quartzite flakes and cores

Hornfels flakes

1 Hornfels adze

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | | | |
|---|-------------|-------------|--|-----------|-------------|
| <u>General Site Information</u> | | | | | |
| Site #: J04 | | | Site name: | | |
| Panel #: A | | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | | |
| Location/GPS file: 29° 57' 11.8" S 029° 05' 14.3" E | | | Assessment level: Basic:✓ Intermediate: Detailed: | | |
| Date: 09/06/2015 | | | Time: 13:00 | | |
| Weather: CLEAR AND FINE | | | | | |
| Dimensions: Height: 2metres Depth: | | | Width: 3.25metres | | |
| Petroglyph/Pictograph?: PICTOGRAPH | | | Petroglyph method: | | |
| Pictograph method: SAN FINE-LINE BRUSH | | | Pictograph colour(s): DARK RED AND WHITE | | |
| Aspect & angle: E +/-65° | | | Substrate: CLARENS FORMATION SANDSTONE | | |
| Samples taken: NO | | | Photos: CAMERA A: 8905-8977; 8979-8982 | | |
| Overlays: Super-positioning | | | | | |
| Existing documentation: (e.g. ARAL?) ARAL 227 | | | | | |
| Topography/general site description: Refer to site description. | | | | | |
| General description of images and their condition: Refer to panel description | | | | | |
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: | N: ✓ |
| Damp areas: | Y: | N: ✓ | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: | N: ✓ |
| Cleaving: | Y: | N: ✓ | Exfoliation: | Y: | N: ✓ |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |

| | | | | | |
|---|---|------------|---|------------|------------|
| Wind erosion: | Y:✓ | N: | Dust: | Y:✓ | N: |
| Vegetation: | Y:✓ | N: | Lichen: | Y:✓ | N: |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y: | N:✓ | Bacteria: | Y: | N:✓ |
| Animals: | Y:✓ | N: | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y:✓ | N: |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N:✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: | N:✓ |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |
| <u>Other Observations</u> | | | | | |

| | | |
|--|-----------|-----------------|
| Past treatments: | Y: | N:✓ |
| General comments: The main panel is open to the elements and exposed to wind-blown rain and sun. Despite this the images are clear. | | |
| Recommendations: This site is recommended for visitors. All the usual rules apply: small groups of no more than five persons accompanied by a qualified guide. No more than four groups per day. | | |
| ASMIS Site Condition Assessment Value: | | Good: |
| Fair:✓ | | Poor: |
| Destroyed: | | Unknown: |
| Assessor: JP/LM | | |
| Affiliation: WITS - MARA | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | |

Form prepared by:
 J. Claire Dean
 Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at J10

Visitation. This site is highly recommended as a visitor site. It contains extremely well preserved images which the average visitor will be able to see clearly. It might be considered for inclusion on a hiking or horseback trail that includes other sites in the valley such as J01 and J04. Should it be opened to the public, a qualified conservator should be called in to camouflage the scratch marks. In any event, the site should be monitored regularly.

J10 is an important site that is vulnerable because it is located very close to the southern SNP border and illegal cross-border traffic is common in the area. Tracks close to sites in this area are used by stock thieves. While surveying the team encountered a poacher with many dogs. Many sites in the valley have evidence of recent occupation. It is essential to the survival of heritage resources that illegal entry into the park be prevented and the border policed. Illegal occupation of such sites contributes greatly to their deterioration. Fires and domestic animals can cause a lot of damage to the art. Apart from the issue of vulnerability, other factors make J10 a high significance site. The paintings are, for the most part, clear and the subject matter is relatively uncommon (we do not find many cases of superpositioning within the park and hartebeest are less commonly painted than other subject matter).

Situation. The paintings are, on the whole, clear and bright. The older images that have been superimposed by others are still visible and have not faded too badly. Details in the paintings are still clear. There has been some flaking, fading and dust damage but not to the extent observed at other sites within the park.

Access. It is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust.

Just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving - not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise the small number of scratch marks by camouflaging them to match the rockface and the images. J10 is partially enclosed by a stone wall that may under no circumstances be moved or altered because it is itself a Cultural Heritage artefact.

Monitoring. Site J10 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. The site is very close to the southern Park boundary and while surveying we encountered illegal poachers with many dogs. The shelter is obviously still used by cross border traffic and poachers. Park security here is critical. Coupled with this the site should be frequently monitored.

J10 – Rock art and stonewalled site

[ARAL 222]



Figure 79. View from shelter facing East.



Figure 80. View towards J10 facing South

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, clarity: high, complexity: high, rarity: moderate, potential for research: moderate)

J10 is an important site that is vulnerable because it is located very close to the southern SNP border and illegal cross-border traffic is common in the area. Tracks close to sites in this area are used by stock thieves. While surveying the team encountered a poacher with many dogs. Many sites in the valley have evidence of recent occupation. It is essential to the survival of heritage resources that illegal entry into the park be prevented and the border policed. Illegal occupation of such sites contributes greatly to their deterioration. Fires and domestic animals can cause a lot of damage to the art. Apart from the issue of vulnerability, other factors make J10 a high significance site. The paintings are, for the most part, clear and the subject matter is relatively uncommon (we do not find many cases of superpositioning within the park and hartebeest are less commonly painted than other subject matter).

SITE LOCATION: 29°51'56.5" S, 029°07'12.1" E

See photo register: 3007-3008, 3040-3041

J10 is a north-east facing sandstone rock shelter measuring 20m from east to west, 8m deep from north to south and 4m high. The shelter is on the southern side of a gully running east to west down the western slope of the Mofoqoi valley. It is on the middle kranline of this side of the valley. About 400m in the valley below the Mofoqoi, a tributary of the Tsoelikane river flows north to south. J10 is directly below and to the east of high significance rock art site J04. High significance rock art site J08 is approximately 500m south of J10.

PRESERVATION

Site J10 is exceptionally well preserved. Panel A is in a better general state of preservation than panel B. The paintings are, on the whole, clear and bright. The older images that have been superimposed by others are still visible and have not faded too badly. Details in the paintings are still clear. There has been some flaking, fading and dust damage but not to the extent observed at other sites within the park. Panel B is more faded than panel A.



Figure 81. ARAL image 1980: close-up section of top left panel A, showing human legs in dark red, and head of right-hand eland.



Figure 82. MARA image 2015: close-up section of top left panel A, showing human legs in dark red, posterior and tail of left eland, head of right eland with hartebeest head and horns visible behind shoulder.

ARAL COMPARISON

As mentioned previously, Site J10 is very well preserved. An examination of the 1980 ARAL record shows that there has been little to no deterioration in the last 35 years. The wetting of the images in 1980 makes it difficult to compare photographs on a like-for-like basis.

Rock art and stonewalled site J10 contains 2 panels, A and B, on the north-western end of a sandstone shelter at a height of 1.5m from the shelter floor.

PANEL A

See photo register: 3013-3070, 9177, 9180-9192

Panel A extends for just over 1m across an even, flat surface of the rockface at the back of the shelter. This area is on the north-western end of the shelter (or the right side of the shelter). It is 1.5m from the shelter floor. It contains the highest number of paintings. There are at least three layers of paintings involved in superpositioning relationships.

At the top left of panel A is a bichrome eland, possibly a juvenile. It faces to the left with its head slightly lowered and legs together as if standing. It is executed in red and white. The head, ears, neck, belly and legs are white while the body, the forelock, top of the tail and front portions of the legs are in red. It is approximately 20cm from nose to tail and 12cm from shoulder to hoof. Below this eland are 4 faded antelope, possibly hartebeest painted as if jumping/running up the rockface. Their heads are very faded. The head of the antelope highest up the rockface is slightly superimposed by the hoof of the eland above.

To the right of the group of dark red faded antelope/hartebeest and superimposing the two on the right is a bichrome eland in red and white. This eland faces right and is slightly smaller than the other four at J10. Its head, front legs and lower portions of hind legs have faded away. Underneath all (the hartebeest and the eland) is another hartebeest in slightly lighter red than the group to the left. The hind quarters are obscured by those images overlaying it, and the lower front legs have

faded. Its head, horns and backline are clear.

The centre of the panel is composed of multiple images. On the top left of this section are two human legs in dark red with white lines on the back of the legs and black feet. The upper body has faded away but to the left of the figure are the remains of a white and red bow. The lower legs of the figure are superimposed by the head of another eland, this one polychrome in red, with a light red line along the belly above the white strip of the belly. It has a white face, white ears and white legs with red lines on legs, in the ears and along the tail. This eland also superimposes, more completely, a hartebeest in dark red. The head emerges from behind the shoulder of the eland, turned to face over its own shoulder. The backline of this hartebeest is visible above that of the eland and the hind legs are in view as well. Above the backlines of both the eland and hartebeest are two human figures, slightly faded in dark red and white. The lower of these superimposes the hartebeest. Both figures face left and are running, holding bows. The lower of the two has two white and red arrows coming from its shoulder. On the left of this figure is an indeterminate dark red figure, possibly another human figure.



Figure 83. Site J10, panel A, showing the clarity and complexity of the subject matter. This site is recommended as one that might be opened to the public.

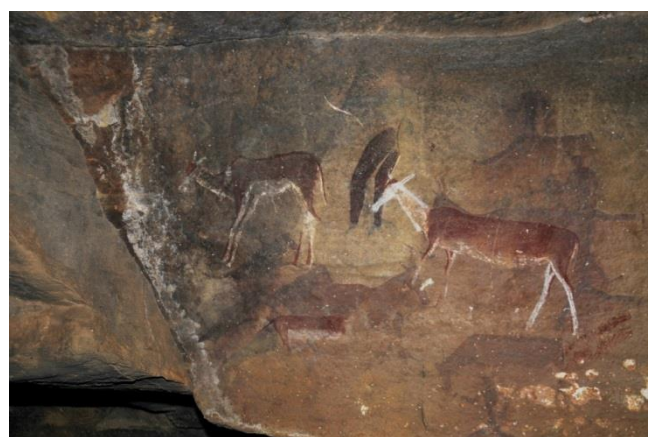


Figure 84. Close-up of left-hand portion of panel A. The hartebeest painted underneath the eland could well be some of the oldest images in the SNP – up to 4000 years in age.

Bottom section centre panel A: superimposing the polychrome eland, from the centre of its belly down the panel are the faded remains of a white human figure. The legs are visible below the eland and its body appears to have turned a yellowish colour at the point at which it superimposes the eland. Below this figure is a hartebeest facing to the left with its head lowered and tail slightly raised. At the very bottom of the panel is a human figure in dark red facing left running with a bow, its hand raised to the hartebeest nose, though whether this relationship is intentional is unclear. Over tail of the dark red hartebeest are two red stripes. Above these stripes, and superimposed by the tail of the polychrome eland is a human figure facing left in dark red with a bow.

The left side of panel A contains three paintings: the bottom section of panel has two polychrome eland with their backs to one another, the tips of their tails touching. They are standing. As with the other eland in the panel they are mainly in red with white head, ears, legs and portions of their tails. The final painting in panel A is above the two eland. It is a polychrome human figure in dark red, light red, black and white. It faces right, has one arm raised and one arm slightly extended in front of it. It has black bands on its wrists, upper arms and stomach and the neck is painted in black. The head has faded away. There are light red and white lines running down the backs of the legs and along its arms.

PANEL B

See photo register: 9178, 9179, 3048-3049

Panel B, approximately 25m left of panel A, on a small flat area of rock face lower than panel A are four individual paintings making up panel B. On the left of the panel is an odd figure in dark red. This image is likely to be a human figure with both arms and legs splayed wide on either side of its body. To the left of this figure are three very faded dark running human figures. They face to the left and are each +/- 8cm from head to toe.

STONEWALLING

See photo register: 3009-3012

There are two stonewalled structures built in the centre of J10. These are numbered A and B

A: In the centre of the shelter, built under the roof and extending north just beyond the dripline is a semi-circular enclosure. This structure does not run south to the back wall of the shelter but terminates before it reaches it. It is un-coursed, single-faced and built with angular, selected flattened stones. It runs from beyond the dripline north to south inside the shelter for 3.5m and 4m across the shelter east to west. Its maximum height is 1.5m.

B: Immediately to the west of enclosure A is a semi-circular dwelling built at the back of the shelter abutting the back wall. It is 3.5m from east to west, mud-coursed and double-faced. It is semi-collapsed, the northern wall having suffered the most damage, surviving only to a height of 30cm, while the eastern and western walls survive to 70 to 80cm.

ARTEFACTS

No artefacts were found on the shelter floor of J10 or on the area surrounding the shelter or in the stonewalled structures.

DEPOSIT

The shelter floor is flat and even and there appears to be some depth of deposit. However, the lack of surface finds may indicate that the site was not used habitually and therefore excavation potential is ranked as medium.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|---|--|---|---|
| <u>General Site Information</u> | | | |
| Site #: J10 | | Site name: | |
| Panel #: ALL | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29°51'56.5" S 029°07'12.1" E | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 12/06/2015 | | Time: 16:10 | |
| Weather: CLEAR | | | |
| Dimensions: Height: 4M Depth: 8M | | Width: 20M | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): DARK RED, LIGHT RED, BLACK, WHITE and YELLOW | |
| Aspect & angle: N-E | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA J: 3007-3070 CAMERA A: 9177-9193 | |
| Overlays: NO | | | |
| Existing documentation: (e.g. ARAL?) ARAL 222 | | | |
| Topography/general site description: Refer to site description. | | | |
| General description of images and their condition: Refer to panel description | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ not directly affecting paintings | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: | N: ✓ | Other water related conditions: |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: N: ✓ |
| Cleaving: | Y: | N: ✓ | Exfoliation: Y: ✓ N: |

| | | | | | |
|---|--|------------|--|-------------|-------------|
| Granulation: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Wind erosion: | Y: ✓ | N: | Dust: | Y:✓ | N: |
| Vegetation: | Y: | N:✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N:✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N:✓ |
| Animals: | Y: | N:✓ | Birds: | Y: ✓ | N: |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y:✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y:✓ | N: |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: | N:✓ |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |

| | |
|---|----------------------|
| <u>Other Observations</u> | |
| The majority of the paintings are very well preserved. There are a number of fine scratch marks across the paintings and a small number of deeper marks where it appears the main panel has been struck – either purposefully or accidentally. | |
| Past treatments: | Y: N:✓ |
| General comments: | |
| Recommendations: This site is highly recommended as a visitor site. It contains extremely well preserved images which the average visitor will be able to see clearly. It might be considered for inclusion on a hiking or horseback trail that includes other sites in the valley such as J01 and J04. Should it be opened to the public, a qualified conservator should be called in to camouflage the scratch marks. In any event, the site should be monitored regularly. | |
| ASMIS Site Condition Assessment Value: | Good:✓ |
| Fair: | Poor: |
| Destroyed: | Unknown: |
| Assessor: SC/AM/JP | |
| Affiliation: WITS - MARA | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
 J. Claire Dean
 Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at Z04

Visitation. Site Z04 is given High Significance because it has clear images and is located very near to Sites D04, E01 and to the main Park road. It is extremely vulnerable to casual visitation and must be policed very strictly and monitored often.

Situation. Images are arranged along several sections of the back wall, below head height. Some images are flaked and faded by natural erosion processes but there are still plenty of images that are clearly visible. The shelter is partially enclosed by a stone wall that may under no circumstances be moved or altered because it is itself a Cultural Heritage artefact. Fading, or poor visibility, has been further compounded by dust adhering to the rock face. It is advised that the entire site be physically cleaned by a rock art conservator. Many other images in the site are damaged by the build-up of salts which have caused extensive flaking. Of these, most are still visible but they are extremely vulnerable and must not be touched.

Access. The images are very low down, close to the floor of this low shelter, encouraging the visitor to squat or crawl in to see the art. A non-intrusive barrier should be installed so that visitors may get close enough to the images to see, but not touch, them.

Just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned.

Monitoring. Site J01 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. The site is very close to the Visitor Reception Gate, to popular site E01, but most importantly to the sensitive area that has been set aside as a biodiversity garden. Please see recommendations for site D04a.

Z04 – Rock art and stonewalled site

[ARAL 245]



Figure 85. View towards Z04 facing north.



Figure 86. View from Z04 facing west-northwest including new staff and research buildings.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, rarity: moderate-high, visibility: high, complexity: moderate, potential for research: high)

Z04 is extremely vulnerable due to its proximity to the main park road, and to popular tourist site E01. It is also in close proximity to the area proposed for development as a biodiversity garden. The images are clear in parts and the rarity of their subject matter is relatively high. They are likely to contribute to future research. There is evidence for human occupation in the form of a fireplace beneath the paintings. This must not be allowed to happen as it severely damages the art. Z04 is also badly flaked in places. It is ESSENTIAL that this site be protected and regularly monitored to track the rate of deterioration.

SITE LOCATION: 29°52'19.2" S, 029°04'13.2" E

See photo register: 6119-6121, 6146-6151, 2020-2024

Rock art and stonewalled site Z04 is a South-facing shelter approximately 100m North and 30m above a small stream running southwest to northeast. The shelter is formed within a large boulder or rock outcrop on a hillside. The new staff quarters and research buildings currently under construction are in view of the site to the West-northwest. The shelter itself is 2.2m high, 8m wide East to West and 5m deep north to south. There is vegetation surrounding the mouth of the shelter. The talus slope is gradual down to the stream.

PRESERVATION

Although the images in panel C are clear, there has been significant flaking- some images are badly damaged by this. Panels A and B contain only the remnants of paintings and these are faded and indeterminate. Panel B is close to a fireplace and covered in soot.



Figure 87. ARAL image 1980. Close-up bottom centre panel C including procession of dark red human figures .



Figure 88. MARA image 2015. Close-up bottom centre panel C including procession of dark red human figures .

ARAL COMPARISON

In this instance the ARAL images of 1980 were so wetted with spray as to be rendered almost invisible to the naked eye. The one image chosen for comparison (above) is among the few that can be seen at all. That said, the images that can be seen are in a good state of preservation compared to the 1980 record. There is no discernible deterioration in the rock face itself and there appears to have been no significant fading in the pigment – although it is difficult to compare images of wet and dry rock faces.

Z04 is made up of 3 panels (A-C) spread across the back wall of a south-facing shelter under a boulder. Panel C is at a height of 50cm from the shelter floor and extends across the wall for 1m.

PANEL A

See photo register: 6122-6128

Panel A is located on the north-western end of the shelter on the back wall behind the stonewalling at about 45cm from the shelter floor. Here there are only 4/5 distinct remnants of red ochre. They are too faded to identify as specific subjects

PANEL B

See photo register: 6219-6131, 2025

In roughly the centre of the shelter to the right of a large wash-zone and flake (possibly caused by heat damage) and covered in soot from the fireplace below are patches of faded red paint. One of these is quite large and may once have been an antelope (though it is too faded to identify with confidence) and other red smudges.

PANEL C

See photo register: 6132-6145

Panel C is located near the eastern end of the shelter at a height of 50cm from the shelter floor. It contains the highest concentration of images, the most interesting subject matter and the best visibility.

Top Left: Kaross-clad human figure in dark red (badly flaked) facing right with arrows/fly switches coming from its shoulder. Right of this human figure is a strange dark red image. This image could represent various things- equipment, a strange non-real beast or a human figure with a strange head- it is difficult to be sure



Figure 89. General shot of Panel C with metre scale.

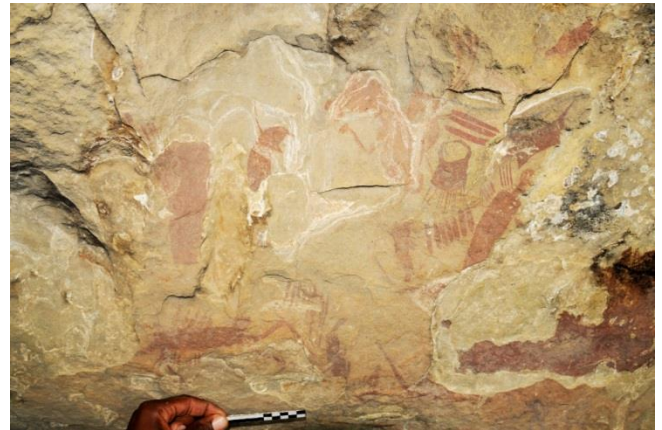


Figure 90. General shot of Panel C with centimetre scale.

Left: 'flying' human figure with hair/ headdress, arm extending forward holding arrow/ stick. Lines across abdomen, human figure below (running) painted over flake. Right of these two is another human figure (this one badly flaked) also with hair/wearing a headdress. This figure also has thick lines to the left of it. These lines may represent some kind of equipment. Centre: 5cm to right of unidentifiable figure top left is a non-real beast/monster with large head, long nose/snout and possible teeth facing right with one arm raised, elbow bent. The hand has obvious claws. Fly switches come from its back/shoulder. Also contained in the panel is a hunting bag with long tassels. These tassels are connected to lozenge-shaped accoutrements. Right of the bag is a stretched skin. Human figure in dark red, bending forward slightly facing right with arrows and fly switches. Bottom centre: A procession of faded human figures in dark red, some bending forward. These figures are small and damaged. Bottom right: bending forward figure in red that is either a human figure bending far forward or a quadruped of some kind. Far right: faded and flaked group of human figures, one seated at the far right of the panel, to the left of an area of rock face covered in soot.



STONEWALLING

See photo register: 6148, 6152.

A single stonewalled structure. 5m long section of dry-stone walling built from the Western end of

the shelter is very dilapidated and only survives to a height of 0.4m. It runs below the drip-line of the shelter.

ARTEFACTS

No artefacts found at Z04 but there is a fireplace inside the shelter that suggests the site has recently been used.

DEPOSIT

Although no artefacts were seen on the surface, there is significant depth of deposit (possibly more than 50cm) which may equal medium potential for excavation.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|---|-------------|---|---|
| <u>General Site Information</u> | | | |
| Site #: Z04 | | Site name: | |
| Panel #: ALL | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29°52'19.2" S, 029°04'13.2" E | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 07/06/2015 | | Time: 08:45 | |
| Weather: CLEAR | | | |
| Dimensions: Height: 2.2M Depth: 5M | | Width: 8M | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): DARK RED, LIGHT RED, BLACK, WHITE | |
| Aspect & angle: S | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA J: 3001-3006 CAMERA A: 9118-9176 | |
| Overlays: NO | | | |
| Existing documentation: (e.g. ARAL?) ARAL 245 | | | |
| Topography/general site description: Refer to site description. | | | |
| General description of images and their condition: Refer to panel description | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: ✓ | N: ✓ | Other water related conditions: |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: ✓ N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: Y: ✓ N: |
| Granulation: | Y: | N: ✓ | Abrasion: Y: ✓ N: |
| Wind erosion: | Y: ✓ | N: | Dust: Y: ✓ N: |

| | | | | | |
|--|---|------------|--|-------------|-------------|
| Vegetation: | Y: ✓ | N:✓ | Lichen: | Y: ✓ | N: |
| Fungi: | Y: | N:✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: ✓ | N: | Bacteria: | Y: | N:✓ |
| Animals: | Y: ✓ | N: | Birds: | Y: ✓ | N: |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: ✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y:✓ | N: |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: ✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |
| <u>Other Observations</u> Several extreme cases of water washes coming down the rock face. | | | | | |
| Past treatments: | | Y: | N:✓ | | |

| | |
|--|-----------------|
| General comments: There is no visible graffiti, but it appears that soot and algae have contributed to the blackening of the rockface. | |
| Recommendations: This site contains several very interesting images, but it would have to be cleaned before opening to the public. It is recommended as a visitor site because of its interesting content and its proximity to the reception gate, D04a and E01. | |
| ASMIS Site Condition Assessment Value: | Good: |
| Fair: ✓ | Poor: |
| Destroyed: | Unknown: |
| Assessor: SC/AM/JP | |
| Affiliation: WITS - MARA | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
 J. Claire Dean
 Conservator

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B. Sites possible for public visitation

Measures to be taken at B29

Visitation. Site B29 has been given High Significance because of its vulnerability – owing to its proximity to the Old Lodge. It is currently visited by people staying at the Old Lodge and Park authorities may wish to take measures to ensure its protection. If it is included on the list of sites to be opened, the visits must be guided, if it to be left then measures should be taken to ensure it is not visited.

Situation. Images are arranged along the back wall at head height and below. Some images are flaked and faded by natural erosion processes but there are still plenty of images that are clearly visible. Part of the shelter is enclosed by a stone wall that may under no circumstances be moved or altered because it is itself a Cultural Heritage artefact.

Access. Should the site be opened, it is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust. Importantly, visitors should not be allowed to interfere in any way with the archaeological stone walling. It is not recommended that visitors go inside the section that is enclosed by stone walling. The images on the back wall of this section are, at any rate, too faded and damaged by animals to be seen clearly.

There is likely to be a reasonably deep deposit in the stonewalled section of the shelter that may have potential for excavation. Therefore, just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise any scratch marks by camouflaging them to match the rockface and the images. Although visitors may wish to see examples of the artefacts on the shelter floor they may not be allowed to touch any – except for those selected and issued by the guide while at the site. No material may be removed from the site and visitors must be issued with a warning that any offence is punishable by fines and/or imprisonment under Lesotho's National Heritage Resources Act of 2011.

B29 – Rock art and stonewalled site

[ARAL 186]



Figure 91. Locating shot of B29. Gated fence to the Old Lodge can be seen far left.



Figure 92. Locating shot of B29 facing south.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high)

B29 is located very close to the Old Lodge. It could be a site to which tourists are taken. This increases the site's vulnerability. Previous cultural damage includes the construction of stonewalled structures directly in contact with the rock art in panel C. This damage does not appear to be recent. Further damage must be prevented when taking tourists to B29.

Visibility, complexity, rarity and potential for further research are all moderate.

SITE LOCATION - 29°52'10.4"S, 029°06'38.4"E

See photo register: 2492-2505

The site is located facing a small west-east stream immediately north of kraal enclosures with ground surface beyond the drip line sloping gently down to stream course and flood plain. The main shelter is 36m east to west in length, 2m high and 4m deep.

PRESERVATION

B29 is affected by natural salt seepage and washes. Panel C, shelter B, has been damaged by the construction of a stonewalled dwelling. This dwelling, built abutting the back wall of the shelter, directly affects and obscures some of the paintings in the panel. Many of the paintings at B29 are badly faded, and some are flaking.

ARAL COMPARISON

Although the site location shots correspond, the panel shots taken by ARAL do not match those taken on this survey. From the ARAL sketches there seems to be no significant further deterioration, although this is not a good evaluation method.

The rock art present at B29 is spread across the back walls of two sandstone shelters, A and B. Both shelters A and B face north. The art in panel A, shelter A, is approximately 17m east of panel A, shelter B.

SHELTER A

PANEL A

See photo register: 2506-2518

Shelter A, located to the east of shelter B contains a single panel of rock art: panel A. This panel includes only two painted images: the left-hand image is painted in red but is too faded and smudged to positively identify species, although it is possible that it is a hartebeest. The right-hand image is a hartebeest painted in light red and white. This animal appears to have been painted lying down with its front legs folded beneath its body. The whole animal is very faded.

SHELTER B

PANEL A

See photo register: 2522-2534

Panel A, shelter B is located at the most easterly end of the shelter at a height of approximately 75cm from the shelter floor and approximately 3m east of a stone dwelling (dwelling A) abutting back wall of shelter. This panel contains a single image, the remains of a shaded polychrome eland in red, white and light red. This eland is painted in a standing position facing east (left). The majority of the head and neck have now faded away. This appears to due to salt seepage coming through the rock face.



Figure 93. B29, shelter B, panel B.



Figure 94. B29, shelter B, panel B.

PANEL B

See photo register: 2535-2566

Panel B is located +/- 80cm west (right) of panel A and approximately 70cm from the shelter floor. Panel B is approximately 1.3m east (left) of dwelling A. It contains 16 images in total: 15 human figures and one red finger smear.

Top left to top right: along the top of panel B are 9 seated, kaross-clad figures painted in dark red. The left-most of these figures are painted en face with knees bent up and feet in front of bodies. Other face slightly west (right) The upper portions of these figures are faded and damaged by soot but it is still possible to discern quivers and arrows from at least four of the figures' backs. The figure on the far right is extremely faded.

Bottom left to bottom right: Below the line of seated figures: 1 human figure in dark red, +/- 10cm in height holds a raised bow and arrow. The lower portion of the body is very faded. Right of this

figure is a human figure in dark red and white (white now faded away), painted upside-down as if falling, with arms outstretched above head, wearing a red headdress.

To the west (right) of this is a red finger smear that is unclear due to soot-overlay.

Approximately 80cm west (right) of the row of seated figures are 3 human figures and one remnant of the same. 1 red human figure measuring 12cm in height with legs bent and tassels from rear facing right(west), 1 human figure in dark red with legs akimbo, knees bent outwards and hands outstretched above head fingers visible. This figure has lines protruding from the waist. Final human figure in this set is in red facing forwards with legs bent, hands on legs and tassels hanging from between legs. This figure would have had a white face, but this has now faded. It also wears a spikey headdress. The image on the far right is extremely faded (red).

PANEL C

See photo register: 2568-2599

Located immediately to the west (right) of dwelling A and within the area enclosed by kraal B. Some paintings obscured by the construction of dwelling A. This panel is damaged by flaking, wash and soot from fires built in dwelling A.

Left section panel C: The highest concentration of paintings at B29 are found in this section of panel C. These images include: 1 large (+25cm) human figure in dark red with quiver, arrows and kaross, 1 shaded polychrome rhebok with head lowered, 1 extremely flaked and therefore fragmented polychrome eland (upper body and head flaked away). 2 possible human figures in red. Below this area of paintings, in two naturally eroded recesses in the rock face are 2 antelope: one bichrome rhebok in light red and white, painted on side with head facing top of recess, one >5cm eland in light red and possible accoutrements-red with white dots surrounding it.

Centre panel C: this section contains the remains a polychrome eland, the body of which has flaked away leaving only the head which is painted facing outwards from the rock face. To the right of this are two dark red, flaked, possible human figures and a very faded possible antelope in red, white and light red

Right panel C: these paintings are the furthest right and final group of paintings at B29. This section includes the remains of an antelope in red, light red and white (only the tail and back-end remain). The right-most images of panel C are finger smears in red and some indeterminate patches of red paint.

SITE DESCRIPTION

See photo register: 355-369

Shelter enclosed and abutted by 5 distinct structures (A-E):

A: Dwelling – a semi-circular structure, well built with selected stone blocks, some roughly faced on at least one side, set into a soil bond. It abuts the rear shelter wall to the south, using the shelter as its back wall and roof of the dwelling. The doorway is facing northeast with inscriptions on the door lintel "BE..." and "KH"; the gap in the walling above the doorway close to shelter roof is a flue for smoke from the hearth inside the dwelling; there is a similar flue on the west side of the dwelling. The dwelling is 3m in diameter internally, with walls approximately 0.5m thick.

B: Semi-circular structure built with selected stone blocks set into soil mortar but partially collapsed and more dilapidated. Larger than A, it abuts the west side of A. and continues for 3m west, curving south to abut the rear shelter wall. Structure B encloses approximately 3m by 3.5m. Probably a small lambing kraal with no entrance.

C: Rectilinear structure, dry stone built with selected large blocks set into the ground surface

forming two faces, then filled with smaller irregular stone core. The structure extends north from the western end of the shelter, turns 90 degrees east and continues across the width of the whole shelter with its entrance facing north in front of dwelling A. It then turns south to meet the rear shelter wall at the east end of shelter; the rectilinear structure C encloses A, B, F and the whole shelter area, extending 9m beyond the drip line. The total area enclosed is 24m east-west by 14m north-south.

D: Rectilinear kraal identical in construction methods and in the same construction phase as C. It extends east from the northeast corner of kraal C for approximately 14m, then turns 90 degrees south and continues to meet the rock face to the east of the shelter; enclosing an area 14m east-west by 10m north-south.

E: Linear enclosure wall located 13m to east of kraal D; identical construction to C and D. Extends north from rock face for c. 9m as far as small stream with entrance towards north end of structure.

There is a small rock outcrop F located north of dwelling A and enclosed by kraal C. F has a concave bowl-like shape cut into c. 0.22m diameter x 0.10m deep. Possibly used to mix ingredients/medicine.

DEPOSIT

Walling of kraal C has acted a silt trap retaining sediment within the shelter and area beyond drip line. Ground surface is flat and more than 0.5m deep. Good potential for excavation. Dwelling A is built directly onto deposit that is at least 0.2m deep, that appears well stratified= good potential for earlier phases of occupation. With the depth of deposit being more than 0.5m (possibly 1m) and having two phases of occupation evident, with dwelling A built directly onto artefact-bearing deposit, there is a high potential for research into the LSA - Iron Age transition at this site.

ARTEFACTS

See photo register: 7535-7439, 352-357

Sparse stone tools mainly on CCS but also hornfels and quartzite, 1 with edge-damage on lateral side; 4 (four) steep scrapers with edge/step damage; three fine-grained quartzite, 1 CCS; 1 Woodlot scraper on CCS; CCS, quartzite and hornfels flakes. Stone tools mainly found on deposit at entrance to A where there is no vegetation cover - although there is not a large quantity of stone tools found across shelter this is likely due to vegetation cover, with high potential for sub-surface deposits. Area near doorway of A has c. 3-5 stone tools per square metre.

Bored stone (from digging stick) broken, made from erratic (possibly iron stone?); pebble with groove cut into one side and slightly concave facets worn on sides of groove but not at base - appears to have been used to produce round, cylindrical shape through abrasion, possibly on lengths of bone or wood. At least four broken lower grindstone fragments were found close to dwelling A, to east of doorway below overhang.

4 (four) steep scrapers with edge/step damage; three fine-grained quartzite, 1 CCS; 1 Woodlot scraper on CCS; CCS, quartzite and hornfels flakes. Stone tools mainly found on deposit at entrance to A where there is no vegetation cover - although there was not a large quantity of stone tools found across shelter this is likely due to vegetation cover, and it was observed that the shelter has high potential for sub-surface deposits. Area near doorway of A has c. 3-5 stone tools per square metre.

At least 4 broken lower grindstone fragments were found close to dwelling A, to the east of the

doorway below the overhang. A plastic bottle top and a fragment of aluminium can and ring-pull indicate the site was used in the modern era; also fragments of 'coke' coal: also modern. 1 animal bone; 2 glass fragments: one clear one green-tinged.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|---|-------------|---|---|
| <u>General Site Information</u> | | | |
| Site #: B29 | | Site name: | |
| Panel #: A | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29°52'10.4"S 029°06'38.4"E | | Assessment level: Basic: ✓ Intermediate: Detailed: | |
| Date: 06/03/2015 | | Time: 15:20 | |
| Weather: PARTLY CLOUDY | | | |
| Dimensions: Height: 2M Depth: 4M | | Width: 36M | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): RED, DARK RED, WHITE | |
| Aspect & angle: S +/-90° | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA B: 2492-2599 | |
| Overlays: NONE | | | |
| Existing documentation: (e.g. ARAL?) ARAL 186 | | | |
| Topography/general site description: Refer to site description | | | |
| General description of images and their condition: Refer to panel description | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: | N: ✓ | Other water related conditions: |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: ✓ N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: Y: ✓ N: |

| | | | | | |
|---|---|--|---------------------------|-------------|-------------|
| Granulation: | Y: | N:✓ | Abrasion: | Y: ✓ | N: |
| Wind erosion: | Y: | N: ✓ | Dust: | Y: ✓ | N: |
| Vegetation: | Y: | N: ✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y: | N: ✓ | Bacteria: | Y: | N:✓ |
| Animals: | Y: ✓ | N: | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: ✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: ✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N: ✓ |
| Other artificial/cultural deterioration: | | Y: ✓ Stone walling abutting rock art has damaged the paintings N: | | | |

| | |
|---|-----------------|
| <u>Other Observations</u> B29 is affected by natural salt seepage and washes. Panel C, shelter B, has been damaged by the construction of a stonewalled dwelling. This dwelling, built abutting the back wall of the shelter, directly affects and obscures some of the paintings in the panel. Many of the paintings at B29 are badly faded, and some are flaking/spalling. | |
| Past treatments: | Y: |
| N:✓ | |
| General comments: B29 is located very close to the Old Lodge. It could be a site to which tourists are taken. This increases the site's vulnerability. Previous cultural damage includes the construction of stonewalled structures directly in contact with the rock art in panel C. This damage does not appear to be recent. Further damage must be prevented when taking tourists to B29. | |
| Recommendations: Because Site B29 is close to the Old Lodge, it may be chosen as a visitor site. If it were opened to the public it would have to be cleaned by a qualified rock art conservator. Visitor groups would have to be small (no more than five plus compulsory guide) and the dust kept down. | |
| ASMIS Site Condition Assessment Value: | Good: |
| Fair:✓ | Poor: |
| Destroyed: | Unknown: |
| Assessor: SC/AM/JP | |
| Affiliation: WITS - (MARA) | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
 J. Claire Dean
 Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at D23

Visitation. This site may be considered for opening to the public because it is very close to site B33 – already a visitor site on the route to the waterfall. It is highly vulnerable because it is very close to the tourist trail. Site D23 has been given High Significance because of its vulnerability and interesting subject matter. Park authorities may wish to take measures to ensure its protection. If it is included on the list of sites to be opened, the visits must be guided, if it to be left then measures should be taken to ensure it is not visited.

Situation. The image is placed on the ceiling of the shelter, thus affording them protection from sun, wind-blown rain and dust. Part of the shelter is enclosed by a stone wall that may under no circumstances be moved or altered because it is itself a Cultural Heritage artefact.

Access. Should the site be opened, it is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust. Importantly, visitors should not be allowed to interfere in any way with the archaeological stone walling. It is not recommended that visitors go inside the section that is enclosed by stone walling. The images on the back wall of this section are, at any rate, too faded and damaged by animals to be seen clearly.

Just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise any scratch marks by camouflaging them to match the rockface and the images. Although visitors may wish to see examples of the artefacts on the shelter floor they may not be allowed to touch any – except for those selected and issued by the guide while at the site. No material may be removed from the site and visitors must be issued with a warning that any offence is punishable by fines and/or imprisonment under Lesotho's National Heritage Resources Act of 2011.

D23 – Rock art and stonewalled site

[NEW SITE – NO ARAL NUMBER]

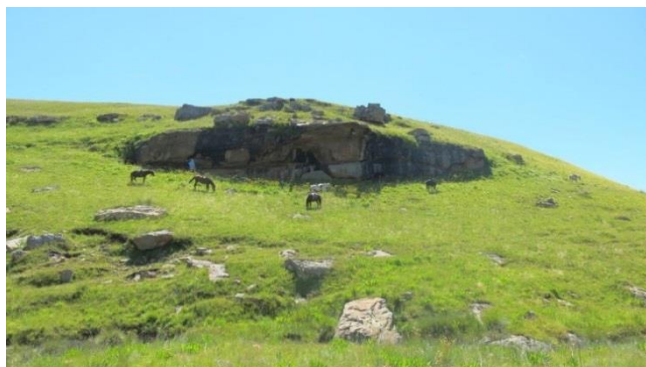


Figure 95. Locating shot of D23 looking north-east.



Figure 96. Locating shot of D23 looking north-west towards Kepising mountain.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, visibility: clear, rarity: great, potential for future research: high)

Although D23 has only one painting in it, the rarity this image makes it of high value for possible future research (extremely unusual black painted quadruped running with attenuated legs). The image is clear and unique. It is very vulnerable because it is on the tourist route to the waterfall (B33 is across the river to the south-east and this is well-known to tour-guides). It is of the utmost importance that this site be protected from damage if visitors are to be brought here.

SITE LOCATION - 29°53'25.9"S, 029°07'47.8"E

See photo register: 0081-0093

Rock art and stonewalled site D23 is a southwest-facing shelter located on a gently sloping hillside. The Tsoelikane River flows past the shelter to the south at the bottom of this shallow valley. Rock art site B33 is located to the southwest of D23, and is in view of D23 across the Tsoelikane River (See photo register: 0091)

Rock art site D23 consists of a single image in a single panel (A). This image is located on the ceiling of the south-western end of shelter D23 and directly above the eastern section of a stonewalled structure abutting the back wall of the shelter.

PRESERVATION

The site is subject to water, lichen and salt damage but these have only affected the front legs of the image very slightly as yet.

ARAL COMPARISON

This is a new site – not previously recorded.



Figure 97. D23 panel A. Appears to be depicted in charcoal but is in fact black paint.

PANEL A

See photo register: 0096-0105.

Panel A is the only panel at D23.

It contains a single image of a quadruped painted in black. It is approximately 15cm in length and resembles charcoal but is in fact black paint, probably a manganese oxide. The quadruped has elongated/attenuated legs and horns and appears to be running/leaping. These horns are akin to those of an eland.

STONEWALLING:

See photo register: 0094, 0096

On the south-western end of shelter D23 is a semi-circular mud-coursed stonewalled enclosure built against the back wall of the shelter.

The dimensions of this structure are: height: 1.2m, width: 3m, depth: 2m.

DEPOSIT

Within the structure there is a dung crust, and some build-up of sediment around the structure. This does not seem to exceed 30cm.

ARTEFACTS

See photo register: 0108, 0109

Only two lithic artefacts were discovered at D23 on the floor of shelter and only two pieces of charcoal found within the stonewalled structure. The deposit depth however may indicate that more lie beneath the surface, thus excavation potential has been estimated 'medium'.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | | | |
|---|-------------|-------------|--|-------------|-------------|
| <u>General Site Information</u> | | | | | |
| Site #: D23 | | | Site name: | | |
| Panel #: A | | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | | |
| Location/GPS file: 29° 53' 25.9" S 029° 07' 47.8" E | | | Assessment level: Basic:✓ Intermediate: Detailed: | | |
| Date: 09/03/2015 | | | Time: 10:55AM | | |
| Weather: CLEAR AND FINE | | | | | |
| Dimensions: Height: 3.8 Depth: 3m | | | Width: 44m | | |
| Petroglyph/Pictograph?: PICTOGRAPH | | | Petroglyph method: | | |
| Pictograph method: SAN FINE-LINE BRUSH | | | Pictograph colour(s): BLACK | | |
| Aspect & angle: E on ceiling | | | Substrate: CLARENS FORMATION SANDSTONE | | |
| Samples taken: NO | | | Photos: CAMERA A: 0081-0109 | | |
| Overlays: NONE | | | | | |
| Existing documentation: (e.g. ARAL?) NEW SITE – NO ARAL NUMBER | | | | | |
| Topography/general site description: Refer to site description | | | | | |
| General description of images and their condition: Refer to panel description | | | | | |
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |

| | | | | | |
|---|---|---|---------------------------|------------|------------|
| Wind erosion: | Y:✓ | N: | Dust: | Y: | N:✓ |
| Vegetation: | Y:✓ | N: | Lichen: | Y:✓ | N: |
| Fungi: | Y:✓ | N: | Mould: | Y: | N:✓ |
| Algae: | Y:✓ | N: | Bacteria: | Y: | N:✓ |
| Animals: | Y:✓ | N: | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | N:✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |

| | |
|--|----------------------|
| <u>Other Observations</u> | |
| This painting is of high significance for future research owing to the rarity of its subject matter. | |
| Past treatments: | Y: N:✓ |
| General comments: The site does not have serious damage as yet but wash zones affect parts and there is some flaking. | |
| Recommendations: This site may be considered for opening to the public because it is very close to site B33 – already a visitor site on the route to the waterfall. The site is highly vulnerable as it is very close to the tourist trail and to the waterfall. It must be protected if people are to visit. | |
| ASMIS Site Condition Assessment Value: | Good:✓ |
| Fair: | Poor: |
| Destroyed: | Unknown: |
| Assessor: SAM CHALLIS, ALICE MULLEN AND PUSELETSO LECHEKO | |
| Affiliation: WITS - MARA | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
J. Claire Dean
Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at F18

Visitation. This site may be considered for opening to the public because it is close to an existing hiking trail and because it houses some interesting and reasonably clear images. Park authorities may wish to take measures to ensure its protection. If it is included on the list of sites to be opened, the visits must be guided, if it to be left then measures should be taken to ensure it is not visited.

Situation. There are several panels of rock art in site F18. By far the clearest are panels B and E (see Condition Assessment record below). They are situated below head height and are vulnerable to animals and human interference.

Access. Should the site be opened, it is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust. Importantly, visitors should not be allowed to interfere in any way with the archaeological stone walling. It is not recommended that visitors go inside the section that is enclosed by stone walling. The images on the back wall of this section are, at any rate, too faded and damaged by animals to be seen clearly.

Just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise any scratch marks by camouflaging them to match the rockface and the images. Although visitors may wish to see examples of the artefacts on the shelter floor they may not be allowed to touch any – except for those selected and issued by the guide while at the site. No material may be removed from the site and visitors must be issued with a warning that any offence is punishable by fines and/or imprisonment under Lesotho's National Heritage Resources Act of 2011.

F18 Rock art site

[NEW SITE – NO ARAL NUMBER]



Figure 98. View towards F18 looking East-Southeast.



Figure 99. View across F18 looking North showing Three Bushmen mountains and Swiman Mountain in South Africa.

SIGNIFICANCE

Ranking: HIGH (Complexity: moderate, vulnerability: high, rarity: moderate, clarity: moderate, potential for research: moderate)

F18 has been ranked as a high significance site because it is a good candidate for visitation. It is located in a particularly scenic part of the park and is very close to the hiking trail which starts at the Old Lodge. The figures in the site are relatively unusual: females are not very common. Its location makes it a good site to include upon the hiking trail. In consequence, this site must be protected. Should it be opened to the public the paintings must be protected as they are already damaged.

SITE LOCATION - 29°51'47.1" S, 029°07'38.4" E

See photo register: 8320-8432

Rock art site F18 is found the back wall of a sandstone shelter measuring 10m in width, 2.7m in height and 2.5m in depth. Rock art site C14 is to the NNW of F18, approximately 200m in that direction. The landscape in front of F18 is relatively flat, giving the site an impressive view. F18 is in close proximity to a hiking trail leading from the Old Lodge. Landmarks in view of F18 are the Three Bushmen mountains to the NNW and Swiman Mountain to the NNE.

F18 is made up of 5 panels (A-E) spread across the length of the back wall of the shelter from its northern to southern end. Paintings are in general between 50 and 80cm from the shelter floor.

PRESERVATION

Many of the paintings are flaked and affected by washes and calcite build-up. F18 is open to the elements including wind, rain, snow, and wind-blown dust.

ARAL COMPARISON

F18 is a new site, therefore there is no comparison.

PANEL A

See photo register: 8335-8342

Far right of shelter back wall. Far left in the panel is an obvious red drip/splash of paint. On the right side of panel A there is a very faded dark red running human figure measuring 8cm in height.



Figure 100. Left side of panel B. Close-up dark red rhebok backlines and eland back line.



Figure 101. General shot bottom half panel B.

PANEL B

See photo register: 8343-8395

Panel B is located 50cm to the right of panel A and includes: clear red eland body, 3 clear rhebok necks and bodies in dark red, 1 red eland body, 1 dark red human figure with hook head and hand to the nose which is superimposed over a white rhebok body, dark red human figure bending forward, possible antelope legs and very faint bow and 4 arrows.

PANEL C

See photo register: 8396-8399

1.5m to right of panel B, panel C includes a single red finger smear

PANEL D

See photo register: 8401-8407

Found 3.5m right of the finger smear in panel C, panel D includes the legs of human figures whose bodies have faded away and 6 human figures in red, the centre of these holding sticks and bending forward.



Figure 102. Site F18: general shot panel E in relation to panel D.



Figure 103. Left side panel E with 5 human figures including 2 large female figures at either end, left hand female has breasts, right female has splayed hand .

PANEL E

See photo register: 8408-8432

At the far right or southern end of shelter F18. Within panel E are 17 red human figures ranging in height from 2cm to 15cm. This group includes 2 identifiable female figures on either side of the group. One of these (on the left) has large thighs and breasts, while the female figure on the right displays a splayed right hand. To the right of this female figure is a group of 6 very small red human figures obscured by salt/ calcite washes.

STONEWALLING

No stonewalled structures at F18

ARTEFACTS

No artefacts found at F18

DEPOSIT

Although the shelter has a relatively good floor, there does not appear to be any deposit build-up within the shelter itself. No artefacts or evidence of human occupation at the site. Therefore, this site does not have any potential for excavation.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

The two most prominent panels, B and E were assessed.

| | | | |
|---|-------------|--|--|
| <u>General Site Information</u> | | | |
| Site #: F18 | | Site name: | |
| Panel #: B | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29° 51' 47.1" S 029° 07' 38.4" E | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 04/06/2015 | | Time: 14:15 | |
| Weather: SNOW AND STRONG NW WIND | | | |
| Dimensions: Height: 2.7M Depth: 2.5M | | Width: 10M | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): RED, DARK RED AND WHITE | |
| Aspect & angle: WNW 135° | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA A: 8320-8432 | |
| Overlays: NONE | | | |
| Existing documentation: (e.g. ARAL?) NEW SITE – no ARAL number | | | |
| Topography/general site description: Refer to site record sheet and pictures | | | |
| General description of images and their condition: Refer to record sheet and pictures | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: | N: ✓ | Other water related conditions: EXPOSED TO WIND-BLOWN RAIN |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: N: ✓ |
| Cleaving: | Y: ✓ | N: | Exfoliation: Y: ✓ N: |

| | | | | | |
|---|---|---|---------------------------|------------|------------|
| Granulation: | Y: | N:✓ | Abrasion: | Y:✓ | N: |
| Wind erosion: | Y:✓ | N: | Dust: | Y:✓ | N: |
| Vegetation: | Y:✓ | N: | Lichen: | Y: | N:✓ |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y: | N:✓ | Bacteria: | Y: | N:✓ |
| Animals: | Y:✓ | N: | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y:✓ | N: |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | N:✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y:✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |
| <u>Other Observations</u> | | | | | |
| | | | | | |
| Past treatments: | | Y: | N:✓ | | |

| |
|---|
| General comments: The panel is extremely faded by rain and animal rubbing. There is also flaking and spilling of water. The paintings are very exposed to the elements (wind + rain). |
| Recommendations: If the site is on tourist or public route, provision must be made for protection. |

F18 Panel E

| <u>Natural Deterioration</u> | | |
|---|--|---|
| Wash zones: | Y: ✓right-hand end N: | Seeps: Y: N: ✓ |
| Damp areas: | Y: N:✓ | Other water related conditions: EXPOSED TO WIND-BLOWN RAIN |
| Soluble salts: | Y:✓ N: | Insoluble salts: Y: N:✓ |
| Cleaving: | Y: N: ✓ | Exfoliation: Y:✓ N: |
| Granulation: | Y: N:✓ | Abrasion: Y:✓ N: |
| Wind erosion: | Y:✓ N: | Dust: Y:✓ N: |
| Vegetation: | Y:✓ N: | Lichen: Y: N:✓ |
| Fungi: | Y: N:✓ | Mould: Y: N:✓ |
| Algae: | Y: N:✓ | Bacteria: Y: N:✓ |
| Animals: | Y:✓ N: | Birds: Y: N:✓ |
| Bats: | Y: N:✓ | Insects: Y: N: ✓ |
| Other natural deterioration: | | Y: N:✓ |
| <u>Artificial/Cultural Deterioration</u> | | |
| Graffiti: | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> |
| Incised/carved: | Y: ✓PECKED N: | Scratched: Y: ✓ N: |
| Abraded: | Y: N:✓ | Spray painted: Y: N:✓ |
| Painted, brush: | Y: N:✓ | Other paint: Y: N:✓ |
| Pencil: | Y: N:✓ | Marker pen: Y: N:✓ |
| Crayon: | Y: N:✓ | Charcoal: Y: N:✓ |

| | |
|--|---|
| Chalk: Y: N:✓ | Ball point: Y: N:✓ |
| Other drawn material: Y: N:✓ | |
| Gun shot: Y: N:✓ | Climbing chalk: Y: N:✓ |
| Theft: Y: N:✓ | Abrasion: Y: N:✓ |
| Litter: Y: N:✓ | Camp fires: Y:✓ N: |
| Staining: Y: N:✓ | Visitor wear/tear: Y: N:✓ |
| Other artificial/cultural deterioration: Y: N:✓ | |
| <u>Other Observations</u> | |
| | |
| Past treatments: Y: N:✓ | |
| General comments: As for Panel B | |
| Recommendations: Should site be opened to the public, a conservator is recommended to camouflage the pecking and scratching. Otherwise recommendations as for Panel B | |
| ASMIS Site Condition Assessment Value: Good: | |
| Fair: | Poor:✓ |
| Destroyed: | Unknown: |
| Assessor: SC/AM | |
| Affiliation: WITS - MARA | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
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Conservator

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Measures to be taken at H05

Visitation. H05 is an important archaeological site. It displays evidence of use by humans stretching back tens of thousands of years – from a possible curated ESA hand axe, to MSA, LSA, Iron Age and Historical artefacts. The rock art does not make for spectacular viewing because it is so damaged and faded, but if archaeological tourism were considered for the park, this would be a very good site to bring visitors to. NOT, however, without adequate protection beforehand. The site is very close to the New Lodge and is on the horse trail to the waterfall. This is a prime candidate for visitation as it contains material from various times in history and prehistory. The site must, therefore, be protected. The art is damaged and further damage must be prevented or at least minimised. Also, should the site be visited, it is essential that no cultural resource, be that stone artefact, bone, pottery or anything similar, be removed from the site. The potential for excavation is high at H05 and could potentially contribute to further understanding of the human past of the region.

Situation. H05 is made up of four associated sections. H05a-c are sandstone shelters containing both rock art and stonewalled structures while H05d is an extensive scatter of archaeological material eroding down from the shelters above. The rock art is located throughout the three shelters along the back walls.

Access. Should the site be opened, it is recommended that access be controlled by putting in place a non-intrusive barrier. A guiding barrier will ideally take visitors close enough to the images, while keeping them out of arms' reach. It will also prevent people from walking in the dust. Importantly, visitors should not be allowed to interfere in any way with the archaeological stone walling. It is not recommended that visitors go inside the section that is enclosed by stone walling. The images on the back wall of this section are, at any rate, too faded and damaged by animals to be seen clearly.

Just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site. The history of southern African rock art visitor centres is littered with examples of the adverse effects of these materials – most notably the destruction of sites owing to fire damage far worse than any ordinary veld fire.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise any scratch marks by camouflaging them to match the rockface and the images. Although visitors may wish to see examples of the artefacts on the shelter floor they may not be allowed to touch any – except for those selected and issued by the guide while at the site. No material may be removed from the site and visitors must be issued with a warning that any offence is punishable by fines and/or imprisonment under Lesotho's National Heritage Resources Act of 2011.

H05 Rock art and stonewalled site

[ARAL 241]



Figure 104. Panoramic shot of H05 facing North, showing proximity to the New Lodge.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, rarity: low, complexity: moderate, clarity: moderate, potential for research: high). The rock art at H05 is badly deteriorated. It does not receive its high significance rating for its rock art but for its archaeological artefacts and vulnerability. H05 is made up of four associated sections. H05a-c are sandstone shelters containing both rock art and stonewalled structures while H05d is an extensive scatter of archaeological material eroding down from the shelters above. The site is very close to the New Lodge and is on the horse trail to the waterfall. This is a prime candidate for visitation as it contains material from various times in history and prehistory. The site must, therefore, be protected. The art is damaged and further damage must be prevented or at least minimised. Also, should the site be visited, it is essential that no cultural resource, be that stone artefact, bone, pottery or anything similar, be removed from the site. The potential for excavation is high at H05 and could potentially contribute to further understanding of the human past of the region.

SITE LOCATION- 29°53'11.1" S, 029°04'38.6" E

See photo register: 1306-1333

Rock art and occupation site H05 is a large site composed of 3 sandstone shelters next to one another from north to south, facing East-northeast and an extensive collection of archaeological material at the bottom of the slope to the east of these shelters, obviously eroding down from the shelters themselves. The site is positioned 900m South-southeast of the New Lodge buildings, and 40m west of the horse trail popular with tourists being taken to the waterfalls. The rock art at H05 is divided into 3 sections: a, b and c.

PRESERVATION

H05 is badly damaged. Much flaking and water damage. Construction of stone structures has affected the art in H05b. It is likely that the shelter's use by people in contact and historical times has been the major factor affecting the rock art. This, coupled with the poor integrity of the rock face, means that, overall, the rock art is not clear and would not, by itself draw visitors.



Figure 105. ARAL image 1980: close-up far right panel A, Shelter A, taken when the rockface was wetted with water spray. Indeterminate subject.



Figure 106. MARA image, 2015: close-up far right panel A, Shelter A, Dry. Indeterminate subject.

ARAL COMPARISON

The rock art at H05 is badly deteriorated. The poor integrity of the rockface and the site's use in historical times has led to a great deal of flaking. Importantly, however, the site continues to deteriorate even though it must surely now receive very few visitors. It is more likely the result of continuous natural processes of erosion and exfoliation. Comparison with the ARAL record of 1980 shows deterioration in the last 30 years, as can be seen in the figures above. Comparison is, however, made difficult on a like-for-like basis because of the wetting of the rockface in the ARAL pictures.

H05 SHELTER A

H05a contains 3 panels (A, B C) spread across the back wall of the shelter. There has been flaking damage. No identifiable imagery remains

PANEL A:

See photo register: 8329-8342, 1376-1382

Panel A is located on the far left of shelter A approximately 1m from the shelter floor. The panel only extends for 20cm across the shelter wall. Within this space are 3 finger dots spaced 10cm apart, the furthest right slightly above the other. They are painted in bright red.

PANEL B

See photo register: 8327-8328

In a hollow approximately 50cm from shelter floor, 1m to the right of panel A. This panel contains 4 very faded finger dots in red.

PANEL C

See photo register: 8324-8326

Panel C is the last, furthest right panel in shelter A. It contains, at the top of the panel, and indeterminate red figure, possible the remains of a human figure. It measures <5cm from top to bottom. At the bottom of panel C are several faded dark red patches of paint on a small bulb in the rockface. No identifying features.

SHELTER B

See photo register: 8343-8356, 1386-1387

Panel B is located in the middle of shelter B at a height of approximately 1m from the shelter floor. Panel A is above a stonewalled structure, above the right side of this shelter.

Painted in panel A are 3 very faded images. On the left, and at the bottom of the panel A are 2 faded antelope bodies, facing left painted in red. Only the bodies remain and it is possible that other portions were painted in white and have now faded away. The antelope bodies each measure <10cm. Above and 25cm to the right of the second antelope is a faded eland body in lighter red. The eland also faces to the left (or south) and is 30cm long. It would also have had white details that have faded away. The neck of the eland is lowered. Because of its proximity to a stonewalled structure that was obviously used in the past, the panel is damaged by soot. To the left and above these images is graffiti reading 'M' and 'M' in red paint.

SHELTER C

Shelter C contains the largest concentration of imagery at H05. It is divided into 3 panels (A-C). The art is damaged by soot, water, animal rubbing and human action.

PANEL A

See photo register: 1405, 8391-8404

Panel A, the furthest left panel is a large concentration of very faded and smudged paintings. It would once have been an impressive panel but it is so severely damaged that hardly any identifiable imagery remains. The panel extends for 4m across the back wall of the shelter and starts at approximately 50cm from the shelter floor. The centre of the panel is faded and flaked, large number of dark red sections flaked away. There are 2 discernible eland within the panel but they are also damaged and faded.

PANEL B

See photo register: 8366-8389

In the centre of shelter C beginning at a height of 50cm from the shelter floor is panel B, extending for 2.5m across the shelter wall. The panel is damaged in the same ways as panel A. In the centre of B is a faded red eland body. Also in panel B are 15 human figures in dark red, all small, 2 human figures in white (one of these with arms forward and bottom half flaked off)

PANEL C

See photo register: 8357-8365

Rightmost panel, close to shelter floor, panel C contains indeterminate red faded and smudged images and a flaked and faded bichrome eland, facing left (south) in dark red and white. This eland is in the centre of the panel.

STONEWALLING

H05 A

See photo register: 1330, 1332, 1336, 1337

Shelter A is the furthest right of the shelters next to another. It contains a large dismantled wall running from the boulders surrounding the shelter down-slope for 15m west to east and then turns to run north to south for 12m. It is less than 20cm in height and only one layer of rocks remains, but it is possible to see that the wall would once have been double faced measuring 1m in thickness. There is no evidence of mortar, though because the wall is so dilapidated, a true assessment of this was not possible.

H05 B

See photo register: 1338, 1340, 1341

Shelter B contains a single stonewalled enclosure on the southern end of the shelter built abutting the back wall. This enclosure is collapsed. It measures 2m east to west to the back wall of the shelter and 2m north to south in from the dripline of the shelter. The collapse has made the walls 1m deep in some places, and survives to a height of 40cm. It is uncoursed and roughly built. The space enclosed by the structure on the back wall is a small, shallow alcove in the rockface.

H05 C

See photo register: 1342-1350

Shelter C, the most southerly of the three contains 2 stonewalled structures. One of these is a large, robust wall running under the dripline for the entire length of the shelter for over 15m. It is double faced and over 1m in height. It is relatively well-preserved but has suffered some collapse. It is built on top of a large boulder running north to south. This boulder is 2m high. On the southern end of the shelter below panel A is a semi-circular stonewalled structure. It is collapsed and dilapidated, measuring 1,5m in diameter, 20cm in height and 70cm in thickness. It abuts the back wall of the shelter below panel A.

ARTEFACTS H05 A-C

The finds density at H05 is high, though lower within the shelters themselves than down-slope where the largest concentration of artefacts have eroded to. This concentration has been labelled H05d (below). The finds coming from within the shelters themselves are:

H05 A

See photo register: 1266-1269

Finds from the shelter floor of H05a include:

- 1 small bored stone measuring 4cm x 5cm
- 4 CCS flakes

H05 B

See photo register: 1270-1287

Artefacts in H05b:

- 5 flakes, 4 < 3cm long, 1 7cm long
- 4 fragments of bone
- 1 piece of stone covered in ochre
- 2 pieces of an upper grindstone
- 1 shard of clear glass
- 1 rusted sheet of metal

H05 C

See photo register: 1288- 1303

Surface finds include:

- 7 stone artefacts
- 6 small flakes
- 9 CCS flakes
- 6 larger CCS flakes
- 3 fragments of bone
- 1 sherd of white historical ceramics
- 1 upper grindstone

H05 D

See photo register: 1243-1265

Possibly the most significant feature of H05 as a whole is the extensive scatter of archaeological material that has eroded from the shelters above. This scatter, including observable materials within the talus slope, extends over a large area of eroded sediment. This area is close to a river bed and has been subject to disturbance. It serves, however, as an indication of the extended and prolonged human presence at H05. It contains likely ESA material (should this be identified as such it may shift the time-frame of human occupation of the area significantly), MSA material, LSA material, Iron Age material and historical material.

Artefacts observed on the surface and within the talus (though this is a small representative sample) include:

A large number of lithic artefacts, some showing signs of retouch, of varying material and size (CCS, Quartzite, Quartz, Hornfels, CCS)

1 Hammerstone 12cm long

1 Grindstone

1 piece clear glass

Thin-walled grass-tempered pottery (no rimsherds)

1 large bovid pelvic bone

Metal pieces

Iron in talus

1 likely ESA Handaxe

DEPOSIT

Even though there has been major erosion from shelters A-C terminating at the bottom of the slope forming H05d, there remains deposit within the shelters. The shelter floors are relatively flat. The potential for excavation is high, as even taking into account the large amount of archaeological deposit out of context in H05d, excavation could contribute to our understanding of occupation at the site, and possibly contribute greatly to our base of knowledge of the area as a whole.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|---|-------------|--|--|
| <u>General Site Information</u> | | | |
| Site #: H05 | | Site name: | |
| Panel #: A-D | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 28/05/2015 | | Time: | |
| Weather: CLEAR AND FINE | | | |
| Dimensions: Height: | | Width: | |
| Depth: Four sites spread over a large area | | | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): RED, WHITE, BLACK, SHADED POLYCHROME IMAGES. | |
| Aspect & angle: | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: | |
| Overlays: NONE | | CAMERA A: CAMERA J: | |
| Existing documentation: (e.g. ARAL?) ARAL 241 | | | |
| Topography/general site description: Mountainous check site record sheet and pictures | | | |
| General description of images and their condition: Check site record sheet and pictures | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y:✓ | N: | Seeps: Y:✓ N: |
| Damp areas: | Y:✓ | N: | Other water related conditions: |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y:✓ N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: Y:✓ N: |

| | | | | | |
|---|---|--|---------------------------|-------------|-------------|
| Granulation: | Y: ✓ | N: | Abrasion: | Y: ✓ | N: |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: ✓ | N: |
| Vegetation: | Y: ✓ | N: | Lichen: | Y: ✓ | N: |
| Fungi: | Y: | N: ✓ | Mould: | Y: | N: ✓ |
| Algae: | Y: | N: ✓ | Bacteria: | Y: | N: ✓ |
| Animals: | Y: ✓ | N: | Birds: | Y: | N: ✓ |
| Bats: | Y: | N: ✓ | Insects: | Y: ✓ | N: |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: ✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | | |
| Incised/carved: | Y: | N: ✓ | Scratched: | Y: | N: ✓ |
| Abraded: | Y: | N: ✓ | Spray painted: | Y: | N: ✓ |
| Painted, brush: | Y: | N: ✓ | Other paint: | Y: | N: ✓ |
| Pencil: | Y: | N: ✓ | Marker pen: | Y: | N: ✓ |
| Crayon: | Y: | N: ✓ | Charcoal: | Y: | N: ✓ |
| Chalk: | Y: | N: ✓ | Ball point: | Y: | N: ✓ |
| Other drawn material: | | Y: | N: ✓ | | |
| Gun shot: | Y: | N: ✓ | Climbing chalk: | Y: | N: ✓ |
| Theft: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |
| Litter: | Y: | N: ✓ | Camp fires: | Y: | N: ✓ |
| Staining: | Y: | N: ✓ | Visitor wear/tear: | Y: | N: ✓ |
| Other artificial/cultural deterioration: | | Y: | N: ✓ | | |
| <u>Other Observations</u> | | | | | |
| | | | | | |
| Past treatments: | | Y: | N: ✓ | | |

| | |
|---|-----------------|
| General comments: H05 is an important archaeological site. It displays evidence of use by humans stretching back tens of thousands of years – from a possible curated ESA hand axe, to MSA, LSA, Iron Age and Historical artefacts. The rock art does not make for spectacular viewing because it is so damaged and faded, but if archaeological tourism were considered for the park, this would be a very good site to bring visitors to. NOT, however, without adequate protection beforehand. | |
| Recommendations: Because site H05 is within proximity of the New Lodge, provision must be made for its protection. The site has a variety of archaeological deposits with importance for future research. | |
| ASMIS Site Condition Assessment Value: | Good: |
| Fair: | Poor: ✓ |
| Destroyed: | Unknown: |
| Assessor: AM/SC/JP/PL | |
| Affiliation: WITS - MARA | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
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Conservator

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Measures to be taken at J02

Visitation. Although on the furthest side of the park, J02 could potentially be opened for visitation as long as it was adequately protected. It contains some rare imagery and some of moderate rarity. However, the panel with the clearest images has been very badly damaged. It appears that the images have been deliberately struck with a stick or stones. Site J02 is particularly vulnerable because it is immediately above a cattle track – used for transit of livestock. The Mofoqoi valley sites are positioned a long way from the main park entrance and lodges, and thus probably not regularly policed. They are close to the border and close to routes used by stock thieves, poachers (our group met one individual hunting with many dogs) and villagers using the valley for pasture and traditional medicine.

Situation. Site J02 has been very badly damaged. Comparison with the ARAL record show that this occurred before the 1980 ARAL survey.

Access. If the site should be chosen as a visitor site, it is recommended that a non-intrusive barrier be put in place to as to keep the images out of arms' reach. Some manner of flooring should also be introduced to keep dust to a minimum and protect the deposit.

Just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise any scratch marks by camouflaging them to match the rockface and the images.

Monitoring. Site J02 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. The site is very close to the southern Park boundary and while surveying we encountered illegal poachers with many dogs. The shelter is obviously still used by cross border traffic and poachers. Park security here is critical. Coupled with this the site should be frequently monitored.

J02 – Rock art and stonewalled site

[ARAL 221]



Figure 107. View across shelter J02 facing Northeast.



Figure 108. View from shelter J02 facing North.

SIGNIFICANCE

Ranking: HIGH (complexity: high, rarity: high, clarity: moderate, potential for research: moderate, vulnerability: high)

Although on the furthest side of the park, J02 could potentially be opened for visitation as long as it was adequately protected. It contains some rare imagery and some of moderate rarity. However, the panel with the clearest images has been very badly damaged. It appears that the images have been deliberately struck with a stick or stones. Site J02 is particularly vulnerable because it is immediately above a cattle track – used for transit of livestock. The Mofoqoi valley sites are positioned a long way from the main park entrance and lodges, and thus probably not regularly policed. They are close to the border and close to routes used by stock thieves, poachers (our group met one individual hunting with many dogs) and villagers using the valley for pasture and traditional medicine.

SITE LOCATION - 29°57'35.2" S, 029°05'26.6" E

See photo register: 8615-8620, 2500-2507

Rock art and stonewalled site J02 is a north-facing sandstone shelter. The shelter is quite small, measuring 5m in length, 1.5m in height and 2m in depth. The site is located in the highest kranline of the western slope of the Mofoqoi valley, with a tributary of the Tseolikane river flowing to the east of the site.

PRESERVATION

Damage to paintings at J02 includes flaking and pecking, and the greatest damage appears to have been caused by deliberate striking of the images with a hard object such as a stick or throwing stones. Many of the paintings are faded.



Figure 109. ARAL image 1980. Panel A: panel A including four human figures: two with headdresses, two with possible spears.



Figure 110. MARA image 2015. Panel A: panel A including four human figures: two with headdresses, two with possible spears.



Figure 111. ARAL image 1980. Panel C (ARAL panel D) showing extensive striking of the rock face and damaged paintings.



Figure 112. Figure 103. MARA image 2015. Panel C showing extensive striking of the rock face and damaged paintings.

ARAL COMPARISON

Although site J02 is very badly damaged, a comparison with the ARAL record reveals that most of this damage occurred before 1980. The water-spraying of the rockface in the ARAL photographs makes it difficult to assess the extent of the scratching and lighter-shaded parts of the flaked rockface (e.g. panel A), but the removal of large flakes by striking in panel E are exactly the same in the shots taken in 1980 and in 2015.

The rock art at J02 is located on the back wall of the sandstone shelter. The shelter faces north-east. J02 is divided into 5 panels (A-E).

PANEL A

See photo register: 8623-8625

Panel A: including line of (?) 6 hartebeest, 3+ shaded polychrome eland, 4 + red human figures two of whom are seated or squatting they are painted in an exsisting flaked area and appear quite late in execution – one carries what is probably a spear. Also in the panel are 2+ red rhebok, 2/3 finger-

painted quadrupeds and faded white rhebok.

PANEL B

See photo register: 8627-8641

Panel B is located to the right of panel A and contains 4 human figures in dark red with hooked heads and white faces. One of these figures is seated, one wears an antelope-eared cap and carries arrows. There is also an indeterminate canid/ feline (?) on the far right of panel B

PANEL C

See photo register: 8642-8660, 2508-2518

Panel C is in the centre right of the shelter. From left to right: Two seated human figures facing left (the first of these is faded substantially more than the second). These figures hold sticks and have white faces. Below these two human figures is a hartebeest, facing right. This image is in red. A portion of its head and horns have flaked away (from having been struck), leaving the nose and upper sections of the horns. The front legs of this hartebeest are very faded. Immediately to the right of this, its feet level with the hartebeest's head is a single human figure in red with extremely long, thin, legs wearing a kaross carrying a bow. This figure faces to the left. The head is faded and somewhat smudged. It is possible that the white of the head has faded away.

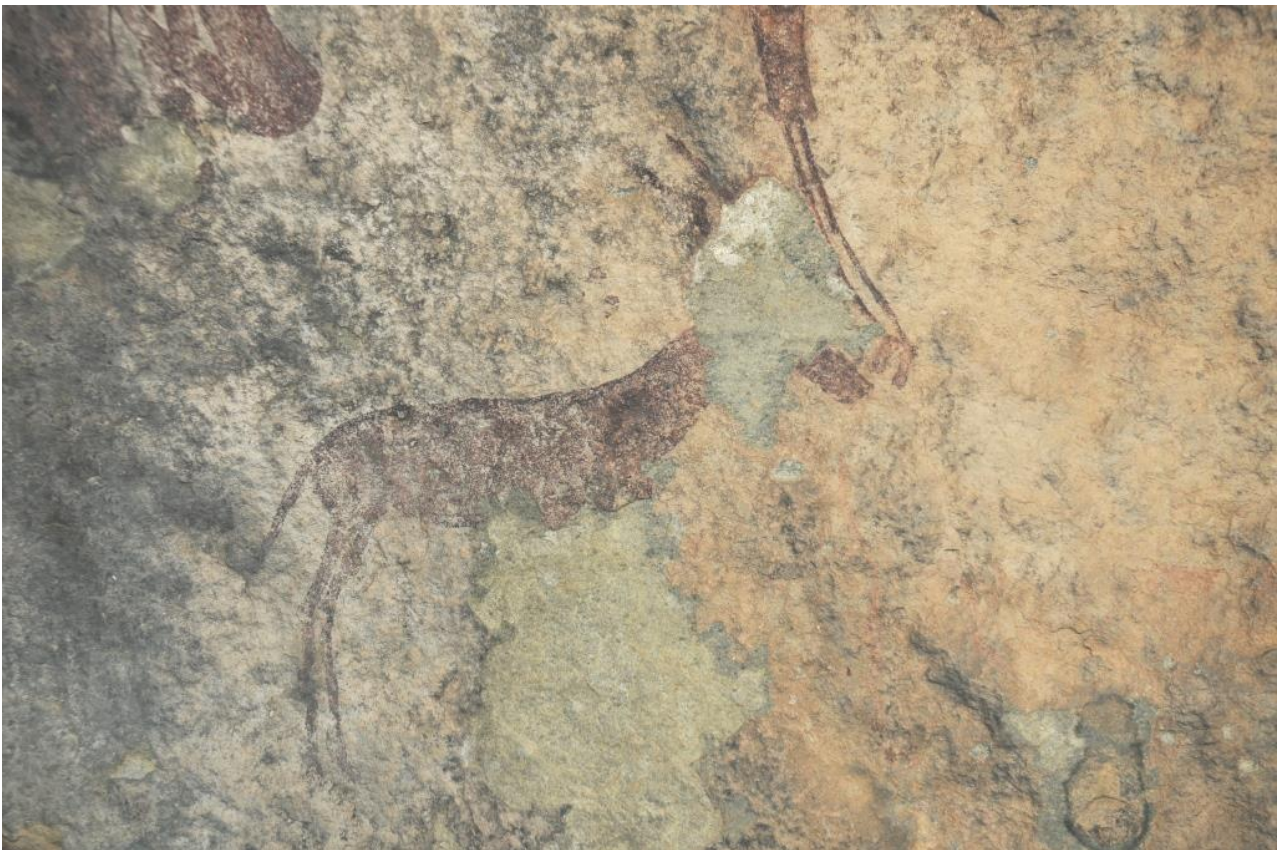


Figure 113. Bottom-centre, panel C: dark red hartebeest antelope with extensive damage caused by deliberate percussion.

PANEL D

See photo register: 8661-8673

Located to right of panel C. This panel includes: 1 large, faded red eland, 2 small, faded red eland,

4 red human figures and 3 small indeterminate (?) antelope. This panel is faded.

STONEWALLING

See photo register: 2519-2520

Within the shelter J02 is a collapsed semicircular dry stonewalled kraal structure. It is built abutting the back wall of the shelter and survives to a height of only 30cm

ARTEFACTS

No artefacts found within shelter J02 or on slope below.

DEPOSIT

No deposit visible at J02. The slope of the hillside is very steep towards valley bottom. Erosion may have caused any deposit or artefacts to disappear.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|--|-------------|--|---|
| <u>General Site Information</u> | | | |
| Site #: J02 | | Site name: | |
| Panel #: ALL | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29° 87' 35.2" S 029° 85' 26.6" E | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 08/06/2015 | | Time: 16:24 | |
| Weather: CLEAR | | | |
| Dimensions: Height: 1.4M Depth: 3M | | Width: 5M | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): DARK RED | |
| Aspect & angle: N | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA A:8615 CAMERA J: 2500-2502; 2503-2507; 2508-2518; 2519-2520. | |
| Overlays: Super positioning | | | |
| Existing documentation: (e.g. ARAL?) ARAL 221 | | | |
| Topography/general site description: Refer to site description. | | | |
| General description of images and their condition: Refer to panel description. | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: N: ✓ |
| Cleaving: | Y: ✓ | N: | Exfoliation: Y: ✓ N: |

| | | | | | |
|---|---|--|--|-------------|-------------|
| Granulation: | Y: | N:✓ | Abrasion: | Y:✓ | N: |
| Wind erosion: | Y:✓ | N: | Dust: | Y:✓ | N: |
| Vegetation: | Y:✓ | N: | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y:✓ | N: | Bacteria: | Y: | N:✓ |
| Animals: | Y:✓ | N: | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y:✓ | N: |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: ✓ | PECKED N: | Scratched: | Y: | N:✓ |
| | | PERCUSSION | | | |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y:✓ | N: |
| Litter: | Y: | N:✓ | Camp fires: | Y: ✓ | N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y:✓ Soot, fire and flaking. Deliberate N: percussion damage. | | | |
| <u>Other Observations</u> | | | | | |

| | | |
|---|-----------|-----------------|
| Past treatments: | Y: | N:✓ |
| General comments: Site J02 has been very badly damaged. Comparison with the ARAL record show that this occurred before the 1980 ARAL survey. | | |
| Recommendations: Provision has to be made for protection since it is close to the border patrol access track. Although most of the serious percussion damage occurred before the ARAL survey of 1980 the site should be monitored regularly. It is possible that this site could be opened for public viewing because it is proximate to other good sites such as J01 in the Mofoqoi Valley. Just as with other sites it can only be opened once a qualified rock art conservator has prepared it for visitation. | | |
| ASMIS Site Condition Assessment Value: | | Good: |
| Fair: ✓ | | Poor: |
| Destroyed: | | Unknown: |
| Assessor: JR/ LM | | |
| Affiliation: WITS - MARA | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | |

Form prepared by:
 J. Claire Dean
 Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at J05

Visitation. Site J05 is not recommended as a visitor site unless it is to be included on the route that includes other sites in the Mofoqoi Valley such as J01. Should it be chosen, the same rules apply and Park authorities may wish to consider having the scratched graffiti damage camouflaged by a qualified rock art conservator. J05 is ranked as high because it shows complexity and a high number of images. Also, there are some rare images in the site. It is in relative proximity to other high significance sites and should be considered for protection.

Situation. Site J05 contains several panels arranged along the back wall. Some are naturally deteriorated, others deliberately scratched or chipped. Damage notwithstanding, there are still plenty of images that are clearly visible.

Access. If the site should be chosen as a visitor site, it is recommended that a non-intrusive barrier be put in place to as to keep the images out of arms' reach. Some manner of flooring should also be introduced to keep dust to a minimum and protect the deposit.

Just as with every other site, the walkway should be sensitive to what lies beneath. No cement or intrusive poles may be used. Working in consultation with a rock art conservator, MTEC/Park authorities may wish to consider introducing materials such as dry stone (uncoursed) paving using sandstone obtained from authorised quarries in Lesotho. Such paving should not be fixed but removable, because all interventions must be reversible. It is not permissible to install wooden, metal or plastic walkways at any site.

Visitor groups are to number no more than five individuals plus the compulsory guide. No more than four such groups may visit a site in any one day.

Conservation. All of the measures listed above will contribute towards the site's protection. The rock art conservator will be able to advise on the most suitable method of flooring for the shelter and will be able to assess whether the images can be cleaned. They will also be able to disguise any scratch marks by camouflaging them to match the rockface and the images.

Monitoring. Site J05 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. The site is very close to the southern Park boundary and while surveying we encountered illegal poachers with many dogs. The shelter is obviously still used by cross border traffic and poachers. Park security here is critical. Coupled with this the site should be frequently monitored.

J05 – Rock art and stonewalled site

[ARAL 217 and 218]



Figure 114. View across J05 looking North-northwest.



Figure 115. View across J05 looking South-southeast..

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, clarity: moderate, rarity: moderate, complexity: high, research potential: moderate).

J05 is ranked as high because it shows complexity and a high number of images. Also, there are some rare images in the site. It is in relative proximity to other high significance sites and should be considered for protection. There is evidence of human action in the form of scratching over the art and the presence of stonewalling. The site includes some classic 'dance' imagery and relatively large groups of human figures. A conservator is suggested to assess what action could be taken to prevent further fading and damage

SITE LOCATION- 29°56'34.3" S, 029°06'16.7" E

See photo register: 2776-2779

Rock art and stonewalled site J05 is a sandstone shelter facing SSW, measuring 7m in height, 6m in depth and 15m wide. The rock art is along the back wall. The shelter lies in the Mofoqoi Valley. It is approximately 300m north of F29. Attached to the larger shelter is another, smaller shelter containing only remnants of paint.

PRESERVATION

Much of the art is faded and flaked, some of this caused by extensive salt/calcite build-up on the rockface as well as by human scratching. Some of the figures are faded so severely that they are very difficult to make out.



Figure 116. ARAL image 1980. Panel A: 1 red hartebeest lying down and looking back over its shoulder; two human figures in dark red, one falling with hand to head.

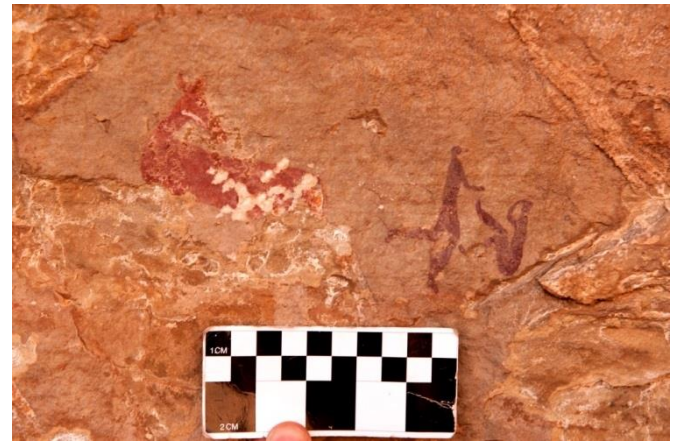


Figure 117. MARA image 2015. Panel A: 1 red hartebeest lying down and looking back over its shoulder; two human figures in dark red, one falling with hand to head.

ARAL COMPARISON

The close-up images in the ARAL record for site J05 were taken when wet, therefore it is difficult to make a comparison on a like-for-like basis. However, it is apparent in the images such as those in panel A, above, that most of the damage to the paintings had occurred before 1980.

Rock art and stonewalled site J05 includes 10 panels of rock art (panels A- J). These are spread across the back wall of the shelter.

PANEL A

See photo register: 2780-2784, 8869- 8873, 8889

Panel A is at the far left of the shelter at a height of 1m from the shelter floor, terminating at a height of 1.5m. This panel contains 4 bichrome eland, some very flaked and damaged in dark red and white and red and white. The eland in the centre of panel A is painted facing in towards the rock face, its rear end facing the viewer. The head is turned over the shoulder, facing out from the rockface. On the left of panel A is a hartebeest in dark red. Top right is a bichrome rhebok in red and white, painted lying down. The far right of the panel shows 2 human figures in dark red. One appears to be falling, its arms raised, while the left figure stands over it.

PANEL B

See photo register: 2786-2791, 8874-8875

Panel B is located 80cm to the right of panel A, slightly higher on the shelter back wall. On the top left of panel B is an unidentifiable quadruped in red and white, flaked. To the right of this figure are 2 faded white running human figures. On the bottom of panel B is a large (+/- 25cm) bichrome eland in yellow and white. Bottom left panel B contains very faded human figures

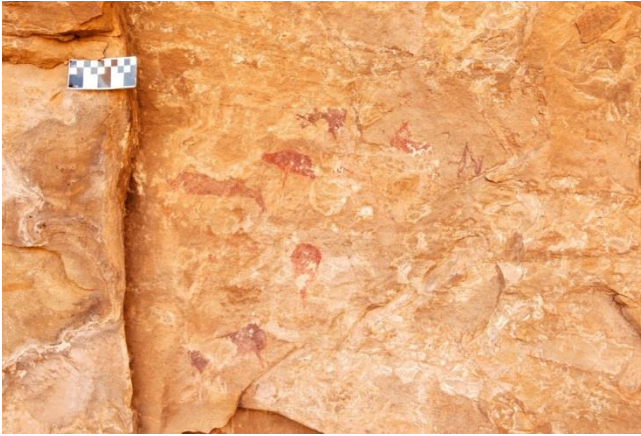


Figure 118. General shot of panel A including 4 eland in dark red and white, and red and white, 1 hartebeest in dark red, 1 bichrome rhebok and 2 human figures



Figure 119. Close-up of the top left of panel E, showing 6 human figures in red, rightmost with white face and holding a stick

PANEL C

See photo register: 2792- 2794, 8876

Panel C is 20cm to the right and above panel B. This panel contains a red human figure with a stick on the left of the panel. Human figure is flaked and the head is almost completely flaked away. To the right of this and above on the rockface are the remnants of dark red paint, flaked and faded

PANEL D

See photo register: 2795-2796

Panel D contains only a single dark red indeterminate thin linear shape with a kink at the right end which points upwards. No identifying features. It measures 4cm in length, the kink 1cm.

PANEL E

See photo register: 2797-2806, 8877-8878

Panel E is located immediately to the right of the right end of the stonewalled enclosure built abutting the back wall of the shelter. Top left are a group of 6 human figures in dark red in a line. They are painted in various standing positions. Above the leftmost figure is a dark red line. The figure furthest to the right has a white face and holds a stick. Top right of panel E contains a group of human figures, also in dark red, but this group is more severely damaged. Only the legs of some figures remain. Bottom left: three very faded human figures in dark red painted in walking positions next to one another. Bottom right: extremely faded human figures in dark red.

PANEL F

See photo register: 2807-2812, 8879-8881

Panel F is located 1.2m from the shelter floor and 80cm from stonewalled structure. Top left: a human figure in red painted in a dynamic running posture with legs spread wide. This figure holds a set of arrows/ other similar items. It has hooked head, suggesting that perhaps the face was once white. It measures 10.5cm from head to foot. It is damaged by wash/calcite build-up. Bottom left: human figure in dark red facing left, much of its body flaked away. Other remnants of figures are visible around this one. Middle: indeterminate dark red flaked quadruped appearing to leap/run and 2 dark red human figures below and to the left of this image. These are running and appear to be associated with the quadruped. Top right: Remains of human figure flaked and damaged by wash with a hunting bag. Centre: hartebeest superimposed by a human figure, both in dark red. It is possible that white areas of hartebeest have faded away.

PANEL G

See photo register: 2813-2821, 8882- 8885

To the right of panel F. Top Left: 6 human figures in dark red and a strange indeterminate shape, perhaps the remains of a quadruped, also in dark red. The human figures are painted in various postures, the lower line of 3 appear to be walking while to the right of the unidentifiable shape a human figure holds a stick. To the left and above this shape is a running figure facing to the right. In the centre of this panel is a group of at least 5 human figures badly damaged by wash, salt seepage and scratched sections. The centre figure holds its hands above its head, fingers clear. It has a hooked head and what remains of the legs appear to be painted in an unusual manner.



Figure 120. General shot panel G: flaked and scratched human figures with sticks and unidentifiable bird (?crane) shape, and human figures with arms raised

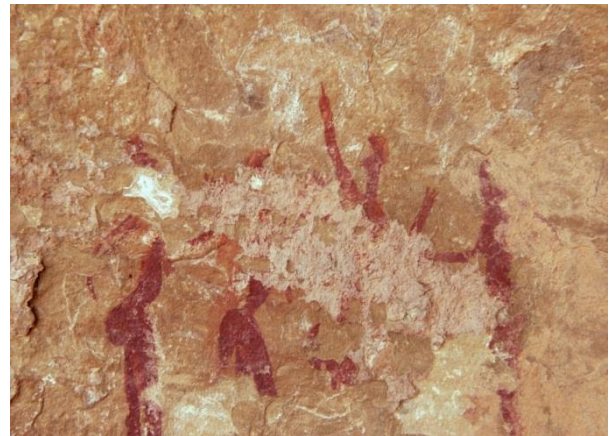


Figure 121. Close-up of central figures in panel G, one with arms back, one with arms raised and one pointing upwards

PANEL H

See photo register: 2822-2826

Panel H, to the right of panel G, is a small panel containing only faded and flaked remnants of dark red paint. At the top right of the panel are remnants of paint, at the bottom left are the very faded remains of a quadruped, possibly a hartebeest as the very faint horns appear to resemble those of a hartebeest. Finally, the bottom right of the panel contains only the flaked and faded remains of an image which cannot be identified.

PANEL I

See photo register: 2827- 2832, 8886-8888

Panel I is also a small panel but contains more imagery. It measures 20cm across and 25cm top to bottom. In this panel are 9 human figures. The left of the panel contains 6 of these human figures in red. They are all standing and hold sticks. Some of these (like the two on the right of this section) hold their hands above their heads. The legs of the left two have flaked away. In the top right are three human figures in dark red. The left figure is the most complete: its body, legs and one arm remain. The centre and right human figures are badly flaked; only their legs remain.

PANEL J

See photo register: 2833-2840, 8890-8891

Panel J is the furthest right or east of the shelter. It is 30cm from the shelter floor, above a section of collapsed walling. This panel has a group of faded human figures in red. At the bottom left of the panel are 5 human figures, some running. The leftmost figure is seated en face with legs bent upwards and outwards. The top left contains very faded human figures in red standing and bending.

slightly forward, facing left. Centre panel J contains at least 6 very faded human figures, all standing, perhaps walking. Both the top right and bottom right are also very faded human figures; hardly any detail remains. They are very damaged.

STONEWALLING

See photo register: 2846-2850

Within the main shelter is a single, semi-circular stone structure enclosing the shelter floor under the dripline. This structure is built abutting the back wall of the shelter. It measures 1m in height in some places but is collapsed in others. It is 1m thick in some sections, due to the collapse of the walling. It is dry stone built with angular stones. It is 10 wide from one end to the other.

DEPOSIT

The deposit within the shelter is <10cm deep and bedrock can be seen in some areas of the shelter floor. The hillside from the dripline down towards the stream below is very steep and this may have contributed to erosion of deposit. There is some evidence of human presence but artefact density is low and therefore the excavation potential for J05 is low.

ARTEFACTS

See photo register: 2841-2845

Artefact density is very low. Artefacts found at J05 include:

1 CCS flake measuring 5m in length

1 fragment of clear glass measuring 3cm in length

4 bone fragments, 1 measuring 2.5cm, 3 measuring <1cm

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| <u>General Site Information</u> | | | | | |
|--|-------------|-------------|---|-----------|-------------|
| Site #: J05 | | | Site name: | | |
| Panel #: A | | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | | |
| Location/GPS file: 29° 56' 34.3" S 029° 06' 16.7" E | | | Assessment level: Basic:✓ Intermediate: Detailed: | | |
| Date: 10/06/2015 | | | Time: 14:00 | | |
| Weather: Clear and sunny | | | | | |
| Dimensions: Height: 7M Depth: 6M | | | Width: 15M | | |
| Petroglyph/Pictograph?: PICTOGRAPH | | | Petroglyph method: | | |
| Pictograph method: SAN FINE-LINE BRUSH | | | Pictograph colour(s): Red, dark red, black, light red, black and white | | |
| Aspect & angle: SSW | | | Substrate: CLARENS FORMATION SANDSTONE | | |
| Samples taken: NO | | | Photos: CAMERA B:8869-8891 CAMERA J:2827-2850; 2776-2825 | | |
| Overlays: Super positioning | | | | | |
| Existing documentation: (e.g. ARAL?) ARAL 217 and 218 | | | | | |
| Topography/general site description: Refer to site record sheet site description and pictures. | | | | | |
| General description of images and their condition: Refer to site record sheet panel description. | | | | | |
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: | N: ✓ |
| Damp areas: | Y: | N: ✓ | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: | N: ✓ |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: | N: ✓ |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |

| | | | | | |
|---|--|------------|---------------------------|---|------------|
| Wind erosion: | Y:✓ | N: | Dust: | Y: | N:✓ |
| Vegetation: | Y:✓ | N: | Lichen: | Y: | N:✓ |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y: | N:✓ | Bacteria: | Y: | N:✓ |
| Animals: | Y: | N:✓ | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y:✓ | N: |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y:✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: | <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y:✓ | N: |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y:✓ | N: |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: | N:✓ |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |
| <u>Other Observations</u> | | | | | |

| | | |
|--|-----------|-----------------|
| Past treatments: | Y: | N:✓ |
| General comments: | | |
| Recommendations: Site J05 is not recommended as a visitor site unless it is to be included on the route that includes other sites in the Mofoqoi Valley such as J01. Should it be chosen, the same rules apply and Park authorities may wish to consider having the scratched graffiti damage camouflaged by a qualified rock art conservator. | | |
| ASMIS Site Condition Assessment Value: | | Good: |
| Fair:✓ | | Poor: |
| Destroyed: | | Unknown: |
| Assessor: LM/JP | | |
| Affiliation: WITS - MARA | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | |

Form prepared by:
 J. Claire Dean
 Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

C. Sites not to be opened to the public

Measures to be taken at B05

Visitation. No visitation

Situation. Site B05 should not be opened for public visits. It was given High Significance due to its vulnerability being placed, as it is, very close to the new Staff Quarters and Main Gate. There is no park fence along the boundary and villagers regularly graze their livestock here as well as simply passing through the site. The litter, including beer cans, vodka bottles and condoms, attests to this. The rock art is interesting and should be monitored for signs of deterioration. The historic stonewalling should be left undisturbed.

Access. No access. Because it is virtually impossible to prevent people from visiting the site, it is advised that frequent monitoring and visits by Park security are the best policies to implement. Staff at the Staff Quarters should be asked NOT to go to the site, and other members of the public – visitors and villagers alike – should not be informed of the site or its content.

Conservation. No further conservation necessary except for the aforementioned security measures and frequent monitoring.

Monitoring. Site J05 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. The site is very close to the new Staff Quarters, the Main Gate and the road to Sehlabathebe village. Frequent security checks are advised, as well as frequent monitoring visits.

B05 – Rock art and stonewalled site

[ARAL 244]



Figure 122. Locating shot of B05 looking east showing reception gate in background.



Figure 123. Portion of Panel B, site B05.

SIGNIFICANCE:

Ranking: HIGH (vulnerability: high)

B05 is located immediately above the new staff quarters and research buildings currently under construction. It is very proximate to the park boundary where there is no fence; both people and animals regularly cross the park border. The site is frequented by local villagers and construction workers as is evident by the abundance of litter (condoms etc.) While Ntate Semela Mona of MTEC has issued instructions to construction teams that they must respect the area, there is no way of policing human agency at the site. Given that this rock art cultural resource could be up to 4000 years old, **provision must immediately be made for its protection**. Complexity, rarity and research potential are moderate.

SITE LOCATION - 29°52'26.8"S, 029° 04' 02.4"E

See photo register: 9951-9961

Rock art and stonewalled site B05 is located within a sandstone shelter facing north. The shelter is approximately 15m in length, 5m in height and 5m in depth. BO5 is situated about halfway up this north-facing slope. The shelter overlooks a complex of stone buildings and the Sehlabathebe National Park boundary and road. The main gate to the park lies to the north of B05, obscured by a low hill. The Leqoa River can be seen flowing to the north west of B05 to the east, the visitor reception gate and buildings.

The art at rock art and stonewalled site B05 is divided into two panels (A and B), located roughly in the centre and on the right-hand (western) end of the shelter

PRESERVATION

The site is subject to damaging factors such as animal activity (rubbing), dust and fading. The paintings themselves are not, at this stage, affected by flaking but the shelter's back wall shows flaking. This may affect the art at a later stage. The paintings are faded.

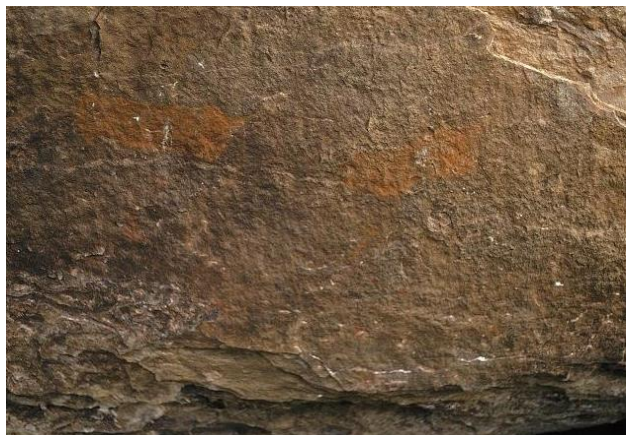


Figure 124. ARAL ima



Figure 125. MARA image 2015

ARAL COMPARISON

No significant change since 1980. Art appears more faded, and this is probably owing to further build-up of dust. No apparent graffiti.

PANEL A

See photo register: 9962-9964

Panel A is located in approximately the centre of shelter B05, about 1.2 m from the shelter floor. This panel consists of indeterminate, faded figures that appear to have been extensively rubbed by animals.

PANEL B

See photo register: 9965-9999, 0007-0028

Panel B is located towards the western end of shelter B05, to the right of panel A. This panel consists of 5 representational paintings and red finger dots: two eland in yellow-brown and white and three human figures. Above the left-hand eland is a walking human figure, also in yellow-brown ochre. This figure carries a long stick across its shoulders. Below the right-hand eland are two dark red running figures. Below the running figures and on the right-most section of panel B are finger dots in dark red.

STONEWALLING

See photo register: 9951-9961

There are two stonewalled structures present at B05. The first is a small (<2m diameter) dry stone enclosure at the most easterly end of the shelter, underneath the overhang of the shelter. This structure abuts the back wall of the shelter. It is semi-collapsed.

The second stone walled structure at B05 is a larger kraal structure of dry stone construction that runs below the dripline of the shelter from end to end (15m east-to-west). This kraal structure serves to enclose the shelter.

ARTEFACTS

No artefacts were recovered at the site. The slope on which the shelter lies is a steep one, and it is possible that any artefacts may have washed downhill.

DEPOSIT

There is little deposit in shelter B05. The flat shelter ground surface consists of gravels eroded from the shelter wall and exposed bedrock.

OTHER FEATURES

On the back wall of shelter B05, to the left of the art, are multiple clay-drying circles in light grey clay.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| <u>General Site Information</u> | | | |
|---|-------------|---|---|
| Site #: B05 | | Site name: | |
| Panel #: A | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29°52'26.8"S 029° 04' 02.4"E | | Assessment level: Basic: ✓ Intermediate: Detailed: | |
| Date: 29/05/2015 | | Time: 15:20 | |
| Weather: CLEAR AND FINE | | | |
| Dimensions: Height: 5M Depth: 5M | | Width: 15M | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): RED, WHITE | |
| Aspect & angle: S +/-90° | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA A: 9951-9961 CAMERA B: 0007-0034 | |
| Overlays: NONE | | | |
| Existing documentation: (e.g. ARAL?) ARAL 244 | | | |
| Topography/general site description: Mountainous check site record sheet and pictures | | | |
| General description of images and their condition: Check site record sheet and pictures | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: | N: ✓ | Seeps: Y: N: ✓ |
| Damp areas: | Y: | N: ✓ | Other water related conditions: |
| Soluble salts: | Y: | N: ✓ | Insoluble salts: Y: N: ✓ |
| Cleaving: | Y: ✓ | N: | Exfoliation: Y: N: ✓ |

| | | | | | |
|---|---|--|---------------------------|-------------|----------------|
| Granulation: | Y: | N:✓ | Abrasion: | Y: ✓ | N: |
| Wind erosion: | Y: | N: ✓ | Dust: | Y: ✓ | N: |
| Vegetation: | Y: | N: ✓ | Lichen: | Y: | N: ✓ |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y: | N: ✓ | Bacteria: | Y: | N:✓ |
| Animals: | Y: | N:✓ | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: ✓ <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N: ✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: | N: ✓ |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N: ✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |

| | |
|--|-----------------|
| <u>Other Observations</u> Located above staff quarters and is frequented regularly due to litter present at the site (condoms etc.). Shelter formed on underside of exposed sandstone kranline. Rock art exists within small overhang. Site exists within small enclosure which may have contributed to the abrasion of the panel. | |
| Past treatments: | Y: |
| N:✓ | |
| General comments: | |
| Recommendations: The rock art at B05 is not spectacular but the site is given high significance owing to its proximity to the road, to the new staff accommodation and to the park boundary. It is not recommended that this site be opened to the public, yet is must be monitored regularly. | |
| ASMIS Site Condition Assessment Value: | Good: |
| Fair:✓ | Poor: |
| Destroyed: | Unknown: |
| Assessor: SAM CHALLIS | |
| Affiliation: WITS - (MARA) | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | |

Form prepared by:
 J. Claire Dean
 Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at B16A – Burial Site

Visitation. No visitation

Situation. Site B16A should not be opened for public visits. It was given High Significance due to its sensitivity as a burial site. The entire site should be left, undisturbed.

Access. No access other than for relatives and other concerned community members.

Conservation. No further conservation necessary except for the aforementioned security measures and frequent monitoring.

Monitoring. It is advised, however, that the site be included in the rounds taken by the monitoring team, simply to ensure that the site remains undisturbed.

B16A – Burial Site

[NEW SITE – NO ARAL NUMBER]



Figure 126. View across B16a showing collection of ten burials.



Figure 127. View from B16a facing North-east.

SIGNIFICANCE

B16a is the only burial site discovered by the 2015 Wits MARA survey of the SNP. Owing to the sensitivity surrounding human remains, all burial sites are given high significance ranking. Because the site is situated within the SNP, the managing authorities bear responsibility for its preservation. Any development near the site may have a high impact, leading to the exposure and/or destruction of human remains. It is recommended that all efforts are made to contact the family of the interred individuals to ascertain their wishes for the burial. In all likelihood the family will wish for the burial site to remain unaltered, and we see no reason why this should not be the case. If MTEC or other SNP managing authorities wish to take alternate action – for instance the moving of human remains – the family or other relevant community members must be consulted. In the case of any moving of human remains, local tradition may require that a ceremony or feast be held to show respect for the ancestors whose remains are to be relocated, provision for which is the responsibility of the managing authority. Any person dealing with human remains must operate in accordance with the Lesotho National Heritage Resources Act of 2011.

SITE LOCATION- 29°53'56.1" S, 029°04'49.7" S

See photo register: 6953

Burial site B16a is located on a flat plain on the crest of a hill to the south of the landmark Three Bushmen Mountains. It is to the north of a complex of stonewalled structures (B16b). Stonewalled site B16b is a complex of four distinct structures built on top of a hill overlooking a wide valley to the east. This complex is at a very high elevation and has a commanding view of the landscape on most sides. It is spread over a large, flat area and is most likely associated with B16a (burial) and B16c (rock art and stonewalling). It overlooks Mafikalisiu to the south and Thaba-Ntso to the north.

BURIALS

See photo register: 6954-6956

Site B16a consists of ten burials spread across an area of 20m². The burials and their headstones/markers are still visible sticking upright from the ground

ARTEFACTS

No archaeological material observed within the immediate surrounds.

DEPOSIT

Because B16a is a burial site, deposit will be deep. However, this site cannot be excavated without consultation with the community. In any case there should be no need to excavate because the burial site is likely of recent date and the local community will probably wish for it to be left undisturbed.

Measures to be taken at D25

Visitation. No visitation.

Situation. We do not suggest D25 as a potential site to be opened for tourists. The site is too fragile and damaged for it to be safe for visitors. Its vulnerability is high because it is exposed to the elements, people have used the shelter as a kraal and there is evidence of fires being made in the site.

Access. No access. Because it is virtually impossible to prevent people from visiting the site, it is advised that frequent monitoring and visits by Park security are the best policies to implement.

Conservation. No further conservation necessary except for the aforementioned security measures and frequent monitoring.

Monitoring. Site D25 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. The site is very close to popular visitor site B33. Frequent security checks are advised, as well as frequent monitoring visits.

D25 – Rock art and stonewalled site

[ARAL 196]



Figure 128. Locating shot of D25 looking north-east.



Figure 129. General shot of panels to show extent of exfoliation/spalling in site D25.

SIGNIFICANCE

Ranking: HIGH (Visibility: medium, Vulnerability: high, Complexity: medium)

We do not suggest D25 as a potential site to be opened for tourists. The site is too fragile and damaged for it to be safe for visitors. Its vulnerability is high because it is exposed to the elements, people have used the shelter as a kraal and there is evidence of fires being made in the site. There is also evidence of animal disturbance. The problem of illegal entry into the park affects the art.

Complexity is moderate, rarity is moderate and potential for future research is moderate. There are some interesting figures in the site.

SITE LOCATION - 29°53'27.1"S, 029°07'59.6"E

See photo register: 0135-1039, 7813 -7817

Rock art and stonewalled site D25 is a low-ceilinged shelter facing southeast, on the western side of a shallow valley. The Tseolikane River flows past the site to the southeast. rock art and stonewalled site D24 is located directly below D25, on the lower slope on the hillside. The site is approximately 20m in length, 3m deep and 1.7m high.

The rock art in rock art and stonewalled site D25 is located from roughly the centre to the north-eastern end of the shelter. The site is divided into nine panels (A-I)

PRESERVATION

D25 is subject to damage by extensive salt washes (causing flaking), animal rubbing damage, fire damage and dust. The majority of paintings are faded. Some are very difficult to make out.



Figure 130. ARAL image 1980. D25 panel F.



Figure 131. MARA image 2015. D25 panel F.

ARAL COMPARISON

The majority of ARAL 1980 pictures accord well with the MARA record for D25. The extent of natural damage from water and salts is so great that a conservator would need to give a qualified assessment of the margin of increase.

PANEL A

See photo register 7825-7866, 0140-0180

Panel A is located on the back wall of shelter D25 within the area enclosed by stonewalled structure (described as kraal). The paintings are spread over the lower half of the back wall. This panel is extensively damaged.

Bottom left-left: One white standing human figure approximately 15cm in height with possible quiver (parts flaked off), and one shaded polychrome rhebok (20cm) that appears to be running/leaping. Rhebok in fairly good condition

Bottom left-right: to the left of rhebok are an antelope painted in white, probably rhebok, two polychrome rhebok (lower right rhebok body faded/flaked away, only head and neck properly visible: neck and head lowered). Above and to right of these are four human figures in dark red in procession. On the upper right of this section of the panel is a very faded red antelope, which appears to be a hartebeest.

Centre: in the centre of panel A, about 1 m from the shelter floor, is a reddish/orange and white rhebok with its legs folded beneath it, about 12cm in length. It is very faded.

Right half of panel A from left to right: This section if the panel extended to the end the panel, up to stone walling against back wall. This area is very damaged by the aforementioned factors.

Left: The head and neck of a rhebok (body flaked away), with head lowered and painted in white

centre: three very faded human figures in red painted next to one another.

Right: a single dark red human figure, standing.



Figure 132. Close-up of D25 panel A showing head, neck and shoulders of a white rhebok against a very badly flaked red background that contains remnants of red figures. NB the accretion of salt crystals on the antelope's neck.

PANEL B

See photo register 7867-7895, 1081-0197

Panel B is located above panel A, partially on the ceiling of shelter

Left: far left of panel B is a faded and flaked polychrome antelope, most likely a rhebok. Only the body remains. No head, front or back legs. To the right of this are two faded figures in red. One running human fig painted over faded red antelope body. To right of these is a small human figure in black facing right, with one arm raised as if pointing

Centre: This section includes three human figures. Two are painted in red above one in light red (this figure is quite clear). This figure holds a bow. Immediately to the right of light red figure is a very faded antelope in orange and black

Right: the right-hand portion of panel B is close to the ceiling of the shelter and to the left of stone walling. This panel contains two extremely flaked polychrome eland (bodies largely flaked away). Legs and heads remain. These are painted next to each other, facing right. The eland on the right has horns painted in black. To the left of these is a human figure painted in black with tassels at waist. Finally, on the extreme right of panel, immediately to the left of stonewalling is a red (and possibly white) indeterminate figure that is flaked and very faded.

PANEL C

See photo register: 7896-7900

Panel C is located, along with panels D and E, is located within a semi-circular stonewalled dwelling on the back wall of the shelter. These panels are very damaged and faded.

About 70cm to the right of stonewall and about 40cm from shelter floor is a faded and flaked indeterminate red image, about 5c in length, and other remnants of red paint.

PANEL D

See photo register: 7901-7902

Panel D consists of a single, faded red eland body of about 15cm in length. All white has faded away. This image is on the sloping section approaching the ceiling of the shelter.

PANEL E

See photo register: 7903-7904

Panel E is to the right of panel D, lower on the shelter back wall. The only image in this panel is a small (+/- 8cm) red and black standing human figure. Red with a black belt and 'hooked head'.

PANEL F

See photo register: 7905-7927

Panel F is located immediately to the right of stonewalled dwelling built into shelter D25. It is about 70cm from the shelter floor and contains some of the most well-preserved art within the site.

Left: In the left half of panel F are a collection of human figures in red, all standing (one on extreme left and two towards centre of this section of the panel) and a group of faded, small (<10cm in length) antelope (rhebok) in various postures.

Centre: immediately to the right of the group of rhebok are dark red human figures. They are flaked. The dark red human figures are damaged. Some appear to be seated and another appears to be karossed.

Right: Indeterminate remnants of paint in red and dark red, and a very faded polychrome eland with dark red/black lines visible upon neck

Top Right: Bright red finger dots.

PANEL G

See photo register: 7929-7936

Panel G is located upon the ceiling of shelter D25 above panel F.

Left: Faded red remnants of antelope (most likely eland). There are multiple antelope painted on the ceiling in this panel. They are extremely faint and difficult to make out.

Centre: in the centre of this panel is a large (+25cm) polychrome eland, also faded. Most white faded away.

Right: Approximately 10cm to the right of large polychrome eland is another, smaller (+/-15cm) eland, very faded.

PANEL H

See photo register: 7939-7940

Panel H includes only remnants of red paint. Not possible to identify any specific imagery.

PANEL I

See photo register: 7941-7945

The last panel at D25 and furthest right at the site. It is located at the top of the back wall, below the ceiling of D25. This panel includes:

Left: faded human figure in red with bent arm/leg above small step in rock

Centre: Dark red rhebok head measuring approximately 5cm. No body visible. Only the head is visible.

Right: red seated human figure (4cm in height) painted en face with knees bent outwards and wearing a hat/headdress.

STONEWALLING

See photo register: 7813-7817, 0135-0140

There are two stonewalled structures at D25. On the south-western end of the shelter is a rectangular kraal structure. This structure is a dry stonewalled structure. It is built under the roof of the shelter and extends for about two metres beyond the drip line. The wall is collapsed in places, with a maximum height of 1m and is recorded as being 9m in length. Immediately to the northeast, also built within the shelter, is a dry stone dwelling, built against back wall of shelter. This structure

is also semi-collapsed. Within the dwelling there is a hearth (photo number 7979), giving evidence for human occupation. Panels C-E are located within this dwelling. The dwelling is recorded as being 4m in width, 1.5m in height and 4m in depth.

STRUCTURE POSSIBLY ASSOCIATED WITH D25

See photo register: 7972, 7978, 7979

On the top of the hill upon whose western slope D25 lies, is a large square dry stone kraal. This structure is 13m in length and 12m in width, with a maximum height of just over 1m. This structure is solidly built and remains well-preserved. This structure is approximately 60m from D25 to the north east. It is possible that this kraal is associated with site D25.

DEPOSIT

Deposit within D25 shelter is very shallow, with bedrock close to the surface of the shelter floor. Sediment has built up within the walls of the kraal on the south-western end of the shelter. Its depth appears to be between 10cm and 20cm. This deposit does not appear to be disturbed. The nature of the hillside is such that the deposit slopes steeply down the side of hill beyond the drip line.

ARTEFACTS

See photo register: 7966-7971

Finds density at D25 is low, with only sparse artefacts discovered. The vegetation and nature of the slope may contribute to this. Finds include 7 flakes, two pieces of animal bone including a jaw bone, and a sheet of thin, rusted metal.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | | | |
|---|------------|-----------|--|------------|------------|
| <u>General Site Information</u> | | | | | |
| Site #: D25 | | | Site name: | | |
| Panel #: ALL | | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | | |
| Location/GPS file: 29° 53' 27.1" S 029° 07' 59.6" E | | | Assessment level: Basic:✓ Intermediate: Detailed: | | |
| Date: 09/03/2015 | | | Time: 15:45 | | |
| Weather: CLEAR AND WINDY | | | | | |
| Dimensions: Height: 1.1M Depth:3M | | | Width: 20M | | |
| Petroglyph/Pictograph?: PICTOGRAPH | | | Petroglyph method: | | |
| Pictograph method: SAN FINE-LINE BRUSH | | | Pictograph colour(s): RED, DARK RED AND WHITE | | |
| Aspect & angle: E +/-65° | | | Substrate: CLARENS FORMATION SANDSTONE | | |
| Samples taken: NO | | | Photos: CAMERA B: 7896-7945 | | |
| Overlays: NONE | | | | | |
| Existing documentation: (e.g. ARAL?) ARAL 196 | | | | | |
| Topography/general site description: Refer to site description | | | | | |
| General description of images and their condition: Refer to panel description | | | | | |
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y:✓ | N: | Seeps: | Y:✓ | N: |
| Damp areas: | Y:✓ | N: | Other water related conditions: | | |
| Soluble salts: | Y:✓ | N: | Insoluble salts: | Y: | N:✓ |
| Cleaving: | Y:✓ | N: | Exfoliation: | Y: | N:✓ |

| | | | | | |
|---|--|--|---------------------------|------------|------------|
| Granulation: | Y: | N:✓ | Abrasion: | Y:✓ | N: |
| Wind erosion: | Y:✓ | N: | Dust: | Y:✓ | N: |
| Vegetation: | Y:✓ | N: | Lichen: | Y: | N:✓ |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y: | N:✓ | Bacteria: | Y: | N:✓ |
| Animals: | Y: | N:✓ | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N:✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y:✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y:✓ | N: |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: | N:✓ |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |

| | |
|---|-----------------------|
| <u>Other Observations</u> | |
| <p>D25 is damaged by extensive salt wash, causing flaking. There is also animal rubbing damage and dust (probably also caused by animal grazing and subsequent kicking up of dust), as well as soot from fires.</p> <p>There are a few individual paintings that are in good condition while most are very faded. This was once an extensively painted site and has many faded images that may be of value to future research. It must not be opened to the public.</p> | |
| Past treatments: | Y: N: ✓ |
| <p>General comments: This site is very badly deteriorated and should not be included in any future visitor trail.</p> | |
| <p>Recommendations: This site needs conservation measures / to be protected from further visitation by people or animals. NOT to be opened to the public.</p> | |
| ASMIS Site Condition Assessment Value: | Good: |
| Fair: | Poor: ✓ |
| Destroyed: | Unknown: |
| Assessor: MARA | |
| Affiliation: WITS - MARA | |
| Contact: DR SAM CHALLIS | |

Form prepared by:
J. Claire Dean
Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at H20

Visitation. No visitation.

Situation. This site should NOT be opened to the public. The site is too fragile and damaged for it to be safe for visitors. There is not enough space in the shelter to keep people sufficiently far back from the paintings. Attempts to prohibit the making of fires in the shelter should be made.

Access. No access. Because it is virtually impossible to prevent people from visiting the site, it is advised that frequent monitoring and visits by Park security are the best policies to implement.

Conservation. No further conservation necessary except for the aforementioned security measures and frequent monitoring.

Monitoring. Site H20 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. The site is relatively close to sites which ARE recommended for visits in the Mofuqoi valley. Frequent security checks are advised, as well as frequent monitoring visits.

H20 Rock art and stonewalled site

[ARAL 228]



Figure 133. View from H20 looking North-northeast.



Figure 134. View of shelter looking South-southeast including walling and showing width of walling.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, complexity: moderate, clarity: moderate, rarity: moderate, future research: moderate)

H20 is located close to the horse trail taking tourists to the waterfalls. It is easily accessible and therefore is a good candidate for visitation. The art appears to be of considerable age and shows some very good examples of 'classic' subject matter and fine-line polychrome painting. The art is damaged from exposure to the elements as well as from human action in the form of wall-building and evidence for prolonged fire-making activity. There is recent evidence of this, suggesting that the site has been occupied illegally. H20 MUST be protected from further damage. A conservator should be brought in to assess how the art could be protected and/or preserved.

SITE LOCATION - 29°56'07.1" S, 029°05'32.3" E.

See photo register: 8894-8899

Rock art and stonewalled site H20 is located in a narrow valley created by the central Mofuqoi tributary of the Tsoelikane river. This tributary runs to the south east of the river. The site is located on the second-highest kranline of the eastern slope, facing west, of the hillside about 50m above the tributary. Both the rock art and the stone walling is located within the shelter H20

PRESERVATION

The general preservation of paintings at H20 is relatively poor owing to multiple deteriorating factors. The shelter is very shallow and therefore the back wall is exposed to the elements (including wind, wind-blown rain and direct sunlight). The site has also had considerable animal activity, though much of the evidence of animal rubbing is below the surviving panels. Panel C is affected by a stone wall (the southern wall of the dwelling) that has been built against it, knocking the art. Panels D-G are within the dwelling on the back wall of the shelter and are affected by soot. Much of the art is faded and flaked.



Figure 135. ARAL image 1980: Close-up top centre panel A

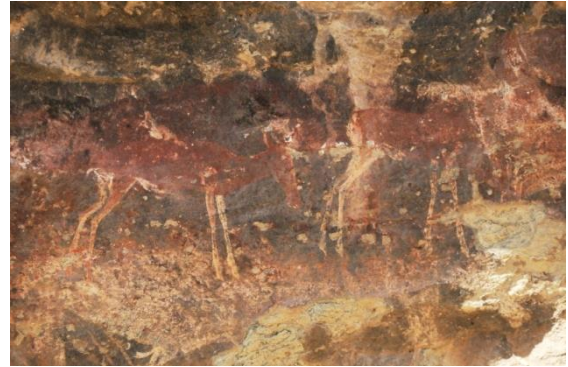


Figure 136. MARA image 2015: Close-up top centre panel A



Figure 137. ARAL image 1980: H20 Close-up eland panel D.

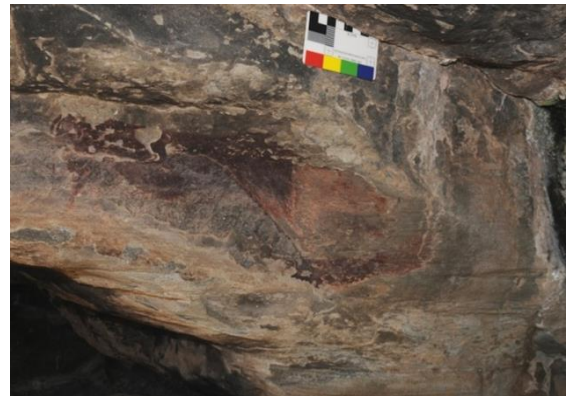


Figure 138. MARA image 2015: H20 Close-up eland panel D.

ARAL COMPARISON

Most of the ARAL records from 1980 accord well with the 2015 MARA images. Therefore we estimate that there has been little deterioration in the last 30 years. In the panels above, however, one can discern that some of the stone walling present in the image from 1980 has been removed at some point prior to 2015. This clearly shows that there is activity at the site. Indeed, there is evidence of recent habitation of this dwelling as soot and remnants of fires are fresh.

The rock art at H20 is spread across the southern (right) end of the shelter extending for +/- 8m to the north (left). There are 7 panels (A- G) running from right to left. Panels C-G are located within the boundaries of a small stone dwelling built abutting the rock face in roughly the centre of H20. The art appears to be of considerable age. All panels are between 70cm and 1m from the shelter floor

PANEL A

See photo register: 8775-8834, 8903-8904

Panel A is the most southerly (right) panel at H20. This panel includes a line of (?) 6 hartebeest, 3+ shaded polychrome eland, 4+ red human figures, 2+ red rhebok. On the far right are 2/3 finger painted red quadrupeds and a faded white rhebok.

PANEL B

See photo register: 8835-8845

Located to the left of panel A, panel B is a small panel containing 1 shaded polychrome eland and flaked and faded remnants of paint.

PANEL C

See photo register: 8846-8850

Panel C is located behind the southern wall of the stonewalled dwelling in the centre of shelter H20. Although the wall no longer touches the rock art it is clear that it once did, as the paint has been knocked. This panel contains a shaded polychrome eland, (?) dancing human figure leaning backwards, red large indeterminate quadruped surrounded by (?) 5 red human figures.

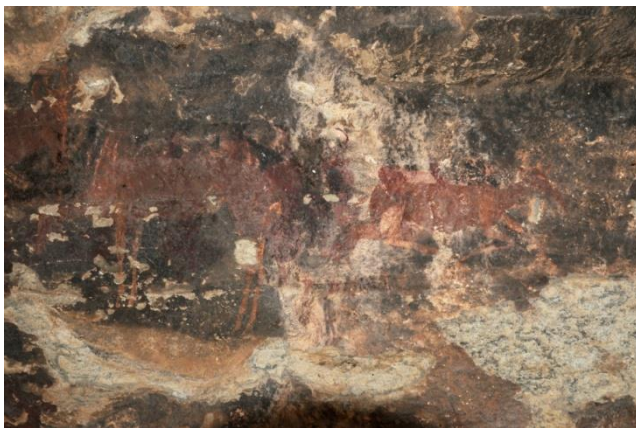


Figure 139. Top right left portion right side panel A, showing hartebeest - one lying down.



Figure 140. Panel A. Close-up lying down lying down hartebeest .

PANEL D

See photo register: 8851-8854

Panels D-G are located in the back wall of the shelter, within the stonewalled dwelling. These paintings are faded and flaked and damaged by soot. Panel D is a single polychrome eland. This eland has a strange body-shape, is very flaked and has been painted over an angled step in the rock.

PANEL E

See photo register: 8855-8879

To left of panel D. This panel includes red and white faded remnants of paint (?) eland, 1 diagnostic eland, long line of very faded white rhebok, 3 red human figures, 1 white well-preserved rhebok head very faded polychrome eland, (?) 2 red human figures and remnants of human figures

PANEL F

See photo register: 8880-8890

Panel F includes 3 large shaded polychrome eland, 2 lying down and 1 standing and red remnants of paint, orange/yellow head and shoulders of human figure with hunting equipment

PANEL G

See photo register: 8891-8893

Panel G is the last panel of H20 and is located left of panel G. This panel contains only red remnants of paint

STONEWALLING

See photo register: 8896-8899

There is only one stonewalled structure present at H20. This is a semi-circular dwelling built abutting the back wall of the shelter. It is 5m in width, 1.5m in height and 1m in depth. The walling is 70cm thick. This structure is built without mortar and has an entrance facing west out of the shelter. This entrance is semi-collapsed but it is still possible to measure its width, which is 60cm. The dwelling has no roof.

There is evidence of recent habitation of this dwelling as soot and remnants of fires are fresh. This affects the rock art located within the bounds of the dwelling.

ARTEFACTS

See photo register: 8900-8902

Artefact density at H20 is high. MSA and LSA lithics were found both on the shelter floor and on the slope below, beyond the dripline of the shelter. Lithics comprise hornfels, quartzite and CCS artefacts, scrapers and Woodlot scrapers as well as other flakes. No pottery.

DEPOSIT

The deposit within the shelter appears well preserved and artefacts were seen to be embedded in it. There is a dung crust in parts of the shelter. Beyond the dripline the hillside slopes steeply towards stream and therefore more artefacts may have washed down towards it.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | | | |
|---|-----------------------|-----------|--|-------------|-------------|
| <u>General Site Information</u> | | | | | |
| Site #: H20 | | | Site name: | | |
| Panel #: All | | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | | |
| Location/GPS file: 29° 56' 07" S 029° 05' 32.3" E | | | Assessment level: Basic:✓ Intermediate: Detailed: | | |
| Date: 10/06/2015 | | | Time: 13:40 | | |
| Weather: FINE | | | | | |
| Dimensions: Height: 1.5M Depth: 2M | | | Width: 3M | | |
| Petroglyph/Pictograph?: PICTOGRAPH | | | Petroglyph method: | | |
| Pictograph method: SAN FINE-LINE BRUSH AND FINGER PAINTED | | | Pictograph colour(s): RED, DARK RED, WHITE AND BLACK | | |
| Aspect & angle: W | | | Substrate: CLARENS FORMATION SANDSTONE | | |
| Samples taken: NO | | | Photos: CAMERA A: 8774-8904 | | |
| Overlays: SUPERPOSITIONING | | | | | |
| Existing documentation: (e.g. ARAL?) ARAL 228 | | | | | |
| Topography/general site description: Refer to site record sheet and pictures. | | | | | |
| General description of images and their condition: Refer to site record sheet and pictures. | | | | | |
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: ✓ LEFT SIDE | N: | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: | N: ✓ |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: ✓ | N: | Abrasion: | Y: | N: ✓ |

| | | | | | |
|--|---|---|--|------------|-------------------|
| Wind erosion: | Y:✓ | N: | Dust: | Y:✓ | N: |
| Vegetation: | Y: | N:✓ | Lichen: | Y:✓ | N: |
| Fungi: | Y: | N:✓ | Mould: | Y: | N:✓ |
| Algae: | Y: | N:✓ | Bacteria: | Y: | N:✓ |
| Animals: | Y:✓ | N: | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y:✓ | N: |
| Other natural deterioration: | | Y:✓ FLAKING | N: | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y: ✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y: | N:✓ |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N: |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y:✓ | N: |
| Litter: | Y:✓ | N: | Camp fires: | Y:✓ | PANEL C N: |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: Stone wall built close to panel c | | N: | |
| <u>Other Observations</u> | | | | | |
| Site is open to elements- wind and windblown dust. It is extremely faded in places and has entire sections that have flaked off the rock face. The site appears to be of considerable age. | | | | | |

| | | |
|--|-----------|-----------------|
| Past treatments: | Y: | N:✓ |
| General comments: Panels A to C are all subject to the same deteriorating factors except for panel c where human presence of fires in shelter. | | |
| Recommendations: This site should NOT be opened to the public. There is not enough space in the shelter to keep people sufficiently far back from the paintings. Attempts to prohibit the making of fires in the shelter should be made. | | |
| ASMIS Site Condition Assessment Value: | | Good: |
| Fair:✓ | | Poor: |
| Destroyed: | | Unknown: |
| Assessor: AM/SC/JR | | |
| Affiliation: WITS - MARA | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | |

Form prepared by:
J. Claire Dean
Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at J08

Visitation. No visitation.

Situation. This site should NOT be opened to the public. The site is too fragile and damaged for it to be safe for visitors. It contains one rare image that will be of value to future research. Although perhaps not of particular interest to the visitor, this image is important and must be protected.

Access. No access. Because it is virtually impossible to prevent people from visiting the site, it is advised that frequent monitoring and visits by Park security are the best policies to implement.

Conservation. No further conservation necessary except for the aforementioned security measures and frequent monitoring. The rock art and the stone walling must be left undisturbed.

Monitoring. Site J08 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. The site is relatively close to sites which ARE recommended for visits in the Mofoqoi valley. Frequent security checks are advised, as well as frequent monitoring visits. Please see recommendations and reasoning for frequent monitoring at the other Mofoqoi sites – e.g. J01, J02, J04 and J10.

J08 – Rock art and stonewalled site

[ARAL 224]



Figure 141. View across J08 facing East-southeast.



Figure 142. View towards and across J08 facing North-northwest.

SIGNIFICANCE

Ranking: HIGH (rarity: high, complexity: high, potential for research; high, clarity: high, vulnerability: high)

J08 is an extremely important site. It contains a very rare image of huge human figure with non-real elements. This type of figure is known as a Significantly Differentiated Figure. This example is the largest one of its kind currently known and is very complex. It may contribute greatly to our understanding of the art. We strongly suggest that this site be kept private and not opened to the public until further notice. It must be closed and protected. In any case – without a great deal of explanation – it may not necessarily prove to be of particular interest to members of the public.

SITE LOCATION – 29°56' 56.9" S, 029°05'20.1" E

See photo register: 9006-9012, 2942-2946

Rock art site J08 is located in a relatively small sandstone shelter which faces north on the western slope of the Mofuqoi Valley. It is on the 'middle' kranline of this slope. A tributary of the Tsoelikane River flows in the valley 200m below from north to south. The shelter is 12m in length, 4.5m deep and 2.5m high. Stonewalled site J09 is 200m to the west of J08.

PRESERVATION

Panel A: panel A is the most poorly preserved of the three panels. It is on the southern (right) end of the shelter and is below a very large flaked section of the rock face. It is possible that this flaked section was painted and that the red remnants are all that remain of a panel.

Panel B: Very well preserved. This figure (a giant polychrome human figure with extensive detailing on all parts of the body) appears to have escaped serious damage. This is surprising for the site as a whole as there is evidence, in the form of stonewalling, that this shelter was used as a kraal. The height of the paintings may be the reason for this. This figure is very clear.

Panel C: Although still quite clear, panel C has been subject to human defacement in the form of scratching. There are multiple vertical lines over much of the figures in panel C.



Figure 143. ARAL image 1980: panel B showing single, very large, human figure with three legs, clawed feet and tusks.



Figure 144. MARA image 2015: panel B showing single, very large, human figure with three legs, clawed feet and tusks.

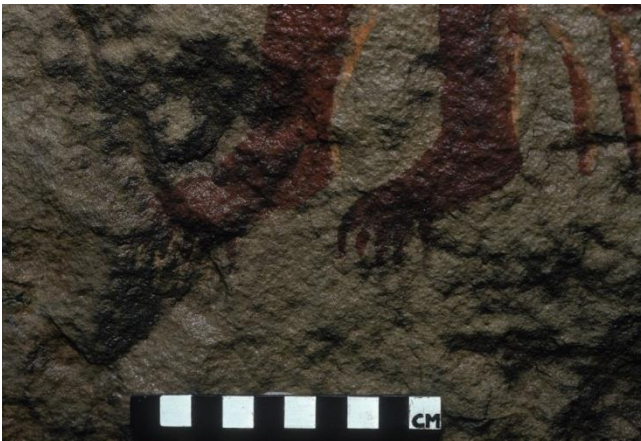


Figure 145. ARAL image 1980: close-up of panel B showing two of the three clawed feet.



Figure 146. MARA image 2015: close-up of panel B showing two of the three clawed feet.

ARAL COMPARISON

The ARAL images above show the very vivid colours achieved by wetting the rockface with water spray – which is no longer practised. For one thing it can be observed that the white paint is less visible when wet (not to mention the potential damage to the paint). However, the analysis of the ARAL record shows that no significant deterioration has occurred since 1980. This is probably owing to the site's location away from known cattle trails and the shelter does not appear to have been used recently.

Rock art and stonewalled site. The art in J08 is divided into three panels (A-C). These are spread across the rock face of the backwall of a sandstone shelter facing NW. See site description.

PANEL A

See photo register: 2947, 9013-9021

Panel A is the furthest right. It contains only red remnants of paint and, as stated above, is below a large flaked area. It is very likely that these remnants were part of a larger panel that has flaked off.



Figure 147. Panel B to show the scale of the large supine human figure.



Figure 148. Panel C, showing the striding and running figures with white faces and antelope-eared caps, as well as the red and white rhebok below. The entire panel is covered in vertical scratch marks.

PANEL B

See photo register: 9024-9052

Panel B contains a single image. This image, however, is one of high value. An extremely large polychrome (red, black and white) human figure measuring 80cm from head to toe. It is painted in a reclining, or recumbent, posture with one arm (the figure only has one arm) behind its back as if steadying it. Its knees are bent. This figure is painted in profile.

Head: The figure's head is highly detailed. The neck is black, as is most of head. There is also red patterning on the face. White lines emanate from the mouth, nose, neck and face. The lines from the neck are nested. Rows of white lines form a (?) headband on forehead. The eye is formed by a white circle in a red area. The figure wears a cap with three white tassels at the base of the neck. From the top of cap are painted 7 red hooked (?) brushes/ (?) fly-switches surrounded by white dots.

Torso: Torso is strange shape. The figure reclines, and appears to have either a very distended stomach or bags resting upon its stomach. White tassels/flecks painted along back.

Arms: Only one arm painted. White lines/ tassels hanging from arm. The hand has claws.

Legs and feet: 3 legs: two with knees bent and one below posterior of figure. All have claws with white tips. Between the set of legs and extra leg are a pair of strange red and white shapes. These are possible rhebok ears or horns.

PANEL C

See photo register: 9056-9075

Located 1m to left of panel B. Panel extends for +/- 1.5 m.

Left: on the far left are two walking human figures in red and white with hunting equipment, wearing karosses. White faces

Centre: 1 striding human figure in red and white with white face and most of torso faded away. This figure is +/- 25cm in height.

Left: two red running figures top of panel, with antelope-eared caps. The rightmost figure has rhebok horns. On the far right here is a smaller red human figure with bow, running. The bottom of panel C contains two red and white rhebok. These have been defaced (perhaps not deliberately) by vertical scratches.

STONEWALLING

See photo register: 2995-2996

A single stonewalled structure is built enclosing the area of the shelter. It runs from either side of the shelter, curving in a semi-circular shape just outside the dripline. It is 13m east to west, 5m north to south at its 'deepest' and maximum height in places is 1m. It is dry stone built, without mortar, with selected irregular rocks and abuts the backwall of the shelter at each end. It is collapsed in some places.

DEPOSIT

Although no artefacts were found on the surface, the deposit appears well preserved at an estimated depth of 10-20cm. The slope of the hillside below is gentle for some way until it drops off to the valley below.

ARTEFACTS

No artefacts found at J08.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | |
|---|--|--|---|
| <u>General Site Information</u> | | | |
| Site #: J08 | | Site name: | |
| Panel #: ALL | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | |
| Location/GPS file: 29° 56' 56.9" S 029° 05' 20.1" E | | Assessment level: Basic:✓ Intermediate: Detailed: | |
| Date: 12/06/2015 | | Time: 13:46 | |
| Weather: CLEAR | | | |
| Dimensions: Height: 2.5M Depth: 4.5M | | Width: 12M | |
| Petroglyph/Pictograph?: PICTOGRAPH | | Petroglyph method: | |
| Pictograph method: SAN FINE-LINE BRUSH | | Pictograph colour(s): DARK RED, BLACK AND WHITE | |
| Aspect & angle: N | | Substrate: CLARENS FORMATION SANDSTONE | |
| Samples taken: NO | | Photos: CAMERA J: 2942-2995 9006-9075 | |
| Overlays: NO | | | |
| Existing documentation: (e.g. ARAL?) ARAL 224 | | | |
| Topography/general site description: Refer to site description. | | | |
| General description of images and their condition: Refer to panel description | | | |
| <u>Natural Deterioration</u> | | | |
| Wash zones: | Y: ✓ not directly affecting paintings | N: | Seeps: Y: ✓ N: |
| Damp areas: | Y: ✓ | N: | Other water related conditions: |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: Y: N: ✓ |
| Cleaving: | Y: ✓ | N: | Exfoliation: Y: ✓ N: |
| Granulation: | Y: | N: ✓ | Abrasion: Y: N: ✓ |

| | | | | | |
|---|--|------------|--|------------|------------|
| Wind erosion: | Y: | N:✓ | Dust: | Y:✓ | N: |
| Vegetation: | Y: | N:✓ | Lichen: | Y:✓ | N: |
| Fungi: | Y: | N:✓ | Mould: | Y:✓ | N: |
| Algae: | Y: | N:✓ | Bacteria: | Y: | N:✓ |
| Animals: | Y: | N:✓ | Birds: | Y: | N:✓ |
| Bats: | Y: | N:✓ | Insects: | Y: | N:✓ |
| Other natural deterioration: | | Y: | N: ✓ | | |
| <u>Artificial/Cultural Deterioration</u> | | | | | |
| Graffiti: | Y:✓ <i>(If graffiti are present, complete following sections to record type and form.)</i> | | N: <i>(If no graffiti are present go to section headed "Gun shot" and continue.)</i> | | |
| Incised/carved: | Y: | N:✓ | Scratched: | Y:✓ | N: |
| Abraded: | Y: | N:✓ | Spray painted: | Y: | N:✓ |
| Painted, brush: | Y: | N:✓ | Other paint: | Y: | N:✓ |
| Pencil: | Y: | N:✓ | Marker pen: | Y: | N:✓ |
| Crayon: | Y: | N:✓ | Charcoal: | Y: | N:✓ |
| Chalk: | Y: | N:✓ | Ball point: | Y: | N:✓ |
| Other drawn material: | | Y: | N:✓ | | |
| Gun shot: | Y: | N:✓ | Climbing chalk: | Y: | N:✓ |
| Theft: | Y: | N:✓ | Abrasion: | Y: | N:✓ |
| Litter: | Y: | N:✓ | Camp fires: | Y: | N:✓ |
| Staining: | Y: | N:✓ | Visitor wear/tear: | Y: | N:✓ |
| Other artificial/cultural deterioration: | | Y: | N:✓ | | |
| <u>Other Observations</u> | | | | | |
| The majority of the paintings are well preserved. The site has consistent scratch lines on the paintings on one side of the main panel. | | | | | |

| | | |
|---|-----------------|---------------|
| Past treatments: | Y: | N:✓ |
| General comments: | | |
| Recommendations: Refer to site significance. This site is not recommended as a visitor site. It contains one rare image that has the potential to contribute to further research. In any event, the site should be monitored but kept closed to the public. | | |
| ASMIS Site Condition Assessment Value: | | Good:✓ |
| Fair: | Poor: | |
| Destroyed: | Unknown: | |
| Assessor: MARA P | | |
| Affiliation: WITS - MARA | | |
| Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za) | | |

Form prepared by:
J. Claire Dean
Conservator

Dean and Associates Conservation Services, 3438 NE 62nd Avenue, Portland, Oregon 97213. Tel: 503-331-1972. E-mail: clairedean@aol.com

Measures to be taken at S03

Visitation. No visitation.

Situation. This site is not recommended as a visitor site. Without extensive cleaning the images – although they are important, especially for research – are not clear enough for the average visitor to see. It must, however, remain a protected site.

Access. No access. Because it is virtually impossible to prevent people from visiting the site, it is advised that frequent monitoring and visits by Park security are the best policies to implement.

Conservation. No further conservation necessary except for the aforementioned security measures and frequent monitoring. The rock art and the stone walling must be left undisturbed.

Monitoring. Site S03 should be monitored according to the guidelines set out in the Maloti-Drakensberg Cultural Heritage Resources Management Plan. The site is relatively close to sites which ARE recommended for visits in the Mofoqoi valley. Frequent security checks are advised, as well as frequent monitoring visits. Please see recommendations and reasoning for frequent monitoring at the other Mofoqoi sites – e.g. J01, J02, J04 and J10.

S03 – Rock art site

[ARAL 226]



Figure 149. View across S03 facing north.



Figure 150. View across S03 facing south-southwest.

SIGNIFICANCE

Ranking: HIGH (rarity: high, clarity: high, complexity: high, vulnerability: high, potential for research; high)

S03 is a very important site. However, it will require a great deal of professional cleaning by a qualified conservator. It is complex and contains rare images of Significantly Differentiated Figures (SDFs: very large and intricately detailed human figures). It is in close proximity to rock art sites S02 and J08. J08 also contains a stunning example of an SDF. S03 includes good examples of detailed polychrome eland and human figures with antelope-eared caps. This site could be of great significance for future research within Lesotho as well as in the wider context of southern African rock art research. It is essential that this site be protected and a conservator be brought in to give assistance with possible conservation/restoration strategies.

SITE LOCATION: 29°56'53.3" S, 029°05'17.1" E

See photo register: 9118-9118- 9119, 3004-3005

Rock art site S03 is located within a relatively small sandstone shelter facing east on the middle kranline on the western slope of Mofoqoi Valley. The shelter itself is 4m high, 5m wide and 3m deep. The Mofoqoi River flows from north to south 200m below S03 in the valley. Rock art site S02 is 5m south of S03 and rock art site J08 (very large SDF) lies 170m to the southeast.

PRESERVATION

S03 is subject to various deteriorating factors such as flaking, smudging and fading. These have been caused by dust, wash, lichen and salt/calcite seepage and build-up. Panel F is the most severely damaged; a large proportion of this panel is badly smudged. This smudging could be caused by human action or animals rubbing against the rock face.



Figure 151. ARAL image 1980. Close-up of panel A, showing figures in bending-forward dance postures, one with arms forward, the other in the arms-back posture. Both have antelope-eared caps.



Figure 152. image 1980. Close-up of panel A, showing figures in bending-forward dance postures, one with arms forward, the other in the arms-back posture. Both have antelope-eared caps.

ARAL COMPARISON

The painted images at site S03 compare very well with the ARAL record of 1980. The wetting of images in the ARAL close-ups makes it very difficult to assess the state of preservation on a like-for-like basis (see comparison pictures above), however the overall impression is that deterioration has been negligible in the last 35 years. There appears to have been little in the way of flaking and exfoliation, and the angle of the rockface has resulted in the minimal accretion of dust deposit.

Rock art site S03 is a sandstone shelter that faces East. It measures 4m in height, 5m from end to end (north to south) and is 3m deep. The rock art is spread over much of the surface of the back wall. S03 is divided into 6 panels (A-F)

PANEL A

See photo register: 9122- 9132

Panel A is found at the far southern end, above a slab of rock forming the end of the shelter approximately 1.1m above the middle of this slab of rock. Panel C is to the left and above panel A. Panel A covers an area of 20cm across the rockface and 35cm down the shelter wall. Contained in it are 2 human figures in dark red. These are at the bottom of the panel and both bend forward. The human figure on top has its arms pointing downwards while the lower figure has both arms extended up and behind its back. Both figures have white faces, though these are somewhat faded, and red details on their bodies. Perhaps the most important detail of these 2 figures is their antelope-eared caps. At the top of the panel, 12cm above the antelope-eared cap figures, is a bichrome, possibly polychrome rhebok facing left (south). It is faded and patinated to some extent. This may indicate that it is of considerable age. It measures +/- 15cm from nose to tail.

PANEL B

See photo register: 9122-9124, 9134-9137

80-90cm to the right and on the same level as the rhebok in panel A, 10cm right of a severe wash-

zone is, panel B. This panel has only one representational image in it with some red remnants of paint on the right side of the panel. The representational image is that of a meticulously detailed polychrome eland measuring 50cm from back leg to nose and +/- 28cm from rear end to hoof. It faces right and has its neck slightly lowered. It is walking. Its face is very detailed: a black and white eye, red forelock also face, turning to black at the tip of the nose, white ears with red and black detail (red line through the middle of the ear and black exterior of ears). It also has blood coming from its neck. The body is also detailed in red, white and black- for example there is a black line running down the backline from the head and white details on the legs and tail. To the right of the eland are some very faded red remnants of paint.

PANEL C

See photo register: 9138-9142

Panel C is the furthest left of all paintings at S03. It is approximately 1m above panel A and about 20cm further left. This panel contains 3 faded bichrome rhebok in red and white. These rhebok have faded, their heads have almost completely disappeared. Considering the nature of their deterioration, it could be suggested that these rhebok are of considerable age. All are about the same size (+/- 20cm from tail to head).



Figure 153. General shot panel B including large polychrome shaded polychrome eland .



Figure 154. General shot left side panel D including strange eland-like figure with non-real feet, 2 rhebok, 1 SDF head and shoulders, with line down face and red eye.

PANEL D

See photo register: 9149-9162

To the left of panel B is panel D. Panel D is at the bottom of the shelter wall, close to the floor. It is complex and has some rare imagery in it. On the left side of the panel, at the top, are 2 bichrome rhebok in dark red and white. They are facing right (north) and are painting as if running. These rhebok are each approximately 10-12cm in length. They are painted above a strange eland-shape being with unusual feet- almost human-like in shape. This figure is 30cm in length and painted mainly in white with red details. This figure partially superimposes a very large human figure with an exaggerated and detailed face (an SDF). Only the head and shoulders of this figure are clearly visible, if the rest of it was painted at all. Its face is white with red details and a red eye. The shoulders are red and white. Coming from behind this figure's shoulders is a stick or bow of some sort in red and white. It must be noted that the eland-like figure and the SDF are faded and could be difficult to see in some light conditions.

20cm to the right of these is another collection of images. On the left of this collection are a group of images involved in superpositioning relationships. The bottom layer is a large polychrome eland

facing right (north) painted underneath a second SDF. The SDF faces the same way, and its right arm is extended behind it holding a bow. The left hand is extended in front of the figure with 3 white arrows collapsed in its hand. The face is emphasized and oversized, with a white face and detailed features. Visible from under the SDF, with its arm visible from its back is a portion of a human figure in red holding a bow. Over both the eland and the SDF is a small, bright red human figure, the lower legs faded. Finally, to the right of the SDF's face is another possible polychrome eland that has faded considerably.

PANEL E

See photo register: 9165-9167

Also close to the shelter floor to the right of panel D are a group of faded and smudged antelope mainly in red. In the centre is a red and white hartebeest (very smudged). It faces right, measuring approximately 20cm in length. Surrounding this hartebeest are a number of unspecified antelope in red. At the top of the panel are the remnants of what once would have been a beautiful bichrome rhebok. Only the legs, tail and back portion of the body remain, but these are finely painted and detailed.

PANEL F

See photo register: 9174-9176

The furthest right of all paintings at S03. Panel F contains only the faded and smudged remains of red figures. No diagnostic features could be identified, however.

STONEWALLING

See photo register: 3002, 3003

Although there are no stonewalled structures within the shelter of S03 itself, outside and slightly downslope to the east of the shelter is what appears to be a retaining wall.

ARTEFACTS

No surface archaeology was found within the shelter or in the immediate area surrounding it on the slope below.

DEPOSIT

S03 does not have a well-defined floor and therefore there has been no opportunity for deposit to build up. As with many of the sites in the Mofoqoi Valley, it may be that archaeology has eroded down towards the river below. This would be a consequence of the hillside being very steep.

**ROCK IMAGE CONDITION ASSESSMENT RECORD – MARA programme, Wits University
Sehlabathebe National Park Survey 2015**

| | | | | | |
|---|-------------|-------------|--|-------------|-------------|
| <u>General Site Information</u> | | | | | |
| Site #: S03 | | | Site name: | | |
| Panel #: ALL | | | Managing agency: LESOTHO NATIONAL PARKS/MTEC | | |
| Location/GPS file: 29°56'53.3" S, 029°05'17.1" E | | | Assessment level: Basic:✓ Intermediate: Detailed: | | |
| Date: 12/06/2015 | | | Time: 14:30 | | |
| Weather: CLEAR | | | | | |
| Dimensions: Height: 4M Depth: 3M | | | Width: 5M | | |
| Petroglyph/Pictograph?: PICTOGRAPH | | | Petroglyph method: | | |
| Pictograph method: SAN FINE-LINE BRUSH | | | Pictograph colour(s): DARK RED, LIGHT RED, BLACK, WHITE and YELLOW | | |
| Aspect & angle: E | | | Substrate: CLARENS FORMATION SANDSTONE | | |
| Samples taken: NO | | | Photos: CAMERA J: 3001-3006 CAMERA A: 9118-9176 | | |
| Overlays: NO | | | | | |
| Existing documentation: (e.g. ARAL?) ARAL 226 | | | | | |
| Topography/general site description: Refer to site description. | | | | | |
| General description of images and their condition: Refer to panel description | | | | | |
| <u>Natural Deterioration</u> | | | | | |
| Wash zones: | Y: ✓ | N: | Seeps: | Y: ✓ | N: |
| Damp areas: | Y: | N: ✓ | Other water related conditions: | | |
| Soluble salts: | Y: ✓ | N: | Insoluble salts: | Y: ✓ | N: |
| Cleaving: | Y: ✓ | N: | Exfoliation: | Y: ✓ | N: |
| Granulation: | Y: | N: ✓ | Abrasion: | Y: | N: ✓ |
| Wind erosion: | Y: ✓ | N: | Dust: | Y: ✓ | N: |

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| <p>General comments: This site contains a large number of paintings but the majority have faded due to age and/or accelerated fading owing to human and animal rubbing or throwing water/spray on the images.</p> <p>There is no visible graffiti, but it appears that soot and algae have contributed to the blackening of the rockface.</p> | |
| <p>Recommendations:</p> <p>This site is not recommended as a visitor site. Without extensive cleaning the images – although they are important, especially for research – are not clear enough for the average visitor to see. It must, however, remain a protected site.</p> | |
| <p>ASMIS Site Condition Assessment Value:</p> <p>Fair: ✓</p> <p>Destroyed:</p> | <p>Good:</p> <p>Poor:</p> <p>Unknown:</p> |
| <p>Assessor: SC/AM/JP</p> | |
| <p>Affiliation: WITS - MARA</p> <p>Contact: DR SAM CHALLIS (sam@rockart.wits.ac.za)</p> | |

Form prepared by:
J. Claire Dean
Conservator

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The following tables are taken with kind permission from the draft Maloti-Drakensberg Cultural Heritage Resources Management Plan. They are:

Tables 4 A and B:

- A. Policy themes** towards maintenance, physical conservation; visitor management and research.
- B. Identification of agents of deterioration:** threat, action, responsibility: outcome criteria, time frames and outcomes.

These are intended to assist in implementing a monitoring programme and to help establish a system whereby the goals, principles, causes and effects of deterioration and Park security measures can be charted and justified to the appropriate funding authorities.

| | Physical conservation: | Visitor management: | Research |
|---|---|--|---|
| <p>be defined as the on of the setting, fabric guishing it from repair, idicate restoration or ra Charter, Article 1.5)</p> <p>includes baseline completion of condition rts and continuous ar inspections and the ding methods). This is ple of preventative care intervention. Examples g:</p> <p>he fire intained, l wood d rock</p> <p>eat, bs that may panels, he visitors' fences, nage) are d repaired</p> | <p>Conservation means all the processes of looking after a place so as to retain its cultural significance (Burra Charter, Article 1.4) This also includes direct intervention at a site, e.g. stabilisation, adaptation, restoration and reconstruction.</p> <p>a) Stabilisation (Article 1.6) can be defined as preserving what exists as it is or is retarding deterioration (not improvement) Examples include:</p> <ol style="list-style-type: none"> establishing a drip line, consolidation treatment to stabilise paintings and engravings. <p>NOTE: Presently Conservation Specialists do not support the implementation of a drip-line or consolidation treatment as it results in water accumulation which leads to exfoliation at sensitive areas in the parent rock.</p> <p>b) Adaptation: Adaptation entails modifying a place to suit compatible uses and it is acceptable where it will supplement the conservation of the place, and if it does not substantially subtract from the cultural significance of a site.</p> <p>Adaptation must be limited to that which is essential to allow use of the place in accordance with the Statement of Goals and Objectives within the IMP. An example may be:</p> <ol style="list-style-type: none"> modifying a site to allow for low impact tourism (The construction of fences, signage, board walks, benches, etc. at rock art sites). <p>c) Restoration involves returning the existing fabric to a known earlier state by removing accretions without introducing new materials (Article 1.7 & 19). This can only be done if there is sufficient evidence of an earlier state and only if removing the fabric reveals the cultural significance of the place/setting.</p> <p>This process is limited to</p> <ol style="list-style-type: none"> the removal of post-contact graffiti (younger than 100 years) the removal of stains caused by lichen and vascular plants the removal of birds and insect nests obliterating the art. <p>NOTE: At present Conservation Specialists do not remove swallows' nests if they are situated in close proximity to the rock art - but not obliterating it, as swallows tend to build on the same spot every year and if one removes the nest, the chance exists that a new nest will be constructed over the art.</p> <p>d) Reconstruction: implies returning a site as near as possible to a known earlier state (Article 1.8 & 20). This is</p> | <p>The management of visitors includes</p> <ol style="list-style-type: none"> The development of site access policies addressing the public, media and ritual demands on sites The employment of guides, custodians The development of interpretive programmes The construction and maintenance of visitor's facilities e.g. signs, physical barriers, walk ways etc. <p>Such work must adhere directly to the strategies related to adaptation.</p> | <p>Research priorities</p> <ol style="list-style-type: none"> Support and th Research under best p Research outwe Duplic should Research condu institu partne Foreign partne Africa |

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| | <p>aimed at legibility as well as the aesthetic presentation of a site/artefact. New as well as old materials can be used in the process. Reconstruction must be limited to the repair of a dilapidated entity (it should not involve the majority of the fabric).</p> <p>NOTE: Reconstruction is not permissible in South Africa as there are no San descendants who are still practicing artists. Therefore no skills regarding renovation or retouch exist (It is however allowed in Australia, where the original tradition is still carried out).</p> | | |
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| Threat: | Action: | Persons responsible: | Criteria to measure outcome: |
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| Human Agents of deterioration Vandalism: (Graffiti) – <i>Applied technique:</i> the addition of material to the rock surface <ul style="list-style-type: none"> - charcoal - chalk - paint: oil or water-based - other Vandalism: (Graffiti) – <i>Removal technique:</i> the removal of the rock substrate in order to mark the rock surface: e.g. scratched or deeply incised, hacked off pieces <u>Content:</u> names & initials, dated names, designs, outlining of motif, imitation of motif <u>Location:</u> Directly over the pigment or art or adjacent to the art on the main panel | <p>All visitors must be accompanied by an Amafa-accredited custodian, who will relate the code of conduct to the guests and supervise their behaviour.</p> <p>Site specific management plans will specify the number of guests allowed to visit rock art sites, in accordance with the size of the cave/shelter. Limiting the size of the group will allow the custodian to adequately supervise the group and ensure that no vandalism takes place.</p> <p>Monitoring The Custodian has the duty to monitor the site and report back on any undesirable situation. Monthly monitoring forms following a prescribed format will assist this process.</p> <p>The sooner charcoal graffiti is</p> | <p>Custodian → RAM (Amafa) → SHO:RA (Amafa)</p> <p>SHO:RA (Amafa) → DD:PSR C (Amafa) → CHMG</p> <p>Custodians/FR → OIC → RAM</p> | <p>Reduced incidences of vandalism.</p> <p>Reduced incidences of vandalism.</p> <p>Reduced incidences of vandalism.</p> <p>Reduced incidences</p> |

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| <p>Vandalism also includes other forms of abrasion against rock art, shooting or any other act of defacement and deliberately introducing water/any other liquid to painted surfaces.</p> | <p>removed from the rock substrate, the easier the process will be, when charcoal remains on the rock surface for long time-spans, pigments become internalised with the rock matrix.</p> <p>The restoration of applied graffiti or the rehabilitation of the rock surface with reference to engraved vandalism, constitute direct intervention.</p> <p>A Heritage Impact assessment is needed to investigate the impact of alterations on the integrity of the site.</p> <p>Management must adhere to the principle of minimum intervention and reversibility of actions.</p> <p>A Photographic and written documentation process must form part of any intervention programme.</p> | <p>Accredited Conservator on appointment and permit from Amafa.</p> <p>Accredited Conservator on appointment and permit from Amafa. Practitioner on appointment by Amafa.</p> <p>This report, accompanied by a permit application to start the restoration or rehabilitation, will be send to the Permit Review Committee who will decide whether the permit will be issued or not.</p> | <p>vandalism.</p> <p>Reduced incidences vandalism.</p> <p>Reduce/prevent the imp alterations on the integ the site.</p> |
| <p>Touching of Art.</p> <p>Skin contains oils and fats that cause deterioration of the paintings. It also results in contamination of the art compromising chemical analysis.</p> <p>Touching rock art may also result in a polishing effect that also leads to colour loss.</p> <p>Certain recording techniques such as tracing or rubbings necessitate touching of the art.</p> <p>Abrasion (Rubbing/scratching against paintings, accidentally removing pigment: Such damage can be caused by un/intentional leaning against the paintings. Equipment such as backpacks may have metal clasps that can scratch the art. Abrasion can also result when people are trying to take photos in confined spaces. Continued abrasion ultimately leads to removal of pigments from the rock face.</p> | <p>Any area within 50m radius (surrounding) the site is protected by law and an Amafa-accredited Custodian must accompany visitors.</p> <p>The custodian will inform the people that they may not remove, alter, change, destroy anything on the site and its immediate surroundings, nor touch the art.</p> <p>Visitors' numbers should be limited to allow for good supervision of guests on site.</p> <p>Any tracing requires a permit from Amafa. Such tracing may only be carried out by suitably qualified persons.</p> <p>All visitors must be accompanied by an Amafa-accredited Custodian, who must inform the guests to remove their back packs before entering an area within 5m of the rock art site.</p> <p>The Custodian will also tell the people to be careful not to accidentally lean or touch the rock surface.</p> | <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa)</p> <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa)</p> <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa)</p> <p>SHO:RA (Amafa) → DD:PSRC (Amafa) → PRC</p> <p>Custodian → SHO:RA (Amafa) → DD:PSRC</p> <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa)</p> | <p>Effectiveness of the Custodian Programme</p> <p>Effectiveness of the Custodian Programme</p> <p>Recording of visitor numbers</p> <p>Permit</p> <p>Effectiveness of the Custodian Programme</p> <p>Effectiveness of the Custodian Programme</p> |

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| | Numbers will be limited to allow for sufficient supervision. | Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa) | Recording of visitor numbers |
| Fire. Camp fires, cigarette and candle smoke as well as fire resulting from controlled burns causes soot to be deposited on the rock surface and covers the paintings, it also causes flaking/(paint peeling off from rock surface). | <p>Visitor information.</p> <p>Push controlled fires outside the 20m Buffer Zone.</p> <p>Clear vegetation posing a fire hazard within the 20m Buffer Zone of the rock art site, where practical.</p> <p>Custodians completing monthly monitoring reports must inform both the PM of the Park as well as Amafa SHO:RA, if vegetation is posing a fire threat.</p> <p>The OIC should do a pre-burn assessment of sensitive sites and burn a fire-break around it; where practical.</p> <p>In case of unscheduled burns, SCM should identify fire-sensitive sites and take immediate steps to avoid potential fire damage (by once again burning a fire-break at least 20m from the site); where practical.</p> | <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa) → CHMG</p> <p>Custodian → PM/ SHO:RA (Amafa) → DD:PSRC (Amafa)</p> <p>OIC</p> <p>SCM</p> | <p>Reduction in damage to rock art by fire.</p> <p>Monthly Monitoring</p> <p>Assessment</p> <p>Vegetation control</p> |
| Dust. Dust settles over the paintings, bonds with the minerals in the art and creates a dark crust over it – little can be done to remove it. Hence intervention should focus on prevention of dust causing agents. Dust and water in combination further compromise painted surfaces. | <p>Visitor information</p> <p>Control visitor numbers: max 6-8 people within a painted site at any one time, and always under supervision.</p> <p>Vegetation planting may reduce dust, but is a direct intervention. Both Ezemvelo (Ecological Advice) as well as Amafa needs to be consulted before any such intervention will be permitted.</p> | <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa)</p> <p>Ecological Advice</p> | <p>Reducing/preventing dust.</p> <p>Reducing/preventing dust.</p> |
| Applying liquid to painted surfaces. Pouring liquid onto art to improve visibility quickly causes irreparable damage to the art. This will result both in colour loss as well as lime, silica and salt accretion over the art. Furthermore, dust bonds more easily to wet surfaces | <p>Provision of public information</p> <p>Visitors to be accompanied by an Amafa-accredited Custodian</p> | Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa) | Reduction in damage caused by pouring liquid on rock art. |
| Access control: Damage, both intentional and unintentional can be reduced by ensuring adequate access to rock art sites. | Paths to unmanaged sites should be decommissioned and allowed to overgrow and must not be maintained in cases where heritage sites are closed to the public. | OIC | Paths to become overgrown |

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| | <p>Paths leading to or past sensitive sites must be closed or re-routed.</p> <p>Unmanaged sites or sites not opened to the public must not be recorded on hikers 'maps or on literature or displays.</p> <p>Site information is kept confidential and is not made public.</p> <p>Ongoing monitoring patrols to all sites open to the public.</p> <p>All public centres should have signage reminding visitors of the custodian and access rules.</p> <p>No camping allowed inside caves or shelters containing rock art.</p> <p>Every MDP WHS resort should have a notice board or pamphlets showing which sites are opened for overnight camping.</p> <p>Regular and ongoing monitoring. Amafa-accredited Custodians on a monthly basis, Annually by the SHO:RA, and by EKZNW FR and HO according to their schedule. This information will be used to populate the rock art database, in order to identify threats timeously and to implement strategies to limit or prevent deterioration.</p> | <p>OIC</p> <p>SHO:RA (Amafa)</p> <p>OIC</p> <p>RAM (Amafa)</p> <p>SHO:RA (Amafa)</p> <p>OIC</p> <p>SHO:RA (Amafa)</p> <p>Custodians → RAM (Amafa) → SHO:RA (Amafa)/FR</p> | <p>Paths closed</p> <p>Maps containing information</p> <p>Provision of correct information</p> <p>Monitoring cards</p> <p>Suitable literature and signage</p> <p>Patrols</p> <p>Monitoring cards</p> <p>Populating rock art database</p> |
| <p>Visitor Management:</p> <p>Visitor numbers must be treated with caution (Duval & Smith, 2012). Understanding the needs of visitors will assist in developing management strategies which protect rock art while accommodating visitor expectations.</p> | <p>By maximising appreciation and enjoyment, visitors are most likely to be receptive to conservation measures. Guests usually link a well-conserved site to good management practices. Ensuring there is evidence of site management contributes in this regard.</p> <p>Minimise direct or indirect damage by ensuring the following interventions are effected appropriately:</p> <ul style="list-style-type: none"> - staff and custodian presence - sign boards - information pamphlets - site museums | <p>Custodian</p> | <p>Visitor statistics</p> |

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| | <p>- and barriers to mitigate threats.</p> <p>Visitor Infrastructure. The topic is covered in the discussion on economic value of heritage sites.</p> | | |
| <p>Natural Agents of Deterioration</p> <p>Weathering: In conservation terminology, the rock on which paintings are found is called the “substrate”. Weathering or deterioration of the rock itself is one of the most common problems affecting rock art. Weathering is chemical alteration and mechanical breakdown of rock material as a result of exposure to air, moisture and organic matter.</p> <ul style="list-style-type: none"> • Mechanical weathering: occurs as a result of external or internal sources of stress and includes heat, moisture, crystal growth, frost, salts. • Chemical weathering: Structure & composition of the rock changes, as a result of the reaction between the minerals & elements in the substrate with water or oxygen: leads to solution, oxidation and carbonisation. <p>Commonly encountered types of weathering</p> <ul style="list-style-type: none"> • Honeycomb weathering: Is caused by differing resistance of the minerals in the rock surface to weathering. It results in many small hollows. • Cavernous weathering: Occurs commonly in sandstone, identified visually as scalloping of the rock surface. Salt and water are the primary causal agents. • Granular disintegration: Involves a deterioration of the rock matrix and natural cements that hold the rock together. • Natural block collapse: Loss of rock from the remaining parent rock, as a result of the weakening of the substrate along cracks and | <p>Weathering Vegetation surrounding rock art sites, including those that are managed for the public, should be retained whenever possible, due to its value in shielding and reducing the impact of direct sunlight on paintings; for site microclimate control; and to buffer daily extremes in temperature and humidity. This obviously excludes vegetation that is causing a threat due to abrasion. Should the decision be made that vegetation need to be planted in front of a cave or shelter with rock art, one must remember that this constitutes direct intervention and that the relevant permits are needed from Amafa and EKZNW.</p> <p>With regard to natural block collapse or instability of the rock matrix: Custodians to be trained to identify and report on structural instability such as cracks and fissures and alert Amafa staff.</p> | <p>Custodian → RAM (Amafa) → SHO:RA (Amafa)</p> | <p>Photographic recording</p> |

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| fissures caused by pressure (expansion and rapid cooling of particles during bushfires and when water freezes in cracks). | | | |
| Water: Ground water, condensation, humidity and direct water contact, such as rain have an impact on the substrate of rock art panels. Surface water - flowing water creates dark patches on the rock surface and around such dark patches are often lighter regions caused by the deposition of minerals (e.g. salts) carried in water. Salt/silica accretion or lime encrustation may build up and obscure the painting or it could be deposited behind the rock face, eventually causing it to flake off. Direct exposure to water will also cause pigment loss. Within the northern part of the Park, an added impact – that of acid rain caused by highveld power plants – may be felt. This has however not been tested. | Prevention of or attempts to stop / limit water from flowing over the paintings. Such work could include stabilisation and direct intervention by construction of a drip-line to divert water flow. The construction of drip lines constitute a direct intervention and an HIA is required, along with a permit issued by Amafa The principle of minimum intervention and reversibility of actions must be applied. | RAM (Amafa) → SHO:RA (Amafa) PRC | Monitoring Cards Permit |
| Fire Fire causes soot to be deposited on the rock surface, covering and obscuring paintings and causing flaking. Extreme heat from veld fires can cause large-scale exfoliation of rock surfaces, due to rapid thermal expansion. | A 20m buffer area, as required by the KwaZulu-Natal Heritage Act should be enforced where practical, when scheduled burns are carried out. Dry vegetation in close proximity to rock art sites must be removed. OIC's should refer to the Fire Compartment Attribute Table to identify sensitive heritage features. | SCM | Fire Compartment Attribute Table |
| Vegetation The most obvious threats posed by vegetation are those related to fire and abrasion and the management interventions for those threats apply. There are various categories of vegetation that need to be evaluated in greater detail: <ul style="list-style-type: none"> • Vascular plants: plant leaves and stems may brush the rock surface and have an abrasive effect on the art. Root action can cause existing cracks to widen and thus weaken the physical structure of the rock. • Algae. These are simple plants, | Keep vegetation around the shelter neatly trimmed. Unless necessary, do not remove trees or top-soil as this constitutes development requiring a permit. Any work of this nature needs to be directly supervised by a OIC or Amafa SHO: RA. Remove dead plant matter inside the shelter that poses a fire hazard. While vegetation may pose a threat, this needs to be evaluated against the benefits raised in para 10.5.3.1.1.1 Vegetation also may benefit a site in | OIC or SHO:RA (Amafa) → SCM | Monitoring |

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| <p>often requiring wet conditions. Certain algae can form thick layers over painted surfaces, eventually causing the rock surface to break down, or alternatively, pigment loss.</p> <ul style="list-style-type: none"> • Lichen: Lichens grow on trees, walls and rocks. They extract nutrients from the growth substrate. They have varying colours and tend to withstand drier conditions than algae. They cause direct physical and chemical damage to the rock surface • Mosses: These often occur in wetter and damper parts of a rock shelter, and have a physical and corrosive effect on the rock surface. | <p>consolidation of shelter deposits and soils in the vicinity and in suppressing airborne dust, preventing deposition over paintings.</p> <p>Prevent damage caused by heat from fire and soot covering paintings, by burning fire-trails around sensitive sites, at least 20m from the site, where practical.</p> <p>Only experts should intervene to try and remove lichen, mosses and algae growing too close to or over art, this constitutes of direct intervention requiring a permit.</p> | <p>PRC</p> | <p>Permit</p> |
| <p>Damage caused by animals.</p> <ol style="list-style-type: none"> Abrasion by animals: Domestic and wild animals rub against paintings and cause flaking. Mud is also deposited over paintings. Animals trample cave deposits and shelter floors. This raises dust, but may also cause damage to archaeological deposits Urine and excrement leads to salt deposits on the cave surface, transported by ground water and deposited as yellow patches over the art. Animals may lick paintings and rock surfaces. Animals cause fluctuations in the micro-climate of the cave/shelter environments Bird & Insect Nests, termite trails and termite mounds: Birds and insects build nests covering paintings, (e.g. swallows & wasps' nests. Nests obscure the art and causes pigment loss. It has been noted that existing nests, encourage nest-building nearby.) | <p>Construct fences where appropriate. Within 10 m of a rock art site this constitutes of direct intervention requiring a permit.</p> <p>The removal of birds' and insects' nests constitutes direct intervention requiring a permit.</p> | <p>RAM (Amafa) → PRC</p> <p>PRC</p> | <p>Erection of fence</p> <p>Removal of nests</p> |

Abbreviations in table: DD:PSRC
Compliance, Amafa

Deputy Director: Professional Services, Research &

PRC

Permit Review Committee

| | |
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| RAM | Rock Art Monitor |
| SHO:RA | Senior Heritage Officer: Rock Art, Amafa |

Rock Art and Baseline Archaeological Survey of the Sehlabathebe National Park, Kingdom of Lesotho

**Final Report to the World Heritage Committee of
the United Nations Educational, Scientific and
Cultural Organization
(UNESCO)**

Prepared for:

**Ministry of Environment, Tourism and Culture
Kingdom of Lesotho**

October 2015

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of the Matatiele Archaeology and Rock Art
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Definition of terms and abbreviations

| | |
|--------------------|---|
| AMEMSA: | Adaptations to Marginal Environments in the Middle Stone Age Project |
| ARAL: | Analysis of Rock Art in Lesotho Project |
| BP: | Before Present – number of calendar years before present date, defined as 1950 AD |
| c.: | <i>circa</i> – approximate date, around |
| CRM: | Cultural Resource Management |
| CCS: | Cryptocrystalline silicates |
| DoC: | Department of Culture of the Ministry of Tourism, Environment and Culture |
| GIS: | Geographic Information System |
| GPS: | Global Positioning System |
| HIA: | Heritage Impact Assessment |
| Historical: | From the C19 th / C20 th – archaeological period defined as starting with the arrival of Europeans in the region |
| Iron Age: | Archaeological period defined as starting with the arrival of mixed-farming communities in the region |
| LSA: | Later Stone Age – archaeological period of prehistory dating from c.30,000 BP up to beginning of the Iron Age/ Historical periods in the region |
| MARA: | Matatiele Archaeology and Rock Art Programme |
| max. dim.: | maximum dimension(s) |
| MDTP: | Maloti-Drakensberg Transfontier Project |
| MSA: | Middle Stone Age – archaeological period of prehistory dating between c.300,000BP - 30,000BP |
| MTEC: | Ministry of Tourism, Environment and Culture of the Kingdom of Lesotho |
| OUV: | Outstanding Universal Value |
| RABAS: | Rock Art and Baseline Archaeological Survey |
| RARI: | Rock Art Research Institute |
| SNP: | Sehlabathebe National Park |

1. Preface

In June 2013 the Thirty-seventh session of the United Nations Educational, Scientific And Cultural Organization (UNESCO) Convention Concerning The Protection Of The World Cultural And Natural Heritage (World Heritage Committee) was held in Phnom Penh, Cambodia.

The Draft Decision: 37 COM 8B.18 of the World Heritage Committee reads:

1. Having examined Documents WHC- 13/37.COM/8B, WHC-13/37.COM/INF.8B1 and WHC-13/37.COM/INF.8B2,
2. Defers the examination of the extension of uKhahlamba / Drakensberg Park, South Africa, to include Sehlabathebe National Park, Lesotho, to the World Heritage List in order to allow the State Party to address the following concerns regarding the cultural values of the proposed extension:

- a) Conduct, on the basis of the ARAL project findings, sufficient updated research on rock art in Sehlabathebe National Park and its surroundings to create an inventory, which will allow informed assessment of the property's cultural significance, special characteristics and features;
- b) Include in this inventory the state of conservation of the documented rock art sites;
- c) Study the potential cultural contribution of landscape elements, such as rock pools, to the significance of Sehlabathebe;
- d) Define the characteristics of the Southern Style and demonstrate how the representation of this style in Sehlabathebe differs from the other rock art sites already inscribed;
- e) Designate on the basis of the revised inventory and the research, the most significant rock art sites as national historic sites through public gazetting;
- f) Establish and adopt a comprehensive management plan for the cultural elements of Sehlabathebe, including a risk preparedness and disaster response plan;
- g) Establish more specific monitoring indicators on the new inventory and the specific requirements and conditions of the rock art sites;
- h) Train staff of the Sehlabathebe management base and the Department of Culture in the documentation and conservation of rock art, provide significantly enhanced qualified staff within Sehlabathebe National Park Nominations to the World Heritage List WHC-13/37.COM/8B, p. 19 and increase finances to improve its protection;
- i) Allocate a specific and adequate annual budget to allow for medium-term planning in conservation, inventorying and monitoring.

It is the aim of this report to address concerns a, b, e, g, and h, insofar as it is within our capacity to: provide the research report and inventory with sites prioritised by significance; document the state of conservation of sites; suggest monitoring procedures; undertake training of SNP and Department of Culture staff as far as is possible within the survey.

Insofar as directive d) is concerned, there is neither time nor scope to define a style for the rock art Sehlabathebe region. Doing so would not benefit decision-makers in the Department of Culture or UNESCO when it comes to safeguarding this cultural heritage resource.

Directive g) calls for monitoring indicators and it is suggested here that monitoring can only begin with the inventory in question, and that this inventory be used as a 'live' research tool by the monitoring team. This team has not yet been appointed. Establishing a Monitoring Team is one of the foremost recommendations in the immediate measures outlined at the end of this document.

Directive h) calls for the training of SNP and MTEC staff. The Ministry requested that the MARA programme survey team could train Department of Culture personnel. This was undertaken by MARA from the outset of the survey. The MARA team conducted a training day and site visit, and throughout the first two months of the survey the team was accompanied by MTEC and Sehlabathebe staff. These staff members were instructed in RARI survey techniques, photography and the use of GPS. Please see section 2.3 ‘Skills transfer and training of archaeological field technicians’.

Only TWO staff members, however, received sustained training throughout – Ntate Semela Mona and Mme Mamocheke. Other MTEC staff attended training and accompanied the survey team for short periods of one or two weeks. It must be noted that none of the current staff is sufficiently qualified to undertake rock art documentation or monitoring work to the standard necessary to meet the concerns of directive h).

Ntate Semela Mona and Mme Mamocheke would be suitable to take the role of Monitor, but only with sufficient further training in techniques of documentation and record-keeping.

Directive i) states that there must be allocated a ‘specific and adequate annual budget to allow for medium-term planning in conservation, inventorying and monitoring.’ It is strongly suggested that this be done in conjunction with allocating funds for the park’s protection (Directive h). Therefore as well as establishing expanded, more frequent, and better resourced Park patrols (see section 5.2.6 Security in Sehlabathebe National Park), SNP staff ought to be involved in the safeguarding of heritage resources (see section 5.2.5 Monitoring). This might be achieved in three tiers:

- SNP patrol staff trained in safeguarding heritage resource (particularly rock art) sites
- Regional MTEC Department of Culture officials trained to monitor rock art sites
- National level Senior Heritage Officer(s) for the SNP employed at the new National Museum of Lesotho

The latter would be qualified archaeologists who would travel regularly from Maseru to oversee the conservation strategy and maintain links between SNP staff, MTEC DoC officials and their counterparts on the South African side of the combined World Heritage Site.

Directive f) calls for the establishment of a comprehensive management plan. Fortunately a management plan has been drafted for the Ukhahlamba Drakensberg side of the park and, although it is not yet published, the executive author Celeste Rossouw has allowed us to view the document and make use of its recommendations. It is suggested here (see sections 5.1 and 5.2 Cultural Heritage Management) that MTEC adopt this management plan with adaptations suitable for the SNP heritage resources.

Because it is not possible for us to produce a comprehensive management plan until it has been decided which sites are to be opened to the public and, indeed, what the SNP authorities’ vision for Cultural Heritage is going forward, and because there is already an extensive draft management plan for the greater area of the park, we here give just a few suggestions based on policies that are to be adopted by Ezemvelo, Amafa and SARHA. Once MTEC/SNP has identified the sites which are to be opened for public access, a qualified rock art conservator must dictate the subsequent requirements for each of these sites to be brought into a condition whereby visitation is safe. Only then can a conservation management plan be tailored specifically to the SNP.

2. Introduction

The Sehlabathebe National Park (SNP), situated in the upper ranges of the Maloti mountains within the Qacha's Nek District of the Kingdom of Lesotho, is renowned for the singularity of its lakes, watercourses, geological formations, flora and fauna, and also for the outstanding cultural heritage represented in numerous prehistoric rock paintings. These were the principal reasons for the creation of the SNP; granted National Park status within the Kingdom of Lesotho in 1970, and why it was recently granted *deferred* inclusion in the UNESCO World Heritage property list in 2013 on both natural and cultural grounds¹ of Outstanding Universal Value (OUV).²

The World Heritage list status granted by UNESCO is *conditional* and *deferred* until certain standards of management, conservation and presentation of the natural and heritage resources within the SNP are met. Amongst these requirements is the conducting of sufficient updated research of rock art sites³ and the drafting of a report including an inventory of heritage resources within the park, recommendations for the long-term conservation and, if feasible and desirable, recommendations for public display of some of these resources. In the course of appointing a heritage specialist to comply with these requirements, the execution of a Rock Art and Baseline Archaeological Survey that catalogued extant heritage resources within the SNP was considered essential prior to the compilation of a Heritage Management Plan of said heritage resources.

The SNP is managed by the Department of Culture (DoC) within the Ministry of Environment, Tourism and Culture (MTEC) of the Kingdom of Lesotho. Representatives from the DoC asked the Matatiele Archaeology and Rock Art (MARA) Programme run by the Rock Art Research Institute at the University of the Witwatersrand to submit a proposal to undertake a Baseline Archaeological and Rock Art Survey of the SNP. After submission from MARA and preliminary acceptance by the DoC of a Project and Financial Proposal, the MARA Programme was provisionally appointed to undertake the Rock Art and Baseline Archaeological Survey of the SNP at a meeting in May 2014 held at the National University of Lesotho, Roma, between the MARA Principal Investigator Dr Sam Challis, MARA Field Director Mr Hugo Pinto, and Mme 'Maneo Ntene (Director of Culture), Mme Tsepang Shano, Ntate Semela Mona, and Mme Matsosane Molibeli, Ntate Thabo Khomommu and Mme 'Mamocheko Kotelo of the DoC. This appointment became official in January 2015 with the signing of a contract between the Ministry of Tourism, Environment and Culture and the University of the Witwatersrand⁴.

Fieldwork for the Rock Art and Baseline Archaeological Survey (RABAS) of the SNP began on 26 January 2015. This report presents the results of this survey.

¹ United Nations Educational, Scientific And Cultural Organization (UNESCO) Convention Concerning The Protection Of The World Cultural And Natural Heritage World Heritage Committee Thirty-seventh session Phnom Penh, Cambodia 16 – 27 June 2013, Property **Sehlabathebe National Park** [extension of "Ukhahlamba /Drakensberg Park", South Africa, (i)(iii)(vii)(x), 2000], Id. N° 985 bis state party lesotho criteria proposed by state party (i)(iii)(vii)(x). See IUCN evaluation book, May 2013, page 125. See also ICOMOS evaluation book, May 2013, page 27.

² Jokilehto, J. 2008. *The World Heritage List. What is OUV? Defining the Outstanding Universal Value of Cultural World Heritage Properties* (Vol. 16). Hendrik Bäßler Verlag.

³ See UNESCO 37th Session Property **Sehlabathebe National Park** 8B 2 (a).

⁴ See annexure 1: Contract and Notification to successful tender.

2.1 Study Area

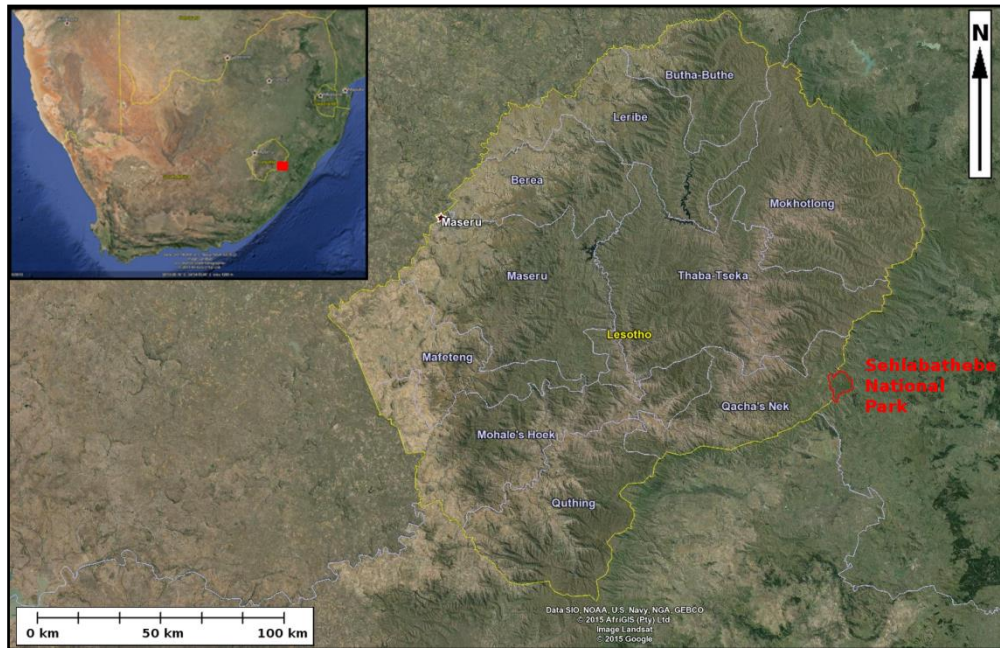


Fig. 1: Map of Lesotho showing location of Sehlabathebe National Park.

The Sehlabathebe National Park is situated in the uplands of the Maloti Mountains, within the Qacha's Nek District of Lesotho (Fig. 1). The park boundary encloses an area of 68 km², with the border between Lesotho and South Africa marking the park's eastern limit. The focus of the RABAS was the area within the SNP park boundary, referred to in this report as the 'study area' or 'area of investigation' (Fig. 2).

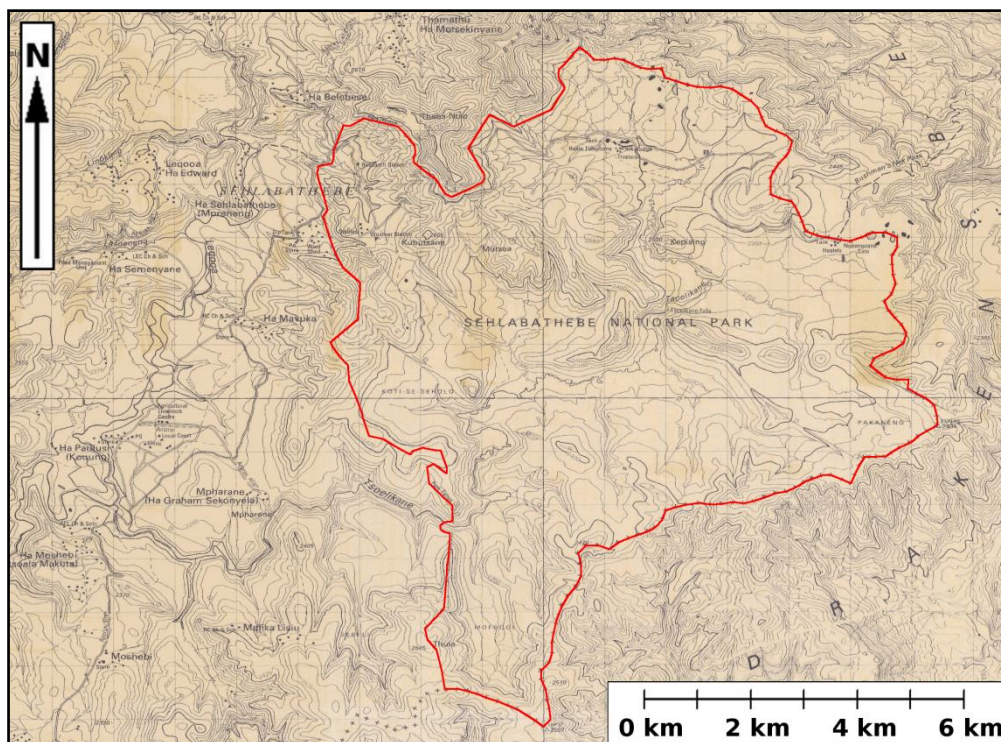


Fig. 2: Study Area defined by the SNP boundary, shown in red.

2.2 Archaeological and Historical background

2.2.1 Archaeology in and around the SNP

Before independence in 1966 very little archaeological research had been undertaken anywhere in Lesotho as a whole, including the Qacha's Nek District.⁵ Previous archaeological studies undertaken within the study area have included rock art surveys by Patricia Vinnicombe in the 1950s 1960s and 1970s,⁶ Lucas Smits⁷ in the 1970s and 1980s, as well as research excavations close to the study area in the nearby village of Ha Moshebi by Patrick Carter in the 1960s⁸ and by Charles Arthur in the 2000s.⁹ Slightly further afield are the sites of Melikane and Sehonghong, located ca. 37 km to the west and 38 km northwest of the study area respectively, both previously excavated by Carter¹⁰ and the latter by Peter Mitchell,¹¹ with current ongoing excavations at both sites by the AMEMSA Project run by Genevieve Dewar and Brian Stewart.¹² In addition to these projects, studies in the wider region defined by the Maloti-Drakensberg Mountains are nevertheless relevant to this survey as they may provide parallels for the heritage resources likely to be present within the SNP study area. Particularly pertinent to this study is the early work conducted by Project ARAL (Analysis of Rock Art in Lesotho) which we turn to presently.

The dating of southern African rock art is still in its infancy. However, certain strides have recently been made to obtain absolute radiocarbon dates. The earliest recorded date for painting in southern Africa comes from a stone excavated at Apollo 11 shelter in Namibia, at c.27,000 years old,¹³ yet the earliest direct dates for rock art in an exposed rock shelter environment (as are the shelters of the SNP) is c.4000 years old.¹⁴ Some paintings were certainly made in historical times and there are accounts of San people who understood the religious belief system of which they formed a part.

Some of the earliest records of archaeology in Lesotho were the notes made by Joseph Orpen, which he published in the Cape Monthly Magazine with sketches he made of rock art panels during his expedition through Lesotho in 1873.¹⁵ He was shown the sites he visited by his guide Qing, a

⁵ Mitchell, P. J. 1992. Archaeological research in Lesotho: a review of 120 years. *African Archaeological Review*, 10(1), 3-34.

⁶ Vinnicombe, P. 1976. *People of the Eland*. Pietermaritzburg: University of Natal.

⁷ Smits, L. G. 1983. Rock paintings in Lesotho: site characteristics. *The South African Archaeological Bulletin*, 62-76.

⁸ Carter, Patrick L. 1969. Moshebi's Shelter: excavation and exploitation in eastern Lesotho. *Lesotho* 8, 1-11.

⁹ See Mitchell, P. 2009. The flaked stone artefact assemblages from Likooeng: a late Holocene sequence in the Lesotho Highlands and its regional context. *Southern African Humanities*, 21(1), 142.

¹⁰ Carter, P.L. 1978. The prehistory of eastern Lesotho. PhD thesis., University of Cambridge; Carter, P.L., Mitchell, P., Vinnicombe, P., 1988. Sehonghong: The Middle and Later Stone Age Industrial Sequence at a Lesotho Rock-shelter. *British Archaeological Reports International Series S406*, Oxford.

¹¹ E.g. Mitchell, P.J. 1995. Revisiting the Robberg: new results and a revision of old ideas at Sehonghong Rock Shelter, Lesotho. *South African Archaeological Bulletin* 50, 28-38; Mitchell, P.J. 1996. Sehonghong: the late Holocene assemblages with pottery. *South African Archaeological Bulletin* 51, 17-25; Mitchell, P.J., Plug, I. 2008. Fishing in the Lesotho Highlands: 26,000 years of fish exploitation, with special reference to Sehonghong Shelter. *Journal of African Archaeology* 6, 33-35.

¹² Stewart, B. A., Dewar, G. I., Morley, M. W., Inglis, R. H., Wheeler, M., Jacobs, Z., & Roberts, R. G. 2012. Afromontane foragers of the Late Pleistocene: Site formation, chronology and occupational pulsing at Melikane Rockshelter, Lesotho. *Quaternary International*, 270, 40-60

¹³ Wendt, W. E. 1976. 'Art Mobilier' from the Apollo 11 Cave, South West Africa: Africa's Oldest Dated Works of Art. *The South African Archaeological Bulletin*, 5-11.

¹⁴ Bonneau, A., Brock, F., Higham, T., Pearce, D. G., & Pollard, A. M. 2011. An improved pretreatment protocol for radiocarbon dating black pigments in San rock art. *Radiocarbon*, 53(3), 419; Bonneau, A., Pearce, D. G., & Pollard, A. M. 2012. A multi-technique characterization and provenance study of the pigments used in San rock art, South Africa. *Journal of Archaeological Science*, 39(2), 287-294.

¹⁵ Orpen, J.M. 1874. A glimpse into the mythology of the Maluti Bushmen. *The Cape Monthly Magazine* 9: 1-11.

San man who understood and explained aspects of the rock art. Amongst the sites Qing guided Orpen to were Melikane and Sehonghong, and it is Qing's account of the rock art in these shelters that attracted the attention of later academics and is the chief reason they are now so famous. The recorded interpretations of these rock art panels by a San individual with an understanding of, and retaining a strong link to, the ancient cultural traditions and meanings imparted in the art makes this a truly remarkable resource. It is the main source of information regarding the symbolic and mythological worlds of the Southern San populations of the Maloti-Drakensberg.¹⁶ Alongside the contemporary record of the nineteenth-century Xam Bushmen and the modern Kalahari San beliefs, it constitutes a crucial source for the understanding of San beliefs across the subcontinent. Qing's words are referred to constantly by researchers, particularly with regard to the interpretation of rock art.¹⁷ In turn, southern African rock art research has affected rock art research worldwide.¹⁸ It is on the basis of the SNPs rock art that it was deemed to be of Outstanding Universal Value.¹⁹

The first long-term archaeological research project in Lesotho comprises the excavations carried out by Carter between 1969 and 1975 at Ha Soloja, Melikane, Ha Moshebi and Sehonghong Shelters, located in Qacha's Nek and Thaba-Tseka Districts.²⁰ All of these sites contained Middle Stone Age and (with the exception of Ha Soloja) Later Stone Age assemblages. Together, these sites represent a sequence of recurring long-term occupation of this landscape by hunter-gatherers over the course of the last c. 80,000 years. Mitchell²¹ highlights the importance of Carter's research in having described the first excavated, stratigraphically based, cultural sequence for Lesotho as well as for its emphasis on investigating prehistoric subsistence economies and human exploitation of the landscape through time. His fieldwork is of particular relevance to the current survey as it was the first to show long-term occupation by hunter-gatherers in the eastern highlands region of the country, and these sites are the closest known Stone Age occupation sites to the study area. Moshebi's Shelter and Ha Soloja are of particular significance in this regard, and both contain rock art. These sites are very close to the SNP and very much within the proposed 'Buffer Zone'.²²

A major rock art recording project of sites in the Southern Drakensberg was carried out by Vinnicombe, spanning the 1950s 1960s and 1970s and culminating in her pivotal study of San rock art.²³ Part of this survey was carried out alongside Carter's fieldwork and included sites in the south-east of Lesotho. She surveyed much of the Senqu River and then also the lower Senqunyane in 1976. Several of the sites she found are located within the current SNP boundary and others are within the Buffer Zone.²⁴

¹⁶ McGranaghan, M., Challis, S., & Lewis-Williams, D. 2013. Joseph Millerd Orpen's 'A Glimpse into the Mythology of the Maluti Bushmen': a contextual introduction and republished text. *Southern African Humanities*, 25, 137-166.

¹⁷ Vinnicombe, P. 1976. People of the Eland. *Pietermaritzburg: University of Natal*; Lewis-Williams, J. D. (1981). *Believing and seeing: symbolic meanings in southern San rock paintings* (pp. 3-14). London: Academic Press; Challis, S., Hollmann, J., & McGranaghan, M. 2013. 'Rain snakes' from the Senqu River: new light on Qing's commentary on San rock art from Sehonghong, Lesotho. *Azania: Archaeological Research in Africa*, 48(3), 331-354, McGranaghan et al. 2013 Orpen's 'Glimpse into the Mythology of the Maluti Bushmen'

¹⁸ Whitley, D. S. 2000. *The art of the shaman: rock art of California*. University of Utah Press

¹⁹ Jokilehto, J. 2008. *Defining the Outstanding Universal Value*.

²⁰ Carter, P. L., & Vogel, J. C. (1974). The dating of industrial assemblages from stratified sites in eastern Lesotho. *Man*, 557-570; Carter, P.L. 1978. The prehistory of eastern Lesotho; Carter et al. 1988 Sehonghong.

²¹ Mitchell, P. J. 1992. Archaeological research in Lesotho; Carter, P.L. 1978. The prehistory of eastern Lesotho.

²² UNESCO 37th, Session Property **Sehlabathebe National Park** 37 COM 8B.18, 7 (c).

²³ Vinnicombe, P. 1976. People of the Eland; Bousman, B. (1988). Prehistoric settlement patterns in the Senqunyane valley, Lesotho. *The South African Archaeological Bulletin*, 33-37; Mitchell, P. J. (2009). Gathering together a history of the People of the Eland: towards an archaeology of Maloti-Drakensberg hunter-gatherers. *The Eland's People: New Perspectives in the Rock Art of the Maloti-Drakensberg Bushmen. Essays in Memory of Patricia Vinnicombe*. Wits University Press, Johannesburg, 99-138.

²⁴ Carter n.d. Unpublished report of survey of sites around Sehlabathebe. RARI Archives.

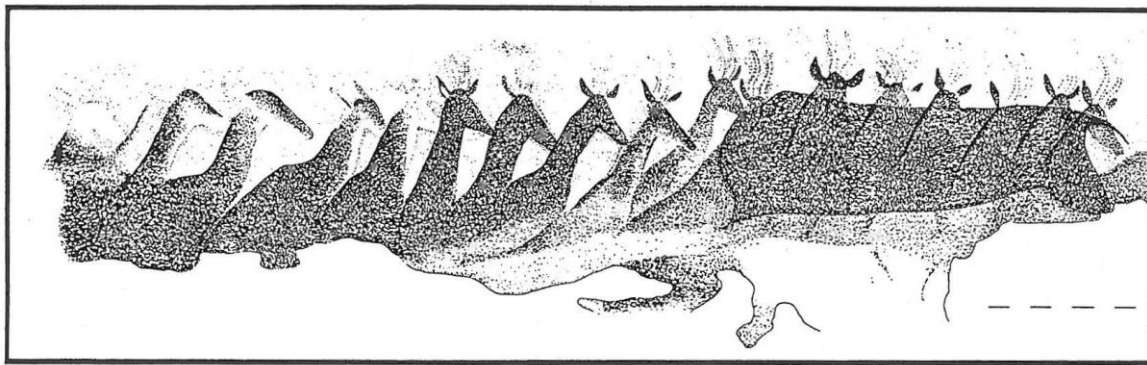


Figure 3. Vinnicombe's re-drawing in pen and ink of a row of hartebeest at the shelter she called 'V10' on the Tsoelike river which runs through the Sehlabathebe National Park. Vinnicombe 1976:204.

The Analysis of Rock Art in Lesotho (ARAL) Project mentioned previously, was undertaken full time from 1979-1984 and periodically until 1986 documenting rock art sites with photographs and field notes at sites across the Kingdom of Lesotho. Preliminary analysis was done by Smits,²⁵ and the records compiled in the study form a significant body of research, much of which has yet to be analysed and published.²⁶ The rock art photographs and field notes compiled by the ARAL Project are stored and curated at the Rock Art Research Institute (RARI) at the University of the Witwatersrand, although there are plans for a digital replica to be housed at the new National Museum of Lesotho. Many sites within the SNP boundary were recorded in the fieldwork for the ARAL Project and, indeed, formed a significant part of the reasoning behind the bid for World Heritage status at the 37th Session of the UNESCO World Cultural And Natural Heritage World Heritage Committee in 2013. These sites were visited and evaluated as part of the current study, and their preservation was evaluated with reference to the ARAL records compiled in the 1980s with an aim to determining the rate of degradation or any conservation issues with the rock art at these sites. This is in accordance with requirement 2 (a) stated by the World Heritage Committee in Draft decision 37 COM 8B.18 and also in accordance with the International Council on Monuments and Sites' (ICOMOS) Guidance on Heritage Impact Assessments for Cultural World Heritage Properties.²⁷

Importantly, it should be noted that the ARAL project was one of the first to include BaSotho nationals – Field Officer, Taole Tesele and Researcher, Nozipho Bardill-January (as well as Lucas Smits and Joe Alfes). This was a landmark in southern African archaeology where full employment and training of African staff was rare, especially in apartheid-era South Africa (an exception being Mazel and Kaplan's excavations in the Ukhahlamba/Drakensberg of KwaZulu-Natal).²⁸ The current survey of the SNP continued in this tradition by employing Basotho and South African nationals as part of an ongoing Transformation project²⁹ and by training the staff of the Lesotho Department of Culture in field recording techniques (see section 1.3).

²⁵ Smits, L. G. 1983. Rock paintings in Lesotho.

²⁶ Mitchell, P. J. 1992. Archaeological research in Lesotho.

²⁷ ICOMOS 2011 Guidance on Heritage Impact Assessments for Cultural World Heritage Properties. http://www.international.icomos.org/world_heritage/HIA_20110201.pdf.

²⁸ Wright, J. & Mazel, A. 2012. Ukhahlamba: umlando weZintaba zoKhahlamba - exploring the history of the Ukhahlamba mountains. Johannesburg: Wits University Press, 12-13.

²⁹ Arthur, C., Challis, S., & King, R. *In prep.* Training and transformation: perspectives on archaeological practice from the Maloti-Drakensberg and the Metolong dam. *Journal of African Archaeology*

The next important study of the region was that undertaken by Chester Cain on behalf of the Maloti-Drakensberg Transfrontier Project (MDTP) of 2005-6.³⁰ This was a far-ranging project covering palaeontology, archaeology, history and heritage management, and although it did cover areas within the SNP, these were restricted to a sample area along the Tsoelike River. Sam Challis was involved in this survey in 2006 and recorded several rock art sites that are documented in the unpublished reports.³¹

2.2.2. Other significant Archaeological work in Lesotho

Exploratory archaeological investigation in Lesotho was initiated by Bowker with his observations on stone artefacts collected from rock shelters in 1868.³² In the 1940s, recording and collection of Acheulean and Middle Stone Age artefacts was carried out by Macfarlane³³ from terraces along the Makhaleng River and by Malan³⁴ from open sites near Leribe, with further work in the western lowlands by the Abbé Breuil in 1947.³⁵ Although based in the lowlands in the west of the country and not necessarily representative of the study area, these initial investigations indicate the presence of human groups in Lesotho in early prehistory. It is possible that similar archaeological remains may also be present in the Qacha's Nek highlands.

During the 1980s there was an increase in Cultural Resources Management (CRM) excavation programmes in Lesotho. John Parkington³⁶ excavated at Bolahla and Masitise shelters in Qacha's Nek and Quthing Districts as part of a rescue operation ahead of the Southern Perimeter Road.

Peter Mitchell has made the greatest contribution to archaeological research in Lesotho. He has undertaken a series of research excavations at a number of sites, including Ha Makotoko, Tloutle, Leqhetoana, Mokhokhong, Ntloana Tsoana, Hololo Crossing, Sehonghong and Likoaneng (the latter two on the Senqu River), collectively located in Maseru, Butha-Buthe, Thaba-Tseka and Qacha's Nek Districts³⁷. Although many of these projects were not based in Qacha's Nek District,

³⁰ Cain, C. R. 2009. Cultural heritage survey of Lesotho for the Maloti-Drakensberg Transfrontier Project, 2005-2006: palaeontology, archaeology, history and heritage management. *The South African Archaeological Bulletin*, 33-44.

³¹ Cain, C.R. 2006a. Summary report of the cultural heritage project for MDTP-Lesotho: training, survey, data, conservation, & development, first year report (Feb 2005 - May 2006), submitted to the Maloti-Drakensberg Transfrontier Project, the Ministry of Tourism, Environment and Culture, Kingdom of Lesotho. Unpublished report; Cain, C.R. 2006b. Summary report of the cultural heritage project for MDTP-Lesotho: reporting, compiling, & assessing; 2nd final report (June 2006 - November 2006), submitted to the Maloti-Drakensberg Transfrontier Project, the Ministry of Tourism, Environment and Culture, Kingdom of Lesotho. Unpublished report.

³² Mitchell, P. J. 1992. Archaeological research in Lesotho: a review of 120 years. *African Archaeological Review*, 10(1), 3-34.

³³ Macfarlane, D. R. 1943. On some remarkable gravel deposits in the Kornet Spruit, Basutoland, S.A.J.S. 39:282-96.

³⁴ Malan, B. D. 1942. The Middle Stone Age of the upper Caledon River Valley: the Modderpoort Culture. *Transactions of the Royal Society of South Africa* 19:113-30.

³⁵ Mitchell, P. J. 1992. Archaeological research in Lesotho.

³⁶ Parkington, J.E. 1980. Time and place: some observations on spatial and temporal patterning in the Later Stone Age sequence in southern Africa. *South African Archaeological Bulletin* 35:75-83; Parkington, J. E., Poggenpoel, C. & Yates, R. 1987. Lesotho Rescue Archaeology 1982/83. Cape Town: University of Cape Town; Mitchell, P. J., Parkington, J. E., & Yates, R. 1994. Recent Holocene archaeology in western and southern Lesotho. *The South African Archaeological Bulletin*, 33-52.

³⁷ E.g. Mitchell, P. J. 1993. Archaeological investigations at two Lesotho rock-shelters: terminal Pleistocene/early Holocene assemblages from Ha Makotoko and Ntloana Tsoana. In *Proceedings of the Prehistoric Society* (Vol. 59, pp. 39-60). Cambridge University Press; Mitchell, P. 1993. *The archaeology of Tloutle rock-shelter, Maseru district, Lesotho*. Nasionale Museum; Mitchell, P. J. 1996. The late Quaternary of the Lesotho highlands, southern Africa: Preliminary results and future potential of ongoing research at Sehonghong shelter. *Quaternary International*, 33, 35-43; Mitchell, P. J. 1996. The late Quaternary landscape at Sehonghong in the Lesotho highlands, southern Africa. *Antiquity*, 70 (269), 623-638; Mitchell, P. J., & Charles, R. 2000. Later Stone Age hunter-gatherer adaptations

they were nevertheless instrumental in characterising the archaeology of the wider region and provide close parallels for the Late Pleistocene and Holocene sequences we can expect to find in the area of investigation. These excavations form the bulk of all archaeological excavation conducted in Lesotho to date, and are therefore the principal contributors to our understanding of the settlement history of Lesotho by the earliest hunter-gatherer groups to live in this region.

More recently, major development projects in Lesotho have induced a number of CRM (Cultural Resource Management) archaeological projects, particularly as part of HIA (Heritage Impact assessment) programmes ahead of dam building schemes. The earliest of these was undertaken as part of the Lesotho Highlands Water Project Phase IA studies compiled in preparation for the construction of the Katse Dam.³⁸ This work was limited in its scope to the southern and northern reaches of the proposed dam area, and focussed on areas to be flooded. Steep valley sides, where it was assumed no occupation sites would exist, were not surveyed.

This 1989 survey was followed by excavation of archaeological sites carried out by Jonathan Kaplan between 1992 and 1995 on behalf of the Lesotho Highlands Development Authority. These included 'Muela and Liphofung shelters in Butha-Buthe District; and Lithakong shelter in Thaba-Tseka District.³⁹ Excavations at Hololo Crossing shelter in Butha-Buthe District were also undertaken as part of the mitigation for this Phase of the Lesotho Highlands Water Project.⁴⁰ The work of Kaplan and Mitchell revealed a predominance of sites containing deposits representing hunter-gatherer occupation dating to the terminal Pleistocene and early to mid-Holocene, but little evidence of late Holocene occupation of the landscape beyond associated rock art and occasional open air or in-cave artefact scatters.⁴¹ Liphofung represents the first excavated evidence for occupation of north-western Lesotho in the second half of the Holocene, with possibly comparable deposits being found at Lithakong. Between them, the excavations at 'Muela, Liphofung, Hololo Crossing and Lithakong constitute the bulk of archaeological work carried out in connection with the Lesotho Highlands Water Project.

Further survey work has been carried out on behalf of the Lesotho Highlands Development Authority as part of the preliminary Heritage Impact Assessment for the Kobong Pump Storage Dam and Power line Project, which forms a further part of the Lesotho Highlands Water Project.⁴² While this work was conducted on a small scale, relative to the larger dam projects, some very important points were raised in the resulting report. The work included not only archaeological survey, but also archival research and recording of oral histories. Significantly, the oral histories of the affected communities revealed a wealth of information about rock art sites in the highland basaltic formations above the Katse Dam.

in the Lesotho Highlands, southern Africa. In *Human Ecodynamics: Proceedings of the Conference of the Association of Environmental Archaeology* (pp. 90-99); Mitchell, P., Plug, I., Bailey, G., Charles, R., Esterhuysen, A., Thorp, J. L., ... & Woodborne, S. 2011. Beyond the drip-line: a high-resolution open-air Holocene hunter-gatherer sequence from highland Lesotho. *Antiquity*, 85 (330), 1225-1242.

³⁸ Lewis-Williams, J. D., & Thorp, C. 1989. Archaeology: Lesotho Highlands Water Project environmental study. *Unpublished report by Environmental Resources Ltd, London, submitted to the Lesotho Highlands Development Authority.*

³⁹ Kaplan, J., & Mitchell, P. 2012. The archaeology of the Lesotho Highlands Water Project Phases IA and IB. *Southern African Humanities*, 24, 1-32.

⁴⁰ Mitchell, P. J., Parkington, J. E., & Yates, R. 1994. Recent Holocene archaeology in western and southern Lesotho. *The South African Archaeological Bulletin*, 33-52.

⁴¹ Kaplan, J., & Mitchell, P. 2012. The archaeology of the Lesotho Highlands Water Project.

⁴² Gill *et al.* *In prep.*

Extensive CRM mitigation and archaeological research was conducted as part of the Metolong Cultural Resource Management Project,⁴³ undertaken ahead of the flooding of the Metolong Dam, Maseru District. The deep archaeological sequences excavated at Ntloana Tsoana and Ha Makotoko shelters, both on the Phuthiatsana River, provide parallels to those that may be found in the study area, and which may prove to be in keeping, therefore, with the Park's OUV. Once again, research and mitigation at Metolong was located in the better explored lowlands areas of western Lesotho and the work expanded on the previous rock art survey of the ARAL Project,⁴⁴ as well as expanding on excavations at several of the sites previously excavated by Mitchell.⁴⁵ The Metolong CRM Project survey not only increased the number of archaeological and rock art sites known from the Phuthiatsana Basin area, but, through the meticulous excavation of three shelter sites, has added greatly to the quantity and quality of information on the earliest cultural sequences and settlement in Lesotho.⁴⁶

The Metolong Dam project was also the first to recognise the importance of more recent archaeological sites from the Late Iron Age and Historical periods in Lesotho, where the sites have remained occupied to this day, or at least up to the recent Historical period and retain strong links to current living communities. To this end, the excavation, recording and conservation of Ha Makoanyane, a late 19th/ early 20th Century village, was conducted.⁴⁷ Excavations at the site have yielded a rich artefact assemblage, including pottery and glass beads from well-stratified deposits, the latter having implications for long-distance trade with people outside Lesotho. This work was greatly enriched by recording oral histories related to the occupation of the site; the attention granted to sites of more recent archaeological periods and oral historical research by the Metolong Project has, in addition, highlighted the possibilities such large-scale projects present for recording Intangible Heritage.⁴⁸

Crucially, for the structuring of the current SNP survey, it was at Metolong that the first major steps were taken towards Transformation of field archaeology practice in Southern Africa. That is to say, members of the local community joined the survey and excavation fieldwork and received extensive training in the discipline. It is a format that was then adopted by the MARA Programme, with several of the Metolong Field Technicians having been instrumental in instructing trainees in Matatiele, South Africa.⁴⁹ We expand on the structure of this format in Section 1.3.

⁴³ Arthur, C., Mohapi, M., & Mitchell, P. 2011. Archaeology and dam projects in Lesotho. *Conservation and Management of Archaeological Sites*, 13(2-3), 231-252.

⁴⁴ Smits, L. G. 1983. Rock paintings in Lesotho.

⁴⁵ Mitchell, P. 1993. *The archaeology of Tloutle rock-shelter, Maseru district, Lesotho*. Nasionale Museum; Mitchell, P. J. 1994. Understanding the MSA/LSA transition: the pre-20,000 BP assemblages from new excavations at Sehonghong Rock Shelter, Lesotho. *Southern African Field Archaeology*, 3, 15-25.

⁴⁶ Arthur, C. & Mitchell, P. J. 2010. The archaeology of the Metolong Dam, Lesotho: a preliminary assessment. *Antiquity*, 84(325); Mitchell, P., & Arthur, C. 2010. Archaeological Fieldwork in the Metolong Dam Catchment, Lesotho, 2008-10. *Nyame akuma*, (74), 51-62; Mitchell, P. J., & Arthur, C. 2012. Metolong Cultural Resource Management Phase 4 Final Report. *Unpublished report for the Metolong Authority on behalf of the Lesotho Government's Commissioner for Water*. Oxford: St Hugh's College; Mitchell, P., & Arthur, C. 2012. The archaeology of the Metolong Dam, Lesotho. *The Digging Stick*, 29(1).

⁴⁷ King, R., Arthur, C., & Mitchell, P. 2014. Ha Makoanyane: the archaeology and history of colonial transitions in Lesotho. *Southern African Humanities*, 26, 57-81; King, R., & Arthur, C. 2014. Development-led archaeology and ethics in Lesotho. *Azania: Archaeological Research in Africa*, 49(2), 166-183.

⁴⁸ Nic Eoin, L., & King, R. 2013. How to develop intangible heritage: the case of Metolong Dam, Lesotho. *World Archaeology*, 45(4), 653-669; King, R., & Eoin, L. N. 2014. Before the flood: Loss of place, mnemonics, and 'resources' ahead of the Metolong Dam, Lesotho. *Journal of Social Archaeology*; King, R., & Arthur, C. (2014). Development-led archaeology and ethics in Lesotho. *Azania: Archaeological Research in Africa*, 49(2), 166-183.

⁴⁹ Arthur, C., Challis, S., & King, R. *In prep*. Training and transformation.

The first work of any scale to investigate the Iron Age signature of southern Lesotho was undertaken by Rachel King as part of her doctoral study at the University of Oxford. Using historical texts, ethno-historical observations and archaeological excavation, King focused on the Iron Age of the area surrounding Moyeni/Quthing.⁵⁰

Of particular relevance to the current survey of the SNP was the strategy and methodology employed in the Baseline Archaeological and Heritage Survey of the Polihali Dam, Mokhotlong District in 2013.⁵¹ This study, carried out by Hugo Pinto, was commissioned by the Lesotho Highlands Development Authority ahead of dam construction to catalogue the heritage resources within the area to be flooded, assess their significance and propose mitigation with respect to the impact resulting from construction of the dam. The survey recorded a wealth of sites with a high potential for further research, including rock art and Later Stone Age (LSA) occupation sites with potentially deep archaeological deposit, as well as well-preserved Iron Age settlements with deep midden deposits, some of which remain currently occupied villages that will be relocated as a result of construction. The survey at Polihali highlights the potential for discovery of similar prehistoric long-term occupation sites in addition to the known rock art sites within the SNP study area, and of abandoned Iron Age and Historic settlements. The survey methodology on the Polihali survey is the same as that employed in the current SNP survey and, although the sites in the SNP are not at risk from development, the aims of site recording in the course of the survey (assess heritage resources with respect to significance, potential for further research, and preservation quality with recommendations for mitigation/ conservation of sites) are similar in both studies. The experience acquired by the archaeological team on the Polihali survey, all of whom are working on the current SNP study, is a substantial asset to project not only in capturing high quality results during the survey but also in the training of officials from the Department of Culture who are shadowing the project team during fieldwork.

The Matatiele Archaeology and Rock Art (MARA) Programme has also been instrumental in shaping the way in which the team operates. Not only have team members gained several seasons' experience in recording rock art and archaeology in Matatiele, but the site record forms used in the field were developed by the MARA team, with specific check boxes for most types of archaeological materials one might expect to encounter at a site and for condition assessment of rock art sites. The MARA team uses Condition Assessment Forms developed by rock art conservator Claire Dean, and reproduces their format with her kind permission. These forms were used at rock art sites that were assigned a 'high' or 'medium' significance/priority (see significance rating below).

The SNP's Outstanding Universal Value has been provisionally granted on the basis of mixed natural and cultural grounds, the latter being the abundance of rock art in its sandstone shelters. However, this baseline study is recording not only the rock art but all heritage resources encountered in the landscape, from Early Stone Age handaxes to historical buildings. In turn we can assess the significance of each rock art site and make recommendations for further mitigation and research. Archaeological sites without rock art are not assessed in this report, but it is hoped that the data gathered will enable assessment should Park authorities or subsequent researchers require.

⁵⁰ King, R. 2014. *Voluntary barbarians of the Maloti-Drakensberg: The BaPhuthi Chieftdom, cattle raiding and colonial rule in nineteenth-century southern Africa*. D.Phil. thesis, University of Oxford.

⁵¹ Pinto, H. 2014. *Lesotho Highlands Water Project, Phase II Contract for Lesotho Highlands Development Agency (Contract 6002)* Report of baseline archaeological and heritage survey.

In summary, the results of archaeological excavations and surveys carried out to date in the whole of Lesotho represent a highly significant heritage resource. They are the major source for understanding the broader cultural sequence and settlement history of Lesotho during the Late Pleistocene and Holocene, as well as our understanding of long-distance connections between people living in Lesotho and those elsewhere. Furthermore, they are pertinent to the discussion on the extent and intensity of contact between prehistoric hunter-gatherers and Iron Age mixed-farming communities within the Maloti region, which shaped the cultural origins of present day communities throughout the Kingdom of Lesotho. They represent a limited resource which is of significance at regional, national and international level of the broader southern African region.

2.2.3 History

The historical background of the study area presented in this report was put together by the authors in collaboration with Stephen Gill, Director of Morija Museum, Lesotho, and Rachel King, Postdoctoral fellow at RARI.

The following is an overview of the historical evidence for the San or ‘Bushmen’, then settlement and land usage of the greater Eastern Highland area by mixed-farming communities, from the Iron Age through to the more recent historical period beginning with the arrival and long-term settlement in Lesotho of, initially, Europeans and more recent immigrants from worldwide, most notably from Asia (predominantly China and the Indian subcontinent).

Perhaps the earliest historical records relating to the SNP area concern, quite rightly, the San or ‘Bushmen’. These come from around 1850 when the hunter-gatherer way of life had become severely compromised – owing to 200 years of colonial expansion, and 1500 years of contact with African farming communities. Because hunting grounds were decimated by livestock, and wild animals hunted to the point of extinction, the San turned to stock theft.⁵² They also allied themselves with farmer and herder nations who had themselves turned to raiding for survival.⁵³ The different groups mixed, but because they lived in the mountains and practised a hunting and raiding way of life, they were known as ‘Bushmen’. Colonial authorities, concerned by the level of raiding by ‘Bushmen’ held an inquest as to their identity and whereabouts. Other San groups laid the blame squarely at the feet of a mixed-race ‘tribe’ of ‘Bushmen, Hottentots and runaway slaves’ called the AmaTola. They lived, it was said, on both sides of the escarpment, including the Sehlabathebe area. They owned many horses, cattle, sheep and goats, they were heavily armed and considered very dangerous. A commando of coloured hunters, hired to find evidence of the AmaTola, crossed into Lesotho from Matatiele at Qacha’s nek in May 1850.⁵⁴ They attacked at least two AmaTola groups,

⁵² Wright, J.B. 1971. *Bushman Raiders of the Drakensberg 1840–1870*. Pietermaritzburg: University of Natal Press; Vinnicombe, P. 1976. *People of the Eland*; Wright, J.B. 2007 *Bushman Raiders Revisited*. In P. Skotnes (ed.), *Claim to the Country: The Archive of Lucy Lloyd and Wilhelm Bleek*: Johannesburg, Jacana Press, 118–29; Challis, S. 2008. *The impact of the horse on the AmaTola ‘bushmen’: new identity in the Maloti-Drakensberg Mountains of Southern Africa*. D.Phil. Thesis, University of Oxford; Challis, S. 2012. Creolisation on the nineteenth-century frontiers of southern Africa: a case study of the AmaTola ‘Bushmen’ in the Maloti-Drakensberg. *Journal of Southern African Studies*, 38(2), 265–280.

⁵³ Challis S. 2015. Re-tribe and resist: the ethnogenesis of a creolised raiding band in response to colonisation. In C. Hamilton and N. Leibhammer (eds). *Tribing and Untribing the Archive: critical enquiry into the traces of the Thukela - Mzimvubu region from the early Iron Age until c.1910.*; King, R. 2014. *Voluntary barbarians of the Maloti-Drakensberg: The BaPhuthi Chiefdom, cattle Raiding and colonial rule in nineteenth-century southern Africa*. D.Phil. Thesis, University of Oxford.

⁵⁴ *Natal Mercury* 23 August 1850; Wright, J.B. 2007 *Bushman Raiders Revisited*:128; Mitchell, P. 2010. Making history

and expeditioned up the Senqu, possibly as far as Sehonghong, but almost certainly up the Tsoelike and over the escarpment into what is now the Underberg District of South Africa. Peter Mitchell comments on this, stating:

Of wider significance, this report underlines the degree to which by this time Bushmen, or groups partly composed of Bushmen, had successfully integrated herding and raiding into a hunter-gatherer way of life and suggests that at least some of the stone walling found in rock shelters in highland Lesotho may be their work, rather than that of later Basotho herdsmen.⁵⁵

The historical paintings made in this region often show horses, cattle and guns, as well as people dancing the San trance dance. The subject matter in the paintings shows that the artists were most likely a creolised mixture of San-, Khoe- and Bantu-language speakers who had come together with the common goal of surviving on a hostile frontier.⁵⁶ This has obvious ramifications in re-writing the history of the San and all other groups within the wider region in the post-apartheid era, and our survey work at the SNP ties in with the mandate of the MARA Programme on the South African side of the modern border – to redress the misunderstood history of this region.⁵⁷

Further to this historical account, there is a significant body of work dedicated to the last San of the Sehonghong region and which, although not strictly within the study area, has bearing on the SNP's history. The 'Bushman Chief' Soai appears at the centre of many accounts of punitive raids against San stock thieves. Soai's Bushmen lived at the same time as the AmaTola inhabited the region, and may have been victims of reprisals aimed at the raiders. In any case, Soai survived many attacks on his band, only to be killed by a party led by Joel and Jonathan Molapo in 1871.⁵⁸

Joseph Orpen found Qing at Nqasha's village shortly after this in 1873. As stated, the story of this meeting and the material gained from Qing on the customs and beliefs of the Maloti San is a remarkable and much-researched resource.⁵⁹ In terms of historical background to this region, there is no text quite so relevant or so thoroughly investigated as this. Its ramifications for understanding the rock art of the SNP area cannot be overstated.⁶⁰

Until further detailed archaeological work is carried out, it is difficult to determine when Iron Age mixed-farming communities (or members of these communities) first began to utilize the highlands. According to existing records and oral traditions, no permanent settlement of the area by farmers began until the mid-1870s when the Makhlokoe – in alliance with the Makhoakhoa from Butha-Buthe – penetrated the upper Khubelu River valley from the north, moving down at least as far south as Ha Lekunya (now called Mapholaneng). This movement was part of a scramble to control various areas of the larger Senqu River valley and its major tributaries, the BaPhuthi having already moved from Qacha's Nek as far north as ha Makunyapane, where they met Molapo's people from Leribe and some of the Makhlokoe.⁶¹

at Sehonghong: Soai and the last Bushman occupants of his shelter. *Southern African Humanities*, 22(1), 144-155.

⁵⁵ Mitchell, P. 2010. Making history at Sehonghong: 155.

⁵⁶ Challis, S. 2012. Creolisation on the nineteenth-century frontiers of southern Africa.

⁵⁷ <http://www.marasurvey.com/mission.php>

⁵⁸ Mitchell, P. 2010. Making history at Sehonghong: 157.

⁵⁹ McGranaghan *et al.* 2013 Orpen's 'Glimpse into the Mythology of the Maluti Bushmen'

⁶⁰ Challis *et al.* 2013. 'Rain snakes' from the Senqu River; McGranaghan *et al.* 2013 Orpen's 'Glimpse into the Mythology of the Maluti Bushmen'; Mitchell, P. 2010. Making history at Sehonghong.

⁶¹ *Leselinyana* (newspaper) 2 and 9 October 1909 articles entitled "Pitso".

In the wake of the successive wars of Adam Kok, Moorosi and the Gun War (1880-1881) this area saw a massive influx of BaPhuthi, Batlokoa and BaSotho seeking refuge and settlement in lands now believed to be vacated by San. While the official position of the BaSotho Royal House is that region around the SNP all the way to Mokhotlong falls under rightful jurisdiction/ settlement of ethnic BaSotho, the mountains have long been a refuge for people of all backgrounds and cultures, and settlement by groups such as the BaPhuthi and Batlokoa might have persisted well into the 20th century.⁶² This is self-evident at Qacha's Nek – a settlement founded by a Phuthi chief where today there are still to be found many BaPhuthi, who are still in touch with their compatriots in Quthing and Matatiele, South Africa.⁶³

However, though this movement in the 1870s heralded the end of Moshoeshoe's stated policy of preserving the mountainous areas for purposes of herding (and for refuge during war), the mountains must have been visited or lived in for shorter periods of time before the 1870s, and, of course, they were inhabited by the San. It has been postulated that the Zizi, Hlubi and related Nguni peoples from below the Drakensberg must have hunted and possibly herded in the Mokhotlong area previously, and the disturbances of the Lifaqane (c.1820-1830+) might have seen some refugees seeking temporary shelter there. Certainly traders from these groups went over various passes to the north into the Caledon River valley and their paths were well travelled, probably dating from the 17th century.⁶⁴

As noted previously, because of raids by the San and their allies into KwaZulu-Natal and the Lowlands of Lesotho, expeditions under the Natal government or the Molapos of Leribe/ Butha-Buthe penetrated ever deeper into the mountains in hot pursuit of their cattle and horses from at least the mid-1850s. In this way, the topography became better known and helped to awaken an understanding of the potential offered by the mountains. It should not be forgotten that Nehemiah Moshoeshoe had explored at least the southern mountains by the late 1850s and took a large group of his Basotho followers to settle the Matatiele area, then part of No-Mans-Land, on instructions from his father Moshoeshoe I.

A few years after the Makholokoe settled the upper Khubelu area, that is, after the Gun War (1880-1881), the Paramount Chief Letsie allowed his allies from Griqualand East, the Batlokoa of Lelingoana, to settle the Mokhotlong area, their headquarters being established at Tloha-re-Bue, and also the BaPhuthi seeking refuge immediately before and following Moorosi's 1874 'rebellion'. Being much larger in number, they gradually colonised much of the district, especially the western and northern parts. As the Batlokoa expanded, fears grew in Matsieng that they might become too independent and thus Letsie sent his junior son Rafolatsane in the late 1880s with many followers to settle to the east of the Senqu in order to contain the Batlokoa and ensure that Nguni-speakers such as the Zizi, Ngwane or Bhele did not penetrate the region from below the escarpment. However, smaller groups of Xhosa-speaking and Zulu-speaking peoples settled on the eastern side of the country and the former also settled among the Batlokoa, who were themselves an amalgam of different clans. With British colonisation, white traders and officials came in the 1890s and early 20th century. Still later Indian and then Chinese traders followed.

⁶² Cf. Testimony of C.J. Laird (1904) in Vinnicombe, P. 1976. People of the eland: 101

⁶³ Donnelly, S. 1999. Southern Tekela Nguni is alive: reintroducing the Phuthi language. *International Journal of the Sociology of Language*. 136 (1): 97–128.

⁶⁴ Ellenberger, D.F. & Macgregor, S.C. 1912. History of the Basuto: ancient and modern. London: Caxton

2.3 Skills transfer and training of archaeological technicians

There is a distinct lack of heritage professionals in Lesotho and only a few Heritage Officers within the Department of Culture. Such as there are specialise in heritage management and have little professional archaeological experience. There is an argument to be made for both for bottom-up training of professionals – usually people from the local communities where archaeology fieldwork projects are situated – in conjunction with top-down institutional change at the governmental level and within the academy.⁶⁵

The MARA Programme is committed to Transformation, particularly in its field training approach, and recognises:

- The need for transformation in the demographic of experts / practitioners to include members from local communities;
- Transformation promotes conservation of heritage resources;
- Training of local community members in techniques and methods employed in archaeological fieldwork can provide short-term employment together with skills that are transferable to future archaeological fieldwork projects, therefore promoting Transformation;
- The dissemination of results promotes development and inception of further research programmes within Lesotho, with medium- to long-term employment and development benefits.

In accordance with requirement 2 (h) stated by the World Heritage Committee in Draft decision 37 COM 8B.18:

- ‘Train staff of the Sehlabathebe management base and the Department of Culture in the documentation and conservation of rock art...’⁶⁶

the current project has undertaken to train the DoC Sehlabathebe management team and other significant DoC members. Sehlabathebe Culture Officers, Ntate Semela Mona and Mme ‘Mamocheke Malefane, have accompanied the survey team throughout the survey to date, while Mme Tsepang Shano attended the first week of training and a second week with the survey team.

At the outset of the survey, a staff training day was held, on 27th January 2015, consisting of a staff training meeting and training site visit. Please refer to the minutes of these sessions presented in Appendix 1 ‘Staff Training for Ministry of Tourism, Environment and Culture’, and Appendix 2 ‘Site Visit for Staff Training’ of this report.

Significantly, the Metolong CRM Project allocated substantial resources on skills transfer and training of local BaSotho staff, many of whom attained competency in excavation, survey and site recording, as well as providing excavation and finds sorting experience to University of Lesotho archaeology students. By training BaSotho nationals the Metolong CRM Project sought to redress the lack of capacity building for local heritage practitioners from past CRM projects in Lesotho. The continued absence of an official National Repository for archaeological material excavated in,

⁶⁵ Arthur, C., Challis, S., & King, R. *In prep.* Training and transformation

⁶⁶ UNESCO 37th Session Property **Sehlabathebe National Park** 37 COM 8B.18, 2 (h).

and forming part of, the National Estate of the Kingdom of Lesotho, as well as the lack of ancillary storage repositories for archaeological finds, was also highlighted and addressed in this project.⁶⁷ Four of the members of the field team undertaking the current study of the SNP received their initial training and worked on the Metolong CRM Project field team for several years: Ntate Rethabile Mokhachane, who is a Field Director on the current SNP survey; Mme Pulane Nthunya; Ntate Joseph Ralimpe; and Lineo Mothopeng.

The Matatiele Archaeology and Rock Art (MARA) Programme, headed by Dr Sam Challis at the Rock Art Research Institute at the University of the Witwatersrand, is a research project based in the Matatiele region of the Maloti-Drakensberg in South Africa. Since 2011, MARA has continued the legacy initiated with the Metolong Project of training local community members in the research and conservation of heritage resources investigated by research programmes within their communities. This has been accomplished both by short-term employment of individuals from local communities on MARA field surveys and excavations in Matatiele, as well as post-excavation laboratory research at the University of the Witwatersrand. With their previous experience on the Metolong Project, Rethabile Mokhachane and Joseph Ralimpe held posts of Assistant Supervisor on the MARA excavations at Mafusing and Gladstone shelters in 2011 and 2012 respectively, helping to train local community members in the identification of archaeological materials and excavation methods. The second Field Director on the current SNP study, Ntate Puseletso Lecheko, began his archaeological training with the MARA Programme in 2011, and has led field teams of the MARA Programme as a guide – undergoing training in rock art survey and recording – on at least twenty expeditions into the mountains. These individuals have also participated in several seasons of post-excavation analysis of the materials from these sites at the University of the Witwatersrand. This included a programme of environmental analysis consisting of retrieval of organic residue through the wet-sieving floatation method, a process supervised by BoNtate Mokhachane and Lecheko.

The extensive training in archaeological fieldwork and laboratory research through recurring short-term employment on the Metolong and MARA Projects has provided these individuals with the skills and experience to pursue other employment opportunities as archaeological practitioners on commercial CRM projects. In addition to the current SNP survey, Rethabile Mokhachane, Puseletso Lecheko, Joseph Ralimpe and Lineo Mothopeng were all part of the team that surveyed the Polihali Dam catchment area in Mokhotlong District as part of the Baseline Archaeological and Heritage Survey commissioned by the Lesotho Highlands Development Authority.⁶⁸

2.4 Study team

2.4.1 Project Management

The Matatiele Archaeology and Rock Art (MARA) Programme has been appointed to undertake the Rock Art and Baseline Archaeological Survey of the Sehlabathebe National Park. The project team is headed by:

⁶⁷ Arthur, C., Mohapi, M., & Mitchell, P. 2011. Archaeology and dam projects in Lesotho. *Conservation and Management of Archaeological Sites*, 13(2-3), 231-252; King, R., & Arthur, C. (2014). Development-led archaeology and ethics in Lesotho. *Azania: Archaeological Research in Africa*, 49(2), 166-183.

⁶⁸ Pinto, H. 2014. *Lesotho Highlands Water Project, Phase II Contract for Lesotho Highlands Development Agency* Report.

Sam Challis, MSt., D.Phil. (Oxon) – Project Director

Sam Challis is a rock art specialist at the Rock Art Research Institute, and holds the position of Senior Researcher for the Rock Art Research Institute at the University of the Witwatersrand. He is founder and Principal Investigator of the Matatiele Archaeology and Rock Art (MARA) Programme which comprises on-going research survey of rock art and excavation of archaeological sites in the Southern Drakensberg, Eastern Cape, South Africa (www.marasurvey.com). He assists in the protocol for recording sites and in the interpretation of any rock art recorded in the survey. He advises with regard to those sites' significance rating. Dr Challis is a member of the Lesotho Heritage Network (www.lesothoheritage.org) and has been training local people to become Field Technicians in Matatiele since 2011. He is the current Transformation Officer for the Council of the Association of Southern African Professional Archaeologists (ASAPA). Dr Challis has undertaken both rock art research and excavation work in Highland Lesotho, devoting much of his PhD research to the historical 'contact' rock art of this region, much of which lies within the 'Buffer Zone' of the SNP. He is also involved with the resurrected ARAL Project and has a research interest in how the ARAL sites were documented and how the current survey can complement the existing archive.

Hugo Pinto, BSc. (Hons. Bournemouth) – Consultant Director

Hugo is a Research Fellow of the Rock Art Research Institute. He has extensive professional experience as a Field Archaeologist, both in development-led Cultural Resource Management (CRM) and academic research projects. Recently, Hugo was the Principal Investigator on the Baseline Archaeological and Heritage Survey of the Polihali Dam catchment. This study, commissioned by the Lesotho Highlands Development Authority ahead of dam construction, catalogued over 200 new archaeological sites, rating them according to significance, research potential and presenting recommendations for mitigation ahead of development; the survey methodology of the Polihali survey is that employed in the current SNP survey. Hugo is Field Director of the Matatiele Rock Art and Archaeology (MARA) Programme and has been substantially involved in the training of the MARA field team that is carrying out the SNP survey. Hugo also worked as a Field Director on the Cultural Heritage Program undertaken on behalf of the Metolong Dam Authority, recording an inventory of heritage resources impacted by development of the Metolong Dam and co-directing archaeological excavations of Late Pleistocene and Holocene sequences at two shelters on the Phuthiatsana River, Lesotho. Prior to being based in Cape Town over the last 6 years as an independent archaeological consultant, Hugo was a Project Officer for Oxford Archaeology in the UK, directing CRM projects in the UK and France, and working on research excavations in Albania. He is an accredited Field Director for the CRM Section of the Association of South African Professional Archaeologist (ASAPA).

2.4.2 Survey Team

A team of six archaeologists from the MARA Programme carried out the bulk of the archaeological survey of the Sehlabathebe National Park. They were based there from 26 January and the survey continued for a total of 12 weeks – although this was in several phases owing to administrative delays. The fieldwork was undertaken in conjunction with Department of Culture representatives who received training from the MARA team in archaeological survey, as well as identification and conservation of archaeological sites and associated materials. The MARA team in the field were:

Rethabile Mokhachane and Puseletso Lecheko – Field Directors

Rethabile Mokhachane has been involved in the MARA Programme over the course of three

seasons, excavating at Mafusing and Gladstone shelters. He has also worked on several archaeological projects in Lesotho since 2008, including the highland sites of Moshebi's Shelter and Sehonghong (the latter with Drs Brian Stewart and Genevieve Dewar on the AMEMSA Project), the Metolong Cultural Resource Management Project, as well as the Polihali Dam survey.

Puseletso Lecheko is a registered rock-art tour guide with the Mehlooding Community Tourism Trust, based in Matatiele. He has been a member of the MARA Programme since 2011, where he received training in survey, rock-art site recording and archaeological excavation, and more recently was a key member of the Polihali Dam survey team. Ntate Lecheko has achieved a high level of competency in rock art survey, identification and photography.

Both Rethabile and Puseletso gained professional archaeological fieldwork experience as core team members on the MARA Programme. They hold the posts of Assistant Supervisors on that project and have participated in the excavation of Mafusing and Gladstone rock shelters in the 2011 and 2012 fieldwork seasons. They are competent in excavation and recording of archaeological deposits, including the use of a Total Station (EDM) to piece-plot artefacts and record other spatial data. Crucially, they are proficient in the identification of rock art and artefacts, including accurately differentiating between worked lithics (stone tools) and naturally occurring rocks, as well as identifying relevant ecofacts. Puseletso's extensive experience in identifying rock art and archaeological deposits has enabled him to continue the MARA Programme landscape survey independently of supervision, and to train junior Field Technicians in this undertaking.

In addition to fieldwork on the MARA Programme, Puseletso and Rethabile have been involved in the post-excavation analysis of archaeological material at the University of the Witwatersrand, where they worked on a feasibility study to identify the potential for archaeobotanical research on the sediment residue collected from the MARA Programme excavations. They were responsible for running samples using the flotation method for collection of organic material, sorting of the collected residue and cataloguing that material on a database.

Of particular relevance to the SNP survey, they were also members of the archaeological survey team that undertook the Baseline Archaeological and Heritage Survey of the proposed Polihali Dam, Mokhotlong District, on behalf of the Lesotho Highlands Development Authority. This extensive survey covered 50km² of the area that will be impacted by the flooding of the dam and employed identical survey and recording methods applied in this survey of the Sehlabathebe National Park. Their experience and familiarity with methods and systems employed in archaeological investigations means they are proficient supervisors for this heritage survey. They both speak SeSotho as a first language, making them valuable team members both for obtaining information on heritage resources from local communities and for training and increasing awareness of local communities in management of heritage resources.

Joseph Ralimpe, Lineo Mothopeng and Pulane Nthunya – Field Technicians

Joseph, Lineo and Pulane were also trained on the Metolong Dam CRM Project, and have professional archaeological experience working several fieldwork seasons there. On that project, Pulane held the post of Assistant Supervisor and, together with Rethabile Mokhachane and one other supervisor, was responsible for running the sieving and sorting station for the excavations at Ntloana Tsoana and Ha Makotoko shelters. Both Joseph and Lineo were Field Technicians on the Metolong CRM Project, and Lineo holds a bachelor's degree in archaeology from the National University of Lesotho in Roma. Pulane, Joseph and Lineo have gained extensive experience in

identifying archaeological materials through their work at the sieving and sorting stations on these excavations, as well as their initial training in archaeological excavation. Joseph has also worked on the MARA Programme in 2011 and 2012 seasons in the post of Assistant Supervisor, assisting in the training of fieldworkers from the local Matatiele community in archaeological excavation and recording techniques.

All are proficient in the identification of artefacts (stone tools, worked bone, rock art, pottery, ochre, ground stones, etc.), and are competent in excavation and recording of archaeological deposits, including the use of a Total Station for recording surveyed points. Their experience and familiarity with methods and systems employed in archaeological investigations means they are proficient at identifying and recording heritage resources. They are all Lesotho nationals with good English language and interpretation skills, making them valuable team members both for obtaining information on heritage resources from local communities, and for training and increasing awareness of communities in management of heritage resources.

Bakoena Mokoena – Trainee Field Technician

Bakoena is employed on the current survey as part of the ongoing training schedule. He holds a degree in Tourism Enterprise and Management and has interests in promoting both cultural and nature tourism.

Alice Mullen, BA (Wits) – Field Instructor

Alice Mullen is a volunteer Field Instructor. She completed her undergraduate degree at the University of the Witwatersrand in 2012. In the course of this degree, she worked with the MARA Programme, tracing and re-drawing rock art images from the site of Sethotseleng ('the place of ghosts'). She is currently pursuing an Honours degree supervised by Professor David Pearce, looking at superpositioning in a rock art site from Maclear. She assists in the training of the survey team. Alice has kept all of the records throughout the survey and has transcribed all of the site record forms and photograph registers for inclusion in this report.

James Pugin, BSc (Hons. Wits) – Associate Researcher/Field Instructor

James Pugin is a volunteer Field Instructor. He completed his Honours degree at the University of the Witwatersrand in 2012, and has since been studying for a Masters degree on the MARA Programme. Using satellite remote sensing images, James has developed a very successful model for predicting areas that are likely to contain rock shelters which may contain rock art and other archaeological material. James joined the SNP survey team in May as photographer, and has also achieved startling results with image enhancement of faded/obscured rock art. He is responsible for all of the mapping in this report and the tabulation of results.

Nthabiseng Mokoena, MSc (Wits) - Researcher

Thabi has completed a Masters degree by research in archaeology at the University of the Witwatersrand. With an undergraduate degree from NUL, she was a product of the Metolong CRM project and came to Wits at the suggestion of Charles Arthur. She completed her Honours degree in 2012 and embarked on a Masters degree with the MARA Programme, investigating community-involved heritage Management. She has presented her research at international conferences including Zimbabwe, Botswana and Turkey. She joined the SNP team as a researcher in order to help process the data from site record forms and condition assessment forms.

2.5 Terms of reference/ Brief

The purpose of this study is to identify and record archaeological sites and other heritage resources within the Sehlabathebe National Park UNESCO World Heritage Site. These resources are intrinsic aspects of the cultural heritage of the Kingdom of Lesotho and represent a limited resource protected by legislation and UNESCO⁶⁹. This study will also propose mitigation of these heritage resources according to their relative significance at local, regional and international levels.

The contract agreement document between the Ministry of Environment, Tourism and Culture and the MARA Programme at the University of the Witwatersrand outlined terms of reference for the SNP Rock Art and Baseline Archaeological Survey. These in turn were based on the Draft Decision accepted with regard to the SNP at the 37th session of the UNESCO Council in 2013.⁷⁰ For the purpose of this study, these terms of reference have been expanded on to be in compliance with Lesotho legislation pertaining to Heritage Resources and Environmental Impact Assessments, Rock Art Research Institute rock art recording methods and international standards of best practice in archaeological site survey and recording. The terms of reference are as follows:

1. undertake an inventory of heritage resources identified within the SNP;
2. produce detailed descriptions of each identified heritage resources as exposed in the landscape, including (as applicable) the type of site, areal extent, artefact density, estimated date and preservation quality;
3. obtain a set of Global Positioning System (GPS) latitude/ longitude co-ordinates for each recorded heritage resource and plot their geo-referenced locations onto maps or aerial/ satellite images of the study area;
4. produce a photographic record of heritage resources;
5. assess the significance (low, medium or high) for each recorded rock art site;
6. assess the vulnerability (low, medium or high) that the current conditions at the site will have on the preservation quality of rock art at the site;
7. assess the potential (low, medium or high) for further research at each recorded site;
8. produce a detailed, colour-coded map of recorded heritage resources referencing the significance of each site;
9. propose recommendations to mitigate observable negative impact to the heritage resources recorded in the study;
10. design appropriate data management systems with the client that facilitate data retrieval, archiving and future usage for monitoring – i.e. all site records and photographs to be provided in digital format for archiving within the Kingdom of Lesotho.

These terms of reference and the survey method, analysis and presentation of results proposed for this Archaeology Survey are in compliance with Lesotho legislation pertaining to Heritage Resources and Environmental Impact Assessments. The relevant legislation comprises:

- Historical Monuments, Relics, Fauna and Flora Act (No. 41 of 1967);
- Proclamation of Monuments, Relics, Fauna and Flora (Legal Notice No. 36 of 1969);
- Proclamation of Monuments, Relics, Fauna and Flora (Amendment) Notice (Legal Notice

⁶⁹ UNESCO 37th, Session Property **Sehlabathebe National Park**

⁷⁰ UNESCO 37th, Session Property **Sehlabathebe National Park**

- No. 81 of 2006); and
- Environment Act (No. 10 of 2008).

In addition to the above legislation, this heritage study is also in compliance with:

- the 1972 UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (Accepted by the Kingdom of Lesotho in 2003);
- the National Heritage Bill 2006 (enacted by the Parliament of Lesotho, though to the authors' knowledge not yet promulgated as an Act of Parliament);
- standards of heritage management set by the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), a worldwide intergovernmental organization of which the Kingdom of Lesotho became a member state in 2007.

In accordance with the provisions of Section 8 of the Historical Monuments, Relics, Fauna and Flora Act (No. 41 of 1967), the Proclamation of Monuments, Relics, Fauna and Flora (Legal Notice No. 36 of 1969) proclaimed the following to be Relics protected by the act:

“1. All engravings and paintings on stone, commonly known as Bushman paintings / litsōantšo tsa Baroa.”

“4. All archaeological deposits / lintho tse siiloeng ke batho ba mehla ea khale (Baroa le ba bileng Lesotho pele ho Baroa, le Basotho ba khale).”

Under Section 2 of the National Heritage Bill 2006 an “archaeological object” is further defined as including –

- (i) remains of materials resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years,
- (ii) rock art in the form of painting, engraving or other graphic representation on fixed rock surface, or loose rock stone which was executed by human and is older than---years old;
- (iii) features, structures and artefacts associated with military activities and are older than ---years including the sites on which they are found;

and “living heritage” means intangible aspects of inherited culture and includes –

- (i) cultural tradition;
- (ii) oral history;
- (iii) performance;
- (iv) ritual;
- (v) popular memory;
- (vi) skills and technique;
- (vii) indigenous knowledge; or
- (viii) approach to nature, society and social relationships.

Part V of the National Heritage Bill 2006 confers “General Heritage Protection” to structures, archaeology, burial grounds and graves. Section 27 of this Bill states that –

- (1) No person shall alter or demolish any structure or part of a structure which is older

than 60 years without a permit issued by the Commission;

and Section 28 of the National Heritage Bill 2006 states that –

- (3) No person shall without a permit issued by the Commission -
 - (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site;
 - (b) destroy, damage or excavate, remove from its original position, collect or own any archaeological or palaeontological object;

Section 29 of the National Heritage Bill 2006 extends the “General Heritage Protection” to Burial grounds and graves, stating:

- (3) No person shall without a permit issued by the Commission or relevant heritage authority, destroy, damage, alter exhumate, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority.
- (4) The Commission may not issue a permit for any activity under this section unless it is satisfied that the applicant has, in accordance with the regulations made hereunder-
 - (a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave, burial ground or post;
 - (b) reached agreements with such communities and individuals regarding the future of such grave, burial ground or post.

For the purposes of this study, a “heritage resource” includes any place, structure, object, deposit, material and/ or component of intangible living heritage as defined in the legislation, conventions and standards outlined above. The methods and practice of this Rock Art Archaeological and Heritage Survey are in full compliance with the legislation, conventions and standards enacted or accepted by the Kingdom of Lesotho.

2. Rock art conservation

The main objective of the survey is to record and compile an inventory of rock art and other archaeological sites. The results of the survey are presented in the form of a ranked list of site significance. Although it was important that all archaeological sites were recorded, for the purposes of this study only rock art sites were considered for significance ranking. Rock art sites were ranked HIGH, MEDIUM or LOW significance – dependent on a list of criteria set out in section 3.2.1 ‘Ranking the SIGNIFICANCE of heritage resources’, below.

Rock art is inherently vulnerable, meaning that it is *all* arguably of great importance. Unlike the archaeology which is interred in the ground, rock art is often immediately visible and open to the elements. That said, rock art can survive wind and rain for many thousands of years.

Its greatest threat, however, is **human action**. Damage to rock art by people can take many forms – herd boys inadvertently lighting **fires** beneath the paintings, or purposefully **scratching** them, are

the most common. **Traditional healers** in many parts of southern Africa feel a strong connection to the San makers of the paintings, and often believe that the paint itself is powerful medicine. **Removal** of paint by traditional healers is one of the greatest challenges faced in rock art conservation. In both of these instances, the people involved are normally unaware of the rock art's great age, its importance to the nation and to World Heritage.

Tourists and school visitors pose another great threat to the art. Just recently, in 2015, a school group visited a famous rock art site in the Mount Fletcher District of the Eastern Cape. Unwitting of the art's importance and fragility the teacher painted the names of the school and staff, and the date, on top of the rock art which had stood untouched for thousands of years.

Some of the rock art sites at SNP are to be assessed for their suitability as tourist attractions. Opening a site to tourism immediately places it in danger and therefore in the HIGH vulnerability class (see characteristics below). Any site that is exposed to people must be evaluated by a qualified conservator, and have appropriate measures put in place for its protection. This is quite apart from any further development – artificial ground surfaces, information boards – that SNP/MTEC would like to add.

In accordance with the Draft Decision: 37 COM 8B.18 The World Heritage Committee in June 2013 clause:

5 c) Continuing a cautious approach towards conservation interventions on rock art sites and restrict such interventions to exceptional cases where rock art would otherwise become very fragile and vulnerable⁷¹

We would add that NO interventions at rock art sites take place until this report has been considered by an ICOMOS expert mission to the site (see clause 4 Draft Decision) AND a qualified rock art conservator has visited, assessed, and made recommendations for all vulnerable sites here listed.

It is of the greatest importance that the findings of this survey are considered before any further development, building or otherwise, is undertaken in Sehlabathebe National Park. There has already been significant building work at the new Park Lodge, at the Visitor Reception Gate and outside the Main Gate, some of which impacts directly on archaeological sites and some of which is dangerously close to sensitive rock art sites. MTEC staff at the park are aware of the sites, but the building has gone ahead without Heritage Impact Assessment.

At the Rock Art Research Institute (RARI) at the University of the Witwatersrand there is currently no conservator qualified to intervene at rock art sites physically – nobody qualified to touch the paintings for conservation purposes or otherwise. However, there are measures that can be taken by RARI such as direct tracing of images (whereby only specially designed static-free tracing film – polyethylene terephthalate – is used) and digital image enhancement, such as that shown to the Minister and Principal Secretary on their visit to the park –and meeting with the survey team –in June 2015.

⁷¹ See UNESCO 37th, Session Property **Sehlabathebe National Park** 5c.

3. Archaeological investigation

3.1 Method

The archaeological fieldwork comprised a walk-over survey of the Sehlabathebe National Park. This encompasses the area within the National Park boundary as shown in Figures 1 and 2 (referred to as “the study area” or “area of investigation”). The core survey team consisted of six members headed by Field Directors Rethabile Mokhachane and Puseletso Lecheko, together with additional Field Technicians (see Section 1.4.2 above). In addition to this core assisting with the field survey, were members of the MARA Programme Alice Mullen and James Pugin from the University of the Witwatersrand as well as the Project Director. Sam Challis and Hugo Pinto oversaw the organisation of the survey teams. Each survey team member was equipped with a hand-held GPS receiver and a hand-held CB radio. Each team had a digital camera and photographic scales, standardised site record and condition assessment forms and a field notebook for additional notes.

A selected portion of the study area was targeted for survey each day and the survey team travelled together as close to this specified area as possible on horseback or on foot. Once there the team continued on foot, splitting up into smaller teams of at least two individuals each that walked together up (or down) the valley being surveyed with a surveyor on each side of the valley. Surveying together across the same valley allows for more detailed coverage of the study area and decreases the probability of missing archaeological sites and other heritage resources. Rock overhangs or prominent features (such as large boulders) that have a high potential for having been used as occupation shelters or sites of rock art may sometimes not be clearly evident to the archaeologist working on that same side of the valley, but can be clearly spotted from the vantage point that the opposite side of the valley offers. With the use of CB radios for clear communication, team members can easily direct each other to areas of interest from opposite sides of the valley being surveyed. In the final four weeks of the survey we were aided by the predictive model developed by James Pugin for his MSt. Using remote sensing satellite imagery combining features of vegetation, geology and slope known to intersect at likely sandstone outcrops, we were able to reach and cover every cliff line that may have contained shelters and/or archaeology.

An inventory was compiled with detailed records of all heritage resources identified in the course of the survey. For the purposes of this study, heritage resources comprise any “Monuments and Relics” as defined by the Historical Monuments, Relics, Fauna and Flora Act (No. 41 of 1967) and Proclamation of Monuments, Relics, Fauna and Flora (Legal Notice No. 36 of 1969: see Section 1.4 above). In addition to these, living heritage sites such as villages, kraals, earth-dams, etc., that are currently in use and estimated to be older than 60 years, defined as “Heritage Structures” under Section 27 (1) of the National Heritage Bill 2006, were also recorded.

The field recording of heritage resources consisted of detailed descriptions of the characteristics of the site, noted in individual standardised site record forms for each heritage resource identified. This on-site written record includes descriptions of:

- the type of heritage resource (such as rock art, occupation shelter, artefact scatter, historical structure, etc.);
- the areal extent of the site as evident on the landscape;
- the location (recorded by GPS) and aspect of the site on the landscape;
- the type and density of artefacts found on the ground surface at the site;
- an estimation of the site's date with respect to its archaeological period (Middle Stone Age,

- Later Stone Age, Iron Age or Historical), based on the artefacts present and type of site;
- any natural or anthropogenic disturbance of archaeological remains at the site, together with an assessment of the site's preservation quality; and
- an assessment of potential (high, medium or low) for further research at the site.

The location of each heritage resource was acquired using hand-held GPS receivers, mostly to an accuracy of $\pm 6\text{m}$ and not less than $\pm 20\text{m}$. Each recorded site is numbered in sequence according to the GPS unit used to record it in the field (GPS units A, B, C, D, E, F, G, H, J, S, X or Z). The model of the GPS units used in this survey was the Garmin GPS Map62. At least one set of latitude and longitude co-ordinates (Datum WGS84) and elevation in metres above sea level was recorded for each site. Some sites, such as artefact scatters spread over a large area, have more than one GPS point recorded.

In addition, the survey path of each team member was recorded as a GPS track ('bread-crumb' trail), providing an indication of the surveyed area where no sites were identified. All GPS data were downloaded onto a computer and backed up on an external hard-disk.

Digital photographs were taken of all recorded sites and, where applicable, of a sample of the artefacts found at the sites. General locating photographs of each site provide a representation of the landscape and form part of the survey records. A photographic register of all photographs was compiled and cross-referenced with the site inventory.

3.1.1 A note on scales and focus

Almost all photographs include a metric scale (0.10m, 1m or 2m scales) appropriate to the subject being photographed, except for general landscape photographs. Most commonly used are the one-metre ranging pole which is divided into two 50cm sections – one orange, one white, and the centimetre scales used by IFRAO (International Federation of Rock Art Organisations) and Elsevier Archaeology. In some instances close-up photographs of rock art do not include a scale – this is only when a scale has already been applied to the subject matter in preceding shots.

In certain photographs in the record the scale is not necessarily focused. This occurs when it is not possible to place the scale in an optimal position for both rock art/artefact and scale to be in focus, however, the rock art/artefact will always be in focus. In most cases people do not appear in-shot. However, when ranging poles were not visible (for example in long vegetation), and at particularly long range, people were used in-shot to give scale.

3.1.2 Archaeological survey bias

Although the survey encompasses the entire area of investigation (ca. 68.32 km^2), certain sections of it were given greater coverage than others, depending on their archaeological potential: for instance, steep-sided valleys with rock-shelters which were potential archaeological occupation sites were given more intense coverage than low-lying floodplains under cultivation.

3.2 Data analysis

3.2.1 Compilation and presentation of GIS data

The GPS data of site locations and surveyed track-paths are imported into ArcGIS software package and overlaid onto geo-referenced topographic maps, aerial photographs and/ or satellite

images of the study area. This was an ongoing process during the fieldwork period so that progress of the survey could be analysed in order to identify areas that are yet to be surveyed and avoid overlaps in the areas already surveyed. The ArcGIS software has the capacity to export the survey data as geo-referenced files in several formats (shapefile, csv, kml/kmz, gpx, etc.) that are compatible with other standard GIS software packages.

The ArcGIS software package was used to produce geo-referenced maps of the locations of all recorded heritage resources and survey track-paths across the study area. These are presented as maps showing locations of different heritage resources grouped according to the type and date of the site, and colour coded with respect to their significance rating (high, medium or low). In addition, the recorded survey track-paths provide an indication of the surveyed area where no sites were identified.

Spatial analysis of this plotted data characterises the range and distribution of heritage resources across the study area, with respect to the type of site, date, relative significance and potential for further research. This analysis aids with the identification of patterns in the distribution of sites or localised groups of sites of different types across the study area, and determine if there are sections of the study area with relatively higher occurrences of specific heritage resources. This will, in turn, inform the selection of sites and research strategy for further investigation of heritage resources within the SNP. Analysis of the frequency and distribution of sites within the study area will also enable an estimation of the frequency and distribution of different types of sites in the surrounding landscape at a local and regional level, furthering our understanding of occupation and land use in the uplands of the Sehlabathebe District by communities in the past.

3.2.1 Ranking the significance of heritage resources

In addition to creating an inventory of archaeological sites within the Sehlabathebe National Park, a principal aim of this study was to evaluate the relative importance or **significance** of the heritage resources with respect to conservation, visitor attraction (tourism) and research – advancing our knowledge of past communities at a local, regional, national or international level. To achieve this, a ranking system was developed and applied to each heritage resource recorded in the survey. Each site was assessed with respect to several factors.

For rock art sites these factors were:

- Complexity
- Visibility (preservation)
- Rarity of figures
- Vulnerability
- Potential for further research

For other archaeological sites the factors were:

- Frequency of artefacts on surface or within the deposit
- Extent of disturbance at site or preservation of stratigraphic units
- Estimated depth of deposit

- Preservation of structures with defined layout (if present)
- Potential for further research

Each of these factors is ranked on a scale ranging from LOW, MEDUIM to HIGH. The variables used for ranking these factors for each site are presented in Table 1. NB only rock art sites of HIGH significance are presented in the results section this study.

3.2.2 Rock art

a) Complexity

Complexity is a factor with a level of subjectivity in the eye of the researcher, however, the field team were instructed to take into account features at a site such as multiple figures, complex figures with multiple or detailed attributes, multiple subjects, and superpositioning (the placing of images on top of one another). The ‘fineness’ of a painting need not be a characteristic determining whether a site has complex imagery – some finger paintings are just as complex as fine-line paintings. Of course, the complexity is linked to the visibility or preservation, which in turn is then linked to the potential for further research.

b) Visibility or preservation

Visibility or preservation is possibly the most important factor facing the decision-makers at MTEC. Which sites are opened to the public, which paintings will be easily seen, easily explained, and ultimately lead to a better all-round visitor experience, depend on the visibility of the paintings and therefore the level of preservation at the site. However, visibility at a rock art site can quickly lead to its destruction. The most visible paintings often attract the most attention and therefore they become the most vulnerable to human interference such as graffiti, touching, smearing, and dust from too many visitors. Because there is little we can do about natural processes of deterioration, the best we can do to preserve a site is to keep visitor numbers low – preferably none – or if visitors are to be taken to a site, to ensure that there is sufficient protection. Please see recommendations.

c) Rarity of figures

Rarity of figures a factor that can only be discerned by an experienced rock art researcher. It is only possible to tell which images are ‘rare’ after having visited hundreds of sites or having spent years working with the archives. Still, it is a factor to be considered and one that plays directly into a site’s significance in terms of visitor attraction and potential for future research. Fieldworkers always consulted experienced team members before recording an image as rare or otherwise. Rare rock art figures have the potential to draw more visitors than common images, and as a result the same issues affecting preservation apply as with images that are highly visible.

d) Vulnerability

Vulnerability should be the most important factor deciding a site’s significance – were all sites equal, and certainly should be the chief consideration in deciding conservation measures implemented by UNESCO. However, sites which have been assigned a HIGH ranking for their vulnerability are only those where the rock art itself is either sufficiently visible or rare – therefore some very vulnerable sites where the rock art is already far too faded to be seen easily, or too degraded to warrant conservation measures, have not been assigned a HIGH significance ranking for the purposes of this study. A site’s vulnerability includes its risk of damage by both natural and

human agents. The physical integrity of the rock face, the physical integrity of the shelter and all factors affecting this – natural (e.g. water seepage) and human (such as building and drainage works) – as well as proximity to possible human agents such as being located close to hiking trails or park roads, accommodation or other buildings. Some sites are deemed vulnerable because they are close to the unpoliced park boundary and therefore in danger of being used by present-day villagers (collecting wild plant medicines for instance) herders, stock thieves and illegal poachers – all of which were problems either encountered by or explained to the survey team.

e) Research potential

Research potential at a rock art site is determined by the combining some of the factors listed above: Complexity – the more images, the more subjects, the more combinations of images and subjects, the more potential a site has to further our understanding of the rock art. Relationships of images to each other are also a key factor, and there is potentially much that can be discerned from the way images have been placed next to, or on top of, each other. Visibility or preservation – if the images are well-preserved and the details are comparatively easy to see, the research potential is correspondingly higher than if the images are unclear. The rarity of the figures is a critical factor in attributing research potential – if an image is common, then it is likely that the motif has been studied previously and that there are plenty of other sites at which the image can be found (although every painting is, of course, unique). Rare images have the capacity to greatly advance our understanding of the paintings. If the image, particularly its subject matter, is rare or unique then clearly the opportunities for examining the image are correspondingly low. A rare image is therefore likely to earn the site a HIGH ranking for its own sake, and for its potential research value.

Further to the HIGH significance value being assigned in the results section below the relative value rating of all other rock art sites is explained in the site record forms attached. Condition Assessment Forms were completed for each HIGH significance site – further to the preliminary condition assessment undertaken at all sites. These condition assessments will aid any subsequent conservator should they be called in to help develop a site for tourism.

3.2.3 Archaeological sites without rock art

Owing to the nature of the survey and its focus on the significance of rock art sites, the archaeological sites where there is no rock art present were not included in the final significance ranking, though they were ranked on-site and their relative significance can be inferred from the site record forms attached as well as in the tabulated results.

Although this report is focused on the rock art sites and their management, it is hoped that the survey will have contributed greatly to our understanding of the region's archaeology as a whole and that the information gathered here will be of use to further archaeological surveys and academic or government projects.

The significance of a site is determined by:

- a) Frequency of artefacts on surface or within the deposit**, which includes the frequency and density of archaeological material present at the site, the quality of archaeological material at the site (occurrence of different artefact types, their range and type). This may

include any artefact whether it be Early Stone Age (there is one ESA handaxe that is believed to have been brought or trade from elsewhere), Middle Stone Age (there is a great deal of MSA stone tool material at several of the sites), Later Stone Age (material that is commonly believed to be associated with the last phase of southern African hunter-gatherers), Iron Age (Material that is associated with in-coming African herders and farmers) or Historical (anything associated with in-coming colonists up until recent times).

- b) Extent of disturbance at site or preservation of stratigraphic units and**
- c) the Estimated depth of deposit**, which include the overall extent of the site (the extent and estimated depth of archaeological deposits, areal extent of artefact scatters or structures) and the preservation quality of the site (low or no occurrence of post-depositional disturbance from erosion, bioturbation, other anthropogenic factors).
- d) Preservation of structures with defined layout** which refers to structures which, by definition, would belong to the Iron Age or Historical phases outlined above.
- e) Potential for further research** is evaluated so that sites which rate highly on one or invariably several of these characteristics will present a HIGH significance ranking. Further investigation of these sites would greatly advance our understanding of past communities in the region, as well as a broader understanding of the period of Lesotho's history represented at the site. The site's potential is also evaluated by its relative scarcity and the extent to which other known examples of that type have been investigated at the local, regional and national level.

| Heritage Resource | Significance | Site Characteristics |
|--------------------------|--------------|---|
| Rock Art Sites | High | Complexity great Visibility clear (well preserved) Rare figures Extremely vulnerable High potential for further research |
| | Medium | Complex Visibility moderate No rare figures Vulnerability moderate Some potential for further research |
| | Low | Complexity low Visibility low (bad preservation) No rare figures Vulnerability low Low potential for further research |
| Archaeological Age Sites | High | Multiple artefacts found on surface Presence of artefacts within the deposit Little or no disturbance at site Estimate depth of deposit in excess of 0.5m Good preservation of stratigraphic units Well preserved structures with defined layout |
| | Medium | Moderate amount of artefacts located on surface Artefacts on surface but relatively undisturbed Estimate depth of deposit between 0.2-0.5m Adequate preservation of stratigraphic units Some disturbance to site formation processes Moderately preserved structures |
| | Low | Few artefacts found on surface Artefacts disturbed and not in location of deposition Depth of deposit between 0-0.2m Little preservation of stratigraphy Extensive disturbance to deposit Disturbed structures with poor or no preservation |
| Cemetery or burial sites | High | Grave markers or locations of burials |

Table 1. Determinants of significance

4. Results

The MARA survey of the Sehlabathebe National park was conducted over 60 days between January 28 and June 16 2015 by the team members listed above. Each team member carried a GPS in order that survey routes could be recorded as well as site locations. Each site was ranked in significance from Low, Medium to High based on the factors listed above. In the following section the site data is tabulated and the maps display site locations and track, first on the scale of the whole Park and then in further detail – the Park having been divided into eight sectors for the purposes of showing data at sufficient resolution.

Section 4.3 lists the high significance rock art sites of the SNP. This takes the form of an expanded site record and gives:

- Significance rating
- Site location – GPS co-ordinates and description of location and reference to photo register
- The state of preservation – based on observations made in the Condition assessment forms
- ARAL comparison – state of preservation based on comparison with the ARAL record
- Panel description and reference to photo register
- Site description and reference to photo register
- Deposit and artefact descriptions where necessary and reference to photo register
- Any other features where necessary

4.1 Table of sites

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|--|---------------------|------------------------------|
| A01 | | -29.8679 | 29.1228 | 2431 | Rock Art | A single panel of images makes up rock art and stonewalled site A01. These paintings are located on the back wall and ceiling of a small, low-lying natural recess in the rock face of a boulder. | Low | Ranking: Low |
| A02 | | -29.8864 | 29.0729 | 2411 | Rock Art | Both panels at A02 are exposed to the elements. They are faded and flaked in places. Panel B has vegetation growing very close to the paintings. Panel B has the clearest paintings at A02- one small eland and three human figures all in red are still visible. | Low | Ranking: Low: |
| A03 | | -29.8759 | 29.0766 | 2428 | Stone Walling | Stonewalled site A03 is a collection of stonewalled structures made up of two round stonewalled dwellings each 4m wide and surviving to a height of 1m. 50m from these dwellings is a large kraal structure measuring 40m in length and surviving to a height of 1m. Behind the stone dwellings are smaller kraal structures. These may be lambing pens. All structures are semi-collapsed. They are dry stone built- no mortar evident. | Low | |
| A04 | | -29.8725 | 29.0716 | 2364 | Rock Art | Indeterminate figures thought to be eland. There are also some finger dots on north eastern corner of shelter. Stone walling also present and three walls are connected to the shelter, which is built with dry rocks and mud used as mortar. There is a possible fourth enclosure. | Low | Ranking: Low |
| A05 | | -29.8858 | 29.0729 | 2399 | Rock Art | The images are very faded. It is not located on any tourist route and therefore is unlikely to experience serious further damage | Low | Ranking: Low |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|---|---------------------|------------------------------|
| A06 | | -29.8859 | 29.0723 | 2406 | Stone Walling | A06 is a single semi-circular stonewalled structure enclosing an area between three large boulders. The walling is semi-collapsed. The wall has been constructed without mortar. The wall remains at a height of 0.5m and is 10m wide. The area the wall encloses is 4m deep. | Low | |
| A07 | | -29.8864 | 29.0729 | 2411 | Rock Art | A07 is damaged and very faded. What images remain are difficult to make out. It is possible to judge, however, that the site contains no rare imagery and will not contribute to future research. It is not a likely tourist attraction and therefore it does not require any immediate conservation. | Low | Ranking: Low |
| A08 | | -29.9002 | 29.0789 | 2481 | Stone Walling | A08 contains three stone structures. Two of these appear to have served as dwellings and the third. The remains of the dwellings lay north-west of the large rectangular kraal. These two dwellings are almost completely collapsed and dilapidated. The round dwelling is almost completely collapsed. The square structure has no walling remaining but what appears to be a foundation remains. The Large kraal structure is approximately 6m in length and 5m in width. | Low | |
| A09a | | -29.8859 | 29.1028 | 2454 | Stone Walling | Retaining stone wall supporting pathway | Low | |
| A09b | | -29.8861 | 29.1031 | 2449 | Stone Walling | Semi-circular stone walled structure built against outcropping boulder. | Low | |
| A09c | | -29.8864 | 29.1032 | 2456 | Stone Walling | Indeterminate red figures within one of the stone walled structures, the structures are well preserved with dagga. | Low | |
| A09d | | -29.8865 | 29.1030 | 2444 | Stone Walling | Retaining stone wall | Low | |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|---|---------------------|---|
| A09e | | -29.8866 | 29.1033 | 2464 | Stone Walling | Stone walled kraal built against rock face. | Low | |
| A10 | | -29.8868 | 29.1031 | 2464 | Stone Walling | Well preserved dry stone walling structure built adjacent to rock face. | Low | |
| A11 | | -29.8883 | 29.1033 | 2448 | Stone Walling | Two stone structures A and B. A is in the centre of the shelter, while B is built from the northern end of the shelter. A: Stonewalled dwelling built abutting rear wall of shelter constructed with selected stones. A measures 2.5m in diameter internally, surviving to a height of 1.8m on its southern side and 1.2m on its northern side. The entrance to A faces east and measures 50cm in width and 1.2m in height. Dry stone built. B: structure B is a dry stone wall is built against the northern end of the shelter running south underneath the drip line of the shelter and terminating level with dwelling A. The wall has collapsed in places and survives to a height of <1m. | Low | |
| A12 | | -29.8845 | 29.0663 | 2443 | Rock Art | There are three stonewalled structures in A12 This panel contains a very large eland (damaged by the construction of the wall-smudged). Panel A consists of bichrome eland, human figures and figures in karosses. Panel B is very faded and contains eland, a fragmented antelope back line in the centre of the panel, red bag-shaped dots in the centre of the panel, another fragmented antelope back line on the right side of panel B and a fragmented eland body on the bottom of panel B in red. | Medium | Ranking: Medium (Visibility: Moderate, Vulnerability Moderate) Imagery at A12 has a moderate level of visibility. This is largely owing to past wall-building activity and soot from fires being made within the shelter. This damage does not appear recent and probably occurred before the zoning of the National Park. Wall-building activity appears to have removed large flakes of the sandstone substrate below large bichrome eland in panel A. The site is on no known tourist trail, and is not likely to be exposed to further human action unless opened to tourism. Should this occur, the site must be protected. |
| A13a | | -29.8636 | 29.1184 | 2436 | Stone Walling | Stone walling attached to a shelter between which there are three boulders. | Low | |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|-------------------------|--|---------------------|------------------------------|
| A13b | | -29.8631 | 29.1182 | 2431 | Stone Walling | Stone walled dwelling that forms part of the greater A13 site which is located to the south. | Low | |
| A14 | | -29.8647 | 29.1200 | 2425 | Stone Walling | Dwelling and kraal attached to the rock face. | Low | |
| A15 | | -29.8763 | 29.0995 | 2511 | Stone Walling | At the far western end of A15 is a semi-circular stone dwelling abutting the back wall of the shelter. Above the entrance is a black lightening-protection cross. Much of the northern wall has collapsed. On the far eastern end of the shelter is a small, semi-collapsed semi-circular stone enclosure. On the exterior of shelter A15, running from west to east is a large, dry stonewalled kraal enclosure. | Low | |
| A16 | | -29.8723 | 29.1074 | 2459 | Rock Art, Stone Walling | Rock art and stonewalled site A16 is located within an elliptically shaped shelter measuring 30m in width, 4m in height and 9m in depth. This shelter is identifiable by the large grass mound in the centre of the shelter on top of which are a natural collection of large rocks. The shelter faces north. The rock art is located on the western side of the back wall of the shelter. The site has been divided into a single panel (panel A) | Low | Ranking: Low |
| A17a | | -29.8851 | 29.1214 | 2436 | Stone Walling | There are three stonewalled structures at A17. These are all semi-circular structures built abutting the back wall of the shelter. Two of the structures, on either side of the centre dwelling, are built without mortar and are attached to the centre dwelling. They are all semi-collapsed. The centre dwelling is constructed with mud mortar and contains bedding material, artefacts and a recent hearth. | Low | |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|---|---------------------|------------------------------|
| A17b | | -29.8848 | 29.1208 | 2356 | Stone Walling | Circular dry stonewalled enclosure measuring 5m in width and 1.5m in height. This kraal is relatively well-preserved and has an easterly-facing entrance of 1m in width. Some of the walling has collapsed in places. | Low | |
| A18a | | -29.8745 | 29.1100 | 2467 | Stone Walling | There is only one stonewalled structure at A18a. This structure is a dry stonewalled kraal built abutting the back wall of the shelter created by the overhang. The builders of this structure have employed two very large stones, occurring naturally on the shelter floor to form the middle section of the kraal. The wall is 0.5m high and 8m wide. | Low | |
| A18b | | -29.8858 | 29.1550 | 2373 | Stone Walling | A single stonewalled enclosure built abutting the rock face. Built at the southern end of the shelter. This enclosure is 3m wide, 1.3m high and 3m deep. It is built without coursing and constructed with flat rocks obviously selected for their shape. The entrance to this enclosure faces northwest. The structure extends beyond the drip line of the boulder. | Low | |
| A19 | 193 | -29.8866 | 29.1224 | 2378 | Rock Art | Two antelope painted in red. The tail of the left antelope is slightly unusual. However, the overall ranking of the site remains low because the visibility of the second antelope is low, the complexity of site is low. There is little potential for future research. Not suitable for tourists. Panel A is located in the centre of the shelter. It contains two images in red. The leftmost image is well preserved. | Low | Ranking: Low |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|--|---------------------|------------------------------|
| A20a | | -29.9038 | 29.1590 | 2495 | Stone Walling | Two stonewalled structures are present at A20a. These are: a dry stone wall enclosing the shelter and extending beyond the drip line of the shelter and a mud-coursed stone dwelling on the eastern side of the shelter. The stone wall running the length of the shelter is 35m long and 1m high. The stonewalled dwelling is built abutting the back wall of the shelter and is has been constructed using mud as mortar. | Low | |
| A20b | | -29.9041 | 29.1592 | 2518 | Stone Walling | A single circular kraal structure measuring 11m in width and surviving to a height of 1m. No mortar. Built with angular selected stones. Collapsed in places. Entrance of 1m wide facing north. | Low | |
| A21 | | -29.9232 | 29.1278 | 2344 | Stone Walling | Two stonewalled structures: 1 stonewall enclosing the area between three large boulders. This wall is 5m wide and is semi-collapsed. What remains of the wall stands at a height of 0.5m high. 15m south of this kraal structure is a stone dwelling. This dwelling is very likely to be associated with the kraal. This structure is built against the back wall of the shelter and appears to have once extended upwards to the roof of the shelter. Only 1.5m of walling now remains. The entrance to this dwelling can still be discerned, facing east (towards the mouth of the shelter- shelter also faces east) | Low | |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|--|---------------------|------------------------------|
| A22 | | -29.9504 | 29.0874 | 2474 | Stone Walling | There are two stonewalled structures at A22: a dry stonewalled kraal wall and a stonewalled dwelling. The dwelling has largely collapsed and survives to a height of 0.8m. Its entrance is no longer visible due to this collapse. The enclosing kraal wall is also semi-collapsed and has a maximum height of 1m and is 10m long. | Low | |
| A23 | | -29.9484 | 29.0878 | 2405 | Stone Walling | There are two stonewalled structures at A23: a square enclosing kraal structure (A) and a stonewalled dwelling (B) built abutting the back wall of an overhang created by the large boulder. The dwelling has largely collapsed. | Low | |
| A24 | | -29.9255 | 29.1201 | 2415 | Stone Walling | Three stonewalled structures at A24. A single continuous wall encloses an area in which two smaller structures are contained. These two structures are a dwelling which has collapsed, surviving at present to a height of 1m high and 1.5m wide. Its entrance faces west. The second structure, identified as a small kraal structure is of the same dimensions. The outer kraal walling is 30m long and 0.7m high. These structures are constructed without the use of any form of mortar. | Low | |
| A25 | | -29.9174 | 29.0998 | 2334 | Stone Walling | There are two stonewalled structures present at A25. A and B. A: A semi-circular stone dwelling is built abutting the rock face. This dwelling has an entrance that faces west. It is semi-collapsed and has a maximum height of 1m. It is 1.5m wide. B: Below this structure is a stonewalled kraal surviving to a height of 2m. This structure's entrance also faces west. | Low | |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|-------------------------|---|---------------------|--|
| B01 | 184 | -29.8690 | 29.1219 | 2402 | Rock Art | Panel A is located on the rear wall of shelter B01, on the western side of the shelter above a ledge 5m from the shelter floor. It contains a single polychrome eland in a standing position facing south (right). This eland is 30cm in length. The head and neck are somewhat faded, but the rest of the animal is very clear. Panel B is located on the eastern end of B01 on a fallen section of rock on the shelter floor. No representational images, only smudging of paint. One structure (A) present at B01. A is a stonewall measuring 1.5m in height which runs east-west under the drip line of the shelter, enclosing it at either end of the shelter. | High | Ranking: High (Vulnerability: high, Visibility: High). A large polychrome eland that is in good state of preservation despite water damage and salt washing affecting the head, neck and hind quarters. Visibility: clear. The image is not rare or complex yet B01 is close to the Old lodge buildings, is located on a hiking trail and is frequently visited by tourists because it is well-known to tour guides. These factors make the site vulnerable to further damage. This vulnerability is made clear by graffiti already in evidence on the eland figure itself. Although the image is located high up, it is still accessible by a narrow ledge. Should tourists continue to visit the site, provision must be made for its protection. |
| B02 | | -29.8678 | 29.0781 | 2500 | Stone Walling | Collapsed dry stone semi-circular stone structure built abutting rock face of low, shallow overhang. Collapse measures 2.5m in width and 30cm in height | Low | |
| B03 | | -29.8659 | 29.0748 | 2947 | Stone Walling | B03 is a surface scatter located directly to the west (below) the Sehlabathebe eastern park boundary on the west-facing slope of the mountainside. Surface artefacts found eroding from hillside. 6 stone tools: quartzite and CCS flakes, some showing retouch. | Low | |
| B04 | | -29.8708 | 29.0748 | 2366 | Rock Art, Stone Walling | Rock art and stonewalled site B04 is located under a shallow overhang of a boulder. The rock art at B04 consists of indeterminate red paint marks upon the back wall of the overhang which is possibly an eland body and 3 faded finger smears. | Low | Ranking: Low |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|---|---------------------|---|
| B05 | 244 | -29.8741 | 29.0673 | 2381 | Rock Art | Two rock art panels at site B05, Panel A consists of a few faded figures, caused by animal rubbing. Panel B consisted of 5 figures (2 Elands, 3 human figures of which 1 is kneeling, second is walking along back of eland and final figure legs are stretched out). | High | Ranking: High (Vulnerability: high, Complexity: Moderate, Rarity: Moderate, Research Potential: Moderate). B05 is located immediately above the new staff quarters and research buildings currently under construction. It is very proximate to the park boundary where there is no fence; both people and animals regularly cross the park border. The site is frequented by local villagers and construction workers as is evident by the abundance of litter (condoms etc.) While Ntate Semela Mona of MTEC has issued instructions to construction teams that they must respect the area, there is no way of policing human agency at the site. Given that this rock art cultural resource could be up to 4000 years old, provision must immediately be made for its protection. |
| B06 | | -29.8744 | 29.0678 | 2390 | Stone Walling | Low collapsed stone walling between two wind eroded boulders. The walling is built in the 3m gap between the two boulders | Low | |
| B07 | | -29.8804 | 29.0694 | 2392 | Stone Walling | Well-built dry stone walled structure. Rectangular in shape and well preserved. Section of the eastern wall has collapsed. Drainage holes on the north side of structure. | Low | |
| B08 | | -29.8808 | 29.0698 | 2314 | Stone Walling | Rectangular stone walled structure most likely used as an animal kraal. Walling remains relatively intact. Deposit has been contained by walling, however, some artefacts have washed further down the slope. | Low | |
| B09 | | -29.8813 | 29.0708 | 2431 | Stone Walling | Stone walled dwelling that abuts that back wall of rock shelter. | Low | |
| B10 | | -29.8867 | 29.0699 | 2241 | Rock Art | Indeterminate dark red patch that which is badly flaked. Some light red smudging also present. | Low | |
| B11 | | -29.8964 | 29.0888 | 2378 | Stone Walling | Small stone walled dwelling that has perimeter walling surrounding it. | Low | |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|--|---------------------|---|
| B12 | | -29.9323 | 29.0895 | 2272 | Stone Walling | Circular stone walled structure built with mortar. | Low | |
| B13 | | -29.9313 | 29.0915 | 2262 | Stone Walling | Small shelter with dry stone walling which is partially collapsed and situated above the 100m from the river. | Low | |
| B14 | | -29.9307 | 29.0910 | 2264 | Rock Art | Indeterminate markings, indeterminate antelope and red human running figures | Medium | Ranking: Medium (Vulnerability Moderate) |
| B15a | | -29.9251 | 29.0913 | 2237 | Stone Walling | Stone walled dwelling built within a shelter, rectangular kraal built below shelter. Presence of soot shows occupation. | Low | |
| B15b | | -29.8988 | 29.0804 | 2469 | Stone Walling | Group of stone walled structures: 2 circular structures, 2 rectangular structures | Low | |
| B16 | | -29.8989 | 29.0805 | 2446 | Historical | Cemetery with about 10 graves that are still preserved. | High | |
| B17 | 236 | -29.9134 | 29.0816 | | Rock Art | Site with multiple panels. Consisting of human figures with karosses, sticks. A figure painted in white. Eland painted in dark red. | Medium | Ranking: Medium (Vulnerability: Moderate,) |
| B18 | | -29.8949 | 29.0889 | 2437 | Stone Walling | Circular dwelling connected rectangular structure serving as a cattle kraal. | Low | |
| B19 | | -29.8934 | 29.0876 | 2472 | Rock Art | Natural markings that could be mistaken as rock art | Low | |
| B20 | | -29.8864 | 29.1041 | 2405 | Stone Walling | Dwelling and kraal built nearby tributary to the Tsoelikane. | Low | |
| B21 | | -29.8909 | 29.0988 | 2454 | Stone Walling | There are three stonewalled structures in the shelter B21. On the southern end of the shelter is a dry stone wall running along the drip line of the shelter. In the centre of the shelter is a semi-circular stonewalled dwelling built abutting the back wall. This dwelling is semi-collapsed and somewhat dilapidated. . The dwelling's entrance lintel remains. | Low | |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|-------------------------|---|---------------------|------------------------------|
| B22a | | -29.8836 | 29.0940 | 2451 | Stone Walling | Walling built as enclosure below dripline of rock shelter. Dwelling built on the right hand side of the enclosure. Walling partially collapsed. | Low | |
| B22b | | -29.8831 | 29.0940 | 2451 | Stone Walling | Two dwellings one which is partially collapsed and a reasonably well preserved dwelling built within rock shelter. Large rectangular enclosure built to the left of the dwellings. | Low | |
| B23 | | -29.8843 | 29.0904 | 2468 | Stone Walling | Well preserved dry stone walled dwelling with lintel above door still intact. Built into back wall of rock shelter. Large enclosure built to the left of the dwelling. Two large outcrops form part of the enclosure. | Low | |
| B24 | | -29.8832 | 29.0894 | 2480 | Rock Art, Stone Walling | Square dwelling that is partially collapsed. | Low | |
| B25 | | -29.8670 | 29.1316 | 2420 | Stone Walling | Cattle post with large cattle kraal. Stone wall kraal is built between four boulders | Low | |
| B26a | | -29.8708 | 29.1442 | 2439 | Stone Walling | Remnants of a rectangular dwelling that used well shaped rocks to build. | Low | |
| B26b | | -29.8720 | 29.1420 | 2447 | Historical | Rectangular structure built with well-shaped rocks that are 3m high in places and are constructed using cement. Police engraved into one of the rocks. | Low | |
| B27 | | -29.8833 | 29.1242 | 2431 | Stone Walling | Rectangular stone walled cattle post at Kepsieng. Kraal built between the boulders. | Low | |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|---|---------------------|---|
| B28 | | -29.8726 | 29.1038 | 2477 | Rock Art | There are three panels of rock art at B28 along with stone walled structures. The rock art panels consist of red smears, flaked eland body that is still reasonably clear, other eland and indeterminate red lines. Three stonewalled structures built against boulders. Large stone walled kraal | Low | |
| B29 | 186 | -29.8696 | 29.1107 | 2431 | Rock Art | Two shelters containing one and three rock art panels respectively. Remnants of shaded polychrome eland. Approximately 15 human figures painted in dark red and more. Shelter enclosed and abutted by five distinct structures. | High | Ranking: HIGH (Vulnerability: High, Visibility: Moderate, Complexity: Moderate, Rarity: Moderate, Research Potential: Moderate). B29 is located very close to the Old Lodge. It could be a site to which tourists are taken. This increases the site's vulnerability. Previous cultural damage includes the construction of stonewalled structures directly in contact with the rock art in panel C. This damage does not appear to be recent. Further damage must be prevented when taking tourists to B29. |
| B30 | | -29.8838 | 29.1223 | 2414 | Stone Walling | Semi-circular stone walled structure with collapsed walling. Possible cattle post. | Low | |
| B31 | 240 | -29.8899 | 29.1088 | 2455 | Rock Art | Site with fifteen rock art panels. Consisting of human figures, red smears, figure in kaross, and bichrome eland. | High | Ranking: HIGH (Visibility: High, Vulnerability: High) B31 represents an excellent example of the varying types of cultural resources present within the park. It is therefore a prime target for development as a visitor site. This places it immediately in the high-vulnerability bracket. Rock art images in centre panels G, H and I contain the highest concentration of paintings and the most clearly visible. These panels would be suitable for visitor display although we recommend that the panels be traced and redrawn for greater interpretive impact. |
| B32 | | -29.8886 | 29.1173 | 2456 | Stone Walling | Circular stone walled dwelling with perimeter walling located to left of dwelling and built in an "L" shape. | Low | |

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| B33 | 194/195 | -29.8923 | 29.1298 | 2328 | Rock Art | Site with multiple panels. Some partially faded whilst others are clear. Rock art includes eland, rhebok, and indeterminate figures. | High | Ranking: High (Vulnerability: High, Visibility: Clear) B33 is within a high-vulnerability bracket because it is currently on a tourist route and is well known to tour guides and park managers, being on the trail to the waterfall. This increases the chance of deterioration owing to human action. Not only is it on the route to the waterfall, but the site is particularly popular because the paintings are very clear. Rarity and potential for further research are moderate but this site must be maintained if it is to continue to be used as a park attraction. |
| B34 | | -29.9014 | 29.1156 | 2448 | Stone Walling | Cattle post with a small and large kraal. | Low | |
| B35 | 189 | -29.8748 | 29.1139 | 2457 | Rock Art | Rock art panel with 8 red painted human figures and an unidentifiable animal figure also painted in red. | Medium | Ranking: Medium () |
| B36 | | -29.8743 | 29.1204 | 2403 | Rock Art, Stone Walling | Complex stone walled site with two dwellings within larger enclosure. Multiple rock art panels present within shelters a and b. | Low | Ranking: Low |
| B37 | | -29.9000 | 29.1172 | 2392 | Rock Art | Panel with indeterminate markings. | Low | Ranking: Low |
| B38 | 204 | -29.9012 | 29.1173 | 2413 | Rock Art | Site consisting of four rock art panels indeterminate paintings which are faded in places. Two rheboks that are clear exist in panel C. | Low | Ranking: Low |
| B39 | | -29.8898 | 29.1155 | 2508 | Rock Art, Stone Walling | Site with stone walling and rock art panels. Two panels with some indeterminate red figures and two rheboks painted in white. | Medium | Ranking: Medium (Visibility: Medium) |
| C01 | | -29.8713 | 29.0763 | 2465 | Stone Walling | There are three small circular dry stonewalled enclosures. These structures are possibly lambing kraals. | Low | |
| C02 | | -29.8710 | 29.0964 | 2426 | Rock Art | Two small red paint marks; one red dot, two short thin red lines. | Low | Ranking: Low |
| C03 | | -29.8702 | 29.0700 | 2374 | Rock Art | Indeterminate red paint marks | Low | Ranking: Low |

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| C04 | | -29.8710 | 29.0689 | 2367 | Stone Walling | Two stone walled enclosures that were possible dwellings. | Low | |
| C05 | | -29.8739 | 29.0688 | 2350 | Stone Walling | Small kraal underneath overhang of boulder | Low | |
| C06 | | -29.8749 | 29.0710 | 2376 | Stone Walling | 3 round dwellings made of dry stone, approximately 10m in diameter. | Low | |
| C07 | | -29.9323 | 29.0908 | 2248 | Stone Walling | Dwelling abutting rock face with a retaining wall and walling of dwelling is 2m tall and built with mortar. | Low | |
| C08 | 229 | -29.9317 | 29.0908 | 2244 | Rock Art | Panel has one faded indeterminate antelope figure. One possible jackal painted in orange. Site also consists of a small stone walled enclosure. | Medium | Ranking: Medium (Visibility: Moderate, Research Potential: Moderate) |
| C09 | | -29.9312 | 29.0911 | 2223 | Stone Walling | Dwelling built within rock shelter between back wall and collapsed boulder. | Low | |
| C10 | | -29.9142 | 29.0871 | 2312 | Stone Walling | A single kraal structure makes up the archaeology at C10. This kraal structure is built abutting the back wall of an overhang. The wall is collapsed and remains to a height of only +/-30cm. There is no visible entrance | Low | |
| C11 | | -29.8882 | 29.0938 | 2443 | Stone Walling | Stone walled dwelling built between two kraals. | Low | |
| C12 | | -29.8635 | 29.1181 | 2422 | Stone Walling | Dwelling with most walling still intact, however a portion has collapsed. A kraal is built to the north of the dwelling. | Low | |
| C13 | | -29.8860 | 29.1527 | 2367 | Historical | C13 is a collection of abandoned buildings thought to be the Police Station. There are six rectangular structures, all in varying states of disrepair/ collapse. Glass and a large metal desk/cabinet were found at C13 | Low | |
| C14 | | -29.8616 | 29.1254 | 2434 | Rock Art | Red human figures walking, some faded antelope painted in red. Most art badly faded. | Medium | Ranking: Medium. (Visibility: Moderate, Vulnerability: Moderate) |

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| C15 | | -29.8883 | 29.1166 | 2459 | Stone Walling | Two overhangs each contains a stone walled dwelling. Overhang B has a two roomed hut which is partially collapsed. | Low | |
| C16 | | -29.8962 | 29.0924 | 2349 | Rock Art, Stone Walling | Indeterminate figure that is damaged badly by water and salt wash. Panel is badly flaked. | Low | |
| C17 | 205 | -29.9032 | 29.1155 | 2425 | Rock Art, Stone Walling | Stone walling abutting the shelter. A kraal and collapsed semi-circular structure exist. Four rock art panels exist and consist of multiple eland, indeterminate figures. | High | Ranking: High (Vulnerability: high, Visibility: High, Research Potential: High, Rarity: High) Images are clear, even though fading of white paint has occurred. Subject matter is rare and may offer potential for future research: the grouping of eland bodies. It may prove an important site for furthering our understanding of the art. The site has been affected by human action in the form of scratching. Previous human activity also includes wall-building activity and fire-making. Further damage must be prevented. This site must be treated with extreme care should it be included as a tourist site. |
| C18 | | -29.9385 | 29.0901 | 2298 | Stone Walling | Site C18 has a dwelling and outer walling. Dwelling is located within enclosure | Low | |
| C19 | | -29.9258 | 29.1075 | 2359 | Stone Walling | Dwelling built adjacent to a boulder with a small shelter. Dwelling is surrounded by a large kraal. | Low | |
| C20 | | -29.9433 | 29.0882 | 2377 | Stone Walling | C20 is made up of two stonewalled structures. One, on the southern end of the overhang, is a collapsed stone dwelling. Its semi-circular is shape and is built abutting the back wall of the overhang. | Low | |
| D01 | 185 | -29.8687 | 29.1231 | | Rock Art, Stone Walling | A small overhang which is enclosed by a semi-circular stone walled structure. Rock art panel contains two antelope one of which is a possible rhebok. | Low | |

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| D02 | | -29.8763 | 29.0748 | 2407 | Rock Art | Two rock art panels at site D02. Two human figures are painted within panel A, and red faint painting which is damaged by water is what constitutes panel B. | Low | |
| D03 | | -29.8763 | 29.0745 | 2404 | Rock Art | Two badly faded red paintings. | Low | |
| D04a | 246 | -29.8718 | 29.0703 | 2360 | Rock Art | Located in the centre of the shelter D04a, at a height of +/- 80cm from the shelter floor is a single human figure in red. This figure is unique. The human figure is painted in a squatting/seated position with its elbow bent at sides and forearms raised to head-level. The head of this human figure is 6m high and diamond-shaped. It has only been outlined; the interior remains hollow. However, natural white on the rock face appears to have been used by the painters to divide the face in two. An historical dam-wall on the north side of the site. | High | Ranking: High (Vulnerability: High, Rarity: High, Research potential: High, Visibility: High) D04a and b are extremely vulnerable due to their proximity to the park road, and to popular tourist site E01. They are also in close proximity to the area proposed for development as a biodiversity garden. These factors include D04a and b as potential tourist visitor sites. The images are very clear and the rarity of their subject matter is high. They are very likely to contribute to future research: the single seated figure is unique. |
| D04b | | -29.8718 | 29.0703 | 2360 | Rock Art | Two human figures that have been flaked and are faded. Indeterminate figures (possibly human based on thinness) also present. | Low | |
| D05 | | -29.8758 | 29.0706 | 2388 | Rock Art | Very faded indeterminate figures. | Low | |
| D06 | | -29.8807 | 29.0724 | 2405 | Stone Walling | Large kraal built with rectangular blocks. East facing rock face used as part of the kraal. | Low | |
| D07 | | -29.8856 | 29.0734 | 2406 | Stone Walling | Stone wall enclosure 10m long by 40m wide. | Low | |
| D08 | | -29.8862 | 29.0728 | 2409 | Rock Art | Indeterminate painting due to water damage. | Low | |
| D09 | | -29.9266 | 29.0911 | 2234 | Rock Art | One red human figure and another indeterminate figure. | Low | |
| D10 | | -29.9226 | 29.0910 | 2267 | Stone Walling | The site is a small shelter with stone walling attached. A large kraal is located 20m from the shelter. | Low | |

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| D11 | | -29.9138 | 29.0891 | 2253 | Rock Art | Panel A includes 4 rhebok, two of which are painted in white, two in dark red. One of the rhebok in white is painted facing upwards towards the ceiling of the shelter. The group is painted in roughly the centre of the overhang. | Low | |
| D12 | | -29.9158 | 29.0744 | 2393 | Rock Art | Damaged rock art panel, hard to distinguish the contents. | Low | |
| D13 | | -29.8901 | 29.0970 | 2465 | Rock Art | Three panel containing indeterminate figures, some of which have been damaged by salts. | Low | |
| D14 | | -29.8851 | 29.0985 | 2548 | Rock Art | Two panels, one of which is faded and the other exhibits water damage. | Low | |
| D15 | | -29.8893 | 29.0975 | 2488 | Stone Walling | Two huts built with rectangular blocks that were constructed using mud as mortar. Four rock art panels containing finger dots, smears, and faded eland | Low | |
| D16 | | -29.8778 | 29.1445 | 2468 | Stone Walling | Possible cattle post that has cans and glass. Used for protection from strong winds. | Low | |
| D17 | | -29.8533 | 29.1079 | 2468 | Rock Art | Indeterminate faded panel, partially faded and eroded. | Low | |
| D18 | | -29.8931 | 29.1129 | 2392 | Stone Walling | Stone walling with a circular shaped hut present. Suggesting possible use as a kraal. | Low | |
| D19 | | -29.8913 | 29.1192 | 2468 | Rock Art | One indeterminate figure badly damaged by salts. | Low | |
| D20 | | -29.8911 | 29.1191 | 2457 | Rock Art | This site has not been divided into separate panels. D20 contains little identifiable imagery, as the damage to the rock face has caused it to disappear. There remains a single red human figure. What other remnants there are also in shades of red pigment. The leg of an antelope also remains. | Low | |

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| D21 | | -29.8909 | 29.1189 | 2454 | Rock Art | There are three panels on the boulder which has very faded paintings. There is one clear human figure. | Low | |
| D22 | | -29.8974 | 29.1158 | 2429 | Stone Walling | Collapsed stone walling constructed with large angular dry rocks. | Low | |
| D23 | NEW | -29.8905 | 29.1299 | 2336 | Rock Art | Panel A is the only panel at D23. It contains a single image of a quadruped painted in black. It is approximately 15cm in length and resembles charcoal but is indeed paint. The quadruped has elongated/attenuated legs and horns and appears to be running/leaping. These horns are akin to those of an eland. | High | Ranking: High (Vulnerability: High, Visibility: High, Rarity: High, Research: High) Although D23 has only one painting in it, the rarity this image makes it of high value for possible future research (extremely unusual black painted quadruped running with attenuated legs). The image is clear and unique. It is very vulnerable because it is on the tourist route to the waterfall (B31 is across the river to the south-east and this is well-known to tour-guides). It is of the utmost importance that this site be protected from damage if visitors are to be brought here. |
| D24 | | -29.8911 | 29.1333 | 2349 | Rock Art | Top left, 6 finger stripes in red. These are faded. Left and centre: a single red triangular shape and a dark red running human figure with knee bent. This figure holds a bow and arrow. Right: This section of the panel contains an extremely faded and flaked remnant of a human figure in red. Only leg remains of this figure. This figure is located approx. | Low | |
| D25 | 196 | -29.8909 | 29.1332 | 2349 | Rock Art | Site with 9 panels with an array of rock art. The majority of paintings are faded. D25 is subject to damage by extensive salt washes (causing flaking), animal rubbing damage, fire damage and dust. There are some interesting figures in the site. There is also evidence of animal disturbance. | High | Ranking: High (Vulnerability: High, Rarity: Moderate,) We do not suggest D25 as a potential site to be opened for tourists. The site is too fragile and damaged for it to be safe for visitors. Its vulnerability is high because it is exposed to the elements, people have used the shelter as a kraal and there is evidence of fires being made in the site. The problem of illegal entry into the park affects the art. |

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| D26 | | -29.9039 | 29.1488 | 2425 | Stone Walling | Stone walled dwelling | Low | |
| D27 | | -29.9041 | 29.1502 | 2449 | Stone Walling | There is only one stonewalled structure present at D27. This structure is rectangular in shape and is east-facing. The dimensions of the kraal structure are: 8m in in length, 4m in width and survives to a height of 1m. The builder/builders of this kraal structure used existing boulders to make up sections of the wall. Some of the stones have collapsed, but the structural integrity has been maintained. The wall was constructed without any form of mortar. Stonewalled site D26 may be associated with D27 as they are 100m apart and D26 contains a stone dwelling. This dwelling may be associated with the kraal at D27. | Low | |
| D28 | 206 | -29.8866 | 29.1131 | 2414 | Rock Art | Site with 7 panels described in great detail as well as stone walling | High | Ranking: High (Visibility: High, Rarity: High, Complexity: High, Research Potential: High) The majority of the art (bar panel C) is faded and subject to various forms of damage including dust, wash and flaking. Panel A is located within a stonewalled structure and it is therefore likely that human presence in this dwelling has contributed to damage. |
| D29 | 208/209 | -29.9282 | 29.1358 | 2447 | Rock Art | There are two panels shelter. Panels consist of indeterminate figures and red human figures. Panel has flaking. Graffiti present within shelter. | Medium | Ranking: Medium (Vulnerability: Moderate) |
| D30 | | -29.9610 | 29.0988 | 2368 | Stone Walling | D30 is a collapsed stone walled structure constructed with large irregular rocks. | Low | |
| D31 | | -29.9312 | 29.0911 | 2375 | Stone Walling | Stone walling built approximately 1.7m high. It is a rectangular kraal built incorporating the surrounding boulders. | Low | |
| D32 | | -29.9591 | 29.0946 | 2411 | Stone Walling | Stone walling attached to boulder. Stone walling is 2m high in places. | Low | |

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|--------------------|-------------|-----------------|------------------|------------------|----------------------------|--|---------------------|--|
| D33 | | -29.9605 | 29.0936 | 2404 | Stone Walling | Two dwellings 3m in height and 4m across built against rock face. Surrounded by walling below the rock face. Another kraal located above aforementioned dwellings that is associated with. | Low | |
| D34 | | -29.9542 | 29.1009 | 2382 | Stone Walling | Semi-circular structure abutted to the rear wall of the shelter. Irregular shaped structure located to the left. | Low | |
| D35 | | -29.9410 | 29.1061 | 2352 | Stone Walling | Large kraal that has collapsed, there is one semi-circular dwelling on west of the shelter. | Low | |
| D36 | | -29.9374 | 29.0913 | 2268 | Stone Walling | Stone walling abutting shelter. Possible kraal. | Low | |
| D37 | | -29.9375 | 29.0916 | 2265 | Stone Walling | Semi-circular dwelling on north of shelter which has good deposit for excavation. | Low | |
| D38 | | -29.9374 | 29.0913 | 2268 | Stone Walling | Site with some dwellings and kraal abutted to the boulders. | Low | |
| D39 | | -29.9238 | 29.1021 | 2334 | Stone Walling | On the far eastern end of the shelter created by the overhang is a semi-circular stone dwelling built abutting the back wall. This dwelling is semi-collapsed and survives to a height of 1m. It is 2m wide. | Low | |
| E01 | 248 | -29.9894 | 29.0720 | 2360 | Rock Art | Rock art site with multiple panels and containing eland, human figures, striding figures, indeterminate figures, and more. | High | Ranking: High (Complexity: High, Rarity: High, Vulnerability: High, Visibility: High, Research Potential: High) |
| E02 | | -29.8644 | 29.1289 | 2420 | Rock Art | Single indeterminate red figure | Low | |
| E03 | | -29.8697 | 29.0690 | 2369 | Rock Art | Indistinguishable paint, possible finger dots in red. | Low | |
| E04 | | -29.8713 | 29.0691 | 2368 | Stone Walling | Overhang with stone walling enclosure that extends to back of the overhang. | Low | |
| E05 | | -29.8740 | 29.0697 | 2357 | LSA Historical Other | Surface scatter eroding from the side of the hillside. Out of context | Low | |

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| E06 | | -29.8813 | 29.0715 | 2425 | Stone Walling | Overhang with a small kraal found inside. | Low | |
| E07 | | -29.9028 | 29.0755 | 2425 | Stone Walling | There are five stonewalled structures within the complex of E07. There are: one circular, semi-collapsed dwelling, which survives to a height of 1m. Its entrance is 60cm wide, 1m height and faces east. The lintel of this entrance survives. Built with semi-angular rocks and built with mud mortar. Built abutting this dwelling is a small circular structure that is almost completely collapsed. There is also a surrounding, enclosing large rectangular kraal structure. This wall is in relatively good condition but is collapsed in places. | Low | |
| E08 | | -29.9136 | 29.0884 | 2254 | Rock Art | E08 contains a single image, that of an unidentifiable quadruped with large, fat legs. This image is 1.2m from the shelter floor, on the left-hand side of the back wall of the shelter | Low | |
| E09 | | -29.8863 | 29.1014 | 2492 | Rock Art | One panel of faded rock art. Water damage has led to panel flaking | Low | |
| E10 | | -29.8628 | 29.1237 | 2431 | Stone Walling | Stone walled structure built against the boulder. One side of structure is demolished. | Low | |
| E11 | | -29.8623 | 29.1240 | 2436 | Stone Walling | Stone walled dwelling which has collapsed. | Low | |
| E12 | | -29.8643 | 29.1219 | 2439 | Stone Walling | Stone walled enclosure | Low | |
| E13 | | -29.8627 | 29.1276 | 2411 | Rock Art | Rock art faded and has graffiti below panels. | Low | |
| E15 | | -29.8620 | 29.1240 | 2436 | Stone Walling | Semi-circular stone walled structure built against a boulder. | Low | |
| E15b | | -29.8623 | 29.1240 | 2436 | Stone Walling | Collapsed stone walled hut. | Low | |

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| E16 | | -29.8643 | 29.1219 | 2439 | Stone Walling | Single kraal located near rock pools. Shelter adjacent to kraal. | Low | |
| F01 | | -29.8664 | 29.1255 | 2424 | Rock Art | Panels are indeterminate with faded human figures | Low | |
| F02 | | -29.8636 | 29.1287 | 2420 | Stone Walling | Shelter with bedding stones. | Low | |
| F03 | | -29.8687 | 29.0701 | 2373 | Rock Art | Indeterminate red marks in amongst natural markings | Low | |
| F04 | | -29.8740 | 29.0656 | 2377 | Stone Walling | Stone walling which is a possible kraal. | Low | |
| F05 | | -29.8744 | 29.0660 | 2390 | Stone Walling | Stone walled kraal. | Low | |
| F06 | | -29.8745 | 29.0663 | 2399 | Rock Art | Stone walling abutting rock face | Low | |
| F07 | | -29.8754 | 29.0694 | 2408 | Rock Art, Stone Walling | Indeterminate figures and marks in bright red. Stone walling built with mud as mortar also present. | Low | |
| F08 | | -29.8855 | 29.0719 | 2395 | Rock Art | One faded eland figure in middle of shelter | Low | |
| F09 | | -29.8893 | 29.0734 | 2549 | Stone Walling | Stone walling with packed stone. | Low | |
| F10 | | -29.9170 | 29.0886 | 2328 | Stone Walling | Stone walling with mud attached to the shelter, paving is also present on southwest of the shelter. | Low | |
| F11 | | -29.9283 | 29.0924 | 2249 | Rock Art | Indeterminate red smudge | Low | |
| F12 | | -29.9119 | 29.0860 | 2311 | Stone Walling | Square stone wall enclosure with entrance in the middle. | Low | |
| F13 | | -29.9078 | 29.0918 | 2375 | Rock Art | Panel A consists of 10 human figures , 3 bichrome eland. Panel B contains indeterminate figures. | Low | |
| F14 | | -29.9077 | 29.0916 | 2368 | Rock Art, Stone Walling | F14 is a site consisting of multiple stone walled structures including semi-circular dwellings, walls, retaining walls and a kraal. There are two human figures painted onto which the structure is attached. | Low | |

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|--------------------|-------------|-----------------|------------------|------------------|-------------------------|--|---------------------|--|
| F15 | NEW | -29.8857 | 29.0873 | 2492 | Rock Art | Indeterminate figure in panel A. While panel B contains human figures and an indeterminate figure. Panel C contains a faded eland and more human figures. | High | Ranking: High (Visibility: High, Rarity: Moderate, Complexity: Moderate, Research Potential: Moderate) |
| F16 | | -29.8859 | 29.0950 | 2472 | Stone Walling | Large kraal with a cattle post located within the shelter. | Low | |
| F17 | | -29.8641 | 29.1189 | 2435 | Rock Art, Stone Walling | Panel A consists of eland, faded human figures. Panel B consists of several indeterminate pictures, graffiti, and finger dots. Complex stone walling present with a square dwelling and large enclosure surrounding | Low | |
| F18 | NEW | -29.8631 | 29.1273 | 2399 | Rock Art | F19 is made up of five rock art panels. The site is extremely flaked and faded. Site is exposed to natural elements that continue to damage rock art. | High | Ranking: High (Complexity: High, Vulnerability: High, Visibility: High, Rarity: Moderate, Research Potential: Moderate) |
| F19 | | -29.8777 | 29.1008 | 2517 | Stone Walling | Outer stone wall and smaller enclosure built against the rock face. | Low | |
| F20 | | -29.8895 | 29.1184 | 2427 | Stone Walling | Stone walled structure built against the boulder. Partially collapsed. | Low | |
| F21 | | -29.8835 | 29.1159 | 2518 | Stone Walling | There are three stonewalled structures present at F23. All are in relatively good condition and are well-preserved. There is a large rectangular stone kraal encloses one of the two sandstone shelters. Within this shelter, built abutting the back wall of the shelter is a stone dwelling. It appears to be built without mortar. Outside of the boundary of the large rectangular kraal structure is another, smaller, semi-circular structure. | Low | |
| F22 | 197 | -29.8970 | 29.1449 | 2353 | Rock Art | Panel with a rhebok painted in red and a light red eland. There is also a light red shaded polychrome eland. Panels show damage from salts and water | High | Ranking: High (Visibility: High, Vulnerability: Moderate) Good visitor site. |
| F23 | | -29.9165 | 29.1620 | 2444 | Stone Walling | Site has a large kraal and two semi-circular dwellings. | Low | |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|--|---------------------|------------------------------|
| F24 | | -29.9167 | 29.1596 | 2447 | Stone Walling | Semi-circular dwelling located below overhang. | Low | |
| F25 | | -29.8721 | 29.0706 | 2360 | Stone Walling | There are two stonewalled structures at F27. One measuring 9m in width, 60cm in height. This structure is dry stone built. The second stone walled structure is a wall running 12m in length which is attached to the back wall of the boulder overhang. This wall is also dry stonewalling | Low | |
| F26 | | -29.8911 | 29.1191 | 2374 | Stone Walling | Rectangular kraal standing with walling height of 60cm. | Low | |
| F27 | | -29.9407 | 29.1037 | 2348 | Stone Walling | Medium sized kraal constructed with dry shaped stone. | Low | |
| F28 | | -29.9239 | 29.0916 | 2244 | Stone Walling | A section of stone walling present with semi-circular dwelling adjoining it. | Low | |
| F29 | 215 | -29.9171 | 29.1011 | 2346 | Stone Walling | There are five panels of rock art at F29 painted across the back wall of the shelter (panels A-E). Multiple stonewalled structures present at F29. These include: A stone wall enclosing the shelter and creating part of the entrance to the shelter. This wall is 1m high A collapsed stone walled structure deep in the recess of the shelter. 15m below the shelter are two stonewalled, round dwellings and to the south-east of the shelter is a stonewalled kraal. | Low | Ranking: Low |
| F30 | | -29.9177 | 29.1046 | 2361 | Rock Art | Contained in panel A, the only panel found at F30, are very faded dark red indeterminate | Low | Ranking: Low |
| G01 | | -29.9134 | 29.0802 | 2322 | Stone Walling | Two roomed structure with kraal adjacent to it. | Low | |
| G02 | | -29.9146 | 29.0875 | 2301 | Rock Art | Very faded figures. Three huts and large kraal also situated at site G02. | Low | Ranking: Low |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|-------------------------|--|---------------------|--|
| G03 | | -29.8934 | 29.0855 | 2418 | Stone Walling | Site G03 is a demolished stone wall structure that was built from back of overhang. | Low | |
| G04 | | -29.8882 | 29.1069 | 2485 | Rock Art | Indeterminate figure located under the overhang | Low | Ranking: Low |
| G05 | | -29.8894 | 29.0956 | 2449 | Stone Walling | Single kraal located 100m from stream. | Low | |
| G06 | | -29.8572 | 29.1194 | 2448 | Stone Walling | Small dwellings one partially collapsed. | Low | |
| G07 | | -29.8815 | 29.1133 | 2473 | Stone Walling | Overhang surrounded by one circular dwelling and two rectangular dwellings. | Low | |
| H01 | | -29.8783 | 29.0669 | 2359 | Stone Walling | Four rectangular stone blocks arranged in square. Possible modern sheep pen. | Low | |
| H02 | | -29.8802 | 29.0664 | 2320 | Stone Walling | Stone walling, possible cairn. | Low | |
| H03 | | -29.8859 | 29.0738 | 2416 | Stone Walling | Circular wall constructed with mortar made with rectangular blocks. | Low | |
| H04 | | -29.8861 | 29.0764 | 2441 | Stone Walling | A historical/modern structure made of blocks of stone with a metal door and wooden frames to west of weather station. | Low | |
| H05a | 241 | -29.8864 | 29.0773 | 2439 | Rock Art, Stone Walling | Large dismantled large double wall in shelter. 8 Finger dots painted in red. Faded eland and human figures | High | Ranking: High (Vulnerability: High) |
| H05b | | -29.8864 | 29.0774 | 2437 | Stone Walling | Small semi-circular stone walled structure within shelter with graffiti on wall. | High | Ranking: High (Vulnerability: High) |
| H05c | | -29.8865 | 29.0777 | 2440 | Stone Walling | Double wall with rubble core. Semi-circular walling in front panel A. | Low | |
| H05d | | -29.8864 | 29.0776 | 2433 | LSA MSA | Open site. Archaeology eroding from the hillside. Antelope pelvis, thin walled pottery, LSA lithic, MSA stone tools, grindstone, iron, glass, metal. | High | Ranking: High(Research Potential: High) |
| H06 | | -29.9135 | 29.0883 | 2258 | Rock Art | Human figure with strange features such as head of a horse. Painted in black. Legs also resemble those of a horse. | Medium | Ranking: Medium |

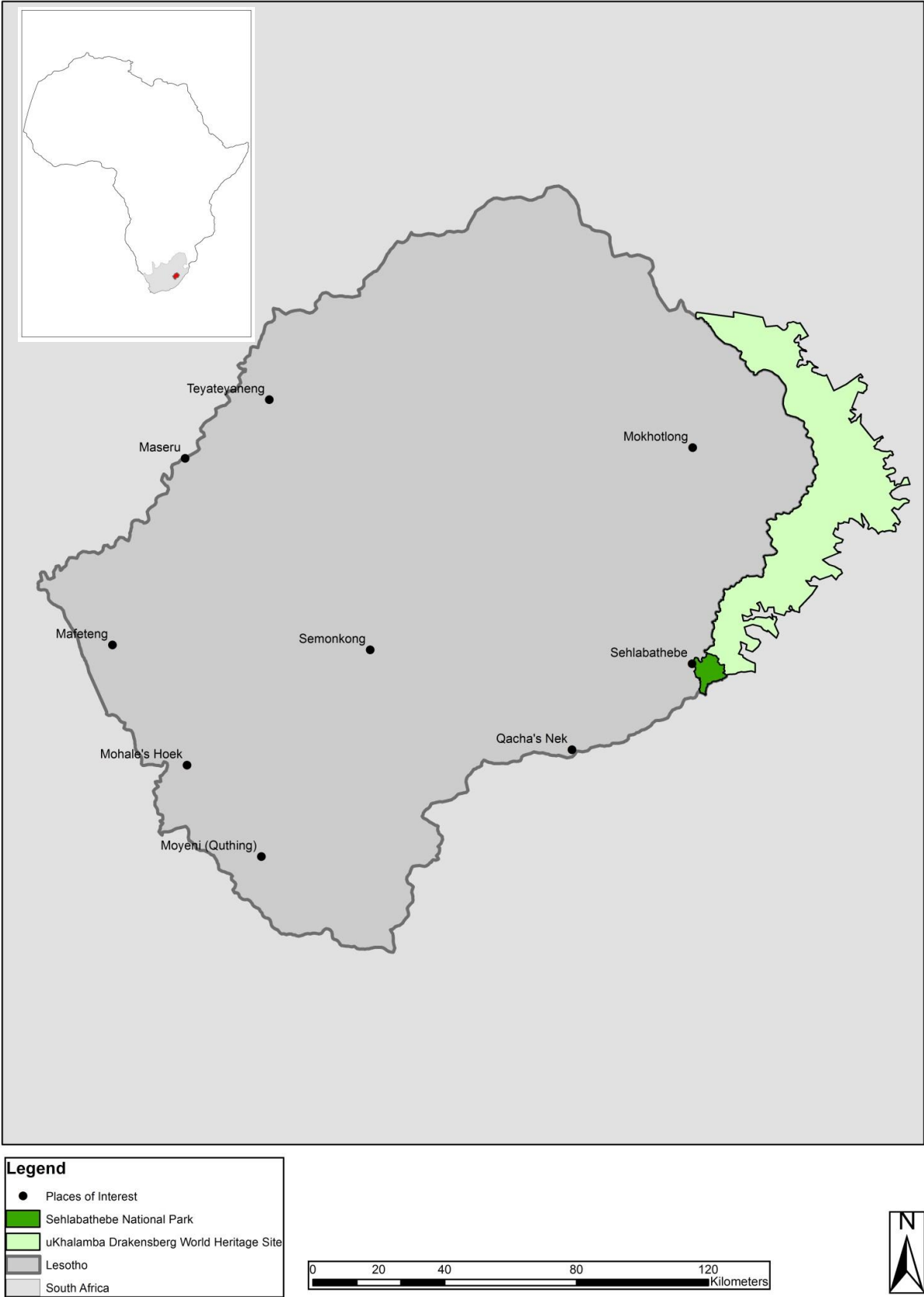
| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|-------------------------|--|---------------------|------------------------------|
| H07 | | -29.8902 | 29.0952 | 2434 | Stone Walling | Two stone wall structures exist one of which is semi-circular and is partially collapsed. Second structure was possibly used as a kraal. Evidence of animal and human presence at site. | Low | |
| H08 | | -29.8852 | 29.0921 | 2448 | Stone Walling | Large kraal facing Thaba Ntso. Small kraal behind the boulder. | Low | |
| H09 | | -29.8537 | 29.1072 | 2630 | Stone Walling | Kraal and dwelling with the entrance facing Thaba Ntso. | Low | |
| H10 | | -29.8605 | 29.1284 | 2415 | Stone Walling | Stone walling built below overhang. | Low | |
| H11 | | -29.8606 | 29.1292 | 2420 | Stone Walling | Stone walled enclosure built below overhang. | Low | |
| H12 | | -29.8610 | 29.1291 | | Stone Walling | Stone walling enclosure built near perimeter fence. | Low | |
| H13 | | -29.8974 | 29.1164 | 2424 | Stone Walling | There are four stone walled structures consisting of one dwelling and three kraals. The site is surrounded by a lot of boulders. | Low | |
| H14 | | -29.8806 | 29.0690 | 2405 | Stone Walling | Dry stone walled structure abutting overhang of boulder. Wall is partially collapsed and roughly built. | Low | |
| H15 | | -29.8807 | 29.0703 | 2398 | Stone Walling | H15 is made up of a roughly circular stonewalled enclosure or kraal which encloses an overhang created by a bolder to the eastern side of the site, and the rock face of the kranline on the western side of the site. The wall is a single, dry stone wall which uses existing boulder in places. | Low | |
| H16 | | -29.9576 | 29.1007 | 2577 | Rock Art, Stone Walling | Two finger smears are located within shelter A and historical lightening cross is found within shelter B. Collapsed semi-circular stone walled structures within two overhangs. | Low | Ranking: Low |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|---|---------------------|---|
| H17 | | -29.9560 | 29.1023 | 2477 | Stone Walling | Collapsed dry stone enclosure within shelter | Low | |
| H18 | 219 | -29.9449 | 29.1034 | 2364 | Rock Art | Panel with dark red human figures, top two figures have one arm raised with bow/stick. | Low | Ranking: Low |
| H19 | | -29.9316 | 29.0917 | 2249 | Stone Walling | Large rectangular stone walling running from the shelter enclosing the area around the kraal. The walling has collapsed in places. A dwelling exists that was constructed with mud as mortar. | Low | |
| H20 | 228 | -29.9353 | 29.0923 | 2263 | Rock Art | Site with seven rock art panels. Panel consists of hartebeest, shaded polychrome eland, rhebok and more. There is a semi-circular dwelling abutting the wall of the shelter. | High | Ranking: High (Vulnerability: High, Visibility: Moderate, Research Potential: Moderate, Complexity: High, Visibility: Moderate) |
| H21 | | -29.9555 | 29.0901 | 2401 | Rock Art | Single panel, containing three human figures one of which has a large head and mouth. | Medium | Ranking: Medium (Visibility: Moderate, Complexity: Moderate, Research Potential: Moderate, Rarity: Moderate) |
| H22 | | -29.9373 | 29.0889 | 2348 | Stone Walling | Long double wall running for 100m. Walling collapsed in places. | Low | |
| J01 | 220 | -29.9611 | 29.0958 | 2405 | Rock Art | Large expansive shelter with multiple rock art panels. Site has large amounts of pecking. Array of different figures that constitute the rock art panels. | High | Ranking: High (Visibility: High, Complexity: High, Research Potential: High, Rarity: High, Vulnerability: High) Not vulnerable to tourist but people entering the park illegally (Dog Poacher etc.). |
| J02 | 221 | -29.9598 | 29.0907 | 2454 | Rock Art | Site J02 contains five panels with a range of rock art including multiple human figures in different postures, a possible canid, hartebeest and eland. | High | Ranking: High (Visibility: High, Complexity: High, Research Potential: Moderate, Rarity: Moderate, Vulnerability: High) |
| J03 | | -29.9542 | 29.0871 | 2493 | Stone Walling | Two dwellings built next to each other, enclosed by stone walling. | Low | |
| J04 | 227 | -29.9533 | 29.0873 | 2468 | Rock Art | Site J04 contains eleven rock art panels and contains a multitude of different rock art figures. Including human figures with hunting bags, indeterminate figures, red antelope and more. Presence of some lithics. | High | Ranking: High (Visibility: High, Complexity: High, Research Potential: Moderate, Rarity: Moderate, Vulnerability: High) |

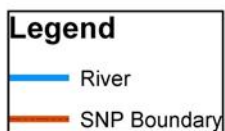
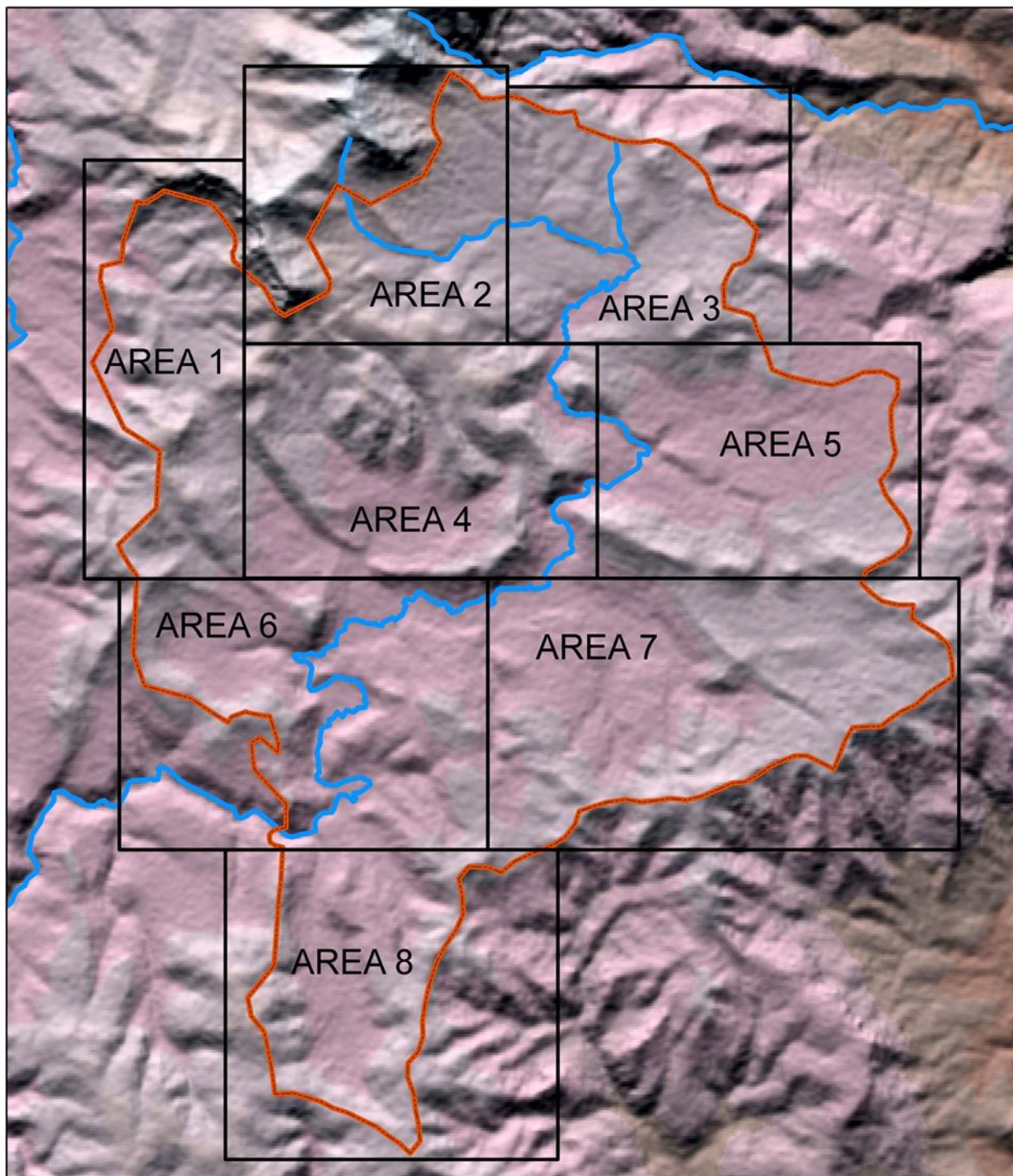
| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|-------------------------|--|---------------------|--|
| J05 | 217/218 | -29.9429 | 29.1046 | 2362 | Rock Art, Stone Walling | Shelter with ten rock art panels that include paintings of eland, human figures, and more. Some of the art has faded. Stone walling also present at site. | High | Ranking: High (Visibility: High, Complexity: Moderate, Research Potential: Moderate, Vulnerability: High) |
| J06 | | -29.9484 | 29.0860 | 2466 | Stone Walling | Circular dwelling built into overhang overlooking Mofoqoi River valley. | Low | |
| J07 | | -29.9500 | 29.0871 | 2475 | Stone Walling | Collapsed stone walling abutting rock face in Mofoqoi River valley. | Low | |
| J08 | 224 | -29.9491 | 29.0889 | 2387 | Rock Art, Stone Walling | Rock art and stone walled site. Very well preserved giant polychrome human figure along two walking human figures with hunting equipment, two running figures with antelope eared caps. Some faded paintings are also present. | High | Ranking: High (Visibility: High, Complexity: Moderate, Research Potential: Moderate, Vulnerability: High) |
| J09 | 223 | -29.9506 | 29.0899 | 2388 | Rock Art, Stone Walling | Stone walled dwelling built below overhang. Rock art panel consists of eland and running figures, | Medium | Ranking: Medium (Visibility: Moderate) |
| J10 | 222 | -29.9526 | 29.0886 | 2406 | Rock Art, Stone Walling | Panel A consists of red hartebeest, bichrome eland, running human figures with bows. Large human figure about 80 cm in length. | High | Ranking: High (Visibility: High, Complexity: Moderate, Research Potential: High, Rarity: High, Vulnerability: High) |
| J11 | | -29.9486 | 29.0890 | 2362 | Stone Walling | Walling abutted to the boulder in a rectangular *ape. | Low | |
| S01 | | -29.9633 | 29.0984 | 2443 | Stone Walling | Complex of stone walled structures. Square stone walled kraal, just west of kraal is a stone walled dwelling and up the slope is a collapsed wall. Smaller kraal is located to the east of the dwelling. | Low | |
| S02 | 225 | -29.8738 | 29.0737 | 2384 | Rock Art | Five rock art panels across back wall of shelter | Medium | Ranking: Medium (Visibility: Moderate, Complexity: Moderate, Research Potential: Moderate,) |
| S03 | 226 | -29.9481 | 29.0881 | 2387 | Rock Art | 6 panels located across back wall of shelter containing dancing figures, polychrome eland, rhebok, and more. | High | Ranking: High (Visibility: Moderate, Complexity: High, Research Potential: High, Vulnerability: Moderate, Rarity: High) |
| X01 | | -29.9150 | 29.0703 | 2309 | Rock Art | Three faded and faint eland figures, one indeterminate figure. | Low | Ranking: Low |

| <u>Site Number</u> | <u>ARAL</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Elevation</u> | <u>Site Type</u> | <u>Description</u> | <u>Significance</u> | <u>Significance Expanded</u> |
|--------------------|-------------|-----------------|------------------|------------------|------------------|---|---------------------|--|
| X02 | | -29.9181 | 29.0907 | 2275 | Stone Walling | Stone walling | Low | |
| Z01 | | -29.8657 | 29.1200 | 2424 | Stone Walling | Stone walling and dwellings present at site. | Low | |
| Z02 | | -29.8738 | 29.0737 | 2402 | Rock Art | Panel comprising of a human figure painted in red which is faded and indeterminate figures that are also faded. | Low | Ranking: Low |
| Z03 | | -29.8720 | 29.0707 | 2363 | Stone Walling | Section of stone walling retains mortar. Shelter was possible used as a kraal. | Low | |
| Z04 | 245 | -29.8720 | 29.0703 | 2362 | Rock Art | Four to five indeterminate figures all painted in red. Panel b has two indeterminate figures obscured by soot. Panel C has three large human figures with bags, quivers, arrows, tassels; two therianthropes. | High | Ranking: High (Visibility: High, Complexity: High, Research Potential: High, Vulnerability: High, Rarity: Moderate) |
| Z05 | | -29.8740 | 29.0685 | 2365 | Stone Walling | North west end of shelter enclosed with stone walling. Stone walling has some mortar present. | Low | |
| Z06 | | -29.8740 | 29.0686 | 2369 | Rock Art | Three rock art panels that are faded. Consisting of faded animal and indeterminate figures. | Low | Ranking: Low |
| Z07 | | -29.8783 | 29.0701 | 2399 | Stone Walling | Village comprising of four circular dwellings and one rectilinear kraal. | Low | |
| Z08 | | -29.8843 | 29.0708 | 2405 | Rock Art | Two panels, the first contains seven eland figures, all of which are very faded. The second panel has two larger eland figures faded in red. | Low | |

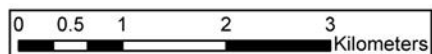
4.2 Maps of the 2015 SNP survey



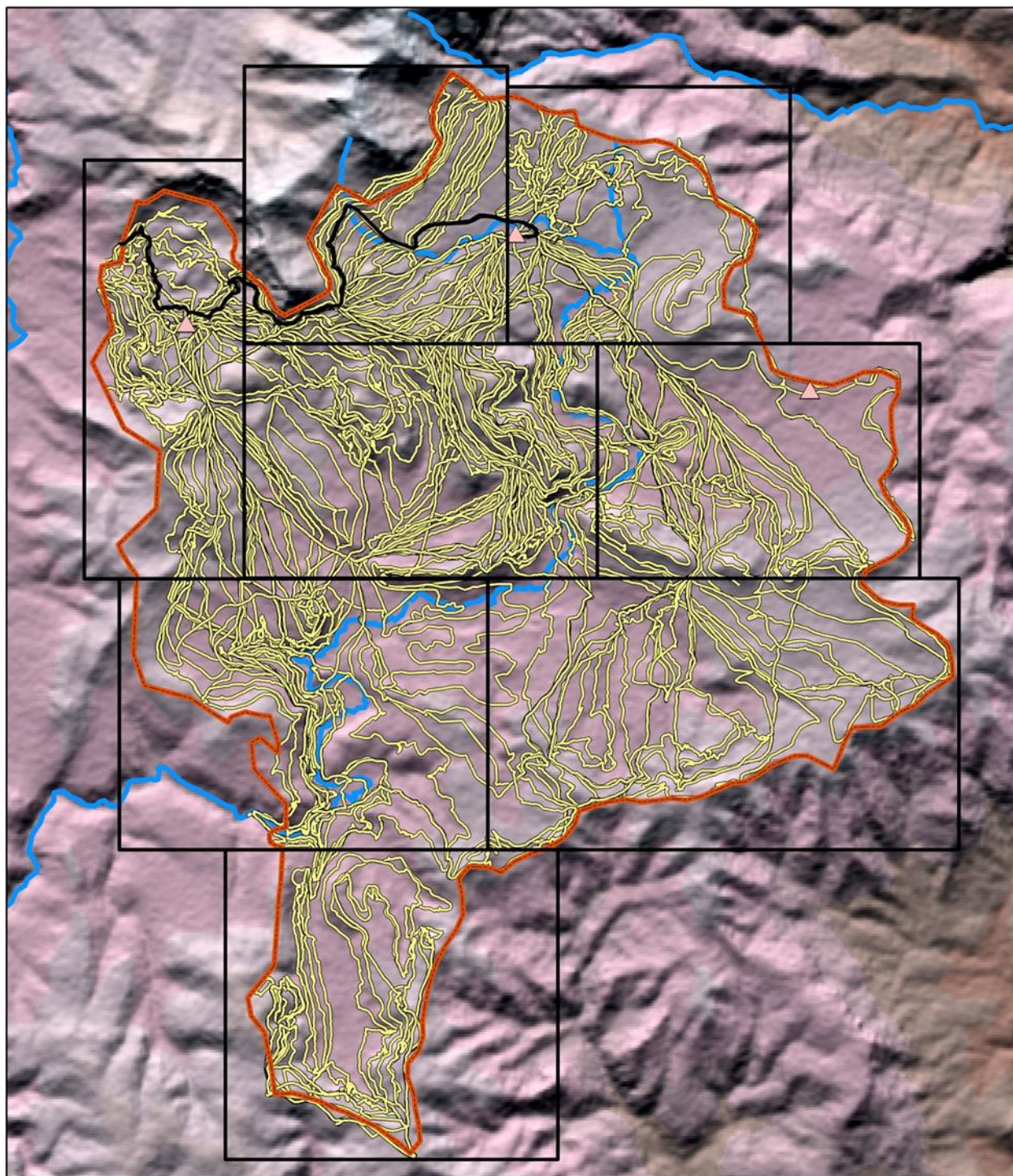
Map 1 Locating map showing location of SNP in relation to the Ukhamba World Heritage Site.








Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



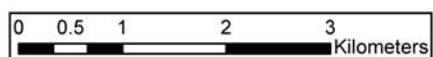
Map 2 Showing breakdown of areas within the park.



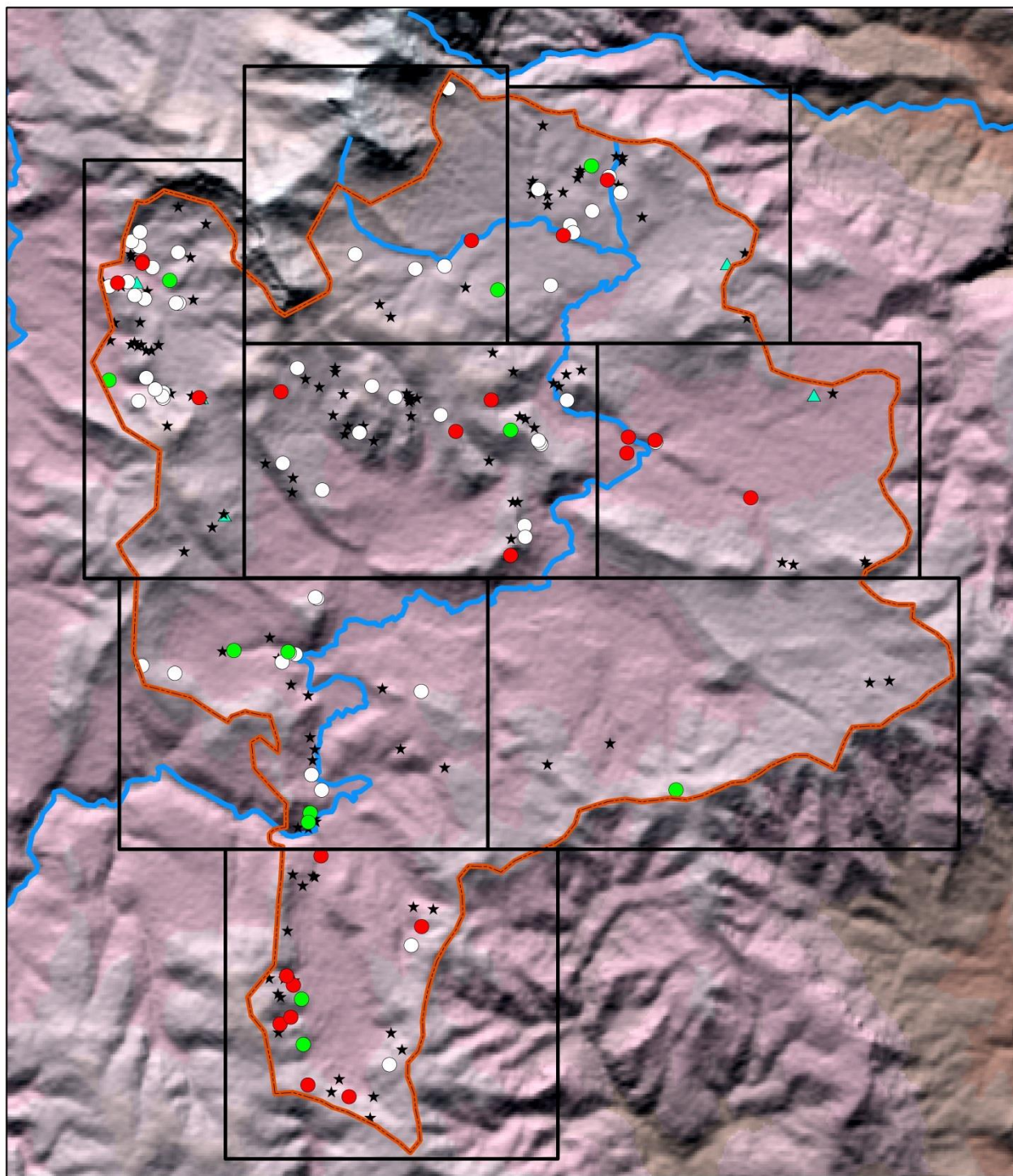
Legend

-  SNP_Points_of_Interest
-  SNP Survey Tracks
-  River
-  SNP Road
-  SNP Boundary

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



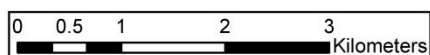
Map 3GPS survey tracks of the 2015 survey



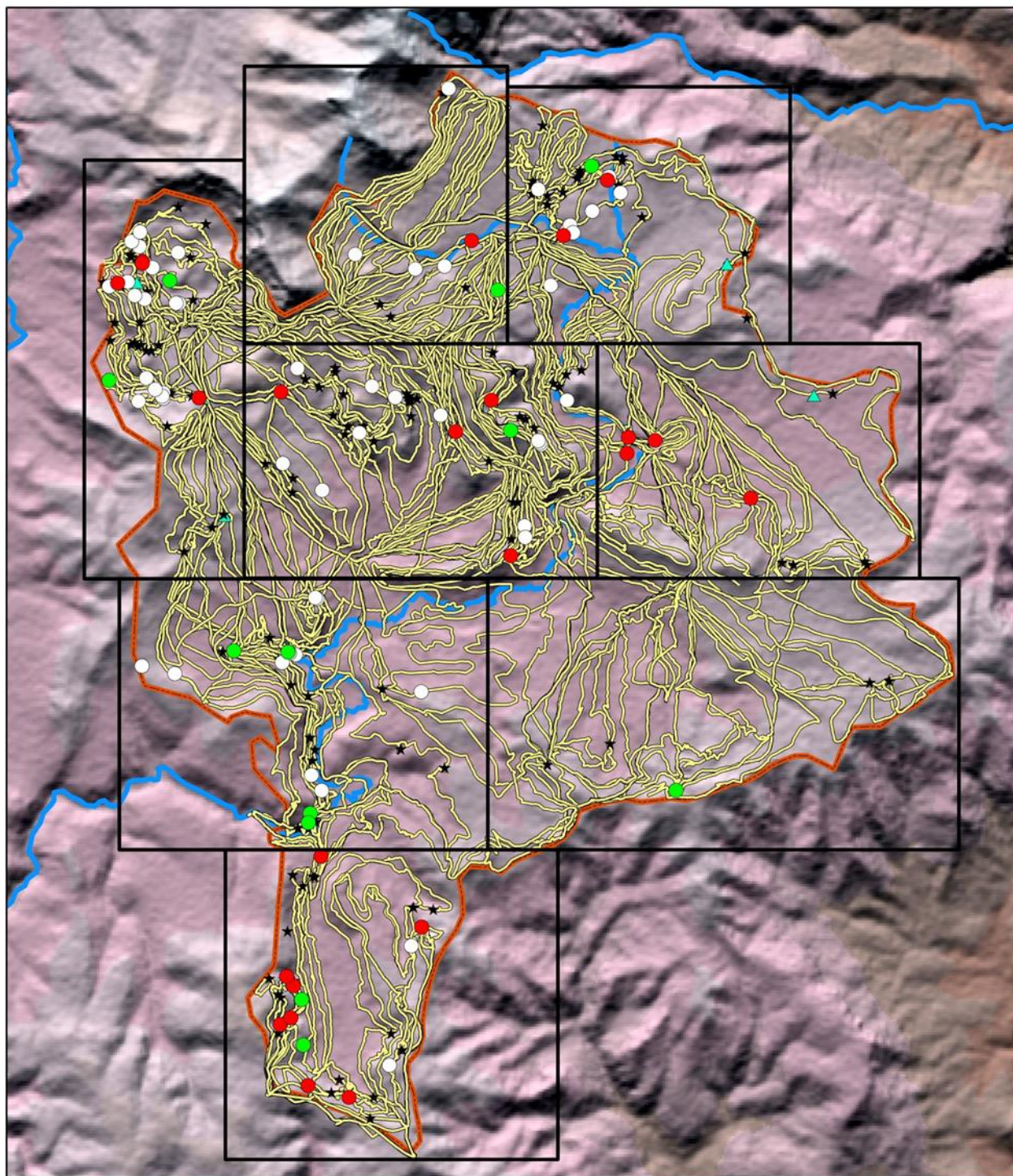
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- River
- SNP Boundary

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



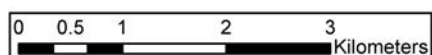
Map 4 Showing all heritage resources located during 2015 survey



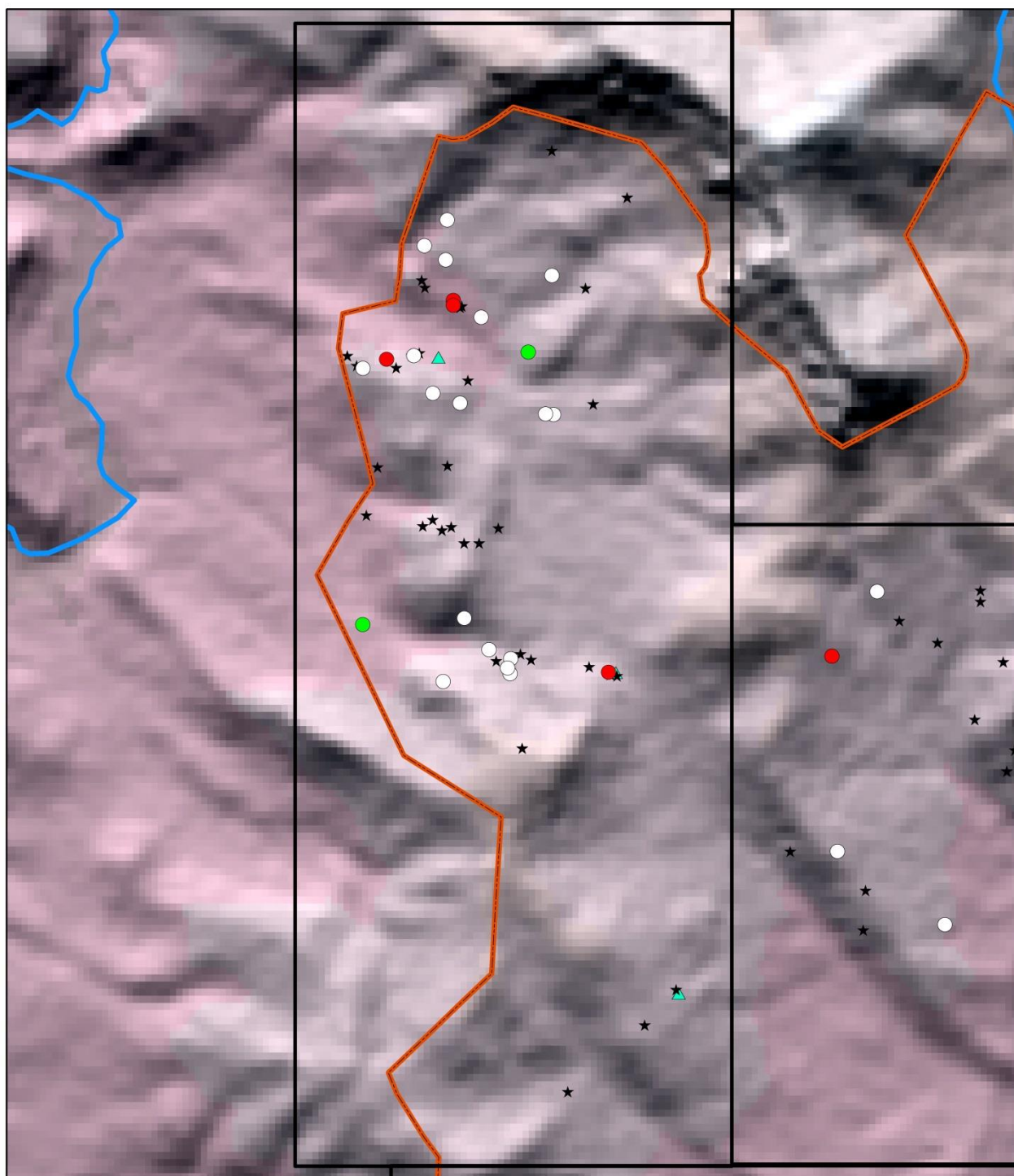
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- SNP Survey Tracks
- SNP Boundary
- River

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



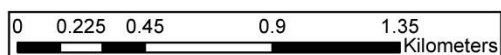
Map 5 Showing all heritage resources located during 2015 survey with survey tracks



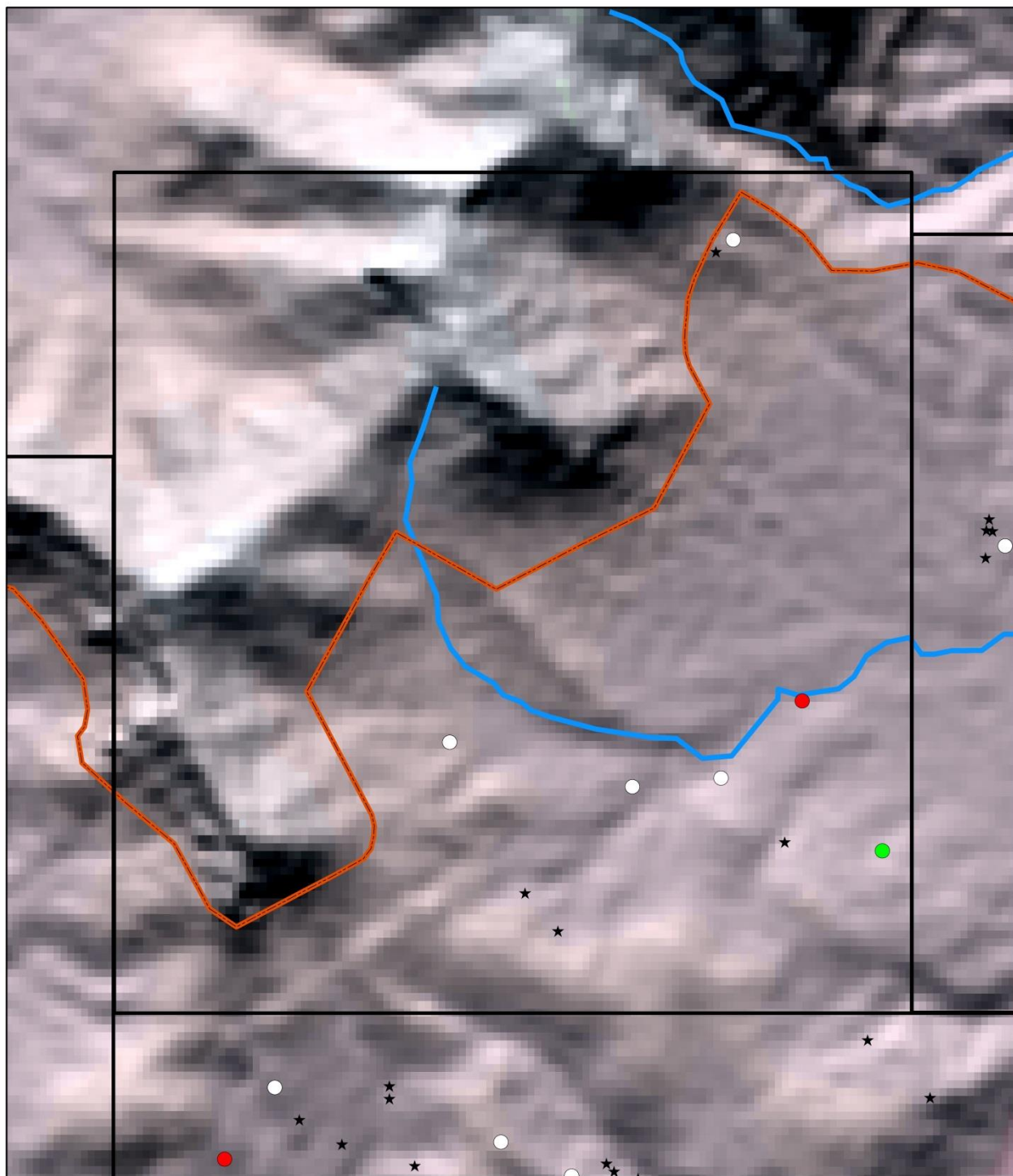
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- River
- SNP Boundary

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



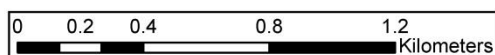
Map 6 Area 1 showing all heritage resources located during 2015 survey



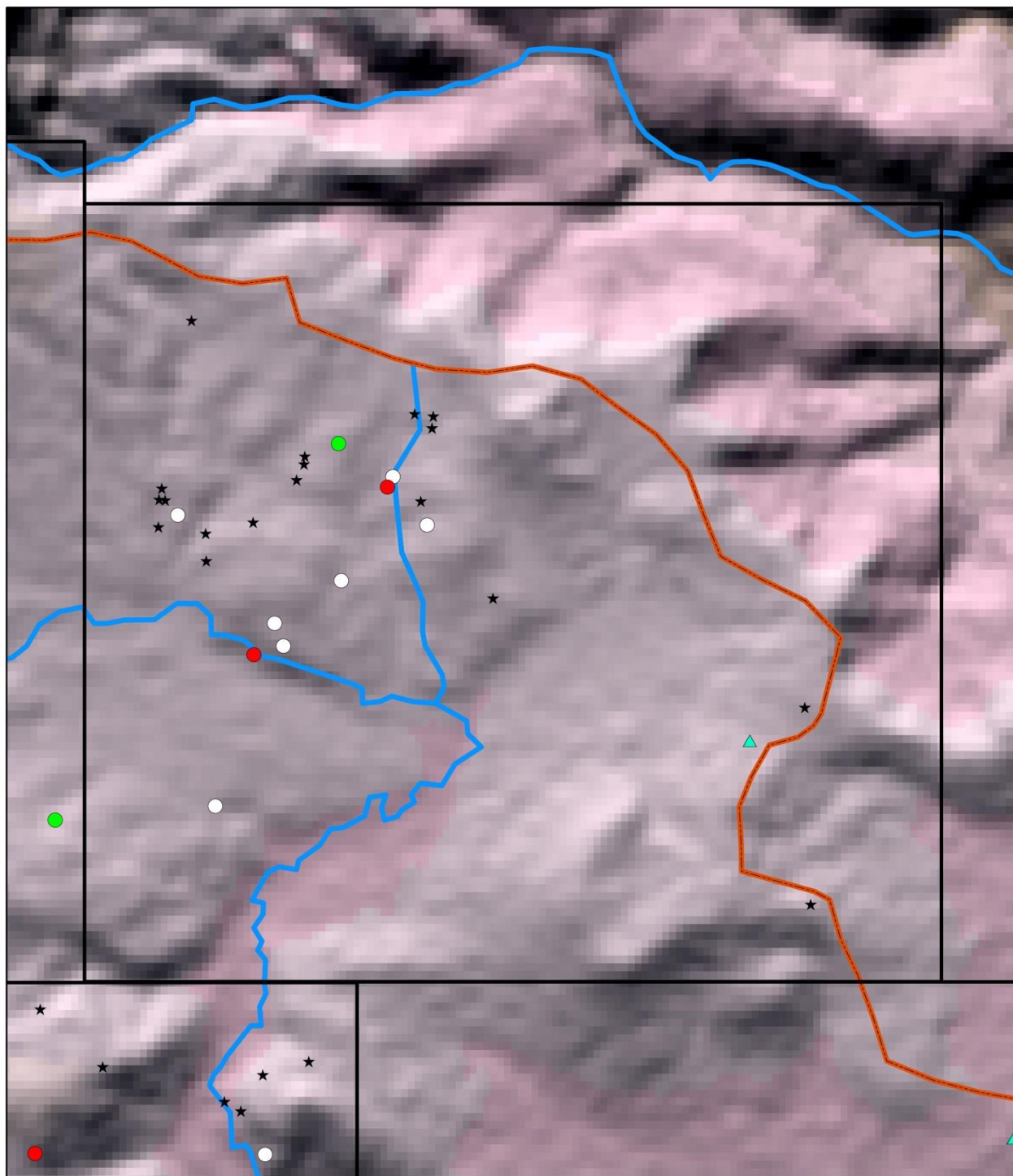
Legend

- High Significance Rock Art
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- River
- SNP Boundary

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



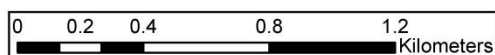
Map 7 Area 2 showing all heritage resources located during 2015 survey



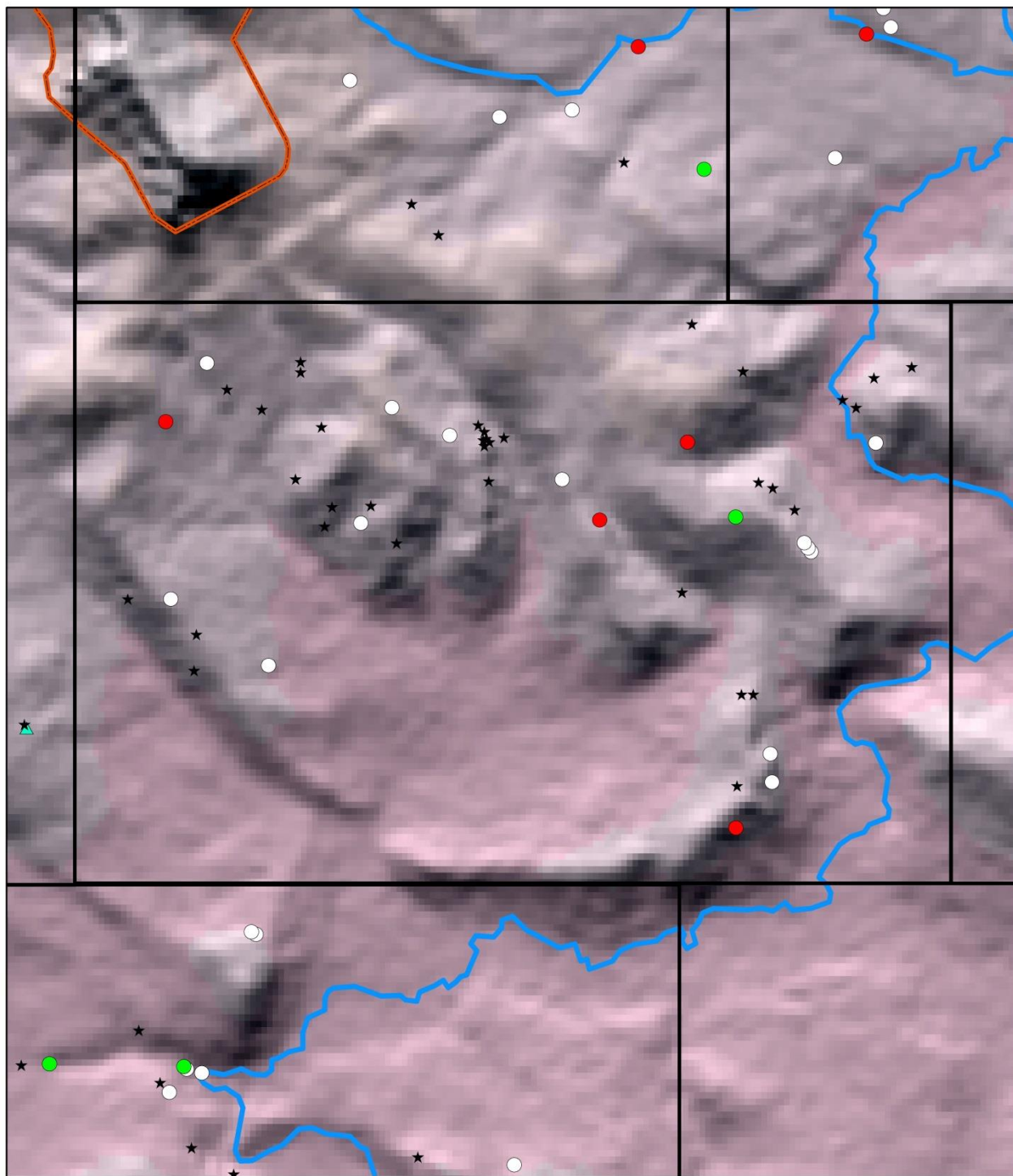
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- River
- SNP Boundary

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



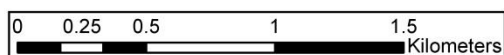
Map 8 Area 3 showing all heritage resources located during 2015 survey



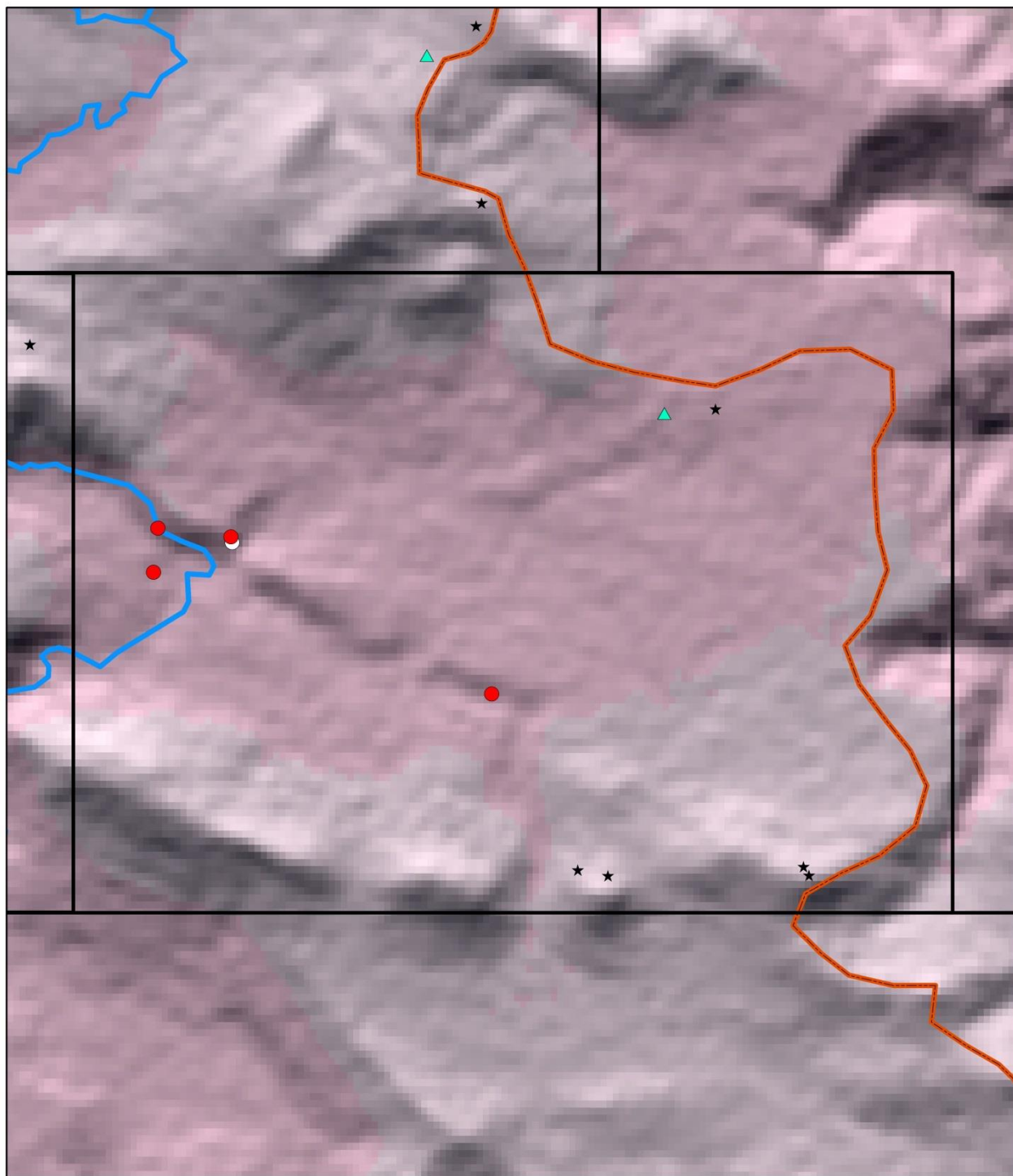
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- River
- SNP Boundary

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



Map 9 Area 4 showing all heritage resources located during 2015 survey



Legend

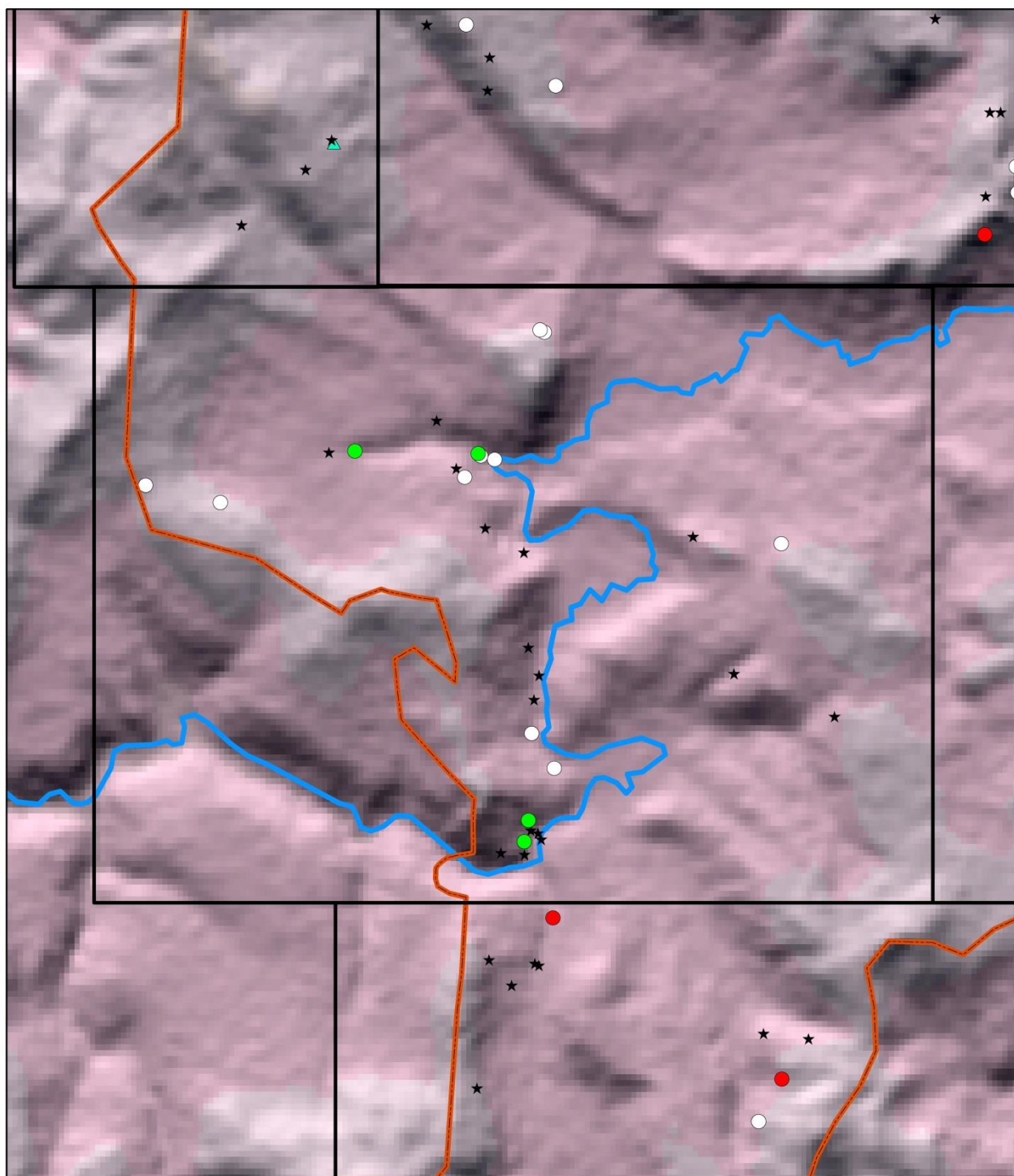
- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- River
- SNP Boundary

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.

0 0.225 0.45 0.9 1.35 Kilometers



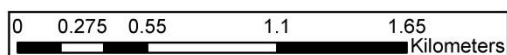
Map 10 Area 5 showing all heritage resources located during 2015 survey



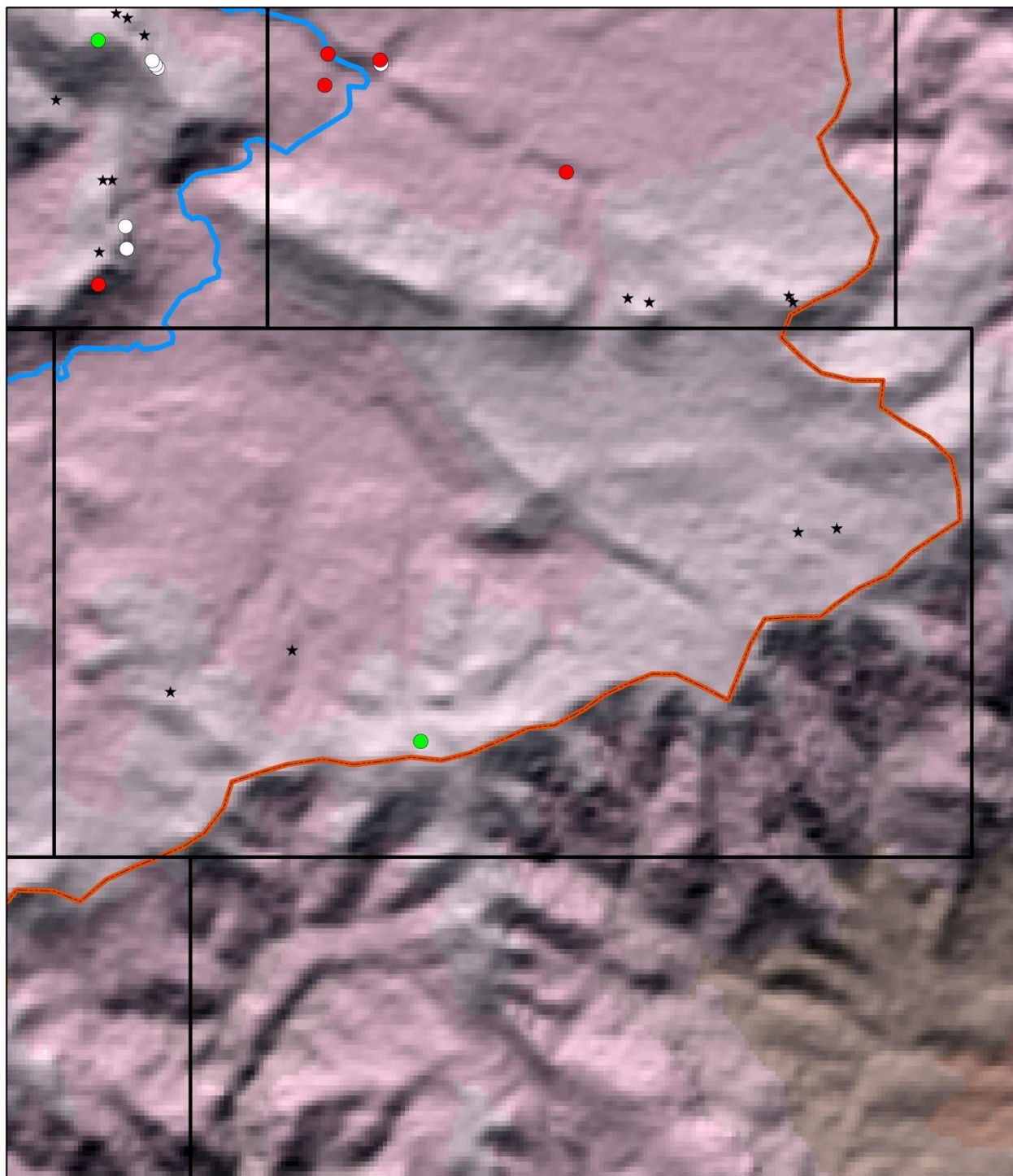
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- River
- SNP Boundary

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



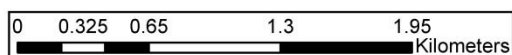
Map 11Area 6 showing all heritage resources located during 2015 survey



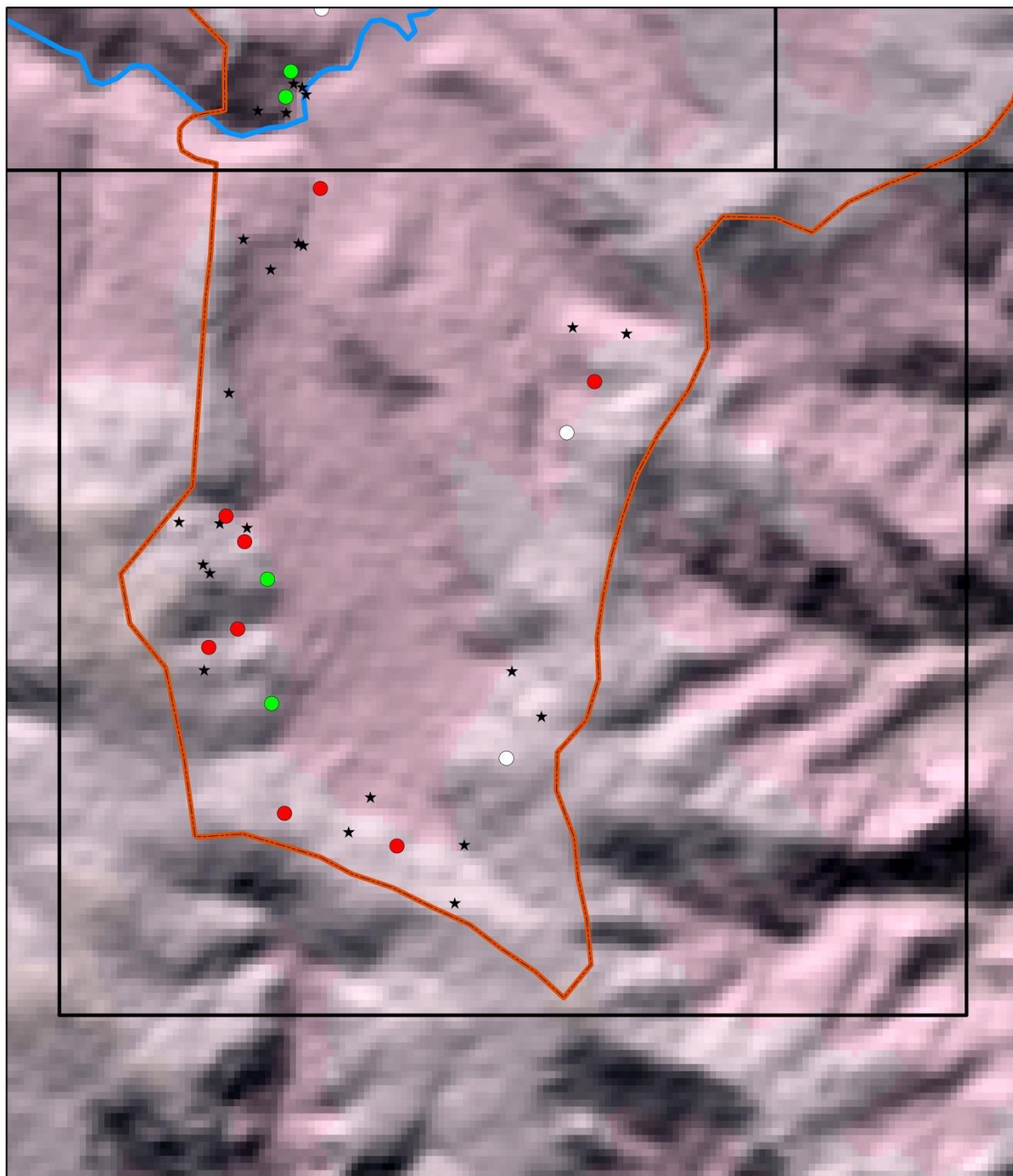
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- River
- SNP Boundary

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



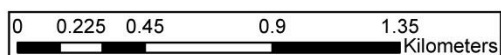
Map 12 Area 7 showing all heritage resources located during 2015 survey



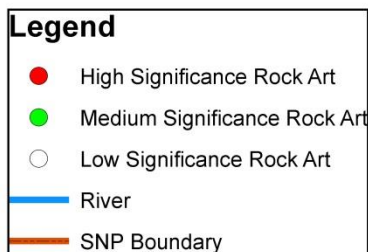
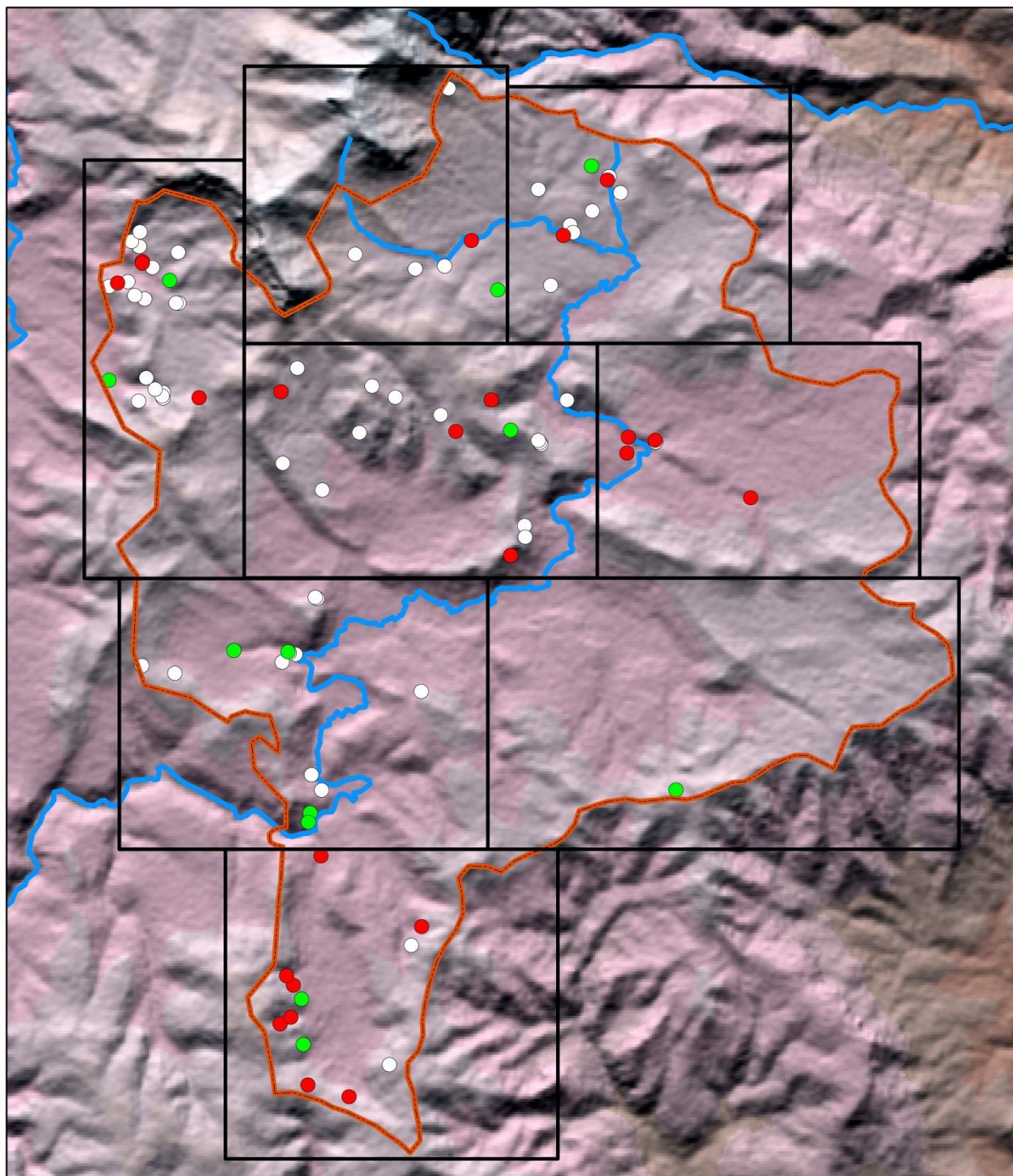
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- River
- SNP Boundary

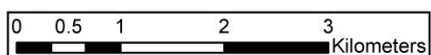
Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.

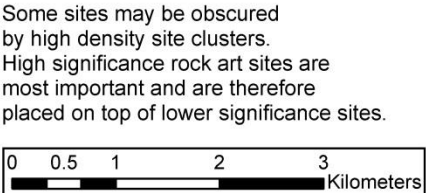
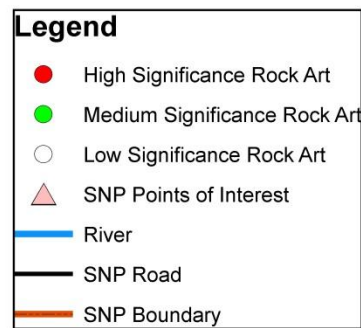
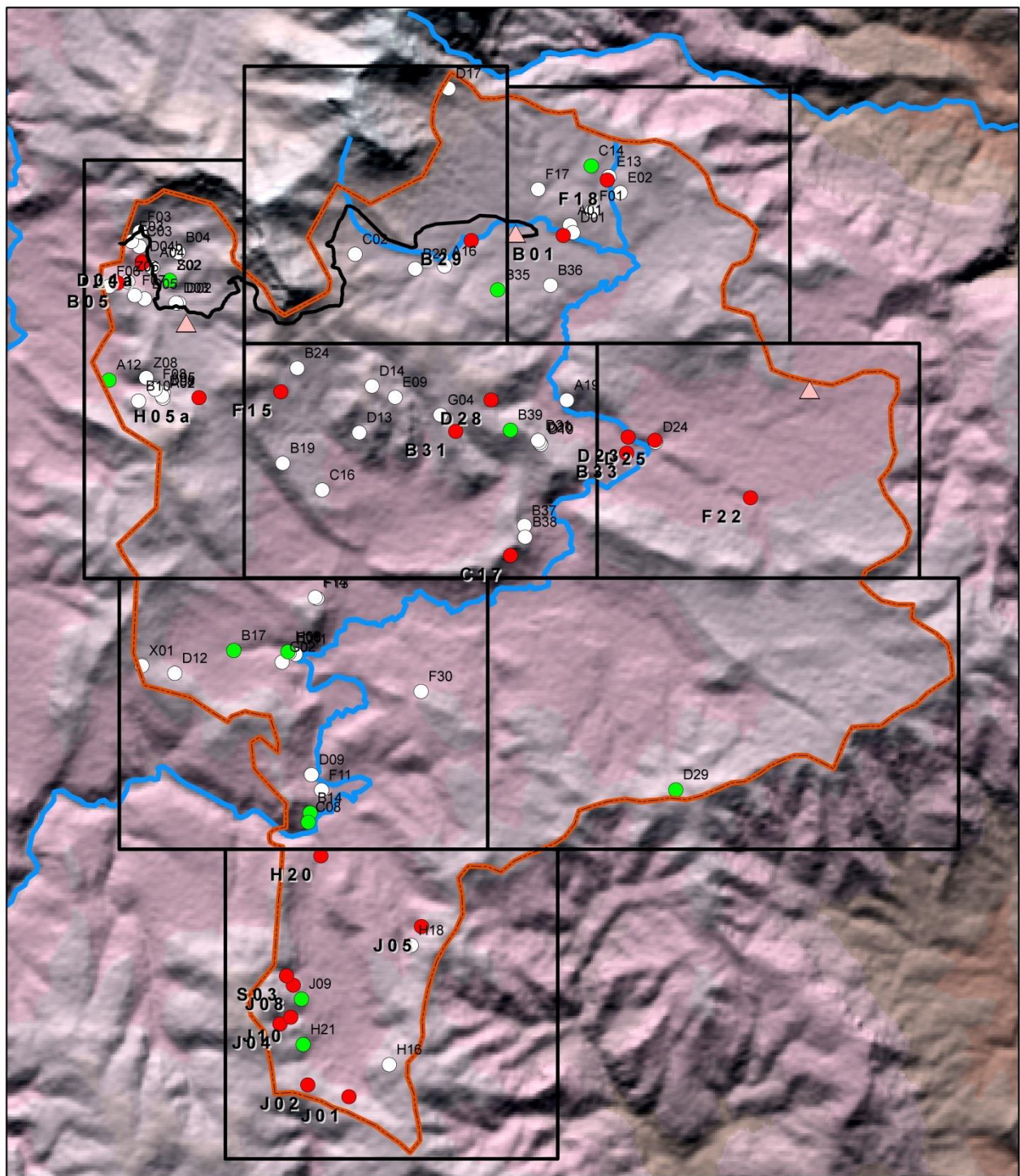


Map 13 Area 8 showing all heritage resources located during 2015 survey

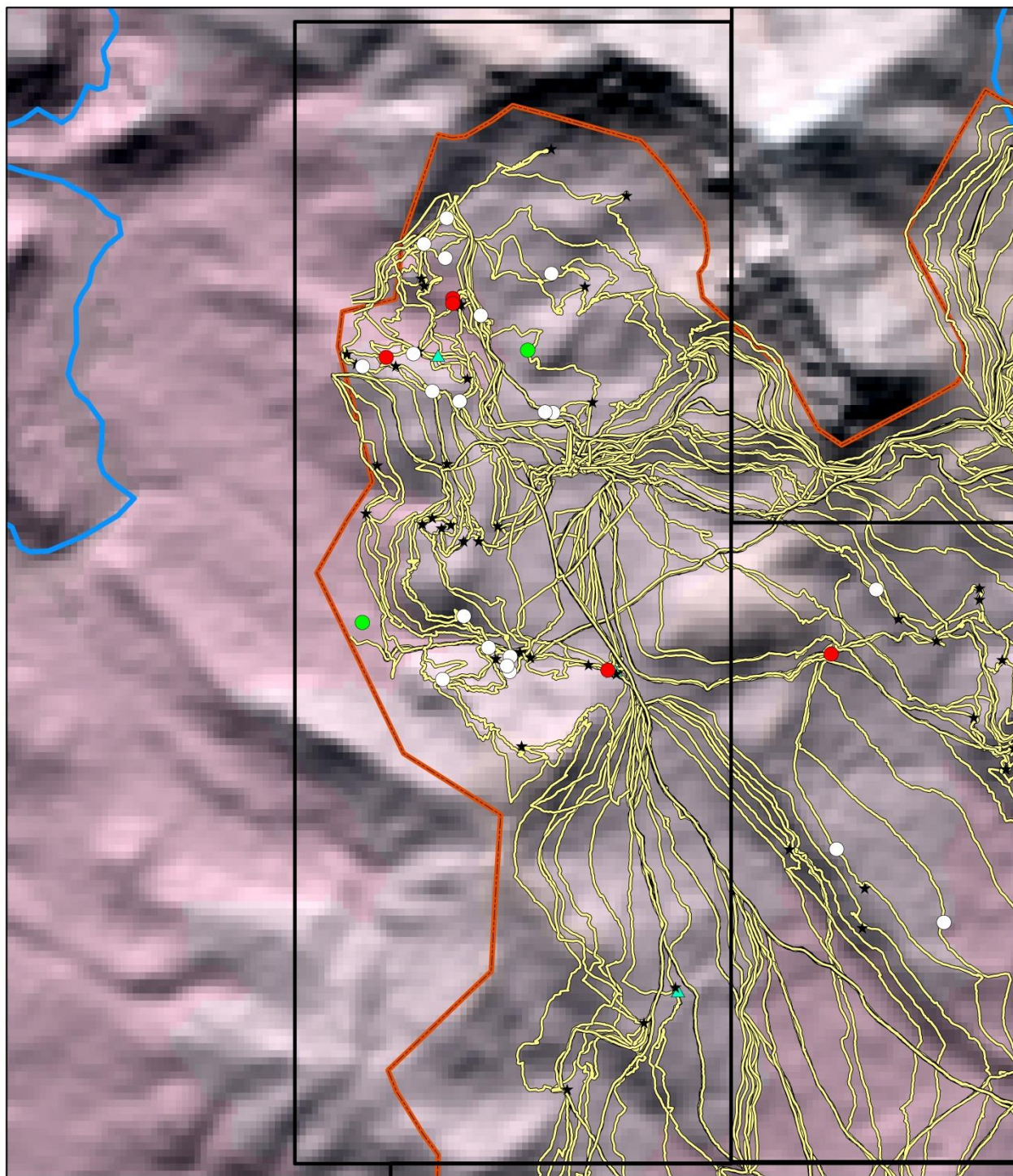


Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.





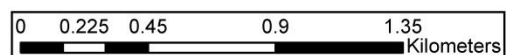
Map 14 Showing all rock art sites located during the 2015 survey



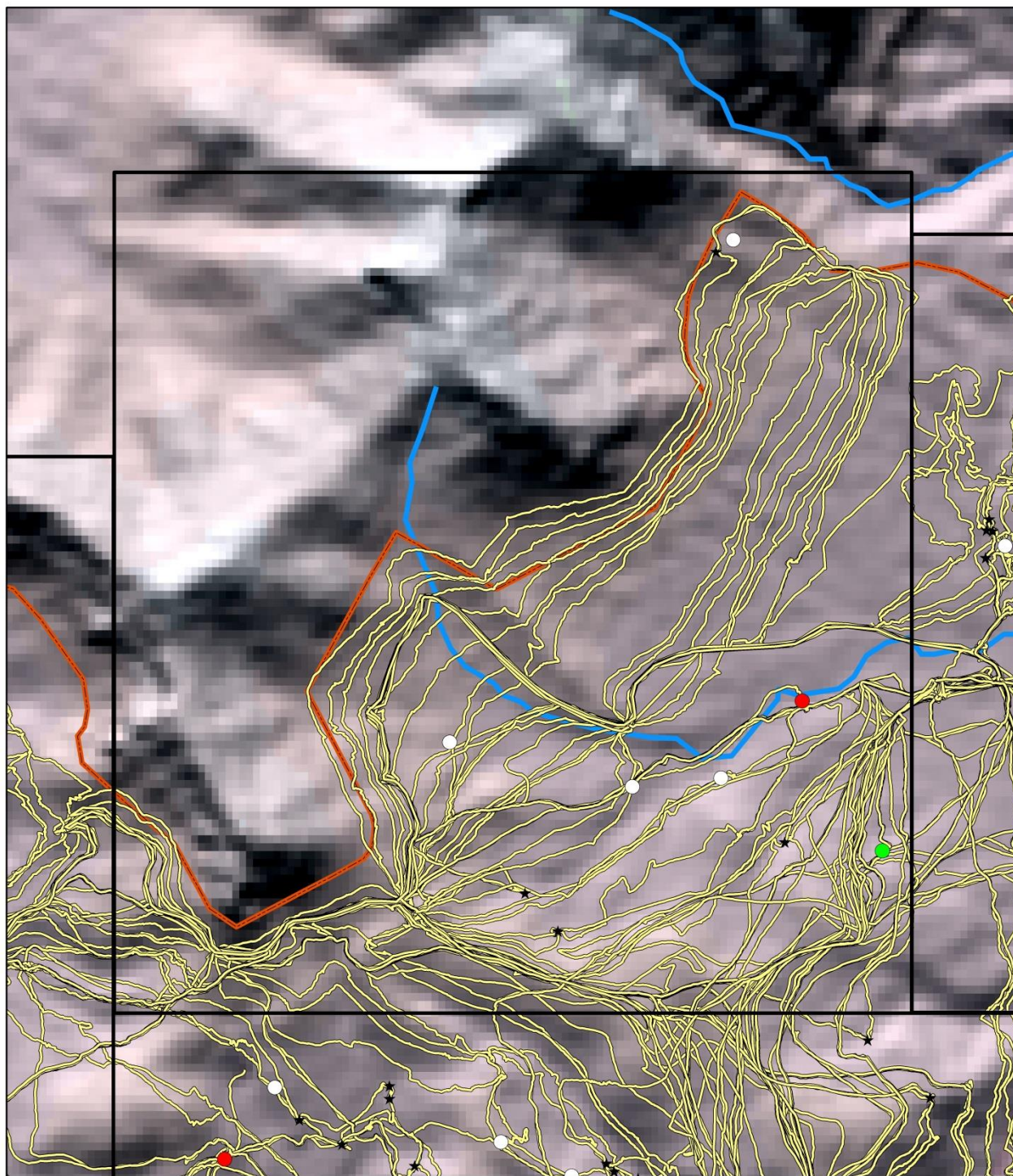
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- SNP Survey Tracks
- SNP Boundary
- River

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



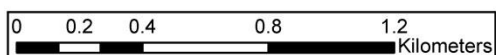
Map 15 Area 1 showing all heritage resources located during 2015 survey with GPS tracks



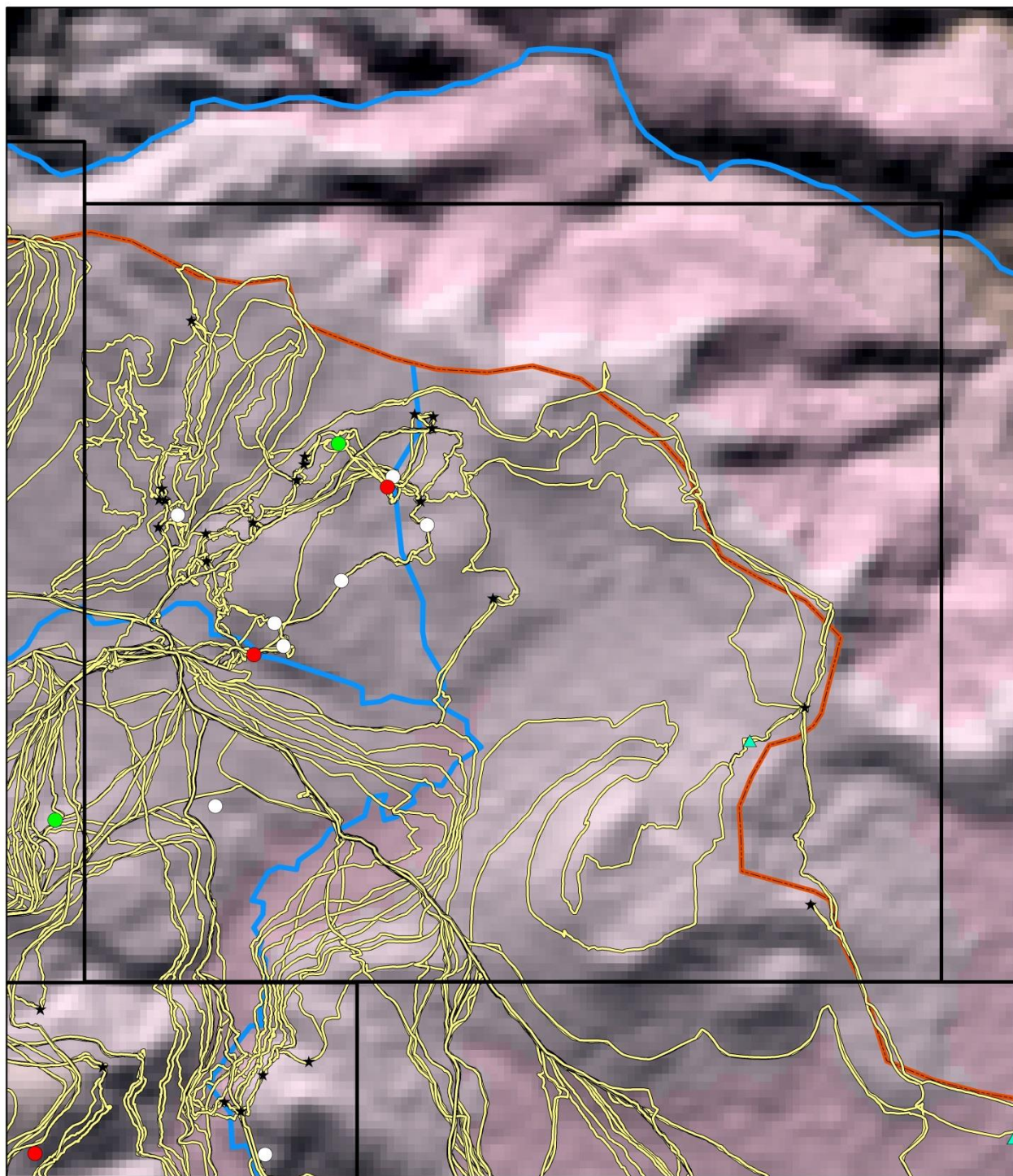
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- SNP Survey Tracks
- SNP Boundary
- River

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



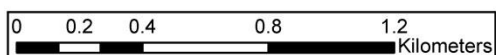
Map 16 Area 2 showing all heritage resources located during 2015 survey with GPS tracks



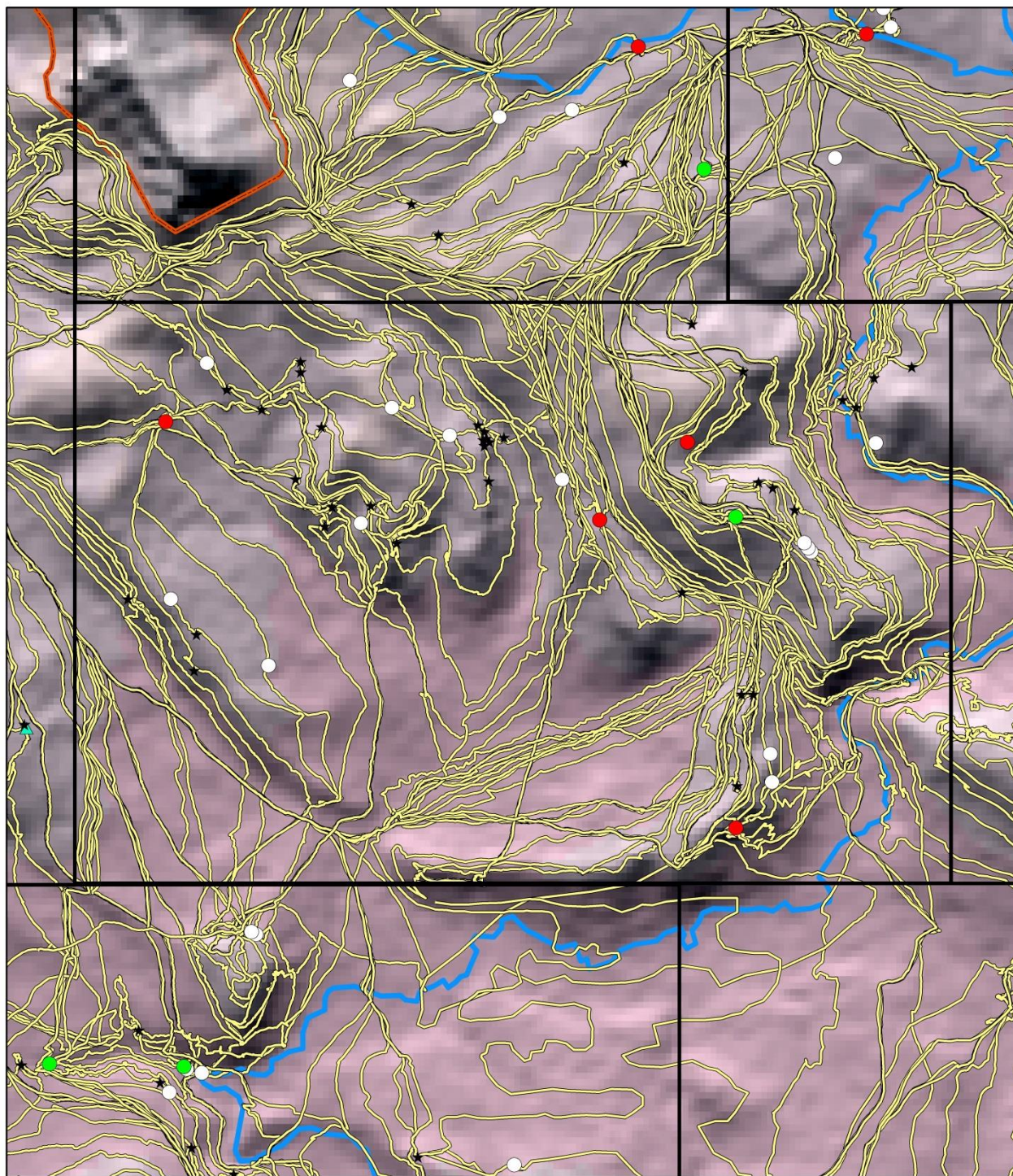
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- SNP Survey Tracks
- SNP Boundary
- River

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



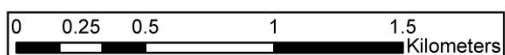
Map 17 Area 3 showing all heritage resources located during 2015 survey with GPS tracks



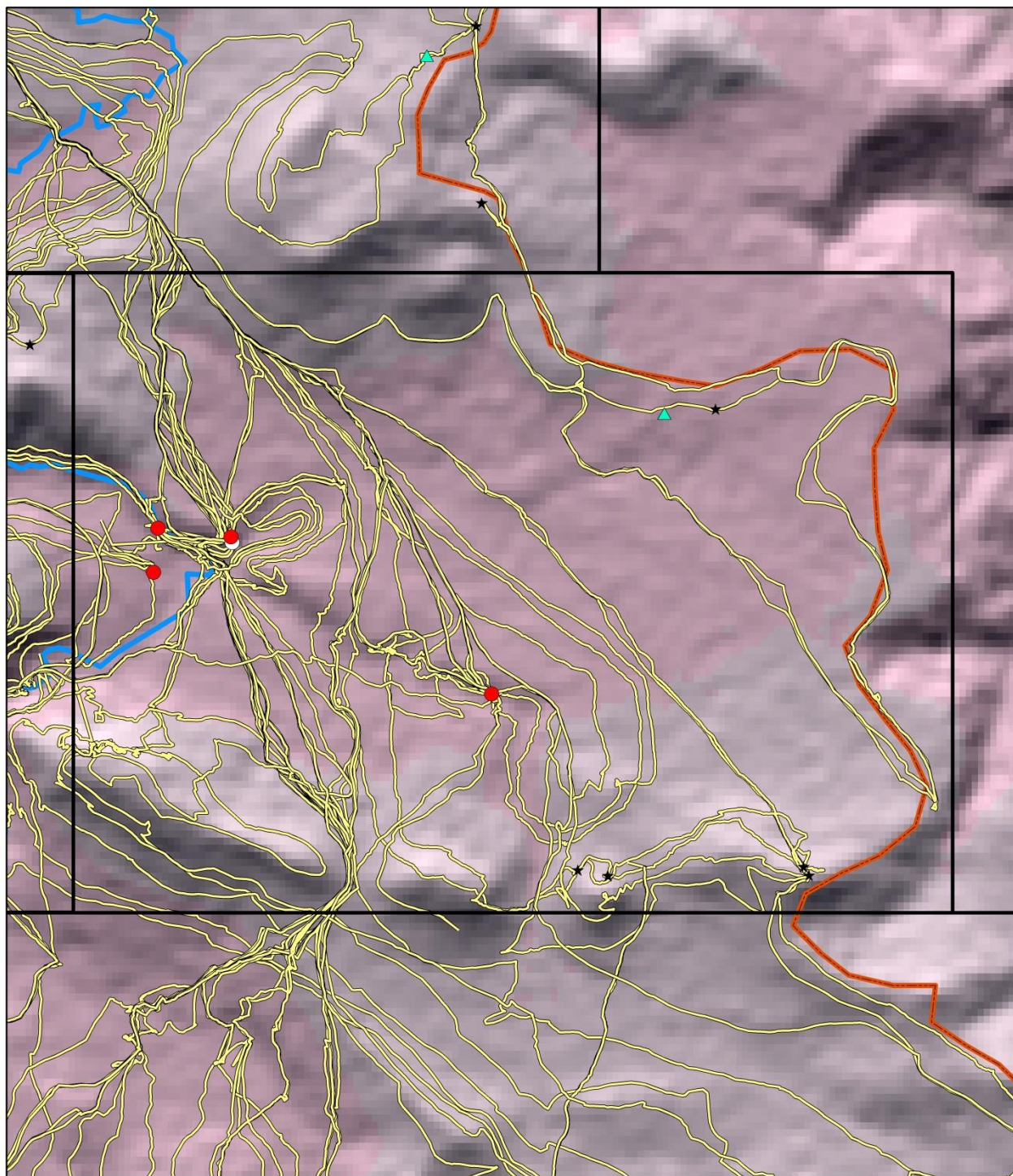
Legend

- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- SNP Survey Tracks
- SNP Boundary
- River

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



Map 18 Area 4 showing all heritage resources located during 2015 survey with GPS tracks



Legend

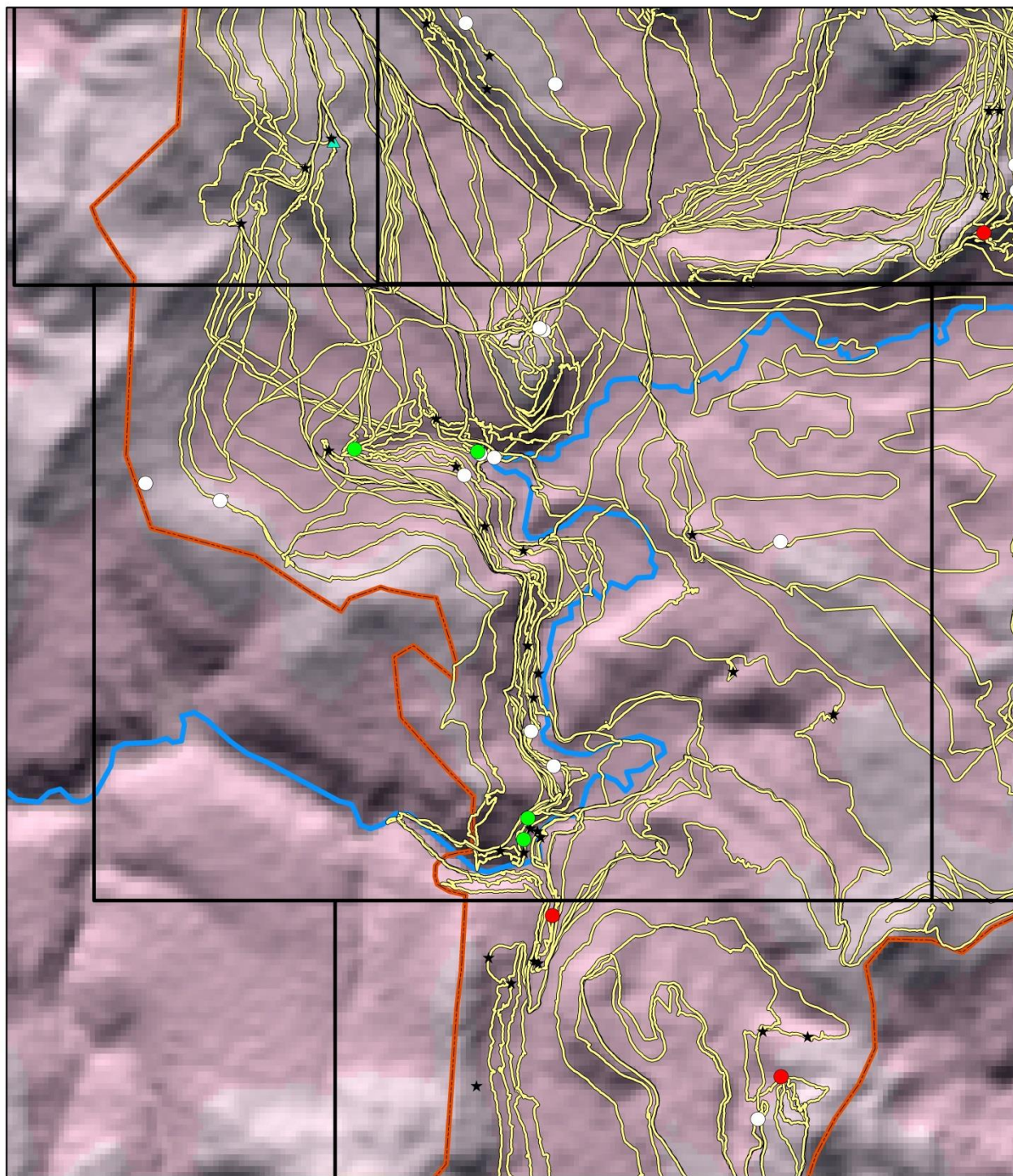
- High Significance Rock Art
- Medium Significance Rock Art
- Low Significance Rock Art
- ★ Stone Walling
- ▲ Other Archaeology
- SNP Survey Tracks
- SNP Boundary
- River

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.

0 0.225 0.45 0.9 1.35 Kilometers



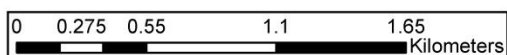
Map 19 Area 5 showing all heritage resources located during 2015 survey with GPS tracks



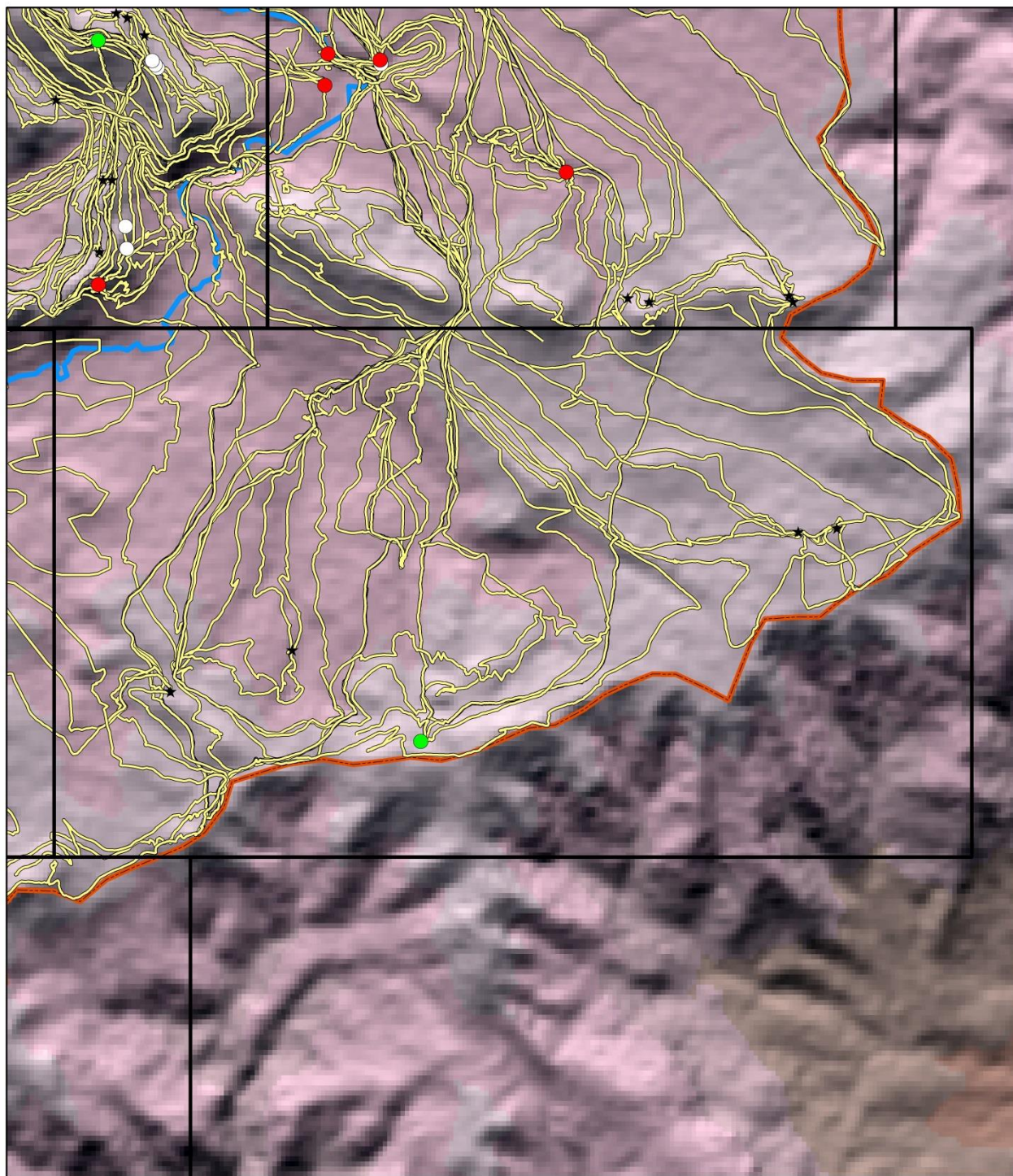
Legend

- High Significance Rock Art — SNP Survey Tracks
- Medium Significance Rock Art — SNP Boundary
- Low Significance Rock Art — River
- ★ Stone Walling
- ▲ Other Archaeology

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



Map 20 Area 6 showing all heritage resources located during 2015 survey with GPS tracks



Legend

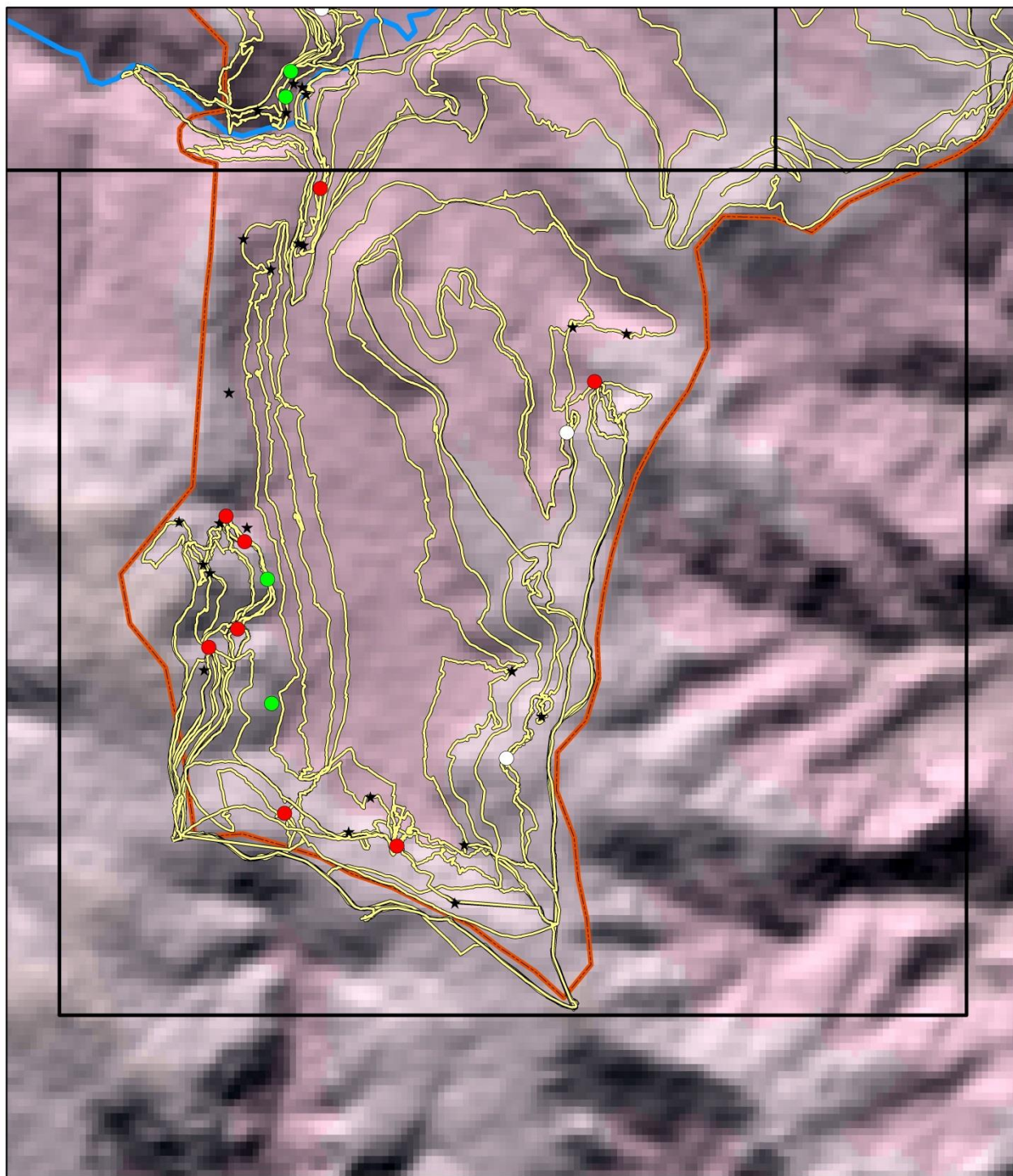
- High Significance Rock Art — SNP Survey Tracks
- Medium Significance Rock Art — SNP Boundary
- Low Significance Rock Art — River
- ★ Stone Walling
- ▲ Other Archaeology

Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.

0 0.325 0.65 1.3 1.95 Kilometers



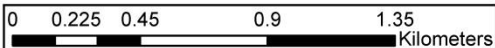
Map 21 Area 7 showing all heritage resources located during 2015 survey with GPS tracks



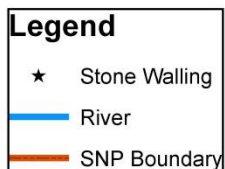
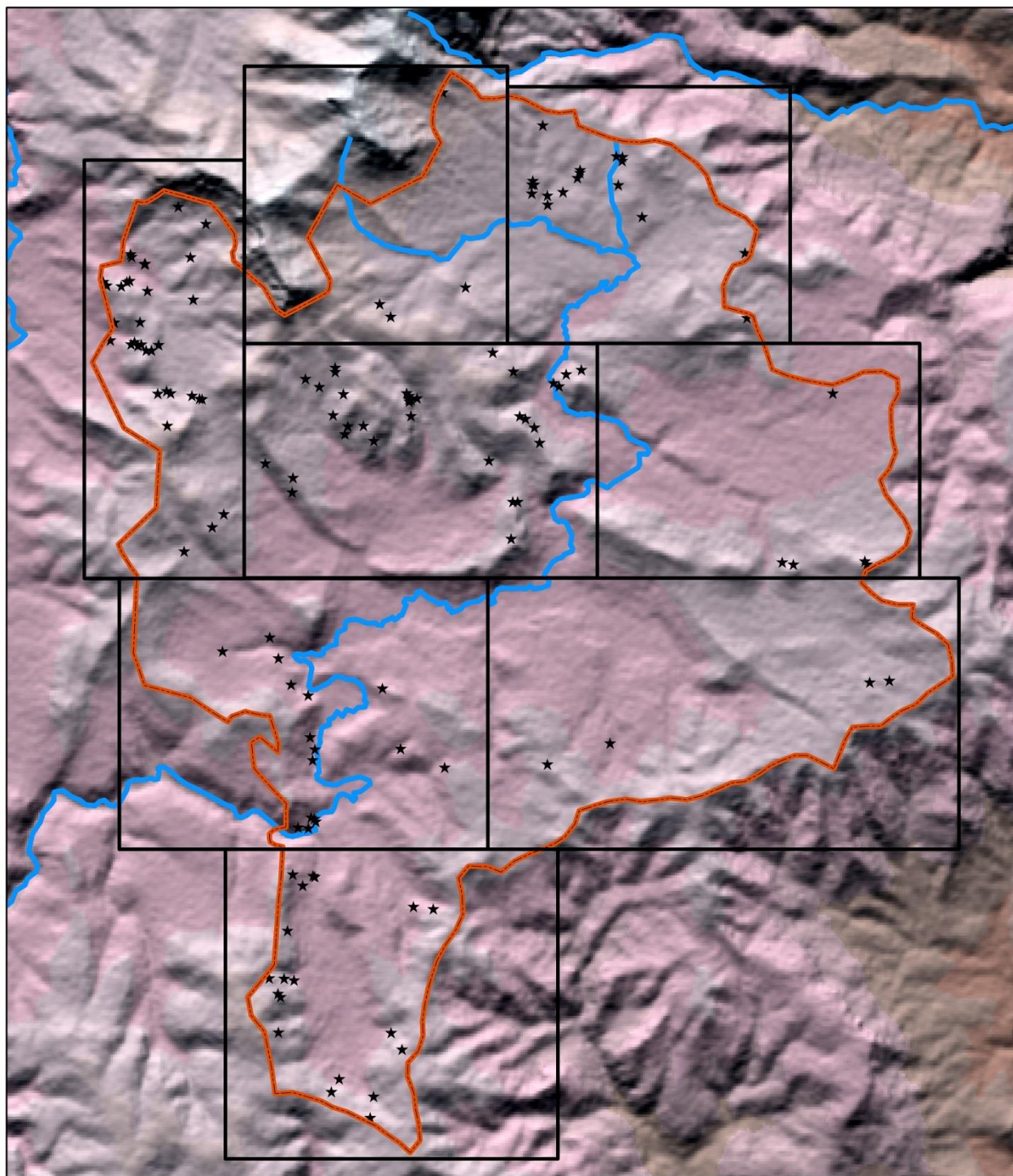
Legend

| | |
|--------------------------------|---------------------|
| ● High Significance Rock Art | — SNP Survey Tracks |
| ● Medium Significance Rock Art | — SNP Boundary |
| ○ Low Significance Rock Art | — River |
| ★ Stone Walling | |
| ▲ Other Archaeology | |

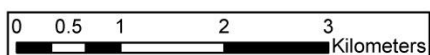
Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



Map 22 Area 8 showing all heritage resources located during 2015 survey with GPS tracks



Some sites may be obscured by high density site clusters. High significance rock art sites are most important and are therefore placed on top of lower significance sites.



Map 23 showing stone walled sites located during 2015 survey

4.3 High significance rock art sites in the SNP

B01 – Rock art and occupation site

[ARAL 184]



Figure 1. Locating shot of B01 looking north



Figure 2. Site B01, oblique shot of panel A

SIGNIFICANCE:

Ranking: HIGH (complexity: low, visibility: high, vulnerability: high, rarity: low, research potential: low)

This site contains rock art, Later Stone Age artefacts, Iron Age/ Historical artefacts and a kraal. Although there is little potential for archaeological excavation, owing to the absence of significant sub-surface archaeological deposits it is rated HIGH significance for its clarity and its vulnerability: there is only one image, but it is very clear and is located close to the old lodge buildings and to a tourist hiking trail. It is well-known by tourist guides and these factors make the site vulnerable to further damage. Vulnerability is apparent in the (fortunately faint) scratched graffiti on and around the image. This site would be recommended as a tourist visitor site, if appropriate conservation measures are taken.

SITE LOCATION - 29°52'08.4"S, 029°07'19.0"E

B01 is a south-west-facing shelter measuring 29m in width across the rock face, with a 10m high overhang recessing up to 7m into the rock face. The site is situated approximately 20m above the course of a small stream flowing east-west and has a steep talus that slopes down to the stream 25m to the south. The Old Lodge buildings are visible to the west.

Rock art and stonewalled site B01 contains two panels of rock art, panels A and B.

PRESERVATION

Panel A is in a good state of preservation, though the head of the polychrome eland is affected by washes and has faded somewhat. There is also scratching over the image. Panel B is a smudged, indeterminate patch of paint.



Figure 3. ARAL photograph 1980



Figure 4. MARA photograph 2015

ARAL COMPARISON

It appears there has been very little deterioration in the polychrome eland since the ARAL photograph (only one picture) was taken in 1980. The extent of salt washing appears to be the same, both on the hindquarters and on the head. The line of the stomach is perhaps a little less clear in the 2015 photograph. Graffiti above and to the right of the eland are not visible for comparison in the ARAL picture because it was tightly framed.

PANEL A

See photo register: 6014-6017, 6020-6023, 1176-1191

Panel A is located on the rear wall of shelter B01, on the western side of the shelter above a ledge 5m from the shelter floor. It contains a single polychrome eland in a standing position facing south (right). This eland is 30cm in length. The head and neck are somewhat faded, but the rest of the animal is very clear.

PANEL B

See photo register: 6019, 6024-6032, 1197-1201

Panel B is located on the eastern end of B01 on a fallen section of rock on the shelter floor. No representational images, only smudging of paint.

STONEWALLING

See photo register: 6033-6039

One structure (A) present at B01. A is a stonewall measuring 1.5m in height which runs east-west under the drip line of the shelter, enclosing it at either end of the shelter.

ARTEFACTS

See photo register: 6031

Occasional artefacts found on surface. These include CCS and quartzite flakes, possible burnt bone and a length of rusted metal

DEPOSIT

Deposit depth is shallow: >10cm in depth. Bedrock is visible. The low finds density and shallow deposit exclude B01 as a potential excavation site.

B05 – Rock art and occupation site

[ARAL 244]



Figure 5. Locating shot of B05 looking east showing reception gate in background.

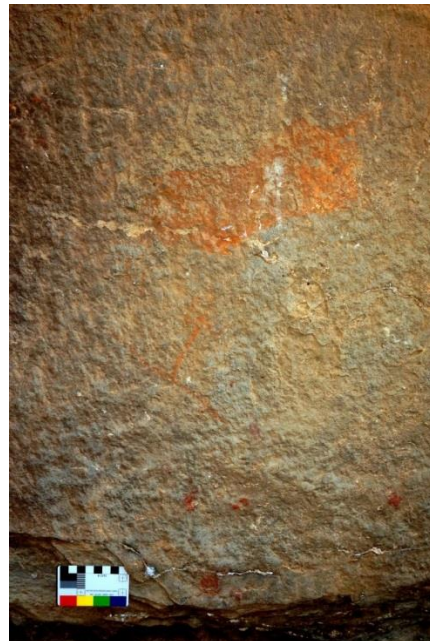


Figure 6. Portion of Panel B, site B05.

SIGNIFICANCE:

Ranking: HIGH (vulnerability: high)

B05 is located immediately above the new staff quarters and research buildings currently under construction. It is very proximate to the park boundary where there is no fence; both people and animals regularly cross the park border. The site is frequented by local villagers and construction workers as is evident by the abundance of litter (condoms etc.) While Ntate Semela Mona of MTEC has issued instructions to construction teams that they must respect the area, there is no way of policing human agency at the site. Given that this rock art cultural resource could be up to 4000 years old, **provision must immediately be made for its protection.** Complexity, rarity and research potential are moderate.

SITE LOCATION - 29°52'26.8"S, 029° 04' 02.4"E

See photo register: 9951-9961

Rock art and stonewalled site B05 is located within a sandstone shelter facing north. The shelter is approximately 15m in length, 5m in height and 5m in depth. B05 is situated about halfway up this north-facing slope. The shelter overlooks a complex of stone buildings and the Sehlabathebe National Park boundary and road. The main gate to the park lies to the north of B05, obscured by a low hill. The Leqoa River can be seen flowing to the north west of B05 to the east, the visitor reception gate and buildings.

The art at rock art and stonewalled site B05 is divided into two panels (A and B), located roughly in the centre and on the right-hand (western) end of the shelter

PRESERVATION

The site is subject to damaging factors such as animal activity (rubbing), dust and faking. The paintings themselves are not, at this stage, affected by flaking but the shelter's back wall shows flaking. This may affect the art at a later stage. The paintings are faded.

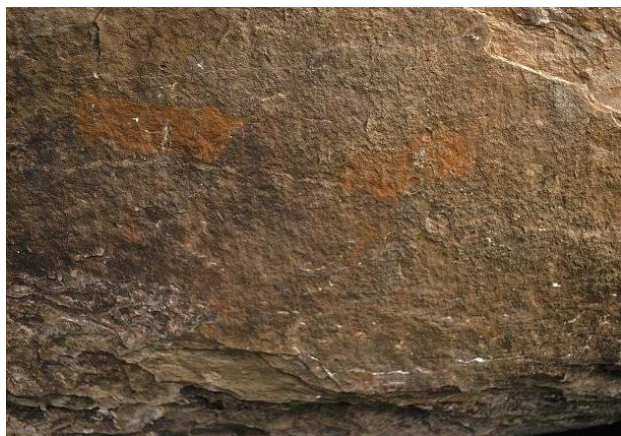


Figure 7. ARAL image 1980



Figure 8. MARA image 2015

ARAL COMPARISON

No significant change since 1980. Art appears more faded, and this is probably owing to further build-up of dust. No apparent graffiti.

PANEL A

See photo register: 9962-9964

Panel A is located in approximately the centre of shelter B05, about 1.2 m from the shelter floor. This panel consists of indeterminate, faded figures that appear to have been extensively rubbed by animals.

PANEL B

See photo register: 9965-9999, 0007-0028

Panel B is located towards the western end of shelter B05, to the right of panel A. This panel consists of 5 representational paintings and red finger dots: two eland in yellow-brown and white and three human figures. Above the left-hand eland is a walking human figure, also in yellow-brown ochre. This figure carries a long stick across its shoulders. Below the right-hand eland are two dark red running figures. Below the running figures and on the right-most section of panel B are finger dots in dark red.

STONEWALLING

See photo register: 9951-9961

There are two stonewalled structures present at B05. The first is a small (<2m diameter) dry stone enclosure at the most easterly end of the shelter, underneath the overhang of the shelter. This structure abuts the back wall of the shelter. It is semi-collapsed.

The second stone walled structure at B05 is a larger kraal structure of dry stone construction that runs below the dripline of the shelter from end to end (15m east-to-west). This kraal structure serves to enclose the shelter.

ARTEFACTS

No artefacts were recovered at the site. The slope on which the shelter lies is a steep one, and it is possible that any artefacts may have washed downhill.

DEPOSIT

There is little deposit in shelter B05. The flat shelter ground surface consists of gravels eroded from the shelter wall and exposed bedrock.

OTHER FEATURES

On the back wall of shelter B05, to the left of the art, are multiple clay-drying circles in light grey clay.

B29 – Rock art and occupation site

[ARAL 186]



Figure 9. Locating shot of B29. Gated fence to Old Lodge can be seen far left.



Figure 10. Locating shot of B29 facing south.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high)

B29 is located very close to the Old Lodge. It could be a site to which tourists are taken. This increases the site's vulnerability. Previous cultural damage includes the construction of stonewalled structures directly in contact with the rock art in panel C. This damage does not appear to be recent. Further damage must be prevented when taking tourists to B29.

Visibility, complexity, rarity and potential for further research are all moderate.

The rock art present at B29 is spread across the back walls of two sandstone shelters, A and B. Both shelters A and B face north. The art in panel A, shelter A, is approximately 17m east of panel A, shelter B.

SITE LOCATION - 29°52'10.4"S, 029°06'38.4"E

See photo register: 2492-2505

The site is located facing a small west-east stream immediately north of kraal enclosures with ground surface beyond the drip line sloping gently down to stream course and flood plain.

PRESERVATION

B29 is affected by natural salt seepage and washes. Panel C, shelter B, has been damaged by the construction of a stonewalled dwelling. This dwelling, built abutting the back wall of the shelter, directly affects and obscures some of the paintings in the panel. Many of the paintings at B29 are badly faded, and some are flaking.

ARAL COMPARISON

Although the site location shots correspond, the panel shots taken by ARAL do not match those taken on this survey. From the ARAL sketches there seems to be no significant further deterioration, although this is not a good evaluation method.

SHELTER A

PANEL A

See photo register: 2506-2518

Shelter A, located to the east of shelter B contains a single panel of rock art: panel A. This panel includes only two painted images: the left-hand image is painted in red but is too faded and smudged to positively identify species, although it is possible that it is a hartebeest. The right-hand image is a hartebeest painted in light red and white. This animal appears to have been painted lying down with its front legs folded beneath its body. The whole animal is very faded.

SHELTER B

PANEL A

See photo register: 2522-2534

Panel A, shelter B is located at the most easterly end of the shelter at a height of approximately 75cm from the shelter floor and approximately 3m east of a stone dwelling (dwelling A) abutting back wall of shelter. This panel contains a single image, the remains of a shaded polychrome eland in red, white and light red. This eland is painted in a standing position facing east (left). The majority of the head and neck have now faded away. This appears to due to salt seepage coming through the rock face.



Figure 11. B29, shelter B, panel B.

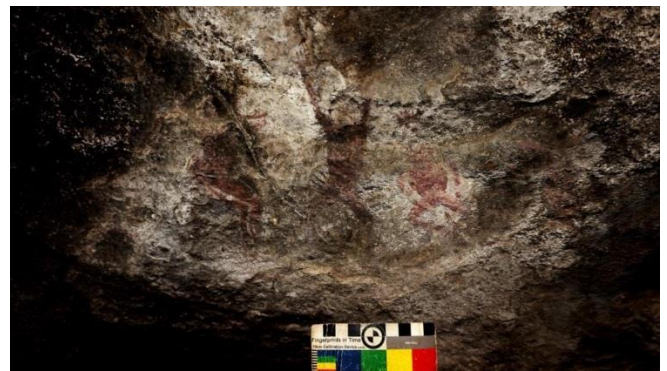


Figure 12. B29, shelter B, panel B.

PANEL B

See photo register: 2535-2566

Panel B is located +/- 80cm west (right) of panel A and approximately 70cm from the shelter floor. Panel B is approximately 1.3m east (left) of dwelling A. It contains 16 images in total: 15 human figures and one red finger smear.

Top left to top right: along the top of panel B are 9 seated, kaross-clad figures painted in dark red. The left-most of these figures are painted en face with knees bent up and feet in front of bodies. Other face slightly west (right) The upper portions of these figures are faded and damaged by soot but it is still possible to discern quivers and arrows from at least four of the figures' backs. The figure on the far right is extremely faded.

Bottom left to bottom right: Below the line of seated figures: 1 human figure in dark red, +/- 10cm in height holds a raised bow and arrow. The lower portion of the body is very faded. Right of this figure is a human figure in dark red and white (white now faded away), painted upside-down as if falling, with arms outstretched above head, wearing a red headdress.

To the west (right) of this is a red finger smear that is unclear due to soot-overlay.

Approximately 80cm west (right) of the row of seated figures are 3 human figures and one remnant of the same. 1 red human figure measuring 12cm in height with legs bent and tassels from rear facing right(west), 1 human figure in dark red with legs akimbo, knees bent outwards and hands outstretched above head fingers visible. This figure has lines protruding from the waist. Final human figure in this set is in red facing forwards with legs bent, hands on legs and tassels hanging from between legs. This figure would have had a white face, but this has now faded. It also wears a spikey headdress. The image on the far right is extremely faded (red).

PANEL C

See photo register: 2568-2599

Located immediately to the west (right) of dwelling A and within the area enclosed by kraal B. Some paintings obscured by the construction of dwelling A. This panel is damaged by flaking, wash and soot from fires built in dwelling A.

Left section panel C: The highest concentration of paintings at B29 are found in this section of panel C. These images include: 1 large (+25cm) human figure in dark red with quiver, arrows and kaross, 1 shaded polychrome rhebok with head lowered, 1 extremely flaked and therefore fragmented polychrome eland (upper body and head flaked away). 2 possible human figures in red. Below this area of paintings, in two naturally eroded recesses in the rock face are 2 antelope: one bichrome rhebok in light red and white, painted on side with head facing top of recess, one >5cm eland in light red and possible accoutrements-red with white dots surrounding it.

Centre panel C: this section contains the remains a polychrome eland, the body of which has flaked away leaving only the head which is painted facing outwards from the rock face. To the right of this are two dark red, flaked, possible human figures and a very faded possible antelope in red, white and light red

Right panel C: these paintings are the furthest right and final group of paintings at B29. This section includes the remains of an antelope in red, light red and white (only the tail and back-end remain). The right-most images of panel C are finger smears in red and some indeterminate patches of red paint.

SITE DESCRIPTION

See photo register: 355-369

Shelter enclosed and abutted by 5 distinct structures (A-E):

A: Dwelling – a semi-circular structure, well built with selected stone blocks, some roughly faced on at least one side, set into a soil bond. It abuts the rear shelter wall to the south, using the shelter as its back wall and roof of the dwelling. The doorway is facing northeast with inscriptions on the door lintel "BE..." and "KH"; the gap in the walling above the doorway close to shelter roof is a flue for smoke from the hearth inside the dwelling; there is a similar flue on the west side of the dwelling. The dwelling is 3m in diameter internally, with walls approximately 0.5m thick.

B: Semi-circular structure built with selected stone blocks set into soil mortar but partially collapsed and more dilapidated. Larger than A, it abuts the west side of A. and continues for 3m west, curving south to abut the rear shelter wall. Structure B encloses approximately 3m by 3.5m. Probably a small lambing kraal with no entrance.

C: Rectilinear structure, dry stone built with selected large blocks set into the ground surface forming two faces, then filled with smaller irregular stone core. The structure extends north from the western end of the shelter, turns 90 degrees east and continues across the width of the whole shelter with its entrance facing north in front of dwelling A. It then turns south to meet the rear shelter wall at the east end of shelter; the rectilinear structure C encloses A, B, F and the whole shelter area, extending 9m beyond the drip line. The total area enclosed is 24m east-west by 14m north-south.

D: Rectilinear kraal identical in construction methods and in the same construction phase as C. It extends east from the northeast corner of kraal C for approximately 14m, then turns 90 degrees south and continues to meet the rock face to the east of the shelter; enclosing an area 14m east-west by 10m north-south.

E: Linear enclosure wall located 13m to east of kraal D; identical construction to C and D. Extends north from rock face for c. 9m as far as small stream with entrance towards north end of structure.

There is a small rock outcrop F located north of dwelling A and enclosed by kraal C. F has a concave bowl-like shape cut into c. 0.22m diameter x 0.10m deep. Possibly used to mix ingredients/medicine.

DEPOSIT

Walling of kraal C has acted a silt trap retaining sediment within the shelter and area beyond drip line. Ground surface is flat and more than 0.5m deep. Good potential for excavation. Dwelling A is built directly onto deposit that is at least 0.2m deep, that appears well stratified= good potential for earlier phases of occupation. With the depth of deposit being more than 0.5m (possibly 1m) and having two phases of occupation evident, with dwelling A built directly onto artefact-bearing deposit, there is a high potential for research into the LSA - Iron Age transition at this site.

ARTEFACTS

See photo register: 7535-7439, 352-357

Sparse stone tools mainly on CCS but also hornfels and quartzite, 1 with edge-damage on lateral side; 4 (four) steep scrapers with edge/step damage; three fine-grained quartzite, 1 CCS; 1 Woodlot scraper on CCS; CCS, quartzite and hornfels flakes. Stone tools mainly found on deposit at entrance to A where there is no vegetation cover - although there is not a large quantity of stone tools found across shelter this is likely due to vegetation cover, with high potential for sub-surface deposits. Area near doorway of A has c. 3-5 stone tools per square metre.

Bored stone (from digging stick) broken, made from erratic (possibly iron stone?); pebble with groove cut into one side and slightly concave facets worn on sides of groove but not at base - appears to have been used to produce round, cylindrical shape through abrasion, possibly on lengths of bone or wood. At least four broken lower grindstone fragments were found close to dwelling A, to east of doorway below overhang.

4 (four) steep scrapers with edge/step damage; three fine-grained quartzite, 1 CCS; 1 Woodlot scraper on CCS; CCS, quartzite and hornfels flakes. Stone tools mainly found on deposit at entrance to A where there is no vegetation cover - although there was not a large quantity of stone tools found across shelter this is likely due to vegetation cover, and it was observed that the shelter has high potential for sub-surface deposits. Area near doorway of A has c. 3-5 stone tools per square metre.

At least 4 broken lower grindstone fragments were found close to dwelling A, to the east of the doorway below the overhang. A plastic bottle top and a fragment of aluminium can and ring-pull indicate site was used in the modern era; also fragments of 'coke' coal: also modern. 1 animal bone; 2 glass fragments: one clear one green-tinged.

B31 – Rock art and occupation site

[ARAL 240]



Figure 13. Locating shot of B31 looking south.



Figure 14. Locating shot of B31 looking north.

SIGNIFICANCE

Ranking: HIGH (visibility: clear, vulnerability: potentially high)

B31 represents an excellent example of the varying types of cultural resources present within the park. It is therefore a prime target for development as a visitor site. This places it immediately in the high-vulnerability bracket. Rock art images in centre panels G, H and I contain the highest concentration of paintings and the most clearly visible. These panels would be suitable for visitor display although we recommend that the panels be traced and redrawn for greater interpretive impact.

SITE LOCATION - 29°53' 23.8"S, 29°06' 31.6"E

See photo register: 1534-1535, 1537-1554

Rock art and stonewalled site B31 is an extremely large sandstone shelter, measuring 100m in width. This site faces east and lies on a relatively steep slope of hillside. There is a stream running in the valley below B31 (north - south-east) towards the Tsoelikane River. Refer to co-ordinates. This site has been extensively used by people and contains two stonewalled dwellings, an enclosing kraal wall running the length of the shelter and a smaller enclosing kraal inside the shelter.

The rock paintings at shelter B31 are spread intermittently across the majority of the length of the 100m shelter, places upon the back wall and in natural recesses in the rock face from the left (south) to the north (right side). There are no paintings at the extreme north end of shelter B31 in the vicinity of the stonewalled dwelling. The art has been divided into 15 panels (panels A-O).

PRESERVATION

This site has considerable evidence for intensive human occupation and various factors are affecting the preservation of the site. The rock face is covered in dust, there has been animal rubbing along the back wall and there appears to be calcite build-up on some of the panels, contributing to the flaking of paint from the rock face. The surface of the rock face appears also to be friable, and large sections of it have flaked off and lie on the shelter floor – although none with paint could be discerned.



Figure 15. ARAL image 1980, B31 panel G



Figure 16. MARA image 2015, B31 panel G

ARAL COMPARISON

Close inspection of the images of the eland in panel G suggests that in this panel at least, there has been little change in the state of preservation in the last 35 years. Other panels showed signs of having gathered more dust and some further spalling was observed. Please see condition assessment forms.

PANEL A

See photo register: 8429-8451, 8549-8461

Panel A is located at the extreme left (south) end of shelter B31. This panel consists only of large, bright red splodges. These are possibly paint smears from goat/sheep identification paint. These are located on the ceiling of a recess. On the bottom right of panel A are possible red finger dots.

PANEL B

See photo register: 8452-8458

Panel B is located +/- 1.5m from panel A, close to the shelter floor. It consists of red indeterminate figures that are very faded.

PANEL C

See photo register: 8462-8470

Panel C is located 1m from panel B on the back wall of shelter B31. This panel consists of more red paint smear similar to panel A and one deliberate red finger dot

PANEL D

See photo register: 8471- 8489

Panel D is located under a fallen boulder at back wall of shelter, protected by another boulder in front of it. In panel D are a collection of faded bending forward human figures painted in red and black. They have elongated arms and legs with large calf muscles. Also in panel D are indeterminate black painted forms.

PANEL E

See photo register: 8490--8496

Panels E, F and G, H and I are located within the stonewalled kraal on the centre-right side of shelter B31. They are placed upon the back wall of the shelter, about 1.6- 1.8 metres above the shelter floor. Panel E is a single image on about 2.5 m left of panel F. This single image is one bright red paint mark

PANEL F

See photo register 8497-8501

Panel F is 2.5m to the right of panel E. This panel consists of three human figures (+/- 10cm in height) painted in dark red. The left image is facing to the left and only its torso is very clear, the centre figure is facing to the right and appears to be walking, as does the human figure on the right, though this image is more faded than the other two. Below and slightly to the right of these figures, on the 'ceiling' of a recess in the rock face there is another red paint mark.

PANEL G

See photo register: 8502-8515

Panels, G, H and I are immediately next to one another about 1.5m from panel F on the back wall of the shelter and are the panels with the highest concentration of paintings. Panel G extends across the rock face for +/- 1.3m. From left to right: Indeterminate orange quadruped and faded (by dust) row of kaross-clad figures in red, each about 12cm in height. Centre: row of 15 (?) on top of panel, superimposed on left by bichrome orange and white eland with no head visible, Line of human figures superimposed on right by shaded bichrome eland with red forelock, white head, white legs. Bottom right: row of 5 (?) faded human figures in seated postures with karosses.



Figure 17. General shot of panel H in relation to panel G.

PANEL H

See photo register: 8516-8538

Panel H is on an angled outcrop of the rock face, facing south, immediately to the right of Panel G. This panel contains a concentration of red human figures in clear red paint. Some of these are quite large; one human figure appears to bend around the top of the panel. Others hold sticks and have tassels attached to extremities.

PANEL I

See photo register: 8538-8544

Panel I is on the back wall of the shelter facing outwards and contains a group of human figures in red and dark red. In the top centre of panel I are two human figures with thin bodies, elongated arms and thin legs in dynamic postures. These appear to be running. There are about five other human figures below these and portions of red and white flaked paint.

PANEL J

See photo register: 8544-8554

This panel is extensively damaged by flaking and calcite; the left hand of panel J is mostly destroyed. In the centre of the panel is a faded dark red quadruped, 4 dark red flaked lines next to one another and on the right of panel J is a row of seated kaross-clad figures and hunting bags. This panel is +/- 1.2m long.

PANEL K

See photo register: 8555-8587

Panel K is located close to the shelter floor in B31. It consists of indistinguishable dark red paint that has been flaked extensively.

PANEL L

See photo register: 8558-8560

Panel L is to the right of panel K and contains only 3 bright red finger dots.

PANEL M

See photo register: 8561- 8569

To the right of stone walling in shelter B31, and upon a ledge accessible from the shelter floor in a natural alcove is panel M. This panel is very unclear and faded but contains a line of finger stripes next to one another on the left wall (south) of the alcove. On the opposite (right/north) wall of this small recess is another indeterminate red mark.

PANEL N

See photo register: 8571-8580

On the same ledge above the shelter floor, 1.5m from panel M are faded indeterminate red, dark red and light red bovid shapes

PANEL O

See photo register 8581-8587

On ledge above shelter floor 6m from panel N is panel O, containing (on left) red finger smears and on right 2 (?) large bovid shapes.

STONE WALLING

See photo register: 1544-1554, 1569-1588. 1606-1617

The most striking feature of B31 is the large stone wall built along the drip line of the shelter, stretching almost the entire length of the shelter. This wall survives to a maximum height of 2.5 m and is constructed with selected sub-angular blocks. Some upright stones measure 1m in height each. This wall is dry-stone-built and is more than double wall in some places. The walling has intermittent drainage holes at the bottom of the wall (possibly for water drainage and for disposal of dung build-up).

Within the shelter, built against the perimeter kraal wall and running to abut the back wall of the shelter is a smaller stone enclosure measuring about 6m. This kraal is irregularly shaped and divides the site. It is dry stone and well built, surviving relatively well.

STONE DWELLINGS

See photo register: 1555-1557

At B31 there are 2 stonewalled dwellings, at the far north end of the shelter. They fall outside of the large kraal wall. The first is built abutting the large perimeter wall to the east and the back wall of the shelter to the west. This dwelling survives to a height of 2m and its entrance faces east. The second stone dwelling is more dilapidated and collapsed, surviving to a height of approx. 1m. This dwelling's entrance faces south-east. Both are well-built with selected sandstone rocks and are dung-mortared.

DEPOSIT

B31 can be divided into 4 sections (A-D) for assessment of deposit, because the site varies in use and structure, therefore making deposit depths and excavation potentials different in each section.

Section A:

Section A is located at the far south end of shelter B31 within the boundary of the large kraal wall. This section stretches for a quarter of the length of the site. The sediment has largely away and the find density in this area is very low: only 1 bone fragment and 1 lithic artefact. Therefore, the excavation potential is low.

Section B:

Section B is located within the confines of the smaller kraal structure within the shelter. The deposit in this area appears well preserved and has been contained by the walling. The finds density in section B is highest at B31: +/- 15 CCS lithics, +/- 10 animal bone fragments and 7 pieces of rusted metal. This area had the highest excavation potential.

Section C:

This area encompasses the portion of the shelter to the north of the smaller kraal structure but contained within the large perimeter kraal wall. Sediment is only visible in a small area near the back wall of the shelter and the rest of the floor appears to be bedrock. Excavation potential, therefore, is very low. 4 lithics and 1 piece of metal were observed on the surface.

Section D:

Section D is made up of the stone dwellings outside of the large kraal wall on the far north of B31. There is no sediment on either the surface outside of the dwellings, nor build-up of deposit inside either of the structures. Any deposit is likely to have washed down the slope towards the stream in the valley below as at this point the slope falls steeply away. Even so, surface finds include stone artefacts, bone and glass fragments.

ARTEFACTS

See photo register: 1558-1568, 1588-1605

Artefact-density is moderate, with surface artefacts occurring over the entire area within the shelter. These finds include metal artefacts, glass fragments, multiple animal bones, CCS and hornfels flakes

B33 – Rock art site

[ARAL 194 and 195]



Figure 18. Locating shot of B33 looking north-west and showing Kepising mountain beyond.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, visibility: clear)

B33 is within a high-vulnerability bracket because it is currently on a tourist route and is well known to tour guides and park managers, being on the trail to the waterfall. This increases the chance of deterioration owing to human action. Not only is it on the route to the waterfall, but the site is particularly popular because the paintings are very clear.

Rarity and potential for further research are moderate but this site must be maintained if it is to continue to be used as a park attraction.

SITE LOCATION - 29°53'32.1"S, 029°07'47.1"E

See photo register: 2607-2612

Rock art site B33 is located on a low-lying kranline 40m above (to the west) of the Tsoelikane River. The area is marsh-like. Rock art and stonewalled site D23 is visible to the north-east, on the opposite side of the river. The two shelters that make up B33 are both east-facing.

The rock art at B33 is spread across two east-facing shelters one next to the other (shelters A and B). Both shelters are low-ceilinged and shallow. The paintings are executed mainly in red, dark red and white, though light red, bright red and black occur as well. Shelter A is divided into 8 panels: A-H, while shelter B contains 6 panels A-F.

PRESERVATION

Much of the art in B33 is faded. The site is affected by washes, salt-seepage and animal activity. B33 is located very close to the Tsoelikane River. This proximity to the river appears to contribute to damp conditions within the site as a whole.



*Figure 19. Above: ARAL image 1980. Below: MARA image 2015.
B33 shelter A, panel G.*

ARAL COMPARISON

Scrutiny of the ARAL photographic record does not reveal any panels in which there has been marked deterioration since 1980. Natural weathering processes such as salt washes seem to have incrementally advanced, and there are still many plants growing in cracks in the rock surface. In most instances these seem to have done no harm.

SHELTER A

PANEL A:

See photo register: 2614-2621

Panel A is located on the far right (south) of shelter A, approximately 10cm from shelter floor and consists of a single human figure in red of approximately 4cm in height. This figure is running and holds a stick.

PANEL B

See photo register: 2626-2628

Panel B is located approximately 2.5m to the right (north) of panel A. 7 light red possible thumb prints or possible human figures, difficult to identify.

PANEL C

See photo register: 2631-2645

Approximately 80cm right (north) of panel B and 20cm from shelter floor. There are three images in panel C, 2 of which are polychrome. 1 polychrome eland (30cm in length) facing right with 2/3 smaller antelope. One of these may be a hartebeest, while the other is a diagnostic eland.

PANEL D

See photo register: 2645-2649

Panel D is to the right (north) of panel C, 50cm from the shelter floor. This panel contains only unidentifiable/indeterminate red paint patches.

PANEL E

See photo register: 2650-2653

Painted on the roof of shelter A, towards the mouth of the shelter. This panel contains faded, rubbed and flaked remnants of red paint. There are possible human figures but they are too damaged to make positive identification.

PANEL F

See photo register: 2654-2661

Panel F is painted to the right of panel E, below the remains of a swallow's nest approximately 80cm from the shelter floor. This panel contains red patches of paint. No identifiable images.

Panel G

See photo register: 2662-2682

Panel G contains the highest concentration of paintings in shelter A. These are to be found approximately 60cm from the shelter floor, above naturally-eroded recesses in the rock face.

From left to right: Procession of 15/16 human figures in red and white ranging from 5cm to 10cm in height. Many of these figures are standing with their legs crossed. Some hold sticks/bows. They appear to have large calf muscles and some have distended stomachs. On the far right is a single figure in red wearing a kaross. Either the colour that once filled the kaross has faded or this figure is hollow-bodied. Above the procession, in the centre of the panel, is a bichrome eland in red and white measuring 14cm in length.

PANEL H

See photo register: 2683-2690

Panel H is the most northerly (right) and final panel within shelter A. Herein are 12 human figures in red and dark red. The postures in which these human figures are painted vary. One figure has an elongated torso and legs. This figure bends forward and holds a stick above its head. This figure is incredibly delicately painted. Its limbs are extremely fine. Others are painted in running postures. A less clear, quite smudged, figure to the right of the bending-forwards figure appears to have rather thick, muscular arms.

SHELTER B

PANEL A

See photo register: 2691-2707

Panel A, shelter B is the furthest left of all paintings within shelter B. The panel is approximately 30cm from the shelter floor. This panel extends rightwards (north) for 1.2m. Part of panel A is on the ceiling of the shelter, while the remainder are found on the back wall. Paintings on the ceiling include: 5/6 human figures in red; three of these are 7cm in height, one measures 15cm in height and is painted in a running posture. This figure also holds a stick. Above this running figure (next to which is another smaller human figure) is an unidentifiable antelope (probably rhebok) in white with legs tucked under body

Paintings on the back wall: To the right and below these images on the back wall of the shelter are 3 rhebok alongside one another. These rhebok are painted in white and appear to be of considerable age.

PANEL B

See photo register: b2708-2713

Found to the right (north) of panel A (white rhebok), panel B contains (left to right): 1 polychrome mountain reedbuck in white light red and red (there may be a second, extremely faded mountain reedbuck to the right of this but it is too faded to make out), 1 human figure in red and 1 unidentifiable antelope painted in white.

PANEL C

See photo register: 2713-2739

Panel C is to the right of the mountain reedbuck in panel B. It contains a multitude of rubbed (animal activity), faded and wash-damaged images. Left: 1 dark red quadruped with very thin tail. Centre: +10 dynamic human figures in red. Above and to right of group of human figures are at least two human figures painted in white an indeterminate red and black paint marks. These have no identifiable characteristics. Above all and to the right is an indeterminate red figure (possibly animal or human) measuring 12cm in length.

PANEL D

See photo register: 2740-2746

Found on the sloping ceiling of shelter B to the right of panel C. is a single polychrome eland, measuring approximately 15cm in length. Its front half, including the front legs, neck and head has been severely damaged by wash.

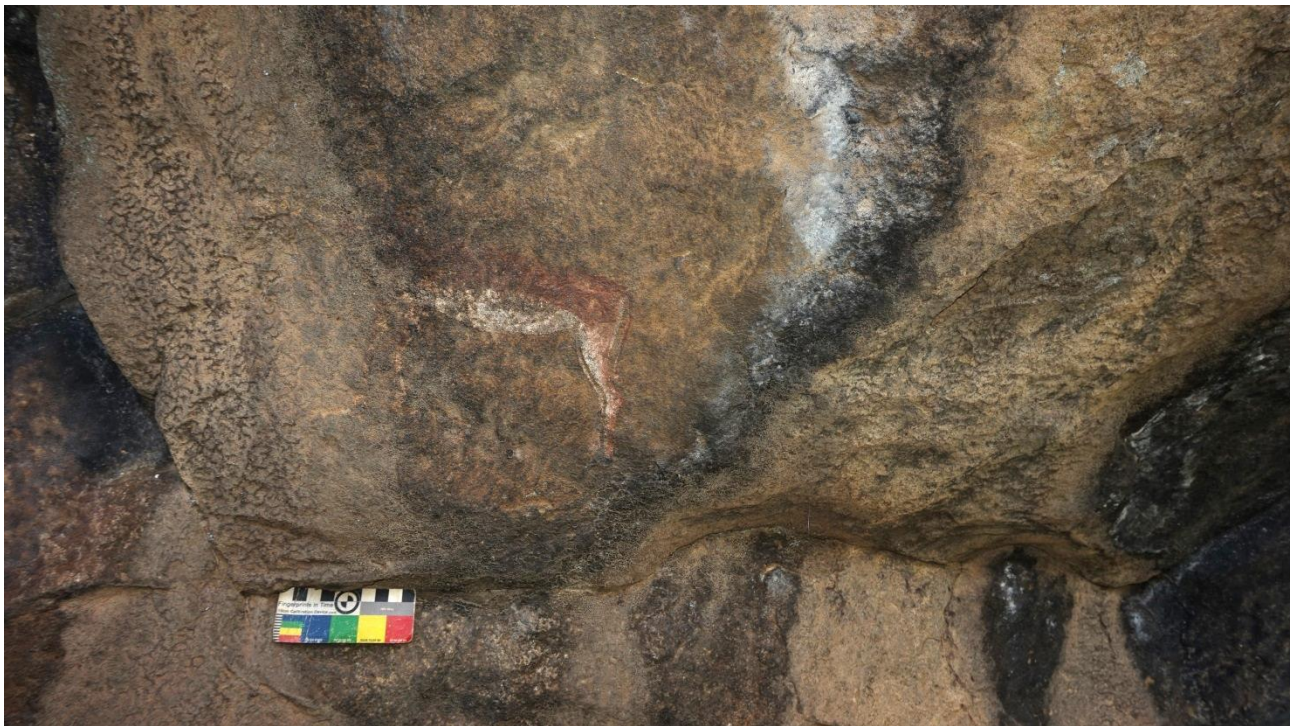


Figure 20. B33 shelter B, panel D. Very clear hindquarters of shaded polychrome eland. The head has been removed naturally by water running down the rockface.

PANEL E

See photo register: 2747-2762, 0022-0070

Panel E contains a large concentration of paintings. It extends for 4m left to right (south-north) along the back wall of the shelter. Much of the art has been damaged by wash, rubbing and soot.

Obvious different painting events have occurred here with superpositioning of images evident.

Bottom left: faded and rubbed group of human figures and antelope in red, dark red and light red.

Left: above these images 40+ running human figures in red (most +/- 3cm in height) painted superimposing and around indeterminate antelope and larger human figure in red holding a stick. To the immediate right: +15 faded human figures in red holding sticks. The human figures measure +/- 7cm in height. They are extremely faded.

Right: more human figures in red and dark red, at least 4 faded polychrome rhebok in running postures. These rhebok appear to form the earliest/oldest painting event and appear to be of considerable age. They are painted beneath other images. Also 1 bright red human figure in running posture with a stick.

Right end: human figures in red and bright red, one with quiver and possibly 2 very faded antelope.

Bottom centre- right panel E: human figures in red and dark red. These are very faded by wash. 1 large (30cm long) polychrome eland: back legs and hindquarters have faded away. At the far right of the bottom of the panel are 2 separate white areas of paint. These are certainly paint but have no identifiable features. The left-hand area of white paint is 8cm in height while the right-hand measures 12cm in height.



Figure 21. B33 shelter B, panel E.

PANEL F

See photo register: 0071-0080, 7263-7289

Painted at the far right of shelter B. The images are extremely faded.

Left to right: 1 dark red faded antelope, 1 seated human figure in red (possibly 2 more of these – too faded to be positive).

Centre: The highest number of paintings is concentrated in the centre of the panel; a large group of human figures in red with white details. Many of these human figures have elongated, stick-like bodies often in strange positions. They have accentuated round calf muscles. White arrow shafts

with red tips, quivers, white bowstrings, white lines along their legs, white lines along their stomachs and some figures have white faces.

SITE DESCRIPTION

Both shelters are low-ceilinged and very shallow. These shelters extend for over 20m north-to-south, but are only 2m deep and 1.5m high. The shelter floor is flat and slopes gently out from the drip line for 10m, whereupon the slope becomes steeper towards the Tsoelikane River 40m below to the east.

STONEWALLING

No stonewalling at B33.

DEPOSIT

Although no artefacts were found at B33, the deposit within the shelter appears well-preserved. Excessive erosion does not appear to have occurred and the slope of the hillside outside of the shelter is gentle.

C17 – Rock art and occupation site

[ARAL 205]



Figure 22. Locating shot of C17 looking south-west.



Figure 23. Locating shot of C17 looking north-west.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, visibility: clear, potential for future research: high, rarity: high)
Images are clear, even though fading of white paint has occurred. Subject matter is rare and may offer potential for future research: the grouping of eland bodies. It may prove an important site for furthering our understanding of the art. The site has been affected by human action in the form of scratching. Previous human activity also includes wall-building activity and fire-making. Further damage must be prevented. This site must be treated with extreme care should it be included as a tourist site.

SITE LOCATION – 29°54'11.5"S, 029°06'55.9"E

See photo register: 0335-0343, 7546-7563

Rock art and stonewalled site C17 is a southeast facing sandstone shelter on the top of a gently sloping hill to the west of the Tsoelikane River. The site faces across a wide valley where the river snakes to the south. In view of the site is a confluence of two streams of the river. The site is approximately 125m west of the river. The shelter itself, at the drip line, is 6m in height, but slopes downwards towards the back wall. The height of the shelter at the back wall is <2m. It is 25m in length and 4m in depth.

PRESERVATION

Salt and water washes appear to be main factors affecting preservation at C17. Consequently, the site is extensively flaked and very faded. Panel C, however, is extremely clear.



Figure 24. ARAL image (wet) 1980, C17, panel C. Circles indicate areas to compare with the 2015 image



Figure 25. MARA image 2015, C17, panel C. Circles indicate areas where an increase in spalling was detected

ARAL COMPARISON

Close-up photographs taken by ARAL were done so when wetted by spray, making it difficult to assess on a like-for-like basis. However, close scrutiny of the ARAL images shows that there has been some deterioration in the last 35 years – illustrated in the slight increase in spalling shown in the images above.



Figure 26. C17 panels C and D

The rock art site C17 contains four panels (A-D) located on the back wall of shelter. Panels extend for 8 metres over the centre of shelter C17. See photograph register: 0345, 0346 , 7564, 7565

PANEL A:

See photo register: 0347-0358, 7569-7583

Panel A is the leftmost panel at C17.

Top: the top section of this panel contains four very faded polychrome eland in dark red, red and white (most of white paint has now faded away). Two out of four eland (two at far right) are painted on top of the other. There is a dark red polychrome eland on top of a red polychrome eland. The tail and hind section of the red eland are visible.

Bottom: To the bottom right of eland are indeterminate figures in red. These too are faded, and are

possibly the remnants of human figures, the rightmost image possibly a human figure in a kaross.

PANEL B:

See photograph register: 0359-0367, 7584-7597

Panel B is approximately 30cm to the right of panel A.

This panel contains five red human figures <10cm in height. Three human figures are painted directly above two others. The rightmost human figure in the top half of panel is extremely faded and flaked. The three top figures have headdresses/hair and possible arrows. The leftmost bottom figure has both arms raised and crossed over its head, and the body has flaked away.

PANEL C:

See photo register: 0371-0384, 7598-7615, 9328-9338

Panel C is the largest and most densely painted panel at C17. It is approximately 1.2m from the shelter floor and is +/- 1 metre in length.

Contains + 30 eland in dark red. On the left side of panel C is a collection (+28) of small (<10cm in length) eland bodies in a group painted in red and white. Many of the white heads have faded away. Some of these eland have horns. They are in curled postures. To the right of this group are 5 larger (>10cm in length) eland, some very flaked, one with definite horns. Also in this top section of the panel are human figures.

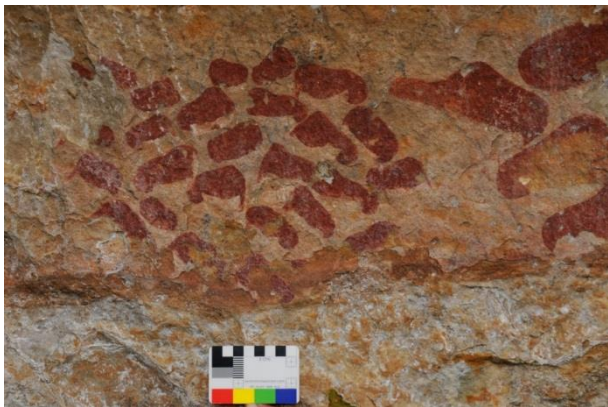


Figure 27. C17 panel C (left).

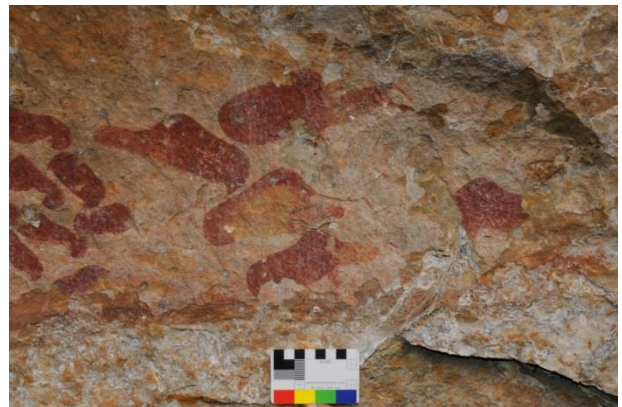


Figure 28. C17 panel C (right).

PANEL D

See photo register: 0386-0396, 7617-7629

Panel D is the rightmost panel in C17. It is located diagonally above and to the right of panel C.

There are three dark red human figures and some indeterminate red paint smears to the left of these human figures. The leftmost human figure is bending forward with arms raised towards face, its legs have flaked off, and the centre figure is en-face with arms raised with its right leg lifted sideways. The figure on the right is seated with its knees bent, partially flaked away and its arm raised.

STONEWALLING

See photo register: 7546-7554, 0335-0345

There are two dry stonewalled structures present at C17. One, on the western end of the shelter is a large (+/- 20 metres in length, maximum height of 1m, 6m in depth) dry stone kraal. It has collapsed in some places.

At the eastern end of the shelter, built into the shelter and against the back wall is a collapsed semi-circular dry stonewalled dwelling. The dwelling is approximately 2m in height, 3m in length and

2m deep.

DEPOSIT

The deposit, including a dung crust, slopes gently from the back wall to the drip line. Bedrock is visible within the shelter, therefore the deposit is shallow.

The deposit slopes more steeply from the exterior of the stonewalled kraal and there appears to be sediment built up within the wall of the kraal. The excavation potential has been estimated as 'medium' due to this build-up.

ARTEFACTS

See photo register: 0399-0400, 7630, 7633, 7634

The density of artefacts recovered at C17 is very low, and finds are sparse.

4 CSS flakes, 3 pieces of animal bone and 1 piece of metal.

D04a – Rock art site

[ARAL 246]



Figure 29. Locating shot of D04 environs, showing retaining/dam wall that has created marsh conditions.



Figure 30. Site D04a, with D04b behind and to the left.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, rarity: high, potential for future research: high, visibility: high)
D04a and b are extremely vulnerable due to their proximity to the park road, and to popular tourist site E01. They are also in close proximity to the area proposed for development as a biodiversity garden. These factors include D04a and b as potential tourist visitor sites. The images are very clear and the rarity of their subject matter is high. They are very likely to contribute to future research: the single seated figure is unique. It is ESSENTIAL that this site be protected.

SITE LOCATION – 29°52'18.5"S, 029°04'13.2"E

See photo register: 1997-2001, 7977-7978

Both D04a and D04b are located in a marshy area between three rock outcrops. The sites face east. It is +/- 30m east of the main gravel road running north-south through the park and 100m east of the security check-point into the Park. It is also east of the wooden walkway running east-west which is the proposed site for a biodiversity garden. D04a and are lower than this area. It appears that the area between the outcrop was once dammed. There is a high concrete wall of the northern end of the site. The ground is very damp.

PRESERVATION

Although the human figure is clear and appears largely undamaged, the floor of the shelter is very damp. There are wash-zones surrounding the image and foliage growing below it. These may in future affect the preservation of the image.



Figure 31. ARAL image 1984. D04a panel A.



Figure 32. MARA image 2015. D04a panel A.

ARAL COMPARISON

Close-up photographs taken by ARAL were done so when wetted by spray, making it difficult to assess on a like-for-like basis. However, close scrutiny of the ARAL images shows that there has been some deterioration in the last 35 years – illustrated in the slight increase in spalling shown in the images above.

D04a contains 1 image in a single panel (panel A). This human figure is located in roughly the centre of a small, low shelter created by a natural recess in a rock outcrop. This recess measures 5m in length, 3m in depth and 2m in height. The single image is located 80cm from the shelter floor.

PANEL A

See photo register: 7979-7997, 2002-2010

Located in the centre of the shelter D04a, at a height of +/- 80cm from the shelter floor is a single human figure in red. This figure is unique. The human figure is painted in a squatting/seated position with its elbow bent at the sides and the forearms raised to head-level. The head of this human figure is 6m high and diamond-shaped. It has only been outlined; the interior remains hollow or blank. However, natural white on the rock face appears to have been used by the painters to divide the face in two.



Figure 33. General shot of panel A, D04a. Showing rock art in the centre of the picture and foliage growing in very damp conditions. Note also the extensive water action and algae on the rock face.



Figure 34. Close-up shot of unique and very detailed human figure at D04a.

STONEWALLING

An historical dam wall on the north side of the site. See D04b for retaining stone wall in adjacent shelter.

ARTEFACTS

Sparse CCS flakes found on shelter floor. Vegetation may be obscuring artefacts but it does not appear likely that the density of artefacts is higher than 'sparse'.

DEPOSIT

There does not appear to be any deposit build-up at D04a but the marsh-like vegetation covering the ground surface prevents a throughout assessment of the deposit depth. The potential for excavation is low

D23 – Rock art and occupation site

[No ARAL number – new site]

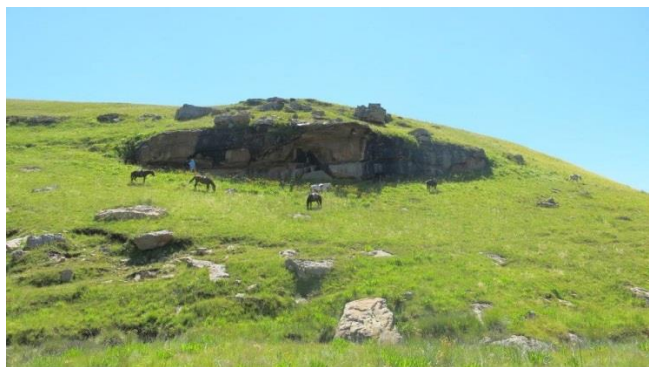


Figure 35. Locating shot of D23 looking north-east.



Figure 36. Locating shot of D23 looking north-west towards Kepising mountain.

SIGNIFICANCE

Ranking: HIGH (vulnerability: high, visibility: clear, rarity: great, potential for future research: high)

Although D23 has only one painting in it, the rarity this image makes it of high value for possible future research (extremely unusual black painted quadruped running with attenuated legs). The image is clear and unique. It is very vulnerable because it is on the tourist route to the waterfall (B33 is across the river to the south-east and this is well-known to tour-guides). It is of the utmost importance that this site be protected from damage if visitors are to be brought here.

SITE LOCATION - 29°53'25.9"S, 029°07'47.8"E

See photo register: 0081-0093

Rock art and stonewalled site D23 is a southwest-facing shelter located on a gently sloping hillside. The Tsoelikane River flows past the shelter to the south at the bottom of this shallow valley. Rock art site B33 is located to the southwest of D23, and is in view of D23 across the Tsoelikane River (See photo register: 0091)

Rock art site D23 consists of a single image in a single panel (A). This image is located on the ceiling of the south-western end of shelter D23 and directly above the eastern section of a stonewalled structure abutting the back wall of the shelter.

PRESERVATION

The site is subject to water, lichen and salt damage but these have only affected the front legs of the image very slightly as yet.

ARAL COMPARISON

This is a new site – not previously recorded.



Figure 37. D23 panel A. Appears to be depicted in charcoal but is in fact black paint.

PANEL A

See photo register: 0096-0105.

Panel A is the only panel at D23.

It contains a single image of a quadruped painted in black. It is approximately 15cm in length and resembles charcoal but is in fact black paint, probably a manganese oxide. The quadruped has elongated/attenuated legs and horns and appears to be running/leaping. These horns are akin to those of an eland.

STONEWALLING:

See photo register: 0094, 0096

On the south-western end of shelter D23 is a semi-circular mud-coursed stonewalled enclosure built against the back wall of the shelter.

The dimensions of this structure are: height: 1.2m, width: 3m, depth: 2m.

DEPOSIT

Within the structure there is a dung crust, and some build-up of sediment around the structure. This does not seem to exceed 30cm.

ARTEFACTS

See photo register: 0108, 0109

Only two lithic artefacts were discovered at D23 on the floor of shelter and only two pieces of charcoal found within the stonewalled structure. The deposit depth however may indicate that more lie beneath the surface, thus excavation potential has been estimated 'medium'.

D25 – Rock art and occupation site

[ARAL 196]



Figure 38. Locating shot of D25 looking north-east.



Figure 39. General shot of panels to show extent of exfoliation/spalling in site D25.

SIGNIFICANCE

Ranking: HIGH (Visibility: medium, Vulnerability: high, Complexity: medium)

We do not suggest D25 as a potential site to be opened for tourists. The site is too fragile and damaged for it to be safe for visitors. Its vulnerability is high because it is exposed to the elements, people have used the shelter as a kraal and there is evidence of fires being made in the site. There is also evidence of animal disturbance. The problem of illegal entry into the park affects the art. Complexity is moderate, rarity is moderate and potential for future research is moderate. There are some interesting figures in the site.

SITE LOCATION - 29°53'27.1"S, 029°07'59.6"E

See photo register: 0135-1039, 7813 -7817

Rock art and stonewalled site D25 is a low-ceilinged shelter facing southeast, on the western side of a shallow valley. The Tseolikani River flows past the site to the southeast. rock art and stonewalled site D24 is located directly below D25, on the lower slope on the hillside. The site is approximately 20m in length, 3m deep and 1.7m high.

The rock art in rock art and stonewalled site D25 is located from roughly the centre to the north-eastern end of the shelter. The site is divided into nine panels (A-I)

PRESERVATION

D25 is subject to damage by extensive salt washes (causing flaking), animal rubbing damage, fire damage and dust. The majority of paintings are faded. Some are very difficult to make out.



Figure 40. ARAL image 1980. D25 panel F.

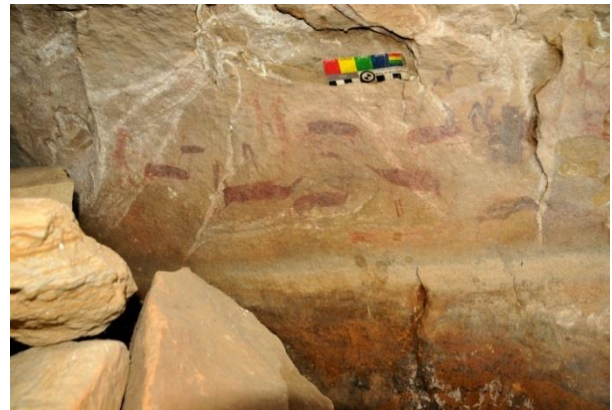


Figure 41. MARA image 2015. D25 panel F.

ARAL COMPARISON

The majority of ARAL 1980 pictures accord well with the MARA record for D25. The extent of natural damage from water and salts is so great that a conservator would need to give a qualified assessment of the margin of increase.

PANEL A

See photo register 7825-7866, 0140-0180

Panel A is located on the back wall of shelter D25 within the area enclosed by stonewalled structure (described as kraal). The paintings are spread over the lower half of the back wall. This panel is extensively damaged.

Bottom left-left: One white standing human figure approximately 15cm in height with possible quiver (parts flaked off), and one shaded polychrome rhebok (20cm) that appears to be running/leaping. Rhebok in fairly good condition

Bottom left-right: to the left of rhebok are an antelope painted in white, probably rhebok, two polychrome rhebok (lower right rhebok body faded/flaked away, only head and neck properly visible: neck and head lowered). Above and to right of these are four human figures in dark red in procession. On the upper right of this section of the panel is a very faded red antelope, which appears to be a hartebeest.

Centre: in the centre of panel A, about 1 m from the shelter floor, is a reddish/orange and white rhebok with its legs folded beneath it, about 12cm in length. It is very faded.

Right half of panel A from left to right: This section if the panel extended to the end the panel, up to stone walling against back wall. This area is very damaged by the aforementioned factors.

Left: The head and neck of a rhebok (body flaked away), with head lowered and painted in white

centre: three very faded human figures in red painted next to one another.

Right: a single dark red human figure, standing.



Figure 42. Close-up of D25 panel A showing head, neck and shoulders of a white rhebok against a very badly flaked red background that contains remnants of red figures. NB the accretion of salt crystals on the antelope's neck.

PANEL B

See photo register 7867-7895, 1081-0197

Panel B is located above panel A, partially on the ceiling of shelter

Left: far left of panel B is a faded and flaked polychrome antelope, most likely a rhebok. Only the body remains. No head, front or back legs. To the right of this are two faded figures in red. One running human fig painted over faded red antelope body. To right of these is a small human figure in black facing right, with one arm raised as if pointing

Centre: This section includes three human figures. Two are painted in red above one in light red (this figure is quite clear). This figure holds a bow. Immediately to the right of light red figure is a very faded antelope in orange and black

Right: the right-hand portion of panel B is close to the ceiling of the shelter and to the left of stone walling. This panel contains two extremely flaked polychrome eland (bodies largely flaked away). Legs and heads remain. These are painted next to each other, facing right. The eland on the right has horns painted in black. To the left of these is a human figure painted in black with tassels at waist. Finally, on the extreme right of panel, immediately to the left of stonewalling is a red (and possibly white) indeterminate figure that is flaked and very faded.

PANEL C

See photo register: 7896-7900

Panel C is located, along with panels D and E, is located within a semi-circular stonewalled dwelling on the back wall of the shelter. These panels are very damaged and faded.

About 70cm to the right of stonewall and about 40cm from shelter floor is a faded and flaked indeterminate red image, about 5c in length, and other remnants of red paint.

PANEL D

See photo register: 7901-7902

Panel D consists of a single, faded red eland body of about 15cm in length. All white has faded away. This image is on the sloping section approaching the ceiling of the shelter.

PANEL E

See photo register: 7903-7904

Panel E is to the right of panel D, lower on the shelter back wall. The only image in this panel is a small (+/- 8cm) red and black standing human figure. Red with a black belt and 'hooked head'.

PANEL F

See photo register: 7905-7927

Panel F is located immediately to the right of stonewalled dwelling built into shelter D25. It is about 70cm from the shelter floor and contains some of the most well-preserved art within the site.

Left: In the left half of panel F are a collection of human figures in red, all standing (one on extreme left and two towards centre of this section of the panel) and a group of faded, small (<10cm in length) antelope (rhebok) in various postures.

Centre: immediately to the right of the group of rhebok are dark red human figures. They are flaked. The dark red human figures are damaged. Some appear to be seated and another appears to be karossed.

Right: Indeterminate remnants of paint in red and dark red, and a very faded polychrome eland with dark red/black lines visible upon neck

Top Right: Bright red finger dots.

PANEL G

See photo register: 7929-7936

Panel G is located upon the ceiling of shelter D25 above panel F.

Left: Faded red remnants of antelope (most likely eland). There are multiple antelope painted on the ceiling in this panel. They are extremely faint and difficult to make out.

Centre: in the centre of this panel is a large (+25cm) polychrome eland, also faded. Most white faded away.

Right: Approximately 10cm to the right of large polychrome eland is another, smaller (+/-15cm) eland, very faded.

PANEL H

See photo register: 7939-7940

Panel H includes only remnants of red paint. Not possible to identify any specific imagery.

PANEL I

See photo register: 7941-7945

The last panel at D25 and furthest right at the site. It is located at the top of the back wall, below the ceiling of D25. This panel includes:

Left: faded human figure in red with bent arm/leg above small step in rock

Centre: Dark red rhebok head measuring approximately 5cm. No body visible. Only the head is visible.

Right: red seated human figure (4cm in height) painted en face with knees bent outwards and wearing a hat/headdress.

STONEWALLING

See photo register: 7813-7817, 0135-0140

There are two stonewalled structures at D25. On the south-western end of the shelter is a rectangular kraal structure. This structure is a dry stonewalled structure. It is built under the roof of the shelter and extends for about two metres beyond the drip line. The wall is collapsed in places, with a maximum height of 1m and is recorded as being 9m in length. Immediately to the northeast, also built within the shelter, is a dry stone dwelling, built against back wall of shelter. This structure

is also semi-collapsed. Within the dwelling there is a hearth (photo number 7979), giving evidence for human occupation. Panels C-E are located within this dwelling. The dwelling is recorded as being 4m in width, 1.5m in height and 4m in depth.

STRUCTURE POSSIBLY ASSOCIATED WITH D25

See photo register: 7972, 7978, 7979

On the top of the hill upon whose western slope D25 lies, is a large square dry stone kraal. This structure is 13m in length and 12m in width, with a maximum height of just over 1m. This structure is solidly built and remains well-preserved. This structure is approximately 60m from D25 to the north east. It is possible that this kraal is associated with site D25.

DEPOSIT

Deposit within D25 shelter is very shallow, with bedrock close to the surface of the shelter floor. Sediment has built up within the walls of the kraal on the south-western end of the shelter. Its depth appears to be between 10cm and 20cm. This deposit does not appear to be disturbed. The nature of the hillside is such that the deposit slopes steeply down the side of hill beyond the drip line.

ARTEFACTS

See photo register: 7966-7971

Finds density at D25 is low, with only sparse artefacts discovered. The vegetation and nature of the slope may contribute to this. Finds include 7 flakes, two pieces of animal bone including a jaw bone, and a sheet of thin, rusted metal.

E01 Rock art and occupation site

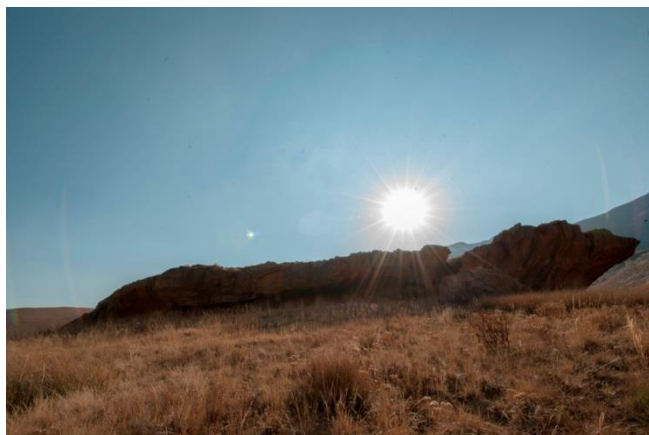


Figure 43. Locating shot of site E01 looking east.



Figure 44. Oblique shot of rock art and overhang looking north.

SIGNIFICANCE

Rating HIGH: (Complexity: high, Visibility: high, Vulnerability: high, Rarity: high, Research Potential: high)

E01 is an exceptional site and arguably one of the most important in southern Africa. It contains some very complex imagery and some very great detail. It is most probably the best-known site in the SNP not only because of its images, but also because it is positioned on the road. It is already visited by a number of tour guides and by tourists who have experience of the park - whether guided or not. Site E01 is in critical danger of vandalism or accidental damage by human action. It is recommended that immediate steps are taken to safeguard this JEWEL IN LESOTHO'S CULTURAL HERITAGE as soon as is possible. If it is to remain a visitor site, a conservator must be appointed to clean the existing damage (soot, algae, dust) and make provision for its protection.

SITE LOCATION - 29°59'22.02"S, 029°04'19.1"E

See photo register: 1784-1810, 7678-7679

Rock art and stonewalled site E01 is located 200m north of small stream running SE-NW, the Sehlabathebe main park road runs E-W 14m south of E01.

PRESERVATION

All of the panels in E01 are subject to some form of deterioration. The site has been used as a shelter and there is much evidence of fires being made in this shelter as much of the back wall on left half of the shelter wall is covered in soot, obscuring arguably the most significant image in the whole site (an extremely large non-real beast/rain animal). The shelter floor is covered in dust- this has led to a film of dust covering many of the paintings. Tourists visit the site because it is within a few metres of the road. This has exacerbated the dust. In terms of natural deterioration there is a great deal of natural salt seepage which has caused the rock surface to spall or exfoliate in many places. Please see Condition Assessment forms.

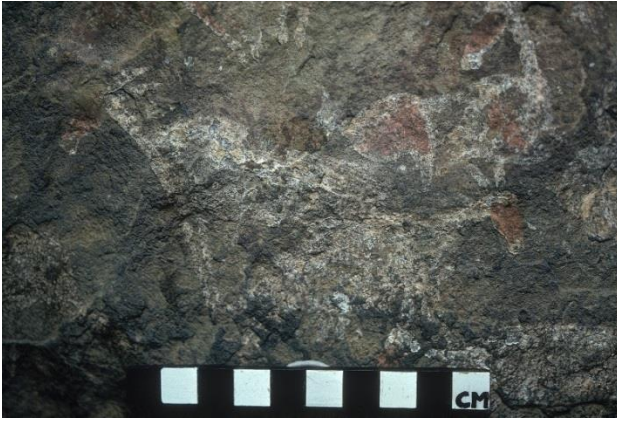


Figure 45. ARAL image 1980, E01 panel F.



Figure 46. MARA image 2015, E01 panel F.

ARAL COMPARISON

The majority of ARAL images accord with those of the MARA survey shots at E01, and little further damage or deterioration has accrued since 1980. However, this is such an important site that a conservator must be brought in to make a detailed appraisal.

The paintings at E01 are spread across the entirety of the rear wall of the shelter. This site has been divided into 12 panels (A-M) and contains a large number of paintings. The panels run from left to right.

PANEL A

See photo register: 7681-7706

Red finger-dots at the far left end of the panel. Four polychrome eland on the far right of the panel, one of which is damaged and covered by soot. Also incorporated in the panel are very dark red and black indeterminate figures.

PANEL B

See photo register: 7707-7725

One faded polychrome eland at the far left hand end of the panel superimposed over several indeterminate figures. On the far right there are three dark red human figures with legs spread wide in a walking position. The heads of these figures are soot-damaged. Below the human figures are several smaller and faded red human figures - four to the left and six on the right. Below these figures is one further human figure in red and a number of indeterminate images. There is graffiti above panels B and C.

PANEL C

See photo register: 7726-7755, 1846 - 1857

Two polychrome eland on the far left of the panel very close to the stone walling and a third shaded polychrome eland on right with many legs and two heads. They are all soot-damaged. Several other indeterminate figures are painted here but they are extremely faded. On the right hand side of the panel there are further indeterminate and soot-damaged images.

PANEL D

See photo register: 7756-7777

Two polychrome eland, one with its head bent and a red hoof.

PANEL E

See photo register: 7778-7784, 1868-1870, 1916-1942

One metre away from panel D. On the left hand side can be discerned an extremely large rain animal with human figures in red interacting with it. This is extensively damaged by a combination of soot/fire, algae and dust. It has now been digitally enhanced. There are various indeterminate figures below the rain animal and one dark red eland. The red human figures are painted in various postures, and all appear to be associated with the rain animal. Some interact directly with it while others are arranged in a circle as if dancing. Still others are arranged around the head of the rain animal as if running with or away from it.

PANEL F

See photo register: 7785-7845, 1943-1951, 1980-1994

Panel F contains large groups of white and bichrome (red and white) rhebok and human figures in red, white and yellow. In the top left of the panel are two bichrome rhebok facing left. In the centre of the panel is a group of ten bichrome rhebok, some lying down in passive behavioural posture, some running. All have red paint shading on their noses. To the top left of the rhebok is a white painted hunting bag and another to the bottom left with white lines or hunting tracks/spoor. In the centre-right are two human figures holding bows. One is white and red while the other is dark red. Next to them are multiple lines of white dots which appear to be spoor/tracks. To the right of these human figures is another highly detailed human figure painted in yellow with red on the head and neck. It also has many red dots on its chest, and lines of red dots on the stomach, arms and legs. There is a red line like a belt around the waist. Above the yellow figure is a bichrome rhebok facing right.

In the second large grouping of rhebok in panel F, also painted in white with red markings on the nose, are another ten animals facing left and right. These are superimposed (on the left hand side of the group) by a gracile dark red human figure with a bow across its shoulders and depicted in a striding or running posture. This figure has white lines coming down from the head. The rhebok are running in either direction both towards and away from the human figure. Some rhebok are lying down with their legs folded underneath them. There is a further human figure in light red on the right hand side of the panel, facing left towards the rhebok and holding bow and arrows.

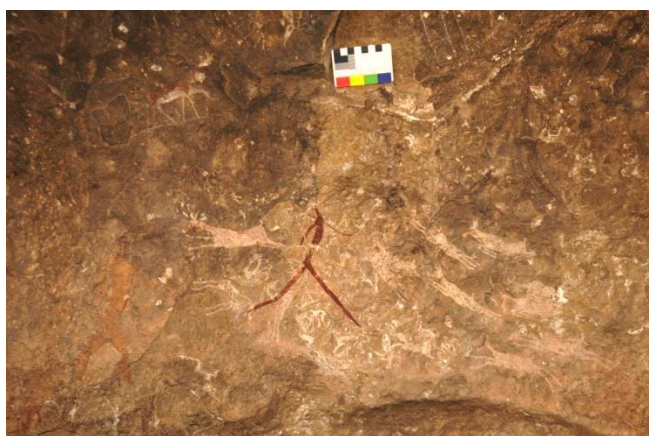


Figure 47. E01 panel F - right hand side.



Figure 48. E01 panel F right hand side close-up.

PANEL G

See photo register: 7846-7872, 1952-1956

Panel G contains polychrome eland antelope, human figures in red and yellow, concentric lines and figures with bags. At the bottom left of the panel is a polychrome animal with a long, neck, short legs, and half a body. At the top right is a dark red running human figure holding an arrow. Beneath that figure are multiple white lines in the shape of feathers or horns... Below the lines is a polychrome eland. In front of the dark red human is an indeterminate figure and below this are concentric circles painted in white. Beneath these concentric circles is a seated human figure painted in light yellow, with a bow protruding from the shoulder, holding at least two arrows. Proximate to this figure are several small, faded eland antelope. At the top centre of the panel is a dark red and white human figure holding a bow and hunting bag. Below this is another dark red human figure to the right and an indeterminate dark red figure. At the bottom right of the panel is an unusual image - an eland head with no body, painted in red and white.

PANEL H

See photo register: 7873-7899, 1957-1969

In the top left of panel H is a hunting bag with a clear strap painted in red and white. To the right and below this bag is a leonine beast in shaded light red to orange - arguably a rain animal - and several back lines of other beasts, most of which appear to be eland. The latter are in mid-red and their back lines fade towards their bellies. To the right of the leonine animal is a small yellow human figure with an antelope head. It appears to be holding a large bow and several outsize arrows. Below this are at least two seated kaross-clad figures in faded dark red, holding bows. Centre right are several bichrome yellow and white human figures in various postures. The largest is seated with legs apart. They carry bows and arrows. The rightmost figure aims a bow and arrow at the central seated figure, and appears to have a long, feathered or clawed hand which extends towards the other's face. Centre-right are four eland in various polychrome shades of red and yellow. Two have black backlines and black horns. Underneath them are painted dark red human figures. At the bottom right hand end of the panel there is a rare shaded polychrome rhebok; two human figures in dark yellow, running and holding bows, a dark red human figure holding a bow and several red indeterminates.

PANEL I

See photo register: 7900-7912, 1957-1965

In panel I there are, top-centre, two polychrome eland facing right. The topmost eland has been repainted with yellow ochre. In between these two animals is a patch of multiple red dots. The eland are superimposed on two dark red human figures. To the left of the eland is a strange beast - partly eland in form but with a long neck and a quiver or hunting bag with a bow on its back. By its hooves is a dark red convoluted line. To the right of the eland is a white, hollow-bodied, rhebok. Above all the figures top-centre is a group of bright red finger dots.

PANEL J

See photo register: 7913-7936, 1858-1867, 1970-1979

Panel J consists of a row of kaross-clad seated figures with neck rings and hunting paraphernalia, some polychrome and some outlined in white. They are highly detailed but very damaged by scratching.

PANEL K

See photo register: 7937-7952, 1858-1867, 1972-1979

In panel K there are three large shaded polychrome eland facing right, and below these several further small polychrome eland. In the bottom right of the panel are several indeterminate figures. In the centre and along the bottom of the panel are several (at least five) white rhebok - one of which is depicted en-face. Bottom left there is a dark red hunting bag with arrows.

PANEL L

See photo register: 7953-7963, 1995-1996

Panel L consists of several polychrome eland. The eland top-left is badly damaged by scratching but still quite visible. The remaining four fragmented eland bodies are smaller and affected by salt wash. Further to this there are three inverted 'L' shaped marks in dark red, bottom right.

PANEL M

See photo register: 7964-7977, 1832-1845

Panel M contains one polychrome eland, one large red and white human figure with quiver and a second polychrome eland with many legs. The two polychrome eland face in different directions, towards each other, over the head of a large dark red human figure - approximately 30cm tall. The human figure is very badly flaked by salt seepages, but what remains is exquisite. The figure has one knee raised, a white face, white dots around the neck, and white arrows in its hunting bag, which also contains a bow.



Figure 49. E01 panel M to show very clear, highly detailed, yet badly exfoliated rock art.

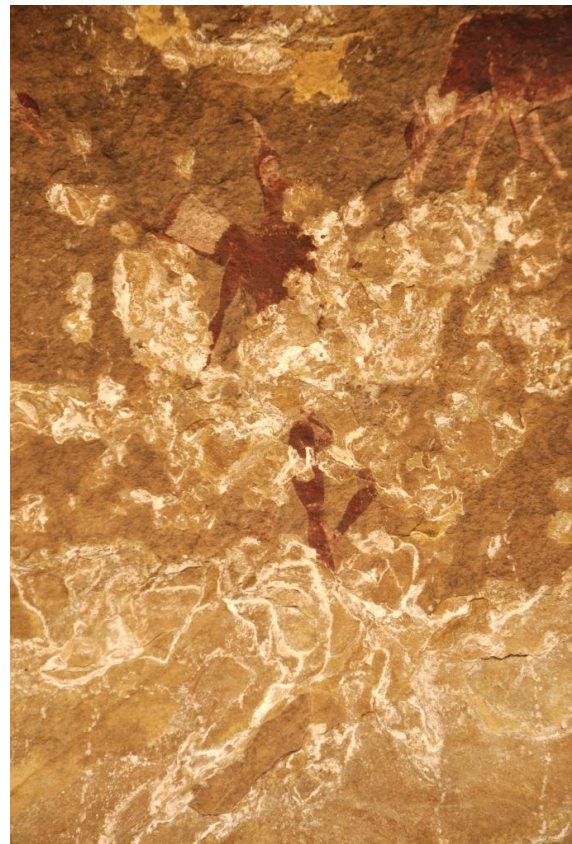


Figure 50. Close-up of E01 panel M to show natural salt build up and subsequent spalling of the rock face.

STONEWALLING

See photo register: 1811-1825

Stonewalling (A) at the eastern end of shelter reaches a height of 2m which continues for 7m along the drip line of the shelter east-west. This walling has two possible phases of construction, the earliest of which is set into the deposit. Stonewalling (B) at the western end of shelter is dry stone built and survives to a height of 0.5m. B encloses a small cell or room of 2.5m in diameter, with the rear wall of the shelter forming the back of this cell.

ARTEFACTS

See photo register: 1826-1831

Occasional stone tools found on surface of shelter floor (averaging 2 p/m²)

1 side scraper

1 concave scraper

1 upper grindstone with burnished outer surface

1 large quartzite core - possibly MSA

Other flakes are CCS and some hornfels

DEPOSIT

Deposit has slight slope towards back wall of shelter with a line at 20cm above ground level which may indicate that this deposit depth may have been removed

This disturbance of the deposit means that there is a low-medium potential for excavation. However, the rock art at E01 is of extremely high significance and is in need of management/conservation as it is already visited by tourists.



Figure 51. Detailed shot E01 Panel H without scale



Figure 52. Oblique shot of Panel F, site E01.

5. Recommendations

5.1 Cultural heritage management

Developed in line with the principles adopted and decisions taken by the uKhahlamba Drakensberg Park World Heritage Site, KwaZulu-Natal South Africa – the Site to which the SNP is annexed – the following principles are suggested as guidelines for the start-up of the SNP in its status as WHS, and it is recommended that the SNP further develop its own management plan (to be integrated with the management plans for Conservation management (Fire management, Wilderness management, Invasive plant control, Soil erosion control, Alien animal control, Resource utilisation, Wildlife management) Cultural heritage management, Eco-cultural tourism management, Environmental interpretation and education, Research, ecological monitoring and reporting and Operational management. Such a management plan can only be drawn up once it has been decided which heritage resources are to be opened to the public.

The SNP WHS is listed as a WHS of dual significance, having both natural and cultural OUV's that need to be protected. One of the key issues identified is the threat of the World Heritage status being revoked should degradation of cultural heritage continue (see concerns below).

In managing the SNP WHS cultural assets and protecting the OUV of the Park, the following guiding principles should apply:

Management of cultural resources should follow the Operational Guidelines for World Heritage Sites in terms of the World Heritage Convention Act (Act No.49 of 1999).

Access to sites will be in accordance with the requirements of the Cultural Heritage Management Plan and site-specific management plans.

No public access is allowed in cultural heritage sites without a Custodian.

The inventory undertaken by this survey has revealed high percentages of fire and human damage, both of which can be managed and in most cases controlled. The number of painted images that can still be seen also shows alarmingly high levels of deterioration.

Recommendation:

- Clearing of vegetative material around sites.
- Increased control methods to sites that are known to be visited (open sites or not) whether by tourist visitors, smugglers, poachers, local villagers or traditional healers. This to be conducted in a way that is sensitive to the knowledge and needs of the local community.
- Documentation by regular monitoring with photographic records of the sites which have graffiti and/or evidence of recent occupation and fire-making.

The detailed operational requirements for Cultural heritage management are set out in Table 3 below.

Table 3. Framework for cultural resource management

| CULTURAL RESOURCE MANAGEMENT | | | | | |
|---|--|--|--|---------------------------|----------------|
| Strategic outcome | Management activities | Management targets | Indicators of Concern | Priority | Responsibility |
| Management of the globally significant cultural heritage and living heritage to ensure their preservation for present and future generations. | <ul style="list-style-type: none"> Regular review of the Cultural Heritage Management Plan including a monitoring programme for the Park in accordance with the relevant legislations: World Heritage Act and Lesotho National Heritage Bill. Develop specialist institutional capacity to ensure and champion the effective heritage management process of the Park's diverse cultural heritage. Ongoing survey for new cultural heritage sites in the Buffer Zone Develop control mechanisms for research and tourism. | <ul style="list-style-type: none"> An implemented Cultural Heritage Management Plan for the Park. Institutional capacity exists to manage cultural heritage. Identification and documentation of various types of heritage resources within the Park. Ensure a working partnership and management of stakeholders. | <ul style="list-style-type: none"> Continued loss and/or degradation of documented or undocumented cultural heritage resources. Lack of heritage specialist(s) Lack of monitoring and evaluation systems in place | Year 1 and ongoing | Park Manager |

This management framework was developed in line with the principles adopted in 2012 by the managers of the World Heritage Site to which the Sehlabathebe National Park will be annexed, the Ezemvelo KwaZulu-Natal Wildlife Protected Area Management Planning Unit ⁷²

⁷² Ezemvelo KZN Wildlife, 2012. *uKhahlamba Drakensberg Park World Heritage Site: Integrated Management Plan*. Version 1.0, Pietermaritzburg.p109

5.2 A new Cultural Heritage Management Plan for the combined Maloti-Drakensberg World Heritage Site

Since the publication of the 2012 *uKhahlamba Drakensberg Park World Heritage Site: Integrated Management Plan*, the KwaZulu Natal Heritage Resources Agency, Amafa, has answered the call inscribed therein (Action Project 6.5 (i) of the Maloti-Drakensberg Park World Heritage Site Integrated Management Plan) to produce an updated Cultural Heritage Management Plan. This is the Maloti Drakensberg Park World Heritage Site Cultural Heritage Resources Management Plan for the South African Properties.⁷³

The new Cultural Heritage Management Plan is still in its draft stages, but the executive author, Celeste Rossouw, has kindly allowed us to preview its contents in order that the MARA Programme can advise MTEC as to how best to proceed. It is an extensive document – the result of several years of consultation, preliminary study and background investigation. The plan will be used to guide the day-to-day management of individual sites and any changes to relevant policies.⁷⁴

In keeping with the spirit of trans-border co-operation, and in the knowledge that the Sehlabathebe National park is annexed to and part of the Maloti-Drakensberg Park World Heritage Site (MDP WHS), the new Cultural Heritage Management Plan was drafted with the SNP (and MTEC) in mind and makes mention of it several times.

Because it is not possible for us to produce a comprehensive Management Plan until it has been decided which sites are to be opened to the public and, indeed, what the SNP authorities' vision for Cultural Heritage is going forward, and because there is already an extensive draft Management Plan for the greater area of the park, we here give just a few suggestions based on policies that are to be adopted by Ezemvelo, Amafa and SARHA.

Before proceeding, however, it should be noted that we recommend MTEC create a post for a Senior Heritage Officer for the SNP, and that this officer be tasked with undertaking such research as will either create a new Cultural Heritage Resource Management Plan for the SNP, or allow for the specific requirements of Cultural Heritage within the SNP to be integrated into the exiting, as yet unpublished, Management Plan for the South African properties. The latter is preferable because it would integrate both nations' properties in one document that would accord with the trans-border co-operation.

In either case, agreements must be entered into between all parties responsible for the safeguarding of Cultural Heritage in the SNP and its surrounds. Therefore we recommend MTEC adopt a similar system to that outlined in the draft Maloti-Drakensberg Cultural Heritage Resources Management Plan and sign an MoU with Ezemvelo and Amafa – and suggest that MTEC sign a similar MoU with SAHRA in order that the South African Heritage Resource Agency become fully aware that only in collaborative efforts can sites be truly protected.

The following goals and principles are those set out by the Amafa-led collaborative management group of stakeholders, some of which are given verbatim and others paraphrased.

⁷³ Rossouw, C. n.d. Maloti-Drakensberg Park World Heritage Site Cultural Heritage Resources Management Plan for the South African Properties. Unpublished draft document produced by KwaZulu Natal Heritage Resources Agency, Amafa, Pietermaritzburg.

⁷⁴ Rossouw, C. Maloti-Drakensberg Cultural Heritage Resources Management Plan.

5.2.1 The Goals

The goals of the Cultural Heritage Resource Management Plan are to:

- a) Ensure the long term conservation of heritage resources within the MDP WHS,
- b) Promote public appreciation of heritage resources within the MDP WHS
- c) Explore the educational and
- d) socio-economic value of heritage resources located inside the UDP in a sustainable manner that does not impact on the cultural and religious integrity of these sites.

5.2.2 The Key Principles

The key principles for the conservation of the cultural heritage can be summarised as follows:

- Minimum intervention into the archaeological and historical fabric or disturbance of it. All intervention must be reversible.
- Conservation of the chief archaeological, historical and other heritage elements of the Park through suitable management systems and services.
- Presentation of the heritage resources in a way which enhances its significance.
- Conservation to recognised international and institutional standards in respect of site management, monitoring, maintenance, physical control and visitor management.

Amafa point out that in the trans-frontier, or trans-boundary conservation project, the staffing of the SNP in terms of Cultural Heritage custodianship is woefully inadequate:

The Ministry of Tourism, Environment and Culture, Kingdom of Lesotho, has two District Cultural Officers whose responsibility it is to preserve and manage both tangible and intangible cultural heritage resources, but at present there is no rock art specialist based in Lesotho and there is a reliance on foreign consultants.⁷⁵

Amafa currently has two staff members dedicated to the management of the rock art sites in the Park. A **Senior Heritage Officer** is dedicated to the management of the rock art in the Park, while a Rock Art Monitor assists field staff in the physical and practical aspects of rock art management. The Deputy Director: Research, Professional Services and Compliance (DD: RPSC) supervises and manages the Rock Art function and promotes institutional co-operation on all aspects of cultural heritage managements in the Park. Amafa's Archaeology and Built Environment Section are also available to provide management and conservation advice.

5.2.3 Sustainable utilization of heritage resources

With respect to goal d), above, one of the Park management's core goals is the sustainable utilization of heritage resources. This requires that the economic attributes of a heritage resource/site be used in such a way as to benefit all affected and interested parties without compromising the attributes that impart significance. Twenty two rock art sites are currently open to the public in the South African part of the Park. The public may visit these if in possession of a

⁷⁵ Rossouw, C. Maloti-Drakensberg Cultural Heritage Resources Management Plan. 16

permit, or if accompanied by accredited custodians. In terms of heritage legislation, **access to rock art sites is restricted**. In order to overcome the conflict created between the desire of the public to access rock art, and the management desire to limit access, as well as other management issues, a number of policies have been developed. There are currently policies in place that addresses site access to rock art sites by the public, researchers, educational visitors, the media for filming and publications and to local communities for ritual purposes.

5.2.4 Code of Conduct

A Code of Conduct is set out in an addendum to the document. This relates to behaviour at rock art sites has been developed and this information should be made available to all visitors to rock art sites.

5.2.5 Monitoring

Monitoring of the rock art sites is carried out in regular inspections by both Amafa and EKZNW staff. Over 96 **Field Rangers** are employed within the MDP WHS to carry out a variety of functions. Their work entails law enforcement, biological and cultural heritage monitoring. Rock art sites are monitored at different frequencies depending on whether they are opened to visitors or have no access. Open sites, which allow access for the public access under the direct supervision of an Amafa accredited Custodian, are inspected on a monthly basis, sites that are threatened by illegal visitation are monitored on a quarterly basis and those threatened by fire bi-annually. Closed sites are inspected annually. A new Cluster Monitoring Programme is currently being introduced throughout the MDP WHS, which means that the sites will be monitored more frequently.

5.2.6 Security in Sehlabathebe National Park

On the occasion when the Honourable Minister of Tourism, Environment and Culture, Mme Tampane visited the SNP and had the opportunity to speak to the members of the MARA Programme conducting the survey, the issue of security was raised. The Honourable Minister and the Principal Secretary, Ntate Sehloho were both very concerned about unauthorised access to the park and the prevalence of cross-border smuggling and stock theft as well as poaching the Park's game animals. Smugglers and stock thieves, as well as ordinary villagers grazing their livestock, are responsible for making fire in the rock art shelters and the subsequent damage to the rock art sites.

Proper policing of the park by a dedicated team of **Field Rangers** is a very necessary action that should be implemented by MTEC in collaboration with the existing border patrols. SNP Field Rangers need to be employed, and need to be prepared to engage with persons using the park in ways that affect the conservation of this World class Cultural Heritage.

5.2.7 San descendants

Important, although something that was not discussed or discovered by the survey team, is the issue of living San descendants with connections to the SNP and its environs. This, we understand, falls under the remit of the **Intangible Heritage Survey**. For San Descendants, however, the rock art in the shelters of the Maloti-Drakensberg constitutes a very tangible heritage. On the UKhahlamba side, Amafa advises that San descendants should be major stakeholders in the cultural resources of the MDP WHS. The managers of the Park acknowledge this and have started a process of promoting and respecting in living heritage associated these people. EKZNW do not allow the collection of animals from protected areas for traditional use, but allowances have been made and

the Park makes two eland per year available for traditional ceremonies for San descendants.

5.2.8 Conservation strategy

The following tables are taken with kind permission from the draft Maloti-Drakensberg Cultural Heritage Resources Management Plan. They are:

- A. Policy themes** towards maintenance, physical conservation; visitor management and research.
- B. Identification of agents of deterioration:** threat, action, responsibility: outcome criteria, time frames and outcomes.

| Maintenance: | Physical conservation: | Visitor management: | Research: |
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| <p>Maintenance can be defined as the continuous protection of the setting, fabric and contents, distinguishing it from repair, which would indicate restoration or reconstruction. (Burra Charter, Article 1.5)</p> <p>Maintenance includes baseline documentation, completion of condition assessment reports and continuous monitoring (regular inspections and the replication of recording methods). This is based on the principle of preventative care with minimum intervention. Examples include the following:</p> <ul style="list-style-type: none"> i. checking that the fire breaks are maintained, ii. removing dead wood inside caves and rock shelters that pose a fire threat, iii. trimming shrubs that may abrade rock art panels, iv. checking that the visitors' infrastructure (fences, walk ways, signage) are maintained and repaired if necessary. | <p>Conservation means all the processes of looking after a place so as to retain its cultural significance (Burra Charter, Article 1.4) This also includes direct intervention at a site, e.g. stabilisation, adaptation, restoration and reconstruction.</p> <p>a) Stabilisation (Article 1.6) can be defined as preserving what exists as it is or is retarding deterioration (not improvement) Examples include:</p> <ul style="list-style-type: none"> i. establishing a drip line, ii. consolidation treatment to stabilise paintings and engravings. <p>NOTE: Presently Conservation Specialists do not support the implementation of a drip-line or consolidation treatment as it results in water accumulation which leads to exfoliation at sensitive areas in the parent rock.</p> <p>b) Adaptation: Adaptation entails modifying a place to suit compatible uses and it is acceptable where it will supplement the conservation of the place, and if it does not substantially subtract from the cultural significance of a site.</p> <p>Adaptation must be limited to that which is essential to allow use of the place in accordance with the Statement of Goals and Objectives within the IMP. An example may be:</p> <ul style="list-style-type: none"> i. modifying a site to allow for low impact tourism (The construction of fences, signage, board walks, benches, etc. at rock art sites). <p>c) Restoration involves returning the existing fabric to a known earlier state by removing accretions without introducing new materials (Article 1.7 & 19). This can only be done if there is sufficient evidence of an earlier state and only if removing the fabric reveals the cultural significance of the place/setting.</p> | <p>The management of visitors includes</p> <ul style="list-style-type: none"> i) The development of site access policies addressing the public, media and ritual demands on sites ii) The employment of guides, custodians iii) The development of interpretive programmes iv) The construction and maintenance of visitor's facilities e.g. signs, physical barriers, walk ways etc. <p>Such work must adhere directly to the strategies related to adaptation.</p> | <p>Research strategies and priorities include:</p> <ul style="list-style-type: none"> i) Supporting both applied and theoretic research ii) Research should be undertaken using current best practice. iii) Research benefit should outweigh potential risks. iv) Duplication of research should be discouraged. v) Research should be conducted by recognised institutions, or in partnership with them. vi) Foreign researchers must partner with South African Institutions. |

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| | <p>This process is limited to</p> <ul style="list-style-type: none"> i. the removal of post-contact graffiti (younger than 100 years) ii. the removal of stains caused by lichen and vascular plants the removal of birds and insect nests obliterating the art. <p>NOTE: At present Conservation Specialists do not remove swallows' nests if they are situated in close proximity to the rock art - but not obliterating it, as swallows tend to build on the same spot every year and if one removes the nest, the chance exists that a new nest will be constructed over the art.</p> <p>d) Reconstruction: implies returning a site as near as possible to a known earlier state (Article 1.8 & 20). This is aimed at legibility as well as the aesthetic presentation of a site/artefact. New as well as old materials can be used in the process. Reconstruction must be limited to the repair of a dilapidated entity (it should not involve the majority of the fabric).</p> <p>NOTE: Reconstruction is not permissible in South Africa as there are no San descendants who are still practicing artists. Therefore no skills regarding renovation or retouch exist (It is however allowed in Australia, where the original tradition is still carried out).</p> | | |
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| Threat: | Action: | Persons responsible: | Criteria to measure the outcome: | Time frame: | Outcome: |
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| Human Agents of deterioration Vandalism: (Graffiti) – <i>Applied technique:</i> the addition of material to the rock surface <ul style="list-style-type: none"> - charcoal - chalk - paint: oil or water-based - other Vandalism: (Graffiti) – <i>Removal technique:</i> the removal of the rock substrate in order to mark the rock surface: e.g. scratched or deeply incised, hacked off pieces <u>Content:</u> names & initials, dated names, designs, outlining of motif, imitation of motif <u>Location:</u> Directly over the pigment or art or adjacent to the art on the main panel Vandalism also includes other forms of abrasion against rock art, shooting or any other act of defacement and deliberately introducing water/any other liquid to painted surfaces. | All visitors must be accompanied by an Amafa-accredited custodian , who will relate the code of conduct to the guests and supervise their behaviour. Site specific management plans will specify the number of guests allowed to visit rock art sites, in accordance with the size of the cave/shelter. Limiting the size of the group will allow the custodian to adequately supervise the group and ensure that no vandalism takes place. Monitoring The Custodian has the duty to monitor the site and report back on any undesirable situation. Monthly monitoring forms following a prescribed format will assist this process. The sooner charcoal graffiti is removed from the rock substrate, the easier the process will be, when charcoal remains on the rock surface for long time-spans, pigments become internalised with the rock matrix. The restoration of applied graffiti or the rehabilitation of the rock surface with reference to engraved vandalism, constitute direct intervention. | Custodian → RAM (Amafa) → SHO:RA (Amafa) SHO:RA (Amafa) → DD:PSR C (Amafa) → CHMG Custodians/FR → OIC → RAM Accredited Conservator on appointment and permit from Amafa. Accredited Conservator on appointment and permit from Amafa. | Reduced incidences of vandalism. Reduced incidences of vandalism. Reduced incidences of vandalism. Reduced incidences of vandalism. Reduced incidences of vandalism. | Ongoing Ongoing Ongoing Need driven Need driven | Reduction in graffiti Reduction in graffiti Reduction in graffiti Reduction in graffiti Reduction in graffiti |

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| | <p>A Heritage Impact assessment is needed to investigate the impact of alterations on the integrity of the site.</p> <p>Management must adhere to the principle of minimum intervention and reversibility of actions.</p> <p>A Photographic and written documentation process must form part of any intervention programme.</p> | <p>Practitioner on appointment by Amafa.</p> <p>This report, accompanied by a permit application to start the restoration or rehabilitation, will be send to the Permit Review Committee who will decide whether the permit will be issued or not.</p> | Reduce/prevent the impact of alterations on the integrity of the site. | Need driven | Minimum intervention |
| <p>Touching of Art. Skin contains oils and fats that cause deterioration of the paintings. It also results in contamination of the art compromising chemical analysis.</p> <p>Touching rock art may also result in a polishing effect that also leads to colour loss.</p> <p>Certain recording techniques such as tracing or rubbings necessitate touching of the art.</p> | <p>Any area within 50m radius (surrounding) the site is protected by law and an Amafa-accredited Custodian must accompany visitors.</p> <p>The custodian will inform the people that they may not remove, alter, change, destroy anything on the site and its immediate surroundings, nor touch the art.</p> <p>Visitors' numbers should be limited to allow for good supervision of guests on site.</p> | <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa)</p> <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa)</p> <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa)</p> | <p>Effectiveness of the Custodian Programme</p> <p>Effectiveness of the Custodian Programme</p> <p>Recording of visitor numbers</p> | <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> | <p>No deterioration of rock due to touching.</p> <p>No deterioration of rock due to touching.</p> <p>No deterioration of rock due to touching.</p> |
| <p>Abrasion (Rubbing/scratching against paintings, accidentally removing pigment): Such damage can be caused by un/intentional leaning against the paintings. Equipment such as backpacks may have metal clasps that can scratch</p> | <p>Any tracing requires a permit from Amafa. Such tracing may only be carried out by suitably qualified persons.</p> <p>All visitors must be accompanied by an Amafa-accredited Custodian, who</p> | <p>SHO:RA (Amafa) → DD:PSRC (Amafa) → PRC</p> <p>Custodian → SHO:RA (Amafa) →</p> | <p>Permit</p> <p>Effectiveness of the Custodian Programme</p> | <p>When required</p> <p>Ongoing</p> | <p>No deterioration of rock due to tracing.</p> <p>No deterioration of rock due to</p> |

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| <p>the art. Abrasion can also result when people are trying to take photos in confined spaces. Continued abrasion ultimately leads to removal of pigments from the rock face.</p> | <p>must inform the guests to remove their back packs before entering an area within 5m of the rock art site.</p> | DD:PSRC | | | abrasion. |
| | <p>The Custodian will also tell the people to be careful not to accidentally lean or touch the rock surface.</p> <p>Numbers will be limited to allow for sufficient supervision.</p> | <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa)</p> <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa)</p> | <p>Effectiveness of the Custodian Programme</p> <p>Recording of visitor numbers</p> | <p>Ongoing</p> <p>Ongoing</p> | <p>No deterioration of rock due to abrasion.</p> <p>No deterioration of rock due to abrasion.</p> |
| <p>Fire. Camp fires, cigarette and candle smoke as well as fire resulting from controlled burns causes soot to be deposited on the rock surface and covers the paintings, it also causes flaking/(paint peeling off from rock surface).</p> | <p>Visitor information.</p> | | | | |
| | <p>Push controlled fires outside the 20m Buffer Zone.</p> <p>Clear vegetation posing a fire hazard within the 20m Buffer Zone of the rock art site, where practical.</p> | <p>Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa) → CHMG</p> | <p>Reduction in damage to rock art by fire.</p> | <p>Ongoing</p> | <p>No new fire damage.</p> |
| | <p>Custodians completing monthly monitoring reports must inform both the PM of the Park as well as Amafa SHO:RA, if vegetation is posing a fire threat.</p> | <p>Custodian → PM/ SHO:RA (Amafa) → DD:PSRC (Amafa)</p> | <p>Monthly Monitoring</p> | <p>Monthly</p> | <p>No new fire damage.</p> |
| | <p>The OIC should do a pre-burn assessment of sensitive sites and burn a fire-break around it; where practical.</p> <p>In case of unscheduled burns, SCM should identify fire-sensitive sites and take immediate steps to avoid potential fire damage (by once again burning a fire-break at least 20m from the site); where practical.</p> | <p>OIC</p> <p>SCM</p> | <p>Assessment</p> <p>Vegetation control</p> | <p>When required</p> <p>Ongoing/ Immediate when required</p> | <p>No new fire damage.</p> <p>No new fire damage.</p> |

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| Dust. Dust settles over the paintings, bonds with the minerals in the art and creates a dark crust over it – little can be done to remove it. Hence intervention should focus on prevention of dust causing agents. Dust and water in combination further compromise painted surfaces. | Visitor information Control visitor numbers: max 6-8 people within a painted site at any one time, and always under supervision. Vegetation planting may reduce dust, but is a direct intervention. Both Ezemvelo (Ecological Advice) as well as Amafa needs to be consulted before any such intervention will be permitted. | Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa) Ecological Advice | Reducing/preventing dust. Reducing/preventing dust. | Ongoing When required | No new damage done by dust. No new damage done by dust |
| Applying liquid to painted surfaces. Pouring liquid onto art to improve visibility quickly causes irreparable damage to the art. This will result both in colour loss as well as lime, silica and salt accretion over the art. Furthermore, dust bonds more easily to wet surfaces | Provision of public information Visitors to be accompanied by an Amafa-accredited Custodian | Custodian → SHO:RA (Amafa) → DD:PSRC (Amafa) | Reduction in damage caused by pouring liquid on rock art. | Ongoing | No new damage caused by liquids |
| Access control: Damage, both intentional and unintentional can be reduced by ensuring adequate access to rock art sites. | Paths to unmanaged sites should be decommissioned and allowed to overgrow and must not be maintained in cases where heritage sites are closed to the public. Paths leading to or past sensitive sites must be closed or re-routed. Unmanaged sites or sites not opened to the public must not be recorded on hikers ‘maps or on literature or displays. Site information is kept confidential | OIC OIC SHO:RA (Amafa) OIC | Paths to became overgrown Paths closed Maps containing correct information Provision of correct information | When required When required Ongoing | No access to unmanaged sites No access to unmanaged sites No access to unmanaged sites No access to |

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| | <p>and is not made public.</p> <p>Ongoing monitoring patrols to all sites open to the public.</p> <p>All public centres should have signage reminding visitors of the custodian and access rules.</p> <p>No camping allowed inside caves or shelters containing rock art.</p> <p>Every MDP WHS resort should have a notice board or pamphlets showing which sites are opened for overnight camping.</p> <p>Regular and ongoing monitoring. Amafa-accredited Custodians on a monthly basis, Annually by the SHO:RA, and by EKZNW FR and HO according to their schedule. This information will be used to populate the rock art database, in order to identify threats timeously and to implement strategies to limit or prevent deterioration.</p> | <p>RAM (Amafa)</p> <p>SHO:RA (Amafa)</p> <p>OIC</p> <p>SHO:RA (Amafa)</p> <p>Custodians → RAM (Amafa) → SHO:RA (Amafa)/FR</p> | <p>Monitoring cards</p> <p>Suitable literature and signage</p> <p>Patrols</p> <p>Monitoring cards Populating rock art database</p> | <p>Ongoing</p> <p>Monthly</p> <p>When required</p> <p>As per Clustering Monitoring Regime</p> <p>As per Clustering Monitoring Regime</p> | <p>unmanaged sites</p> <p>No access to unmanaged sites</p> <p>No access to unmanaged sites</p> <p>No access to unmanaged sites</p> <p>No access to unmanaged sites</p> |
| <p>Visitor Management:</p> <p>Visitor numbers must be treated with caution (Duval & Smith, 2012). Understanding the needs of visitors will assist in developing management strategies which protect rock art while accommodating visitor expectations.</p> | <p>By maximising appreciation and enjoyment, visitors are most likely to be receptive to conservation measures. Guests usually link a well-conserved site to good management practices. Ensuring there is evidence of site management contributes in this regard.</p> | <p>Custodian</p> | <p>Visitor statistics</p> | <p>Ongoing</p> | <p>No new damage to rock art sites</p> |

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| | <p>Minimise direct or indirect damage by ensuring the following interventions are effected appropriately:</p> <ul style="list-style-type: none"> - staff and custodian presence - sign boards - information pamphlets - site museums - and barriers to mitigate threats. <p>Visitor Infrastructure. The topic is covered in the discussion on economic value of heritage sites.</p> | | | | |
| <p>Natural Agents of Deterioration</p> <p>Weathering:</p> <p>In conservation terminology, the rock on which paintings are found is called the “substrate”. Weathering or deterioration of the rock itself is one of the most common problems affecting rock art. Weathering is chemical alteration and mechanical breakdown of rock material as a result of exposure to air, moisture and organic matter.</p> <ul style="list-style-type: none"> • Mechanical weathering: occurs as a result of external or internal sources of stress and includes heat, moisture, crystal growth, frost, salts. • Chemical weathering: Structure & composition of the rock changes, as a result of the reaction between | <p>Weathering</p> <p>Vegetation surrounding rock art sites, including those that are managed for the public, should be retained whenever possible, due to its value in shielding and reducing the impact of direct sunlight on paintings; for site microclimate control; and to buffer daily extremes in temperature and humidity. This obviously excludes vegetation that is causing a threat due to abrasion. Should the decision be made that vegetation need to be planted in front of a cave or shelter with rock art, one must remember that this constitutes direct intervention and that the relevant permits are needed from Amafa and EKZNW.</p> <p>With regard to natural block collapse</p> | <p>Custodian → RAM (Amafa) → SHO:RA (Amafa)</p> | <p>Photographic recording</p> | <p>As per Cluster Monitoring Regime</p> | <p>Reduced weathering incidences</p> |

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| <p>the minerals & elements in the substrate with water or oxygen: leads to solution, oxidation and carbonisation.</p> <p>Commonly encountered types of weathering</p> <ul style="list-style-type: none"> • Honeycomb weathering: Is caused by differing resistance of the minerals in the rock surface to weathering. It results in many small hollows. • Cavernous weathering: Occurs commonly in sandstone, identified visually as scalloping of the rock surface. Salt and water are the primary causal agents. • Granular disintegration: Involves a deterioration of the rock matrix and natural cements that hold the rock together. • Natural block collapse: Loss of rock from the remaining parent rock, as a result of the weakening of the substrate along cracks and fissures caused by pressure (expansion and rapid cooling of particles during bushfires and when water freezes in cracks). | <p>or instability of the rock matrix: Custodians to be trained to identify and report on structural instability such as cracks and fissures and alert Amafa staff.</p> | | | | |
| <p>Water: Ground water, condensation, humidity and direct water contact, such as rain have an impact on the substrate of rock art panels. Surface water - flowing water</p> | <p>Prevention of or attempts to stop / limit water from flowing over the paintings. Such work could include stabilisation and direct intervention by construction of a drip-line to divert water flow.</p> | <p>RAM (Amafa) → SHO:RA (Amafa)</p> | <p>Monitoring Cards</p> | <p>As per the Cluster Monitoring Regime</p> | <p>Reduced incidents of water damage</p> |

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| <p>creates dark patches on the rock surface and around such dark patches are often lighter regions caused by the deposition of minerals (e.g. salts) carried in water. Salt/silica accretion or lime encrustation may build up and obscure the painting or it could be deposited behind the rock face, eventually causing it to flake off.</p> <p>Direct exposure to water will also cause pigment loss. Within the northern part of the Park, an added impact – that of acid rain caused by highveld power plants – may be felt. This has however not been tested.</p> | <p>The construction of drip lines constitute a direct intervention and an HIA is required, along with a permit issued by Amafa</p> <p>The principle of minimum intervention and reversibility of actions must be applied.</p> | PRC | Permit | When required | Reduced incidents of water damage |
| <p>Fire</p> <p>Fire causes soot to be deposited on the rock surface, covering and obscuring paintings and causing flaking. Extreme heat from veld fires can cause large-scale exfoliation of rock surfaces, due to rapid thermal expansion.</p> | <p>A 20m buffer area, as required by the KwaZulu-Natal Heritage Act should be enforced where practical, when scheduled burns are carried out. Dry vegetation in close proximity to rock art sites must be removed. OIC's should refer to the Fire Compartment Attribute Table to identify sensitive heritage features.</p> | SCM | Fire Compartment Attribute Table | As per burn schedule | No new damage by fire. |
| <p>Vegetation</p> <p>The most obvious threats posed by vegetation are those related to fire and abrasion and the management interventions for those threats apply. There are various categories of vegetation that need to be evaluated in greater detail:</p> <ul style="list-style-type: none"> • Vascular plants: plant leaves and | <p>Keep vegetation around the shelter neatly trimmed. Unless necessary, do not remove trees or top-soil as this constitutes development requiring a permit. Any work of this nature needs to be directly supervised by a OIC or Amafa SHO: RA.</p> <p>Remove dead plant matter inside the</p> | OIC or SHO:RA (Amafa) → SCM | Monitoring | As per Cluster Monitoring Regime | No new damage due to vegetation. |

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| <p>stems may brush the rock surface and have an abrasive effect on the art. Root action can cause existing cracks to widen and thus weaken the physical structure of the rock.</p> <ul style="list-style-type: none"> • Algae. These are simple plants, often requiring wet conditions. Certain algae can form thick layers over painted surfaces, eventually causing the rock surface to break down, or alternatively, pigment loss. • Lichen: Lichens grow on trees, walls and rocks. They extract nutrients from the growth substrate. They have varying colours and tend to withstand drier conditions than algae. They cause direct physical and chemical damage to the rock surface • Mosses: These often occur in wetter and damper parts of a rock shelter, and have a physical and corrosive effect on the rock surface. | <p>shelter that poses a fire hazard.</p> <p>While vegetation may pose a threat, this needs to be evaluated against the benefits raised in para 10.5.3.1.1.1</p> <p>Vegetation also may benefit a site in consolidation of shelter deposits and soils in the vicinity and in suppressing airborne dust, preventing deposition over paintings.</p> <p>Prevent damage caused by heat from fire and soot covering paintings, by burning fire-trails around sensitive sites, at least 20m from the site, where practical.</p> <p>Only experts should intervene to try and remove lichen, mosses and algae growing too close to or over art, this constitutes of direct intervention requiring a permit.</p> | PRC | Permit | When required | Restoration of rock art. |
| <p>Damage caused by animals.</p> <p>a. Abrasion by animals: Domestic and wild animals rub against paintings and cause flaking. Mud is also deposited over paintings.</p> <p>b. Animals trample cave deposits and shelter floors. This raises dust, but may also cause damage to archaeological deposits</p> <p>c. Urine and excrement leads to salt</p> | <p>Construct fences where appropriate. Within 10 m of a rock art site this constitutes of direct intervention requiring a permit.</p> | <p>RAM (Amafa) → PRC</p> <p>PRC</p> | <p>Erection of fence</p> <p>Removal of nests</p> | <p>When required</p> <p>When required</p> | <p>No damage by animals</p> <p>No new damage by nests</p> |

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| deposits on the cave surface, transported by ground water and deposited as yellow patches over the art. d. Animals may lick paintings and rock surfaces. e. Animals cause fluctuations in the micro-climate of the cave/shelter environments f. Bird & Insect Nests , termite trails and termite mounds: Birds and insects build nests covering paintings, (e.g. swallows & wasps' nests. Nests obscure the art and causes pigment loss. It has been noted that existing nests, encourage nest-building nearby.) | | | | | |
| | The removal of birds' and insects' nests constitutes direct intervention requiring a permit. | | | | |

Abbreviations in table: DD:PSRC

Deputy Director: Professional Services, Research & Compliance, Amafa

PRC

Permit Review Committee

RAM

Rock Art Monitor

SHO:RA

Senior Heritage Officer: Rock Art, Amafa

5.3 Immediate measures

With regard to the ‘Draft Decision: 37 COM 8B.18 of the World Heritage Committee’ outlined in the preface to this document, UNESCO has issued the ‘State Authority’ in Lesotho (MTEC) with a list of directives. Some of these directives have been addressed by the surveying and inventory of rock art and archaeological sites by the MARA 2015 survey.

Other directives affect directly the conservation of the heritage resources and these are mentioned throughout the document.

Directive h) suggests the Ministry increase finances to improve the Park’s protection. This is perhaps the most important measure to be taken soonest. Once the Park is secure from poachers, smugglers, stock thieves and villagers grazing their animals, the conservation strategy can at least start with a stable footing. Safeguarding the park will necessarily mean expanding and better equipping the units of field rangers.

Directive f) suggests the Park ‘establish and adopt a comprehensive management plan for the cultural elements of Sehlabathebe.’ Insofar as the rock art resources are concerned, a comprehensive management plan can only be drawn up once it has been decided which sites are going to be opened to the public and a qualified rock art conservator has been called in to assess and implement measures to make these sites safe.

Directive i) states that there must be allocated a ‘specific and adequate annual budget to allow for medium-term planning in conservation, inventorying and monitoring.’ This can only be carried out to international standards with the establishment of a permanent Monitoring Team. As mentioned in the preface, this might be implemented by creating jobs (and enhancing existing roles) at three levels:

- SNP patrol staff trained in safeguarding heritage resource (particularly rock art) sites
- Regional MTEC Department of Culture officials trained to monitor rock art sites
- National level Senior Heritage Officer(s) for the SNP employed at the new National Museum of Lesotho

The latter would be qualified archaeologists who would travel regularly from Maseru to oversee the conservation strategy and maintain links between SNP staff, MTEC DoC officials and their counterparts on the South African side of the combined World Heritage Site.

It is of the greatest importance that the findings of this survey are considered before any further development, building or otherwise, is undertaken in Sehlabathebe National Park. There has already been significant building work at the new Park Lodge, at the Visitor Reception Gate and outside the Main Gate, some of which impacts directly on archaeological sites and some of which is dangerously close to sensitive rock art sites. MTEC staff at the park are aware of the sites, but the building has gone ahead without Heritage Impact Assessment.



**MALOTI DRAKENSBURG PARK
WORLD HERITAGE SITE**

Joint Fire
MANAGEMENT PLAN



Lesotho
Ministry of Tourism,
Environment and
Culture



*Maloti Drakensberg
Transfrontier Programme*



Maloti-Drakensberg Park World Heritage Site Fire Management Plan

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1 Glossary of Terms

Abiotic – Non-living things (e.g. rocks, soil and water).

Alpha diversity – The diversity at a point, usually in space, but also in time (e.g. the number of species in a quadrant) [also see Beta and Gamma diversity].

Arson fire – An unplanned fire intentionally started within the reserve boundary with malicious intent (MITP), or for grazing or hunting.

Accidental fire – An unplanned fire started by mistake within the reserve boundary (e.g. campfire that escapes, or a hiker trying to burn their toilet paper).

Autumn burn – Burns conducted before the first frosts.

Back fire – A fire burning down slope or against the wind (also see head fire).

Back Burn - A fire put in along an existing fire break or river or other suitable location (be it against the wind or with the wind) with the intention of widening an existing fire break (river or other feature) to stop a wild fire from jumping over the existing fire break or river or other feature (e.g. a trace line, ridge, road, cliff, stream and or path).

Bakkie Sakkies – A mobile fire fighting unit that is transported on the back of a bakkie.

Basal cover – Area of ground covered by the living basal portions of plants.

Beta diversity – The rate at which species composition changes across environmental gradients (e.g. altitude).

Biodiversity – All genes, species and ecological communities and the ecological and evolutionary processes that sustain them.

Biomass – Total amount of living material (animal and plant) present in a particular area at any given time (kg/ha).

Bioregion – A geographic region that contains whole or several nested ecosystems and is characterised by its landforms, vegetation cover, human culture and history.

Biotic – Living things (e.g. animals and plants).

Burning block – A block is composed of a number of compartments (see burning compartment) with the same alphabetical block letter followed by the various numerical compartment letters e.g. A1, A2, A3....etc, all belonging to Block A that can be burnt together for practical reasons on a rotational basis according to the management objectives for the block.

Burning compartment – A number of compartments make up a Burning Block (see above). A compartment is a practical unit based on natural features that allows for

the controlled burning of an area in line with the management objectives for the area.

Compartment Attribute Table (CAT) - The CAT incorporates the basic information for each fire compartment required to implement the fire principles to protect the biological, cultural, infrastructural and research attributes (sensitive features).

Canopy – Cover of leaves and branches formed by the tops or crowns of plants

Canopy cover – Proportion of the ground area covered by the canopy of the sward (%).

Clean burn – Refers to a burn which completely reduces an area to a uniform state. The vegetation cover may be removed completely generally as a result of a hot fire. The result of a clean burn is opposite to that of a patchy burn.

Community – An assemblage of animals and/or plants growing together and interacting among themselves in a specific location.

Cool burn – A reference to the less intense fires and lower flame heights that are generated when burning under less intense weather conditions where humidity and moisture levels are at higher levels as opposed to dryer environmental conditions that burn more intensely and sometimes sparse vegetation biomass results in cooler burns.

Crown fire – A fire that burns in the canopies of trees or shrubs.

Ecosystem – A functional unit of plants and animals living and interacting with their environment and each other in a given area.

Ecotone – Transitional area of vegetation between two communities which has characteristics of both kinds of neighbouring vegetation as well as characteristics of its own.

Endemic – Animals and plants that are naturally found only in a particular and usually restricted geographic area or region.

Flexibility – In terms of burning flexibility refers to not following a strict burning regime and the need to adapt the burning programme as required in terms of the frequency, timing and type of fire in a particular area.

Firebreak – An area of sufficient width and length from which inflammable material capable of carrying a veldfire has been reduced/removed, to the extent that the area has a reasonable chance of preventing a veldfire from crossing it.

Fire frequency – How often fires occur expressed as the number of years elapsing between burns (*i.e.* time between fires or fire interval) [*e.g.* annual burn = burns

- every year, biennial burn = burns every second year, triennial burn = burns every third year]. *NB*: Not to be confused with the “time-since-last-burn”.
- Fire intensity – Amount of heat energy released per unit time, per unit length of fire front (kJ/s/m or kW/m), *i.e.* how hot the fire is. *NB*: All fires are hot, but less intense burns are often referred to as “cool” and more intense burns as “hot”.
- Fire regime – Frequency, intensity, season and type of fire.
- Fire Reports – Are a legal requirement as per the requirement of the relevant Fire Protection Association in South Africa for annual submission to government in terms of Act 101 of 1998 and does not refer to the MDP WHS fire returns.
- Fire season – The time of year at which fires occur, usually described according to the season (*i.e.* winter, spring, summer, autumn), although sometimes according to the appearance of frost (*i.e.* pre-frost or post-frost).
- Fire trap – The height below which woody plant canopies are exposed to damage by fire. Repeated fires often keep emerging woody plants within this zone by regularly removing new nodes/branches as they develop, so stunting the growth of the plant.
- Fire type – This refers to a head versus back burn, fire intensity (*i.e.* “hot” versus “cool” fire), or the source of ignition (*i.e.* planned, natural [e.g. lightning strike or rock fall], or arson).
- Fuel load – Mass of fuel per unit area that is available for combustion during a fire (kg/m²) [*i.e.* how much fuel there is to burn].
- Fuel moisture – Ratio of moisture to fuel expressed as a percentage on a dry matter basis (%) [*i.e.* how wet the fuel is].
- Gamma diversity – The rate at which composition changes across geographical gradients (also sometimes referred to as Delta diversity).
- Ground fire – A fire that burns below the surface of the ground in deep layers of organic material.
- Habitat – The type of environment in which a plant or animal normally lives.
- Head fire – A fire burning upslope or with the wind (also see Back fire).
- Heat of combustion – Total amount of heat energy contained per unit mass of fuel (kJ/kg).
- Heterogeneity – Variation of things which is represented by spatial and/or temporal patchiness in the environment.
- Homogeneity – When things are similar. This is represented by spatial and/or temporal uniformity in the environment.

Hot burn – A reference to the generally more intense fires and greater flame heights that are generated through burning conditions that have lower humidity and moisture content and sometimes greater vegetation biomass.

Hydrology – Study of water related matters.

Intermediate Disturbance Hypothesis – A theory stating that species richness should be greatest at intermediate levels along a disturbance gradient. According to the theory, strong competitors should dominate at low disturbance levels, while only the most tolerant species should survive at high disturbance levels.

Invasive fire – A fire entering a management unit from surrounding areas.

Moribund sward – Refers to the accumulation of dead plant material to the point at which it reduces the vigour of plant growth.

Mosaic – A patchwork of areas of different burn status (e.g. areas of different “time-since-last-burn”, areas burnt in different seasons). *NB:* This can be created by manipulating the fire regime and/or the way in which a regime is implemented (e.g. by alternating the burning of two compartments on a biennial regime so that only one of the two compartments is burnt in any one year).

Natural fires – Refer to fires that are naturally ignited, such as those started by lightning.

Necromass – Total amount of dead biotic material (dead animals and plants) present in a particular area at any given time (kg/ha).

Patch size – The area burnt.

Patchy burns – Patchy burns create an uneven matrix of areas burnt to different degrees or not at all.

Phytomass – Total amount of living plant material present in a particular area at any given time (kg/ha).

Point ignition – When/where fires are started at a single point or series of points.

Processes (ecological, ecosystem and evolutionary) – The abiotic and biotic interactions that work indirectly or in combination to generate and maintain biodiversity (e.g. the weathering of rocks forms soil which sustains plants).

Productivity – The rate at which biomass is accumulated per unit area (kg/ha/time).

Recruitment – The germination and establishment of propagules (e.g. plant seedlings).

Re-seeder – Plants that are killed by a fire and rely on recruitment, from a seed bank stored in cones on the plant or in the soil, for recovery.

Resprouter – Plants that are generally not killed by fire and recover vegetative by re-growing from buds.

Relative humidity – The ratio between the amount of water vapour a unit of air contains at a given temperature and the amount of water vapour the unit of air can contain at the same temperature and pressure (*i.e.* the amount of water the air contains compared to the total amount it could contain).

Runaway fire – A fire intentionally started by Ezemvelo KwaZulu-Natal Wildlife, usually from a tracer line, firebreaks or scheduled burn that burns beyond its intended extent.

Spatial – Refers to how items (*e.g.* species) are located and distributed over an area (*e.g.* clumped, even or random distribution).

Species abundance – The number of individuals of a species (P_i) in relation to the total number of individuals of all organisms (P_t) in a given area (P_i/P_t).

Species composition – The species found in a particular area.

Species diversity – A complex measure taking into account the richness, abundance, evenness and composition of species.

Species evenness – The ratio of dominant to rare species in a community, where communities are considered to be entirely evenly distributed, when all species are equally abundant. *NB:* This does not refer to the spatial or temporal distribution of species (see heterogeneity and homogeneity), but that the interpretation of abundance may be strongly influenced by the way in which diversity is sampled according to spatial or temporal distribution of species (*e.g.* clumped, even or random distribution).

Species frequency – The number of times a species is recorded across successive samples in space or time.

Species richness – The number of species present in a community.

Spot fire (spotting) – Refers to a fire that is ignited outside of the perimeter of the main fire or across a firebreak by flying sparks or embers that are transported by air currents, gravity or fire whirls.

Surface fire – A fire that burns in the surface fuels.

Surface fuels – All combustible material on the soil surface occurring as standing wild flowers, grass, seedlings, shrubs and fallen leaves, twigs and bark.

Sward – Above ground parts of a population of herbaceous plants characterised by a relatively short growth habit.

Temporal – Refers to how items (*e.g.* species) are located and distributed through time (*e.g.* clumped, even or random distribution).

Tiller – A vegetative unit of the grass plant, made up of leaves, a short stem and roots.

“Time-since-last-burn” – Time elapsed since the last fire at a point, not to be confused with fire frequency.

Tracer lines – Refers to the pre-emptive lines that will determine the width or border of a fire break or compartment burn that are first sprayed with *Paraquat* in March/April, and then burned in May to assist with the containment of a fire during the burning of fire breaks and compartment burns.

Tractor PTO pump – Refers to a high pressure pump system with a high pressure nozzle that is driven by the power-take-off (PTO) of a tractor that is used in conjunction with a water container pulled by the tractor exclusively for the purpose to fight or contained fires

Tree-line – The height on a mountain above which the climate is too cold for trees to grow.

Vegetative growth – When growth occurs asexually from any part of a plant (*i.e.* not from seed).

Venfire Pumps – Refer to a portable 15 to 20 litre back pack sprayer system with a dual action hand operated pump with a concentrated nozzle used to fight or control fires.

Variability – In terms of burning, variability refers to a non-rigid fire programme that changes over time. Fire managers must attempt to vary the seasons of burning and interval between burns as well as the type of fire.

2 Park Objectives and Goals for Fire Management

This management plan is intended to provide a background to fire management, synthesise current thinking and to function as a guide for protected area managers with regard to the application of fire in the Sehlabathebe National Park (Sehlabathebe) and in the uKhahlamba Drakensberg Park World Heritage Site (UDP WHS).

2.1 Introduction

The application and management of fire in the Drakensberg area of KwaZulu-Natal (KZN) has been a contentious matter for decades. Various principles have been applied by land users, ranging from the San hunter-gatherers, through settler pastoralists to present-day conservationists. In more recent times it has been argued that agricultural prescriptions do

not meet the needs of biodiversity conservation and opinion has been divided on the best management options. This management plan is intended to synthesise current thinking and to function as a guide for managers to the application of fire in the Maloti-Drakensberg Park World Heritage Site (MDP WHS) at the beginning of the twenty-first century.

2.2 Vision of the Park

A consolidated and extended Transfrontier Park that is secured, protected and representative of the biodiversity and cultural values of the mountain grassland landscape, which is supported by the people of southern Africa and which contributes significantly to the economic development of the region through eco-cultural tourism, as well as providing sustained and tangible benefits to people.

2.3 Mission of the Park

To manage and conserve the Park for its globally significant natural, cultural and Wilderness values and life support systems, through co-management with partners and all stakeholders and to provide a flow of benefits beyond the boundaries of the Park.

2.4 Park Management Objectives Relevant to Fire Management:

- To perpetuate in as natural state as possible biotic communities, genetic resources and species to provide ecological stability and diversity.
- To secure and maintain habitat conditions necessary to protect significant species, biotic communities, physical features and to protect natural and scenic areas.
- Address security issues and illegal activities to ensure the integrity of the Park, in participation with stakeholders, security services and the justice system.
- Establish and maintain effective linkages with affected communities and other stakeholders in order to ensure collaborative management.
- Promote the conservation management and public appreciation of all cultural resources within the Park in accordance with statutory regulations.
- Ensure that those natural processes responsible for generating and maintaining biodiversity and ecosystems services continue to function.

- Develop a comprehensive plan for the effective management and sustainable use of Wilderness as an integral part of the integrated management plan for the Park.
- Demonstrate the value of ecosystem services to appropriate stakeholders and motivate for the integration of this value into the regional economy.
- Effectively manage consumptive use of natural resources on a sustainable basis and in partnership with relevant stakeholders.
- Develop and implement conservation strategies for species and ecosystems under threat.

2.5 Park Fire Management Goals Relevant to:

2.5.1 Biodiversity

- To maintain the natural community dynamics at both ecological and evolutionary scales, to prevent undesirable human-induced extinctions and retain the inherent adaptability of ecosystems to environmental change.
- Promote habitat/vegetation heterogeneity (through the maintenance of a mosaic of areas with different fire regimes *i.e.* frequency, season, extent, intensity, type and “time-since-last-burn”).
- Ensure the long-term persistence of endemic, rare, or threatened species and their habitats (through manipulating/applying appropriate fire regimes).
- Maintain a similar composition, structure and extent of plant and animal communities at the landscape scale.
- Restore degraded animal and plant communities (where appropriate through manipulating fire regimes).
- Manage alien plant invasions (where possible by avoiding burning practices that encourage alien invasions).
- Facilitate alien plant control (where appropriate through applying appropriate fire regimes).

2.5.2 Water

- Maintain integrity of hydrological systems to support provision of good quality water for downstream users (by maintaining good basal cover through appropriate burning regimes).

2.5.3 Erosion

- Minimise erosion risk by maintaining good vegetation cover.

2.5.4 Cultural Heritage

- Manage archaeological sites to prevent damage to key sites (through burning firebreaks around key sites, vegetation management and the installation of appropriate fire-proof structures).
- Protect/conservate living heritage where appropriate (by preventing burning of sacred forests).

2.5.5 Wilderness

- It is recognised that fire is an essential management activity in Wilderness.
- Where possible, block burns should take the place of firebreaks in Wilderness.
- Arson fires in Wilderness must be managed or controlled generally by using direct attack (beating). Back burns can only be used as a last resort.
- Lightning fires in Wilderness must be left to burn unless they threaten infrastructure, peoples' lives or plantations on the boundary of the Park.
- Exclusion compartments or infrequent burn compartments have high scientific value and are compatible with Wilderness principles, provided the minimum tool concept is applied.
- The equipment that is used in Wilderness must be assessed in terms of the Wilderness principles (no mechanised equipment in Wilderness areas). No vehicles may be used to access Wilderness for fire management. The use of *Paraquat* (herbicide) on firebreaks to prepare tracer lines is considered minimum tool in the Drakensberg Wilderness.

2.5.6 Infrastructure

- Reduce threat to infrastructure (through managing fuel load and firebreaks).
- Building design and layout should minimise impact on fire processes e.g. fire spread in landscape, need for additional firebreaks.

2.5.7 Research

- Maintain long-term research trials (by appropriate planning for arson fires and implementing scheduled burns).

2.5.8 Conservation Targets for the Park

Vegetation types and plant and animal species for which the Park is essential, in order to meet provincial conservation targets:

- Alpine Montane Veld
- Cool Moist Highland Sourveld
- Montane Podocarpus Forest
- Northern Cool Moist Transitional Tall Grassveld
- Northern Montane Veld
- Southern Cool Moist Transitional Tall Grassveld
- Southern Montane Veld
- Natal Spiny Reed Frog (*Afrixalus spinifrons intermedius*)
- Long-toed Tree Frog (*Leptopelis xenodactylus*)
- Wattled Crane (*Bugeranus carunculatus*)
- White-winged Flufftail (potential habitat) (*Sarothura ayresii*)
- Oribi (*Ourebia ourebi*)
- Three-coloured Red Millipede (*Centrobolus tricolor*)
- Southern Black Millipede (*Doratogonus meridionalis*)
- Montane Black Millipede (*Doratogonus montanus*)
- Midlands Dwarf Chameleon (*Bradypodion thamnobates*)
- Cream-spotted Mountain Snake (*Montaspis gilvomaculata*)
- Bearded Vulture (*Gypaetus barbatus*)
- Cape Vulture (*Gyps coprotheres*)
- Eland (*Taurotragus oryx*)
- Drakensberg Cycad (*Encephalartos ghellinckii*)
- Cloud Protea (*Protea nubigena*)
- *Hesperantha woodii*
- *Kniphofia albomontana*
- *Kniphofia brachystachya*
- *Kniphofia breviflora*
- Wetlands
- Cream-spotted Mountain Snake (*Montaspis gilvomaculata*)
- Mountain reedbuck

3 Grey Rhebuck Summary of Ecological Impacts of Fire

Taken from Uys (2005).

The reality of today's transformed landscapes is that ecological processes need to be managed to ensure biodiversity conservation. Fire is one of the most important ecosystem drivers requiring management to maintain the biodiversity of the Maloti-Drakensberg area. This poses an incredible challenge, because while single species management may be critical to ensure the survival of a species of special concern, specialised management regimes may well negatively influence other species or ecosystem processes. We need to identify management strategies that are general enough to be easily applied and support the majority of species and ecosystem processes.

Fire is a natural feature of the region and the fauna and flora appear to have either evolved to tolerate being burnt or avoid fire by making use of natural fire refugia. In line with this, current thinking suggests that we should aim to mimic "natural" fire effects as far as possible. This includes defending and promoting sufficient fire refugia to maintain representative populations of fire-sensitive species. Fire refugia need to be identified according to natural features of the landscape that would promote fire protection, so making them practical to maintain. Considering the difficulty in excluding fire from this landscape, refugia should also be selected for protection to fulfil specific, clearly stated, objectives. Despite their considerable management challenges, fire refugia are nevertheless essential for maintaining the full complement of diversity in this region and need to be given a high priority.

Outside of fire refugia, we can only guess what the "natural" fire regime might have been across the broader landscape. Nevertheless, it is believed that we can get close to a "natural" fire regime if we generate heterogeneous, patchwork fire mosaics across the landscape. This means varying the frequency/"time-since-last-burn", season and extent of burns, to generate a wide enough range of burn conditions over varying areas to support the full complement of biodiversity in the bioregion. The range of frequencies, seasons and fire extents will vary according to the communities and environment, but still with the aim of generating a fire mosaic in space and time.

Under natural conditions, fire frequency is primarily determined by the rate of grass fuel/biomass accumulation. This differs with environmental conditions (mainly rainfall and available heat for growth), meaning that high production areas should be burnt more frequently. It also means that areas of higher, regular rainfall can be burnt more regularly. As mean annual rainfall decreases and becomes increasingly variable, fire regimes need to become more dynamic to respond to the environment.

The season of burn is primarily determined by the availability of sources of ignition. Considerable speculation has gone into guessing when most fires occurred, but the general consensus seems to be that late winter/early spring would have been the peak fire season. This has long been recommended by agriculture and remains the preferred burning time. There are, however, some suggestions that limited “out of season” fires are required to maintain the full complement of biodiversity. Our understanding of the biology of most of the species in the bioregion (particularly the invertebrates) is unfortunately too poor in many cases to provide informed recommendations of how extensive these “out of season” fires should be.

The extent of natural fires is primarily determined by the weather conditions, although like the frequency and season, the amount and conditions of the fuel as well as the extent of ignitions play a leading role. In addition to requiring fire heterogeneity across time (*i.e.* a range of “time-since-last-burn”), organisms also require spatial heterogeneity in the extent of burns. As the fauna of the bioregion have a wide range of habitat requirements and dispersal abilities ranging from those of invertebrates to large antelope, a broad range of fire patch sizes is required to support their full range of diversity. While this is a far easier concept to write about than to achieve on the ground, we need to include patchiness into management strategies and targets at least at coarser landscape scales. Wherever possible patchy compartment burns should also be encouraged to create finer-scale patchiness.

- 4 In summary, the various requirements of each conservation area need to be weighed up against our current understanding to generate fire management strategies for the region. Management regimes need to be tailored according to the environment, risk management requirements and resources at hand. More importantly though, we need to work towards clearly identifying biodiversity objectives for each area and then

developing fire regimes to assist in meeting, or at least not compromising, these objectives. The success with which we meet these objectives needs to be monitored and fed back into developing adaptive management strategies. The starting point of this monitoring is the need to include establishing baseline information against which to measure our conservation success. Considerable research is also required to improve our understanding of fire effects on the biodiversity and ecosystem processes of the region. This research needs to combine with monitoring to revise objectives and update management interventions. It is hoped that this review will encourage such a revision of fire objectives and management activities in the Maloti-Drakensberg area.

5 History of Fire in the Park

The fire-climax grasslands and fire adapted plants of the Drakensberg are evidence that fire has been a primary factor in shaping the biotic environment. Man has used fire in southern Africa for over 100,000 years and fire has been applied by the various land managers/users in the Park for the past few thousand years. Over the past 2,000 years, the land managers/users have been the San hunter-gatherers, the settler pastoralists, the Department of Forestry, to the present-day conservation authority (initially the Natal Parks Board and currently Ezemvelo KwaZulu-Natal Wildlife). Overall, the records suggest that fire was applied over an extended season and at greater frequency than what is currently scheduled.

The San were hunter-gatherers, who used fire to burn off dry grass and stimulate the growth of fresh green material to attract animals to suitable killing grounds. It is unknown how frequent or widespread the burning may have been. The use of fire by the settler pastoralists was more prevalent than that of the San, and they applied some fire in autumn to promote a green flush to carry their cattle through winter. The result would have been that larger areas were burnt than before.

In South Africa, both the Department of Forestry and the Natal Parks Board tried to apply a natural fire regime. In the absence of man, the only natural source of fire is lightning. Although lightning strikes are very common in the Drakensberg, records indicate that very few veld fires are started by lightning and most of these are extinguished by the rain, which usually accompanies thunder storms. In the absence of a “natural” fire regime, both authorities based their fire management decisions on achieving the objectives of

maintaining the water supply coming from the mountains and conserving the biodiversity in the mountains. It was recognised that fire was a principle management tool to achieve these objectives.

With the proclamation of Giant's Castle Game Reserve, under the management of the Natal Parks Board in the early 1900s, the emphasis was to conserve eland and other antelope. Widespread autumn burning was practised to provide winter feed for the antelope and for the cattle and horses (which were kept by the staff) as well as to reduce damage to woody plant communities. In later years, burning in additional portions of the Drakensberg managed by the Natal Parks Board, was carried out at all times of the year. Spring burning, to remove moribund plant matter and stimulate an early flush, was widely practised. The scheduled guidelines in the Natal Parks Board areas in the 1980s were biennial autumn burns below the cave sandstone layer and biennial spring burns above the cave sandstone layer.

The philosophy of the Department of Forestry in the 1960s ranged from total protection of forest to the annual or biennial burning of grasslands. Compartments were given fuel reduction burns according to the requirements of the dominant vegetation. Burning took place in early winter, mid-winter and spring, based on the best available information constrained by the practical limitations of controlling fire. Research on the effects of fire on Montane and Sub-Alpine Grasslands in the 1980s greatly improved understanding with respect to the application of fire. There was a shift to later burning, with emphasis on spring burns. Fire frequency was generally annual or biennial and long intervals between burns were unusual. The earlier research on burning in the State Forest managed sections of the Drakensberg had a strong agricultural bias and was focused on the grassland component of the vegetation. Some research was done on the impact of fire on animal life in the Natal Parks Board managed sections of the Drakensberg. The above research has guided our present philosophy of fire management. There are in excess of 60 publications and reports arising from research into the effects of fire, which have been conducted wholly or partially within the boundaries of the Park.

Lesotho has distinctive wet and dry season which favours regular fire. The wet season stimulates growth, while dry season provides ideal conditions for burning. The rangelands of Lesotho were burnt intentionally annually in late summer to increase the grazing

potential of the grass and not as a conservation measure. In most parts of Lesotho, uncontrolled fires-started deliberately by livestock owners or herders or accidentally by travellers are common than managed burning of the grassland (Chakela, 1999). The **savages**¹ were in the habit of setting fire to the grass with object of fertilizing the soil and thereby improving quality of grazing (Germond, 1967). Historically the use of fire in Lesotho was controlled by traditional authorities, who restricted its use to certain planned occasions and events such as hunting. According to FAO 2007, early human being and fire played significant role in shaping the environment in Africa, for hundreds of thousands of years ago. Therefore one could come to the conclusion that people are also in a way the natural cause of fire in Lesotho. Fires were often left unattended thus negligence is the most common cause of fire in Lesotho.

The **arson fire**² in Sehlabathebe national park was influenced by local population. They were not satisfied by the ownership of the park. Their belief was that the park belongs to the state and all profits never rich them.

Legislation

It is evident that the Park had a long history of varied fire treatments, before restrictions were imposed from 1983 by the Conservation of Agricultural Resources Act: No. 43 of 1983; the Forest Act: No. 122 of 1984; the National Veld and Forest Fire Act: No. 101 of 1998 and the National Environmental Management Act: No. 101 of 1998.

Historically, agricultural prescriptions were used to guide fire management decisions but more recently it has become clear that strict compliance with the regulations of the Conservation of Agricultural Resources Act: No 43 of 1983 and the National Veld and Forest Fire Act: No. 122 of 1984 do not meet the needs of biodiversity conservation. The Conservation of Agricultural Resources Act: No 43 of 1983 makes provision for regulations governing veld burning in various biomes in South Africa. For the Cool Moist Grasslands, in which the Park falls, the regulations permit burning only in the months of August and September. The National Environmental Management Act: No. 101 of 1998, however, makes allowances for conservation organisations to apply the necessary

management actions to achieve biodiversity objectives. These actions include decisions to burn when necessary to achieve biodiversity conservation objectives.

6 Present Philosophy

Ecological processes need to be managed to ensure biodiversity conservation. Fire is one of the most important ecosystem drivers requiring management to maintain the biodiversity of the Drakensberg. The fire requirements of the fauna and flora of the Drakensberg are very diverse and this poses a challenge to managers. Management strategies need to be identified, which are general enough to be easily applied and support the majority of species and ecosystem processes.

The philosophy detailed below was developed in the late 1990s. A series of workshops was held to review the effects of fire on fauna and flora in the Drakensberg during 2005 (Uys, 2005) essentially confirmed the existing burning philosophy of the Park. This philosophy is detailed below.

Fire is a natural feature of the bioregion and the fauna and flora appears to have either evolved to tolerate being burnt or avoid fire by making use of natural fire refugia. Therefore fire management should ensure the protection of sufficient fire refugia to maintain representative populations of fire-sensitive species and should generate a patchwork of heterogeneous fire mosaics across the landscape. This means varying the frequency/"time-since-last-burn", season and extent of burns to generate a wide enough range of burn conditions over varying areas to support the full complement of biodiversity in the Park.

In order to achieve this, four principles have been adopted. These are:

- Variability
- Responsibility
- Flexibility
- Patchiness

It is generally agreed that burning at any time, when perennial grasses are dormant, is acceptable. Burning when grasses are in active growth is less acceptable, but a limited amount of early (pre-frost, autumn) burning to achieve specific objectives, provided it is

not repeated successively in the same area, will be permitted under strict control. Where relevant, the frequency of burning should be decreased from every two years, to cater for plants and animals that are less fire tolerant.

Variability

A rigid burning regime is unlikely to facilitate the long-term conservation of biodiversity. *Variability* in date and time of ignition is recommended, with the objective being to apply fire in different seasons and at different times and intervals rather than monotonously.

Responsibility

Although research indicates that burning outside of the scheduled period, particularly when grasses are not dormant, may have detrimental effects on water production, the *responsibility* watchword must apply. While occasional burns before frost induces dormancy may be justifiable for a number of reasons, frequent or repetitive burning will not be permitted.

Flexibility

Flexibility is essential since a strict burning regime will not benefit plant diversity, animal diversity and water production alike. Response to prevailing conditions and the likelihood of achieving burning objectives should introduce *flexibility* and enhance variability.

Patchiness

The patchiness principle applies to the landscape level (mosaic of burnt and unburnt compartments) and at a local scale within a compartment (mosaic of burnt and unburnt patches).

The more extensive the burn, the greater the impact on the availability of food and cover for animals, and the longer it will take to re-colonise from unburnt areas. By burning smaller areas and varying the seasons of burn, a mosaic of burnt and unburnt areas will be achieved, which will mitigate against the impact of large burnt areas.

With current financial and practical constraints in mind, managers should follow a guideline of achieving *patchiness*. "Clean" burns, covering hundreds or even thousands of hectares, should be avoided and the aim should be to leave refuge sites within the burnt

areas. Patchiness is more likely to be achieved by a “cool” burn than a “hot” one. Cool burns are more likely when humidity is high, wind speed is low and the ground is moist.

Summary

In essence, research results indicate that “ideal” species composition and grass vigour are maintained by spring burning at regular intervals, usually taken to be biennial. Small mammal populations and species richness are also favoured by regular burning and both start to decline after about three years without fire. Ground-nesting birds are similarly affected. Small antelope (e.g. Oribi) are adversely affected by the winter bottleneck, whereby perennial grasses lose their palatability and nutritional value in winter and are favoured by an early (autumn) burn, which stimulates new growth just before grass dormancy. Insect fauna associated with *Protea* communities are adversely affected by frequent burning.

The cool moist grasslands should be burnt biennially in the dormant period, with spring burning being favoured. Grass dormancy is initiated by the onset of frost and broken when ground temperatures remain above freezing. Therefore it is acceptable to burn at any time between the onset of frost and the advent of warmer weather at the end of winter. It is not necessary to wait for rain or significant moisture prior to burning, especially as this is not a production system with a large biomass of grazers impacting on the grass re-growth. Many woody plant species are not fire tolerant and excessively frequent hot fires may eliminate whole communities. Less frequent burning benefits the evergreen communities.

6.1 Fire Management Application

Firebreaks

In South Africa firebreaks were first burnt by the Department of Forestry and the Natal Parks Board. The Department of Forestry hoed their tracer lines, of which the scars are still visible. Only later did they switch to the use of *Paraquat*, which is still used today to spray tracer lines demarcating the outer limits of the firebreaks. These tracer lines are burnt as soon as the grass becomes desiccated but prior to frosts drying out (curing) the rest of the grass. Pertaining to Lesotho, the burning of firebreaks was the responsibility of the Department of Conservation previously.

Currently in South Africa and Lesotho, firebreaks are burnt by Ezemvelo KZN Wildlife and the Department of Environment (Parks Division) respectively.

Fire exclusion compartments

The Department of Forestry and the Natal Parks Board set aside compartments, which were excluded permanently, in order to answer several research questions such as plant succession and species diversity in the absence of fire. There are a small number of fire exclusion compartments in the Park, dating back in some cases over 30 years. These are maintained as evidence or witness stands of plant succession in the absence of fire.

Currently, on the Lesotho side there are no compartments excluded from fire, due to no research interest. However Sehlabathebe an area exists that is excluded from fire around the entrance gate, because of the presence of *Leucosidea* species.

Infrequent burn compartments

Areas of Montane Fynbos that are naturally protected from frequent burning have been set aside as infrequent burn compartments, for the development and maintenance of such communities. These areas are further protected by strategic firebreaks, but management does not extend much beyond this. In general, only lightning-induced fire will be tolerated and all other fires will be extinguished.

These compartments were categorised as such in response to our lack of understanding of the dynamics of Montane plant succession in the absence of fire, but with the knowledge that it is unlikely that these communities would evolve or be maintained in the Drakensberg under a biennial spring burn regime.

At this stage no specific areas have been set aside as infrequent burn compartments within Sehlabathebe. Areas to for possible setting aside will be assessed.

Compartments containing sensitive features

Compartments containing sites or features which might warrant very specific fire management are identified in the Fire Compartment Register. Such sites include rock art, animal breeding sites, historical sites and particularly susceptible plant communities. Management may involve fire exclusion or careful application and this will vary from site to

site. All sensitive sites must be described and fire management prescriptions detailed in the Compartment Attribute Table (CAT).

Information Management and Planning

Fire records are available from fire management during the Department of Forestry and Natal Parks Board management regime and are currently collected and maintained by Ezemvelo. Fire events are recorded in the field and captured into a Geographic Information System, which contains all available historical data and which will be updated annually from current fire forms. Annual fire workshops are held to plan the burning programme for the year and to review the management philosophy periodically. Records from these meetings are available.

Historical fire management records are kept by the Department of Environment (Parks Division) and Sehlabathebe. These include hard copy reports and maps with metadata. To enhance planning, the MDP WHS will investigate the incorporation of the Sehlabathebe fire management data in the existing GIS systems used in planning by South Africa.

6.2 Bibliography

Uys, R. 2005. (Ed.). Fire Effects on the Fauna and Flora of the Maloti-Drakensberg Bioregion: A Review. MDTP, Howick.

7 Fire Behaviour

7.1 Principles of Combustion

Controlling the elements (fuel, oxygen and heat) that give rise to fires is key to manipulating fire in order to achieve the desired goals and objectives of conservation management. Fires occur when the sun's energy fixed in plants through photosynthesis is released in the presence of oxygen and catalysed by an ignition temperature, to produce heat by combustion.

Photosynthesis: $\text{CO}_2 + \text{H}_2\text{O} + \text{Solar Energy} \rightarrow (\text{C}_6\text{H}_{10}\text{O}_5)_n + \text{O}_2$

Combustion: $(\text{C}_6\text{H}_{10}\text{O}_5)_n + \text{O}_2 + \text{Ignition Temperature} \rightarrow \text{CO}_2 + \text{H}_2\text{O} + \text{Heat}$

Three elements are therefore required for combustion to occur: **fuel** $[(C_6H_{10}O_5)_n]$, **oxygen** (O_2) and **a source of heat** (ignition temperature) [Figure 1].

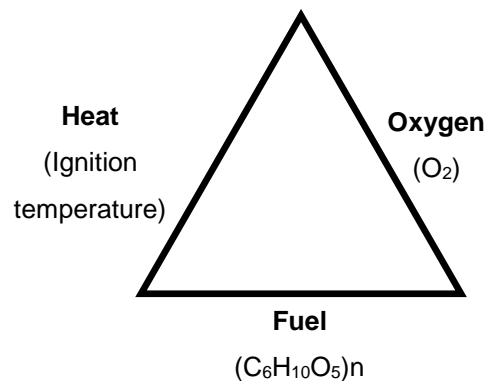


Figure 1. The fire triangle, showing the three essential elements necessary for combustion.

The ignition temperature serves a catalytic role, starting and maintaining the combustion process. The initial energy required to reach the ignition temperature is provided by an external source of ignition such as a glowing cigarette butt, flaming match, lightning strike or sparks from power lines or falling rocks colliding. Once enough heat has been provided to reach the ignition temperature of the fuel, the combustion of fuel produces further heat to maintain the fire. If the heat produced by the combustion of the fuel drops below the ignition temperature, the fire will go out. Putting *water* onto the fire reduces the amount of available heat being produced by combustion to maintain the ignition temperature and so can end the chemical reaction and extinguish the fire.

Once started, the chemical reaction of combustion relies on the presence of fuel and oxygen to continue. If either the fuel or oxygen is removed from the fire, there will be a break in the chemical reaction and the fire will be put out. Air contains 21% oxygen. By reducing this to 15%, the fire will be extinguished. This is what happens when we reduce the availability of oxygen to the fire by *beating the fire* or *throwing sand* on it.

To maintain the chain reaction of combustion, the fire needs to transfer enough heat energy to the adjacent plants to raise them up to their ignition temperature before they will ignite. This transfer of heat to plants and their subsequent combustion occurs in three phases (Figure 2):

- **Phase 1: Preheating Phase** – Fuels ahead of the flame front are heated to their ignition temperature, driving off of their moisture and in so doing generate flammable hydrocarbon gases.
- **Phase 2: Gaseous Phase** – The gases generated by the preheating phase ignite and *flaming combustion* occurs.
- **Phase 3: Combustion Phase** – The gases burn off and the remaining charcoal is consumed by *glowing combustion*, leaving a small amount of ash.

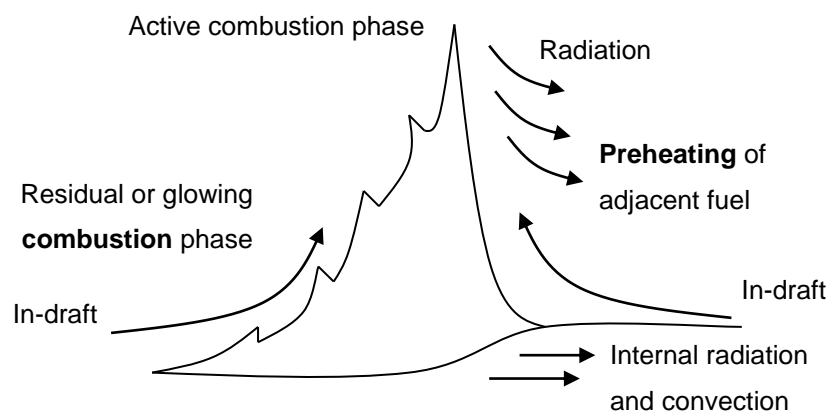


Figure 2. Flame profile of a fire on a horizontal surface with no wind, indicating the region of preheating, flaming combustion and glowing combustion.

The amount of heat energy released during the flaming and glowing phases of combustion is determined by the type of fuel being burnt. Heavy fuels with low flames generally release a large proportion of their heat energy, albeit at a slower rate, via glowing combustion. Conversely, light fuels (e.g. grass) release the majority of their heat energy during the flaming combustion.

These three phases of combustion overlap and occur simultaneously during a fire, but are easily recognised as three characteristic zones in a fire. In the first zone the leaves and other fine fuels curl and are scorched by the preheating of the oncoming flames. This is followed by the flaming zone of burning gases, which is followed by the third but less conspicuous zone of burning charcoal.

7.2 Fuel Dynamics

The characteristics of the plant material being burnt influence the flammability (potential to burn) of the fuel, the intensity (heat energy released) of the fire and the duration of the fire.

7.2.1 Particle Size

Plant fuels may be divided into two broad types according to the ease with which they ignite, namely fine fuels (plant material with a diameter $\leq 6\text{mm}$) and heavy fuels (diameter $> 6\text{ mm}$). Fine fuels include grass, small branches and thin leaves. These have a high surface to volume ratio and therefore dry very fast and need little heat to ignite. Fine fuels burn very readily (e.g. grassland) while combustion of heavy fuels may be incomplete (e.g. tree trunks). If there is not enough fine fuel available, it may be difficult to achieve a successful burn. This emphasises the need for sufficient grass to achieve a hot enough fire to burn woody vegetation.

7.2.2 Fuel Load

Fuel load (total mass of fuel per unit area) is a major contributor to fire behaviour accounting for between 30-60% of the variation in intensity between grassland fires. The total amount of heat energy available for release during a fire is related to the quantity of fuel, *i.e.* the greater the fuel available, the more intense the fire (Figure 3). The rate of accumulation of grassy fuels is linearly related to rainfall across southern Africa, but becomes limited by the colder climate at higher altitudes within the Park.

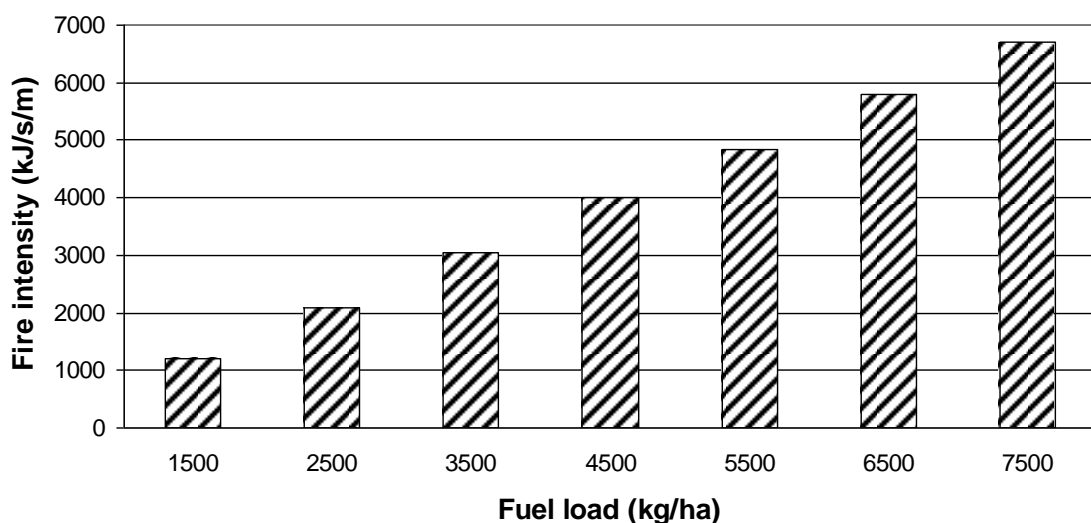


Figure 3. Effect of fuel load on fire intensity.

7.2.3 Compaction

When fuel is tightly packed together (e.g. in a moribund grass sward) there is little space for air between the material. Compacted fuels therefore dry slower, retaining their moisture and need greater preheating temperatures to get them to ignite. The reduced oxygen availability also means that compacted fuels burn slower. Combustion is optimised when the fuel is sufficiently loosely packed to allow adequate amounts of oxygen to reach the flame zone, but dense enough for efficient heat transfer to occur.

7.2.4 Distribution

The vertical distribution of plant fuels relates to the type of fire they support. There are three broad categories, namely:

Ground fuels – include all combustible material below the loose surface litter and comprise decomposed plant material (e.g. peat) that is often tightly compacted. These fuels support glowing combustion and although they are very difficult to ignite, they are very persistent once they get going.

Surface fuels – comprise standing grass swards, small shrubs, forbs and loose surface litter like fallen bark, leaves and twigs. These are generally fine fuels that support intense surface fires.

Aerial fuels – include all combustible material in the under storey and upper canopy of tree and shrub communities. This type of fuel can support crown fires, but the fires are generally less intense than ground fires, as heavy fuels make up most of the aerial fuel.

7.2.5 Moisture

Fuel moisture affects the ease of ignition, the amount of fuel consumed and the rate at which the fuel is consumed. Water vapour leaving the fuel dilutes the oxygen in the air surrounding the fuel and has a smothering effect on the fire. Thus the higher the moisture content of the fuel, the less intense the fire (Figure 4). A sustained flame is required to ignite dead grass with moisture content above 15%. Ignition becomes progressively easier as the moisture content drops below 6% while only very small embers and hot particles are capable of igniting dry grassy fuels. Maximum fuel combustion of dormant winter grass occurs with a fuel moisture content of less than 40%.

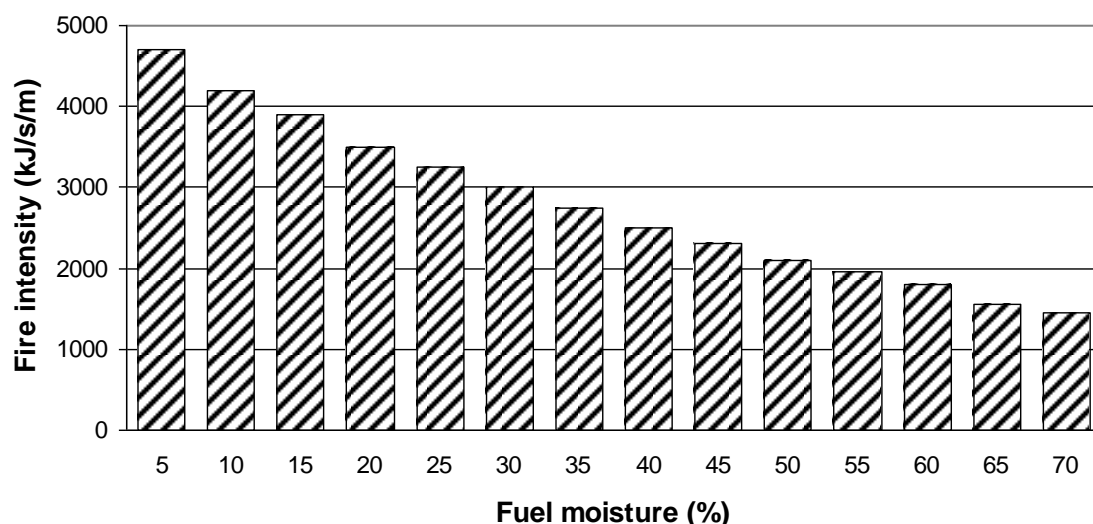


Figure 4. Effect of fuel moisture on fire intensity.

7.3 Atmospheric and Physiographic Influences

7.3.1 Air Temperature

Air temperature directly influences the fuel temperature and therefore the amount of heat energy required to raise the temperature of the fuel to its ignition point. Air temperature also influences the relative humidity of the air and therefore the evaporative moisture loss from fuels. Research has suggested that to ensure that fires are reasonably safe (≤ 3500 kJ/s/m), air temperatures should not exceed 30°C at the time of burning.

7.3.2 Relative Humidity

Relative humidity of the atmosphere influences the moisture content of the fuel when it is fully cured (dry) and therefore has a negative affect on fire intensity, especially when the fuel moisture content is $< 40\%$ (Figure 5). Relative humidity is highest in the morning, around dawn and lowest in the afternoon, meaning that it is safest to burn at night or early in the day. As a rule of thumb, relative humidity doubles with every 20°C decrease in temperature and is halved with every 20°C increase in temperature. Experience has shown that fires are more difficult to control when the relative humidity is $< 30\%$.

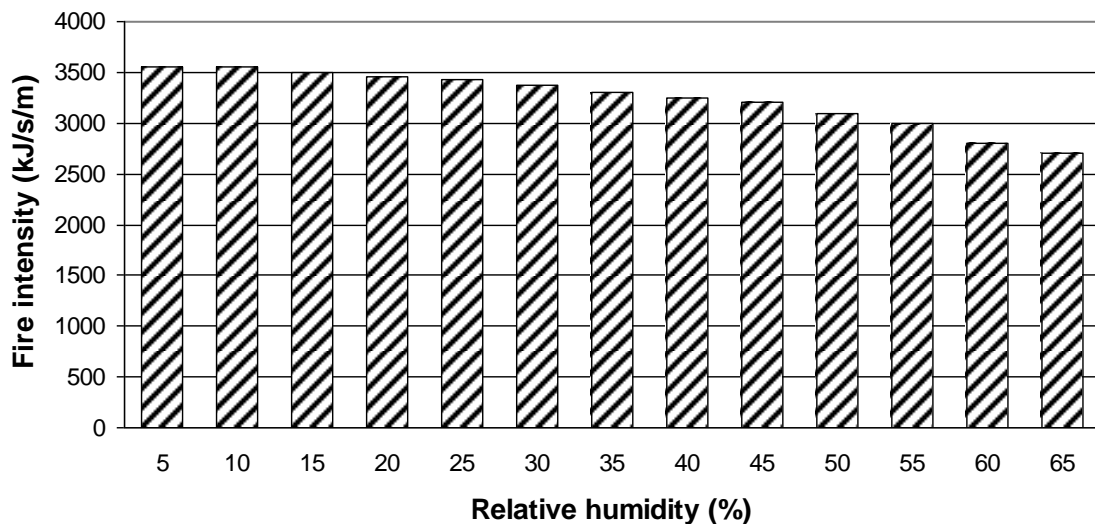


Figure 5. Effect of relative humidity on fire intensity.

7.3.3 Precipitation

In southern Africa, precipitation is mostly in the form of rain, but can also come as dew, heavy fog, or snow. Humidity and precipitation increases the moisture in the fuel to levels at which fires will not burn. Conversely, dry winters and droughts increase the potential for fuel to ignite.

7.3.4 Wind

Wind increases the provision of oxygen to the fire front and thereby affects the rate at which fuel dries ahead of the fire front preparing it for ignition. Wind speeds ranging from 0 m/s to 3.6 m/s exponentially increase the rate of spread of head-fires by preheating the fuel to be burnt, but does not affect the rate of spread of back-fires. If the wind speed gets too strong (> 50 km/h or > 13.9 m/s), however, it reduces the rate of spread (even of head-fires) possibly because the flames are blown out. Wind speed has a negative effect on flame height; stronger winds blowing the flames flatter along the ground. Consequently, intense fires burnt during high winds may not necessarily affect aerial fuels and this explains why crown fires do not always occur during high winds. Wind direction determines the direction in which the back and head-fires will spread. Particularly in stronger winds, flying sparks and burning embers can cause spot fires ahead of the main fire front, so increasing the rate of spread. Although wind plays a significant role in influencing the fire intensity, it does not appear to be the dominant factor in southern Africa's grass-dominated (grasslands and savannas) ecosystems. Wind speed is usually reaches its maximum between 12h00 and 15h00, but this can vary with frontal activities

and terrain. Berg wind conditions, in particular, can reach maximum wind speed at any time of the day or during the night.

7.3.5 Terrain Slope

Slope has a marked affect on the rate of spread of fires burning up a slope by increasing the degree of preheating of unburnt fuel immediately in front of the flames. This occurs, as with wind, by creating flames that burn at a very low angle ahead of the fire front in fires moving up slopes exceeding 20°, preheating the fuel ahead of them. This effect doubles from a moderate (0° - 22°) to a steep slope (22° - 35°) and doubles from a steep to a very steep slope (35° - 45°). Conversely, burning down a slope decreases the spread of surface fires. When burning at low wind speeds a head-fire can be converted into a back fire.

7.3.6 Aspect

Aspect plays an important role in fuel flammability in the Park, especially at higher altitudes where the valley sides become steeper, so pronouncing the shading affect. In the southern hemisphere, the sun shines predominantly on north facing slopes, with south facing slopes typically being cooler and wetter. Both this increases in the moisture content of the fuel and the lower temperatures make ignition more difficult and so slows the spread of fires.

7.4 Types of Fire

Fires are described according to the vegetation layers in which they burn (ground, surface and crown fires), according to whether they burn with the wind (head fires) or into the wind (back fires) and according to their position along the fire perimeter (flank and spot fires).

Ground fires – These fires burn in the organic material under the surface litter or below the surface of the ground and spread very slowly. In the context of the Park, ground fires may occur in peat lands or at higher altitudes where the soil has a high organic content due to slow decomposition rates.

Surface fires – These are fires that burn on the surface of the ground including litter, grass and brush (e.g. a grassland fire). Most fires begin as surface fires.

Crown fires – These fires advance through the canopies of trees and shrubs, usually in conjunction with surface fires. The vertical arrangement of fuel, the type of fuel and volume, as well as the height of the tree crowns will determine how easily crown fires can

develop. Crown fires can thus be classified according to how dependent they are on the surface fire phase, namely:

- **Passive crown fire (intermittent crown fire)** – A fire in which only some of the trees catch alight and the rate of spread is controlled by the surface fire.
- **Active crown fire (dependent crown fire)** – A fire that advances with a well-defined wall of flame extending from the ground surface to above the crown fuel layer. The development of these fires requires a substantial surface fire and thereafter the surface and crown phases spread together.
- **Running crown fire (independent crown fire)** – A fire that only advances in the crown fuel layer.

Head fire – A surface fire driven by wind and/or assisted by slope, driving the flame towards the fuel. These fires spread rapidly, travelling up to seven and a half times faster than back fires. The spread of head fires is much more variable than that of back fires. Similarly, head fires have much higher flame heights than back fires but their flame height is also more variable than that of back fires. In grasslands, fuels can be pre-heated so rapidly that large volumes of flammable gases do not mix sufficiently with oxygen to permit complete combustion, resulting in compacted lower layers of fuel remaining unburnt.

Back fires – These are surface fires that burn against the wind and/or down slope, with flames leaning backwards over the already burnt ground. Burning slowly forward in this way leaves little residue behind. At ground level, back fires are hotter than head fires. Temperatures in both fire types are hotter at grass canopy level than at ground level, resulting in the greater flame heights of head fires producing more heat one metre above the grass canopy than back fires. Back fires produce less smoke than head fires and are generally easier to bring under control.

Note: Head fires are often referred to as **hot burns** due to their heat extending further above the grass sward canopy than that of back fires (**cool burns**). This terminology is misleading as all fires are obviously “hot” and back fires are in fact usually hotter at ground level than head fires.

Flank fire – A surface fire burning at a diagonal angle to the direction of the wind, intermediate to a head and back fire. These fires form on the edges of the burn, heading

in approximately the same direction as the fire front. Changes in wind direction can change a flank fire into either a head or back fire at any point along the fire perimeter.

Spot fire – A fire that is ignited outside of the perimeter of the main fire or across a firebreak by flying sparks or embers that are transported by air currents, gravity or fire whirls. As spot fires sometimes jump across firebreaks they are also referred to as “jump fires”. In the case of long distance spotting, burning embers are carried several kilometres from the main fire front, to ignite new fires far ahead of the main burning fires.

7.5 Bibliography

This chapter was synthesised from the following references:

- Trollope, W.S.W. 1984. Fire behaviour. In: Booysen, P. de V. and Tainton, N.M. *Ecological effects of fire in South African ecosystems*. Springer-Verlag, Berlin, Chapter 9, pp. 199-217.
- Trollope, W.S.W. 1999. Fire behaviour. In: Tainton, N.M. (Ed.). *Veld Management in South Africa*. University of Natal Press, Pietermaritzburg, Chapter 9.1, pp. 218-228.
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8 Fire Management Operations

8.1 Budget Process

Fire management is the most important management activity undertaken in the Park and is also a major safety issue. Therefore, budgets for fire management need to adequately provide for all components including planning, firebreaks, preparedness (staff, standby, Personal Protective Equipment (PPE), vehicle acquisition and running costs, and maintenance of fire fighting equipment), fire fighting and monitoring. Fires are inherently unpredictable, which requires a centralised budget to cover all eventualities.

On the Sehlabathebe side the Park Manager is responsible for calculating the budget required in September each year, and for submission of this information and associated motivation to the Deputy Director in Maseru who will submit the budget requirements in October. On the UD WHS side the Budgets are completed with the Financial Manager during January of each year.

8.2 Planning

8.2.1 Pre-Burn Inspection

It is the Officer in Charge's (OiC's) responsibility to organise a pre-burn inspection for each compartment in January prior to the sub-regional fire planning meeting taking place in February. This is a field-based inspection where Ecological Advice staff and the Conservation Manager (CM) can be asked to assist. This requires reference to the CAT to ensure that the objective of the compartment is understood and still relevant prior to the assessment. The OiC or Ecological Advice staff may invite any other fire experts where this will add value to the decision making process. Decisions pertaining to burning agreed to at the pre-burn inspection must be documented on the Fire Management Form supplied (Appendix 1). The form will indicate the compartment to be burnt, the specific objectives of the compartment, the objective of the fire and the recommended burning conditions to achieve these objectives. When contentious issues cannot be resolved in the field then the Manager Ecological Advice West and the Park Manager must be called in to assist.

8.2.2 Infrequent Burn Compartments

This is a relatively new concept which has developed in response to our lack of understanding of the dynamics of Montane plant succession in the absence of fire, with the focus presently being on fynbos communities in particular. Based on knowledge of the Cape fynbos, the principle is that it is unlikely that these communities would evolve or be maintained in the Drakensberg under a biennial spring or frequent burn regime. Good examples of Montane fynbos are found in areas naturally protected from frequent burning and the intention is to foster development and maintenance of such communities wherever naturally protected areas are found. Where possible these areas will be protected by strategic firebreaks.

A number of infrequent burn compartments have been identified and more might be added to promote biodiversity at the landscape scale. Wildfires threatening infrequent burn compartments, other than lightning induced fires, must be suppressed.

8.2.3 Fire Exclusion Compartments

In these compartments fire will be excluded permanently. Firebreaks to protect these compartments must be treated as priority breaks and must be prepared early in the season. Any fire threatening or burning in such an area must be suppressed. There are a small number of fire exclusion compartments in the Park, dating back in some cases more than 30 years. These will be maintained as evidence or witness stands of plant succession in the absence of fire.

8.2.4 Wilderness Burning

It is recognised that fire is an essential management activity in the Park's Wilderness areas. Where possible managers should adopt a holistic approach to burning in Wilderness and block burns should take the place of firebreaks in Wilderness areas. The resultant burns would look more "natural" than the unnatural appearance of linear firebreaks. This is important as firebreaks impact on the sense of place, especially in areas zoned as pristine Wilderness.

Wildfires in Wilderness will be suppressed. Minimum tool principle will be applied with regards to wildfire suppression in Wilderness. Lightning fires in Wilderness areas must be left to burn unless they threaten infrastructure, peoples' lives or sensitive features and fire exclusion areas. The equipment that is used in Wilderness areas must be assessed in

terms of the Wilderness principles (no mechanized equipment in Wilderness areas). No vehicles may be used in Wilderness. The use of *Paraquat* (herbicides) on firebreaks to prepare tracer lines is considered minimum tool in the Wilderness areas.

Where aircraft are deemed necessary by the CM, then this is considered minimum tool.

8.2.5 Sub-Regional Fire Workshops

CMs are to hold a sub-regional fire workshop prior to the Annual Fire Workshop, which is held in February of each year. Sehlabathebe is included in the southern MDP sub-regional fire workshop. At the sub-regional fire workshop, OiCs are to present a report back on the previous fire season. The report back should be completed in the required format as indicated in Appendix 2. At this workshop, OiCs are also required to present their proposed scheduled burns for the forthcoming year. Appendix 3 is the format for the submission of proposed burns at this workshop. The frequency and season of burns are discussed with reference to the management unit's Fire Compartment Register and the CAT.

Recommendations from the sub-regional fire workshops are consolidated by the CMs and prepared for the Annual Fire Workshop for presentation and approval.

Fire Compartment Registers are to be maintained by the OiC. Only the approved Fire Compartment Register format may be used (Appendix 4). The Fire Compartment Register must be completed prior to burning with the proposed burns for the year. After the burn has taken place, the actual fire event needs to be recorded and the Fire Management Form completed and inserted into the Fire Compartment Register as soon as possible after the fire event. Accuracy is important when compiling these returns particularly when mapping the extent of burns. Fire Compartment Registers will be audited and signed by the CMs at their respective sub-regional fire workshops.

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| All returns are to be submitted to the relevant CM by 30 November each year, to be with the Park Ecologist by 7 December each year. |
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The CM will check the fire data sheets and ensure that all relevant information and maps are attached.

8.2.6 Annual MDP WHS Fire Workshop

The Fire Workshop is held over one day in February each year and is organised by the Park Manager: MDP. Attendees include:

- External and other internal stakeholders
- West Region OiCs
- MDP WHS OiCs
- MDP WHS CMs
- Ecological Advice
- Park Manager Sehlabathebe and relevant support staff

The workshop includes formal presentation by internal and external stakeholders. Presentations can include information on the results of any research or studies that have been carried out relating to fire or any other fire related issues such as legislation, new fire fighting techniques or equipment. Any other issues such as Fire Protection Associations and Working on Fire Programmes may be included on the agenda of the first day.

The second day will consist of a report back by CMs on the previous year's fire season. This is followed by a report back by the Park Ecologist on the previous year's burning programme for the Park and a proposal by the CMs on the following year's burning programme. After the workshop, Fire Compartment Registers are inspected by the Park Manager.

Once the burning programme has been finalised and approved, the OiC is responsible for ensuring that the burning programme is carried out in accordance with the agreed plan. The Fire Management Plan will be reviewed as a standing agenda item at this meeting.

8.2.7 Mid-season Review

8.3 To take place in July each year and may include managers and ecologists; coordinated by the relevant manager. This can be done electronically and as and when a need arises. If there are large differences between scheduled and actual burns then review and change the remaining scheduled burns for the season, guided by Park and compartment objectives.

8.3.1 Pre-Fire Season Equipment Check

OiCs/Park Manager Sehlabathebe and Resort Managers are to conduct a full inspection of all fire fighting equipment on an annual basis. This joint inspection is to be completed by the end of March each year.

Items to be checked include:

- Fire extinguishers and high pressure fire hoses, which must be installed and maintained according to the South African Bureau of Standards (SABS) 10400 regulations.
- Fire extinguishers and high pressure hoses, which must be serviced in accordance with the SABS 1475 regulations on an annual basis.
- Fire fighting equipment such as fire beaters, knapsack sprayers, bakkie sakkies and water pumps, which must be inspected, repaired and serviced during April every year.
- Test emergency alarms and drills.

Conservation Managers or Park Managers in the case of Sehlabathebe

OiCs/Park Manager Sehlabathebe are to ensure that permanent and contract staff has been adequately equipped with fire fighting protective equipment. It is also essential that a combined fire drill is held between conservation and hospitality staff in preparation for fire season. All staff should be familiar with the requirements of the drill and items such as contact numbers and keys to access equipment should be readily available at all times.

In South Africa, regulation 2 (3) (b) of the Occupation Health and Safety Act: No. 85 of 1993, states that safety equipment shall include as may be necessary, waterproof

clothing, fire retardant or flame-proof clothing or any similar safety equipment of a type that will protect the employee from any injury. In Lesotho, regulation 109 of Labour Code Order No. 24 of 1992 states that where any process carried out at a place of work or where the nature of the workers employment or any substance used is likely to cause a person bodily injury or impaired if health and these occurrences cannot be prevented by other means, he or she shall be provided with suitable and appropriate personal protective clothing.

8.3.2 Fire Danger Indices

Lesotho: The OiC Garden Castle receives a radio notification of the FDI at 07h00 every day. In addition he receives an SMS message at 08h00. The OiC Garden Castle or representative will radio the FDI category to Sehlabathebe at 07h15 every day during the fire season (April – October). If the FDI is code Yellow, then the Park Manager Sehlabathebe will burn at his discretion; no burning will take place on Orange or Red days.

South African: Chapter Three of the National Veld and Forest Fire Act: No. 101 of 1998 provides for the prevention of veld fires through a fire danger rating system. The Minister sets up and maintains the system, although he/she delegates his/her powers and duties to do so to an organisation with the necessary expertise. The content of the system and the factors to be taken into account when preparing it, are set out. A prohibition on the lighting of fires in the open air comes into force when the Minister warns the media that the fire danger is high. OiCs are asked to refer to Chapter Three of the National Veld and Forest Act: No. 101 of 1998.

Before any burning takes place, the Weather Bureau (082 2311 611) must be contacted on the morning of the fire event for the Fire Danger Index. OiCs must join “Fire Stop” (033 3308 421). Fire Stop will send a daily SMS and e-mail notifications every morning and afternoon informing you of the current and predicted Fire Danger Index. OiCs have to register annually with Fire Stop to receive a text message and e-mail forecasts. In an area with no cell phone coverage, the Weather Bureau (082 2311 611) needs to be contacted for the Fire Danger Index. For a five day forecast for the MDP WHS, OiCs can phone 082 2311 602.

OiCs must be aware of the Fire Danger Index prior to burning on a particular day. No burning is to take place if the Fire Danger Index is unknown, or if the Fire Danger Index is in the orange or red.

On 8 July 2005, the Director of Forestry Regulation published regulations in terms of the National Veld and Forest Fire Act: No. 101 of 1998 providing for a National Fire Danger Rating System, which applies to the entire country. The regulations provide for the structure and formula, fire danger rating, fire danger regions and threshold values and provides for the delegation of the communication of the fire danger rating to the Weather Bureau. It is important for Managers to be aware of the Fire Danger Rating System and to have a copy of these regulations for the purpose of Fire Management Operations (refer to 8.1.3). Burns are allowed during periods where the index colour is blue and green. No open-air fires are allowed during orange and red periods. During yellow periods only fires authorised by the Fire Protection Officer (where a Fire Protection Association exists) or the Chief Fire Officer are allowed, unless those fires are in designated fireplaces. The National Veld and Forest Act: No. 101 of 1998, Section 10(2) is quite clear that where a warning has been published that fire danger is high, *no person* may light, use or maintain a fire in the open air. The Act does not make allowance for exceptions or exemptions.

With respect to burning firebreaks, Section 12(4) provides that a landowner may not burn a firebreak, if a warning has been published because the fire danger is high in the region. An exemption exists in Section 12(10), which provides for the possibility of a fire protection association making different rules for the burning of firebreaks if those rules are approved by the Minister (refer to 2.1.3 above).

8.3.3 Communications (Equipment and Protocols)

Effective communication is essential to the safety of staff during all fire management operations. Every OiC/Park Manager Sehlabathebe is responsible for ensuring the maintenance of the management unit's radio equipment. All radio equipment will undergo an annual maintenance check. This will include the following; handheld, base and mobile radios and radio repeaters.

OiC/Park Manager Sehlabathebe are to ensure that:

- Handheld radio batteries are kept fully charged.
- A spare battery is kept fully charged.

- The aerial is in good condition.
- Mobile and base radios in vehicles and houses/offices are correctly installed, aerials are functional and aerial cables and connections are not damaged.
- Power units and back up batteries are fully functional.
- Radio repeater sites are inspected to ensure that aerial cables, aerials, battery connections and that batteries are fully functional.

In addition, OiC/Park Manager Sehlabathebe must:

- Where applicable investigate cellular phone boosters at offices to improve telephonic communications.
- Report TELKOM/ Econet Telkom Lesotho (ETL) lines promptly if faults are detected. Faults are to be reported to 10217.
- Ensure that mobile radios are installed in Official vehicles and personal vehicles on the Motor Vehicle Allowance scheme.
- Have a handheld radio with them *at all times*.
- Adhere to radio protocol at all times. Radio communications have been established for the efficient transaction of official business between staff in the field.

8.3.3.1 Radio Protocol

The following basic rules must be adhered to at all times.

- Radio transmissions should be short and concise.
- Confidentiality of radio transmissions must be respected at all times.
- Unofficial conversations between radio operators are not permitted.
- Radio communication should not be used for personal matters unless in an emergency.
- Radios, especially at outposts, are only to be used at pre-determined call-up times. This is to reduce radio traffic, for example: call-up times at 06h00 and 18h00.
- OiC/Park Manager Sehlabathebe to supply a list of relevant call signs for his management unit.
- Call signs are to be used and not names.
- A temporary radio call sign will be allocated to each radio in use at the management unit being visited, e.g. for external researchers.

- Before transmitting, the radio operator shall ensure that no other radio conversations are in progress. If so, wait until the radio communication has been completed.
- The OiC/Park Manager Sehlabathebe will provide any training that is required for radio users, whilst on his management unit.

8.3.4 Visitor Safety

“Notice to Visitors - Burning in Progress” signs are to be prominently displayed outside the reception area or offices informing visitors of scheduled burns that are due to take place. It is advisable to make a map available so that the visitors can see where the burning is taking place.

Overnight hikes: Hikers are asked to take time to complete the Mountain Rescue Register correctly and in detail. It is often the only information a rescue team has to refer to if there is an incident. Day walks: Hikers are to fill in the Day Walk Register where they are available. The completion of both of these registers is important in the case of a wildfire, so that staff may react immediately to go in search of hikers in the vicinity of a wildfire. OiC and Resort Managers are to ensure that these registers are checked on a daily basis, preferably late afternoon, to see if visitors have signed out or have not returned.

TAKE CARE IN THE MOUNTAINS: Brochures must be distributed at gates and must also be available at the Mountain Rescue Register as this contains vital information to visitors on the prevention of wild fires and actions to be taken when threatened by fires.

8.4 Personal Protective Equipment

To ensure compliance with the South African Occupational Health and Safety Act: No. 85 of 1993 and the Lesotho Regulation 109 of Labour Code Order No. 24 of 1992, OiCs/Park Manager Sehlabathebe are to ensure that all staff are issued with at least the minimum required appropriate PPE. The following is a list of the scheduled requirements to ensure compliance with the Occupational Health and Safety Act: No. 85 of 1993.

- 100% cotton overalls. No nylon or synthetics are allowed because these can melt and cause severe burns.
- Leather safety boots without steel cap (steel cap not necessary).
- Safety helmet with visor/goggles and a fire protective hood.
- Appropriate fire retardant head dress.

- 100% cotton t-shirt.
- 100% fire retardant balaclava.
- Standard pigskin gloves.
- Torches for night visibility.

Burning

All staff must wear fire retardant overalls, cotton underwear, leather boots, and welding gloves. No member of the team is permitted to wear any synthetic clothing under the overall, including balaclavas.

Spraying Paraquat

Paraquat is a toxic chemical and dangerous if not used carefully and according to the manufacturers specifications.

- Wear long-sleeve chemical resistant gloves (gauntlet style), chemical resistant safety goggles, face shield, long-sleeved shirt and long pants or coveralls and chemical resistant apron when handling the concentrate, during mixing/loading and during application via handheld equipment.
- Wear long-sleeved shirt and long pants or coveralls, and chemical resistant goggles during application.
- Wear coveralls over a long-sleeved shirt and long pants during application with a backpack sprayer.
- Wear coveralls, chemical resistant gloves, chemical resistant footwear and chemical resistant goggles or face shield during clean up and repair.
- Most exposure to pesticides is by absorption through skin, especially from concentrated material handled at the time of mixing and loading. Since most of this exposure is on the hands and forearms, use of long-sleeve chemical resistant water proof gloves will reduce exposure to Paraquat. Rolling down the sleeve end of the glove will prevent drips of liquid from running down the glove onto the arm.
- If concentrate splashes onto the side of the spray tank, and a person subsequently
- leans against the tank, the clothing and skin over the abdomen may be exposed to Paraquat concentrate. Use of a chemical resistant apron will reduce this

likelihood. Remove contaminated clothing as soon as possible. Launder contaminated clothing prior to reuse and separate from household laundry,

- Paraquat is corrosive to eyes, always use chemical resistant goggles and/or a face shield.
- Avoid working in spray mist and contact with spray solution.
- If ventilation is not adequate, wear an appropriate pesticide respirator. DO NOT re-enter treated areas within 24 hours.
- If required, individuals may re-enter treated areas within 24 hours for short-term tasks not involving hand labour if wearing a long-sleeved shirt and long pants provided at least 4 hours have passed since applications.

8.5 Fire Fighting Equipment, Maintenance and Preparedness

Fire fighting equipment works under extreme conditions and need to be serviced and maintained regularly to ensure proper functioning and reliability. OiCs/Park Manager Sehlabathebe are responsible to ensure that the management unit has the required fire fighting resources and, that these are maintained and serviced prior to fire season (March). OiCs/Park Manager Sehlabathebe are responsible to ensure that the attached maintenance and preparedness checklist (Appendix 5) is completed and filed for inspection by CMs.

8.6 Training

As fire management is the most important key performance area with regards to the achievement of biodiversity targets in the Park, it is essential that training in this regard is prioritised. Due to the lack of training on fire management it is essential that appropriate courses are identified and that funding is sourced to ensure that all staff is trained. This training also has to be in line with the requirements set by the Fire Protection Associations. It is thus crucial to maintain a partnership with organisations such as Working on Fire that acts as service provider as well local and municipal fire departments that may assist in training staff when required.

All senior staff should have a copy of the Fire Management Plan and be familiar with the content.

The following training requirements/guidelines have been identified as a critical requirement to each level for the application of both wild and scheduled fires. Training also needs to comply with National Unit Standards as determined by the Forestry Industry Education and Training Authority (FIETA), which sets the norms and standards for Fire Management Training in South Africa. There are 18 Unit Standards that are presented in four levels of training. These levels are listed in Appendix 6. The skills that should be available within staff members and fire teams are listed in Appendix 6.

Minimum Standards

No Manager may be placed in charge of, or may voluntarily take over control of, any fire operation, if he or she has not undergone the accredited training. Considering that no person has received any prescribed training, management should endeavour to ensure that all staff are appropriately trained within three years (2012). This is in order to conform to the regulations laid out in the Occupational Health and Safety Act: No. 85 of 1993 as well as the Veld and Forest Fire Act: No. 101 of 1998. All key Conservation Management posts should have a prescribed Nature Conservation qualification as a standard requirement. In addition, managers should endeavour to assist with regards to the training of community members. This could possibly be facilitated by Working on Fire or through the local Fire Protection Associations.

8.7 Firebreaks

Firebreaks are essential to prevent fire spreading into areas, which are not scheduled for burning.

Firebreak preparation begins in March/April with the spraying of tracer lines using Paraquat to demarcate the outer limits of the firebreak. The tracer lines are burnt as soon as the sprayed grass has dried out, but before the adjacent grass dries out. Burning of the firebreaks must commence after the first frosts and must be completed by deadline indicated in the Burning Prohibitions issued by government each year.

Firebreaks are a legal requirement on the boundaries of the Park and hence are non-negotiable. These serve as protection from both invasive fires from outside and prevent fires from within which may threaten neighbouring properties and which could result in expensive litigation. Firebreaks are also mandatory around infrastructure and sensitive attributes (e.g. some caves) within the Park. All boundary breaks must be the subject of a legally binding agreement with the relevant neighbour and the effort and cost of burning

the break should be shared. The Chief Park Ranger/OiC must be present at the burning of all boundary breaks and those protecting major Park infrastructure, such as camps. The Chief Park Ranger/OiC should be present at the burning of any “difficult” internal breaks and must be at the management unit when any other break is burnt. Internal management firebreaks may vary from year to year depending on burning plans, but certain strategic breaks are likely to be permanent.

Boundary firebreaks must be wide enough to ensure that, with due regard to the weather, climate, terrain and vegetation of the area, i) it is wide enough and long enough to have a reasonable chance of preventing fires from spreading to or from neighbouring land, ii) it does not cause soil erosion, iii) and it is reasonably free of inflammable material capable of carrying a fire across it.

Traces and fire breaks should be, as far as practically possible, alternated so as not to be burnt on exactly the same area in consecutive years.

Appropriate safety equipment must be provided to, and used by, all staff handling potentially dangerous chemicals or equipment.

Tall grass around infrastructure should be cut and removed prior to burning of firebreaks. Reduce fuel load around infrastructure by mowing where appropriate. Thatch roofs should be wetted prior to burning of firebreaks.

Pre-fire briefings must take place so that every person on the fire operation fully understands his/her job. This can be done by the Chief Park Ranger or Park Ranger leading the fire team.

Firebreaks must also comply with the minimum requirements set by the Fire Protection Association (FPA) in the South African context and on the Lesotho side; firebreaks have to comply with the fire legislation. It is also recommended that firebreaks must be alternated where possible, for instance different sides of a boundary, to provide a “rest period” for the burnt area and in doing so preventing the negative impacts of repeated burning on the same areas.

- By law, firebreaks on the borders of the Republic of South Africa must be prepared and maintained as close as possible to that border.
- FPAs may prescribe minimum widths for its members: Where these become municipal by-laws then this is binding on all landowners within that municipality.
- Tracer lines and breaks should be, as far as practically possible, alternated so as not to be burnt on the same area in consecutive years.
- Appropriate PPE must be provided to, and used by, all staff handling potentially dangerous chemicals or equipment.
- Tall grass around infrastructure should be cut and removed prior to burning firebreaks. Reduce fuel load around infrastructure by mowing and removing the fuel load where appropriate.
- Thatch roofs should be wet prior to burning of firebreaks around the infrastructure concerned.

A minimum firebreak team consists of 25 people. A suggested breakdown of the responsibilities are divided as follows when burning internal breaks where the team is split into two (one team on each tracer line):

1 x Crew Boss or Labour Supervisor.

4 x Fire Pullers (two leading and two opening up or as determined by wind direction where the wind ward side might need three fire pullers).

4 x Venfire pumps.

4 x Water carriers (can be Venfire pumps as well to be rotated with the above).

10 x Beaters.

2 x Sweepers.

A minimum radio quota per team is:

- OiC/Park Manager Sehlabathebe; 1 radio.
- Supervisor/Chief Park Ranger; 1 radio.
- 2 Fire pullers; 2 radios (one per each side of firebreak).
- 2 Sweepers/"tail-end Charlie's"; 2 radios (one per each side of firebreak).
- First Aid delegate; 1 radio.

If the delegated first-aid staff member is not one of the listed persons then he/she should have his/her own radio, which makes a total of 7 radios per fire team.

Pre-fire briefings must take place so that every person on the fire operation fully understands his/her job. This can be done by the OiC or the Supervisor leading the fire team.

8.7.1 Risk Management around the Burning of Fire Breaks

The burning of fire breaks, especially boundary breaks, poses a serious risk to MTEC and Ezemvelo. In recognition of this, the mitigation of risk is an important part in the planning and in the preparation of fire breaks. To address this, OiCs/Park Manager Sehlabathebe are advised to complete the Standard Operating Procedures for the Burning of Fire Breaks form to be completed before and during the scheduled burn (Appendix 13). Once the fire break is completed, the completed form should be filed in E 9/1.

8.8 Medical Emergencies

Working with fire is extremely dangerous and requires stringent controls to ensure compliance in terms of the Occupational Health and Safety Act: No. 85 of 1993. As the chances of medical emergencies are a real threat, managers must ensure that all possible precautions are taken. It is crucial that all staff is familiar with the appropriate medical responses.

OiCs/Park Manager Sehlabathebe must ensure that they are fully conversant with the Mountain Rescue Protocol, as well as IOD procedures and requirements (refer to section 10 of the Occupational Health and Safety Act: No. 85 of 1993 and the Compensation for Occupational Injuries and Diseases Act: No. 130 of 1993 (COIDA). It is also required that each OiCs should have a valid First Aid certificate (Level 2) as well as at least one first aid staff member per fire team. The OiCs/Park Manager Sehlabathebe is also responsible for ensuring that all first aid kits are checked annually and re-filled. It is also required to have at least one first aid kit per fire team with the necessary equipment to address burn related injuries.

On the Lesotho side an emergency is referred to the Parks Division who will make appropriate arrangements which could include arranging a helicopter)

8.9 Fire Notification Procedure

OiCs must sign approved firebreak burning agreements available from the Legal Officer with all landowners adjoining his/her management unit (Appendix 7). These must be filed in the Fire Compartment Registers and copies should be kept on the management unit file (File H 1/1). The firebreak burning agreement is a once-off agreement, which is valid from one year to another unless a new landowner takes over the neighbouring property. In this case, a new firebreak burning agreement has to be drawn up and signed by both parties.

One month prior to the fire season, OiCs need to notify their neighbours in writing of their intention to burn/maintain firebreaks (Legal Notification of Intention to Burn - Appendix 8). The notification may be issued in one of two ways:

1. It must be sent by registered post. Keep the registered postage slips as proof of the notification being posted.
2. It may be hand delivered to the landowner. Ensure that the landowner has acknowledged receipt of the notification by signing the copy of the notice.

Confirm with your neighbours whether the date is suitable prior to the fire break being burnt.

If there are firebreaks under telephone or power lines, advise TELKOM/ETL or ESKOM/LEC of the intention to burn. In some cases, long grass, especially under TELKOM fibre optic lines, needs to be cut to reduce the incidence of lines being burnt and destroyed.

In the case of internal firebreaks, communicate with the neighbouring OiCs/Park Manager Sehlabathebe. In the case of compartment burns, inform your neighbours, whether private or neighbouring management unit, CM and local the Fire Protection Officer (FPO) on the South African side and Fire Brigade on the Lesotho side, of the intention to burn.

If burning along public roads, contact the Road Traffic Inspectorate of the intention to burn. They may deploy Traffic Inspectors to control the traffic, depending on how busy the road is. Fire warning signs are available from the Department of Transport.

8.9.1 Ignition

Prior to ignition consider the following questions:

- What is the Fire Danger Index?
- Has relevant infrastructure (e.g. power lines, buildings) been adequately protected with fire breaks or through fuel load reduction?
- Are all domestic animals (e.g. Horses) accounted for and secured in a safe area?
- Are all tourists accounted for and in a safe area?
- Will the firebreaks be effective, or has there been some re-growth and subsequent frosting of grass?
- Is the Fire Team at full strength and properly equipped?

8.10 Bibliography

MTEC, 2008. Sehlabathebe National Park Fire Management Plan: Draft 1. Lesotho pp. 52.

9 Management of Fire

There are two types of fires: wildfire and scheduled fires. Wildfires refer to any natural fire or a fire unintentionally lit by humans (Goldammer and de Ronde, 2004). A scheduled fire refers to a fire that is intentionally ignited to accomplish specific objectives. The following two sections aim to describe the procedures adopted specifically for the application and control of both wild and scheduled fires.

9.1 Scheduled Burning

9.1.1 Planning and Approval of Scheduled Burns

The application of scheduled burns is crucial in achieving the biodiversity objectives of the Park. The implementation of schedule burns thus requires careful consideration and planning. The planning of scheduled burns is reliant on the accuracy of the records kept in the Fire Compartment Registers. Fire data requirements are discussed under Section 9.

OiCs/Park Manager Sehlabathebe are responsible for the planning of proposed scheduled burns each year. These proposed burns are provisionally approved at a sub-regional meeting organised by the CM. Subsequently these proposed burns are presented for approval at the Annual Fire Workshop. After the Fire Workshop, the OiCs/Park Manager Sehlabathebe must meet with his Labour Supervisor to discuss the approved scheduled burns and the placement of firebreaks. At this meeting the Labour

Supervisor must be informed of the requirements of the CAT (Appendix 9) and be made aware of any sensitive features that require protective measures.

Scheduled compartment burns must not be undertaken until such time as all the boundary breaks or additional required internal breaks are in place. This, however, is not required for autumn burns, but managers should exercise the utmost care to ensure that these burns do not pose any threat of running away.

Changing of Scheduled Burns: A special management team consisting of Ecologists, the sub regional CM and the OiCs/Park Manager Sehlabathebe must be convened should any changes need to be made in the approved fire plan after the fire workshop.

9.1.2 Pre-Burn Inspections

After reviewing the Fire Compartment Register to identify possible compartments for scheduled burning, managers are responsible to do a pre-burn inspection for each compartment. This is a field inspection and the Pre-Burn section of the Fire Management Form should be completed before the sub-regional fire planning meeting. Ecological Advice staff can be asked to assist. The management team may invite any other fire experts where this will add value to the decision making process. Decisions pertaining to burning agreed to at the pre-burn inspection must be captured on the Fire Management Form.

Once the burning programme has been finalised and approved, the OiCs/Park Manager Sehlabathebe is responsible for ensuring that scheduled burns are implemented according to the approved plan. The approved scheduled burns will also dictate the placement of firebreaks or additional tracer lines to ensure burns can be implemented safely.

9.1.3 Weather Conditions

Weather patterns must be studied before a scheduled burn is initiated. Weather patterns should be stable. Wind speed and direction should get special attention.

All climatic data must be recorded on the day of the fire event on the Fire Management Form. Weather forecasts and Fire Danger Index must be monitored.

Predicted weather parameters should preferably fall within the following guideline limits before a burning operation can be initiated, however this to some extent is dependent on the desired objectives of the compartment as stated in the CAT.

During the application of scheduled burns, on site weather conditions should be monitored frequently and a recording kept of all readings. Local knowledge and weather measurements should confirm the suitability of the day. Fire danger ratings must be assessed daily during the fire season. No scheduled burning may take place when the index is indicated as either orange or red (Appendix 10). Weather forecasts can be assessed on the internet; www.weathersa.co.za or by phoning the Weather Bureau; 082 2311 611 for the Fire Danger Index in your area.

9.1.4 Notification to Burn Scheduled Compartments

It is essential that all neighbours and the relevant authorities are notified telephonically of the intention to burn a day before it is intended to implement a scheduled burn as per the Pre Scheduled Burn Checklist (Appendix 11). This is to ensure that there is no miscommunication, which might lead to neighbours unnecessarily responding to what might be perceived as a wildfire. The OiCs/Park Manager Sehlabathebe must inform the relevant Resort Managers of all scheduled burns to ensure that visitors are aware of the date and area being burnt. The area scheduled to be burnt should also be indicated on the hiking map.

Also refer to section 7.9 – “Notice to Burn”.

Scheduled Burns: It is essential for OiCs/Park Manager Sehlabathebe to ensure that visitors are made aware of compartments that are scheduled to be burnt and that these areas are closed off to overnight hikers.

9.1.5 Burning Prohibitions

The Forest Act: No. 122 of 1984 empowers the Director-General to declare a prohibition on fires in the open air when required as an extraordinary precaution. Burning prohibitions are communicated annually and managers are to take note of the agreed burning period.

Fire Protection Association rules notwithstanding, **no** planned fires are permitted over weekends or from 12:00 on a Friday or the day before a public holiday and on Public Holidays. The burning of firebreaks after 12:00 on a Friday is thus not recommended due to the lack of staff available over weekends to assist in the case of a wild or runaway fire.

Note: No burning may be carried out on Weekends or Public Holidays.

9.1.6 Application of Scheduled Burns - Methods

The application of scheduled burns to achieve the required objectives is a science that requires an understanding of the various factors that influence fire behaviour. The scope of this plan does not allow for the description of the various application methods to achieve the required objectives, however, OiCs/Park Manager Sehlabathebe are to familiarise themselves with the various factors and application methods that can influence the outcome of the scheduled fires. Section 6 of this plan provides a brief overview of the various factors influencing fire behaviour.

The present burning philosophy (Section 4) emphasises flexibility, variability and patchiness in achieving a mosaic pattern of burnt and unburnt areas throughout the Park. Achieving patchiness in large compartments together with variability plays an important role in providing important refugia for fauna. This also promotes a heterogeneous plant community and assists in achieving the objective for increased biodiversity.

The application of fire to achieve these objectives requires understanding and experience. OiCs/Park Manager Sehlabathebe need to take note of the different applications of fire to achieve these objectives:

- Point source ignition versus burning from breaks and natural features.
- Crown versus surface fires.
- Head versus back fires.
- Uphill versus downhill burns.
- Day versus night burns *etc.*
- Wet versus dry conditions
- Hot verses cool burns

Animal populations must be taken into consideration, in that an escape path must be left in the burning compartment so that animals can escape from the fire.

Night burns must be conducted with sufficient torches to allow for the safe return of staff and staff must be instructed to stay together so that no-one is left behind.

Avoid encircling entire block so that animals have an opportunity to escape.

9.1.7 Arson fires throughout the Park must be managed or controlled generally by using a back burn technique. Risk Management around the implementation of Scheduled Burns

The implementation of scheduled burns poses a serious risk to Ezemvelo. In recognition of the abovementioned factors that need to be considered in the implementation of scheduled burns, the mitigation of risk in the application of scheduled burns is an important part in the planning and implementation of scheduled burns. To address this, Conservation Managers is advised to complete the Standard Operating Procedures for Scheduled Burns form to be completed before and during the scheduled burn (Appendix 14). Once the burn is completed, the completed form should be filed in E 9/1.

9.1.8 Post Burn Inspections

Post-burn inspections will be done approximately one month after the fire event and the information must be recorded on the Fire Management Form (Appendix 1). All OiCs/Park Manager Sehlabathebe must mark the fire boundaries on a map as accurately as possible for each of the fire events. The recommended way to do this is to GPS the boundaries of the burn where possible. It is also advisable to take photos, where possible, as they can provide good references for when managers are capturing these burns on maps. OiCs/Park Manager Sehlabathebe may also fly their areas, to assist in mapping their burns towards the end of October or early November.

9.2 Wildfire Suppression

Wildfires refer to any natural fire or a fire unintentionally lit by humans that is not part of either preparations for firebreaks or scheduled burns. Causes can be lightning fires, arson fires, runaways or invasive fires.

Lesotho:

9.2.1 Principles

Attack as early as possible before winds get up and fuel dries out, and before flame front gets too big.

The preferred option, depending on the weather conditions, using the fire teams on hand, is to put out the fire without putting in large back burns.

Note: The layout of the blocks in Sehlabathebe was done to ensure, as far as practically possible, that each block has natural features (rivers, cliffs) or roads within them that can be used to start a back burn from within the block, thus potentially saving a large proportion of the block from burning in the process of fighting a wild fire using backburns.

9.2.2 Decision tree

When a fire that is not a planned management fire is detected implement the following measures depending on situation:

When a fire is detected outside the Park:

- Check that is not a prescribed burn in neighbouring station or landowner
- If prescribed, check that it is under control
- Check current FDI and predicted FDI; check local weather conditions
- Keep staff at an appropriate level of preparedness and availability
- Park Manager and Senior Park Ranger to remain contactable at all times
- Check station burning plan and block attributes (sensitive features) to understand options if fire spreads
- If fire is a wild fire and is outside the Park:
- Offer assistance in controlling the fire, and in this way reduce the risk of fire reaching the Park boundary.
- In principle help neighbours suppress wildfires, priority where lives and/or infrastructure at risk, and especially where risk of fire entering park and becoming an 'invasive' fire.

If fire is a wild fire and is in the Park:

- Ascertain where the fire is and what it may be threatening: If threatening life or research plots then the Fire Team must be dispatched; if it is threatening sensitive features (cultural, biodiversity) or infrastructure then the Fire Team should be dispatched unless not possible for some reason.
- Determine what the current and predicted FDI/weather conditions are for planning purposes
- Determine the condition of fuel and hence the spread potential
- Determine what is required to contain the fire – related to weather, size, accessibility
- Are sufficient resources available to safely attack the fire? And is it safe to go and fight the fire? – enough staff given circumstances, equipment, other resources. If Yes, then go; if No look at alternative options.
- Plan attack with scenarios with relevant staff prior to departure (equipment needed, possible overnight deployment)
- If go, can it be controlled by beating or is there a need for a back burn? Where a wildfire is fanned by strong winds, the fire team must not attempt to put out the fire by beating it, but rather back burns using natural features such as rivers and cliffs. Firebreaks can also be used and can also be widened to prevent the fire from jumping the firebreak.

When do you ask for help?

- Moderate risk of spread
- Err on side of calling for help, having standby

Rules for disengagement:

- If lives of fire fighters threatened, or withdraw
- When fire completely extinguished
- Leave observer(s) behind with communications and equipment for at least two hours
- Go back and check as soon as possible

9.2.3 Methods

- Use of Back-Burns

- Beating
- Use of Aircraft

9.2.4 Post fire debriefing and review

An informal analysis of the cause of the fire, the control approach, and implementation of control measures should be undertaken by the whole Fire Team. This will allow the Fire Team to learn from mistakes and become more effective.

South Africa

9.2.5 Preparedness

In order to effectively minimise losses in the event of a wildfire, it is crucial that all fire fighting operations aim to suppress, contain or extinguish the fire as soon as possible. Preparedness to react to wildfires is of the utmost importance and it is the responsibility of the OiCs to ensure that:

- Communications systems are working and staff are contactable.
- Standby teams are in place, adequately trained and informed of the required procedures and protocols (Appendix 12).
- Equipment is checked and maintained in good working condition.
- Equipment is stored in such a manner that it can be easily accessed in the case of an emergency.

To ensure that OiCs conform to the Fire Protocol, a minimum of eight sufficiently trained and issued temporary staff must be employed as 6 day workers from the 1st of June until the end of 30th of September. This has to include Sundays and due regard must be given to the Overtime and Standby Policies. This will be in addition to the permanent staff (one permanent staff with the temporary staff) that are on standby during fire season. Managers are to ensure that this is sufficiently budgeted for. It is understood that Management Units will differ in the number of staff, dates employed and how they are paid (i.e. inclusive of weekends or not) due to budget and other constraints. OiCs should seek assistance from their CMs with regard to implementing standby if necessary.

Fire fighting primarily involves the organisation and supervision of people. Thus it requires strong leadership. In the event of a wildfire, the OiC must assess each wildfire as they occur and direct the appropriate response as required. If in doubt, consult with the CM on how to proceed.

9.2.6 Suppression Tactics

In order to suppress a wildfire, it is crucial to gain control of its perimeter and to prevent the further spread of the fire by containing it. This can be achieved by either of two methods; i) direct attack or ii) indirect attack. The method selected is determined by the various factors affecting the fire behaviour and includes weather conditions, fuel loads, access, terrain, personnel availability and safety.

9.2.6.1 Direct Attack

This is the preferred option for the Park and involves the use of fire teams to contain the fire by beating it, to try and minimise the area burnt. This method is mainly used under the following circumstances:

- Small fires.
- Fires that are burning with light fuel loads.
- At night when cooler conditions reduce the fire intensity.
- Ground fires.
- On the flanks or rear of large fires where the fire intensity is less severe.

The direct attack may also involve the use of aerial attack and support. This, however, is rarely available due to cost and requires the direction of a qualified Incident Commander to direct operations. It is an extremely effective means of fire fighting if implemented correctly and is primarily aimed at assisting ground crews in containing the spread of the fire.

9.2.6.2 Indirect Attack

This method is a control action that is conducted from a variable distance which aims to deprive the advancing fire of fuel to stop its progress. Commonly referred to as *back burning*, this method is used when:

- A wildfire is fanned by strong winds.
- Fire fighting conditions are too extreme for direct attack.
- Too few personnel available to attack the fire directly.
- Where the safety of personnel is at risk.

- Where buildings and structures, protected by firebreaks, are threatened.
- Where direct attack will take too long, and by leaving the fire head running you will burn a bigger area as opposed to putting in a back burn in the first place

The use of appropriate natural features such as rivers and cliffs or man-made features such as roads and firebreaks can also be used.

9.2.7 Responding to Wildfires

The first principle in fighting wildfires is an early attack before the flame front becomes too big. A quick response should never compromise safety. Thus, during fire season, fire standby teams, staff and equipment must be kept in a state of readiness. When responding to any situation, the following suggested procedure can guide a manager as how to best respond:

- Fire is observed.
- Notify the OiC/Park Manager Sehlabathebe.
- OiC/Park Manager Sehlabathebe. notifies;
 - Standby team, and
 - FPA.
- Determine origin/cause of the fire:
 - If it is *fire from a neighbour*;
 - confirm the fire is under control, and
 - if so, inform standby team to stand down and maintain communication.
 - If it is a *wildfire* within your management unit perform the following checks;
 - current and future Fire Danger Indices,
 - Mountain Rescue Register for hikers in the vicinity of the fire,
 - Fire Compartment Register for when last it was burnt (indication of fuel loads and intensity),
 - CAT for sensitive features, and
 - location- lightning fires in Wilderness areas are left unless they threaten lives, sensitive features or have the possibility to threaten infrastructure.
- Inform the FPA of the status of the fire and inform your neighbours.

- Leave observer(s) behind with communications and equipment to keep an eye on the fire.
-

Note: Fire fighting teams are not allowed to withdraw or leave the fire unattended until it is extinguished or safely contained. To ensure a safe and effective fire fighting operation, teams must be rotated on the fire front before they become exhausted.

9.2.8 Staff management and rotation on Wildfires

Though it is of utmost importance to extinguish a wildfire to minimise risk, staff safety remains a priority. An important consideration in the management of staff on wildfires is the Basic Conditions of Employment Act (BCEA). This guides managers in determining how long staff can fight a wildfire before they need to be rotated.

It is generally accepted that wildfire suppression in the Park is most favourable at night due to climatic conditions. The reality is however that management unit does not have sufficient staff to allow for the regular rotation of fire fighters on wildfires. It is also the case that where wildfires occur at night, fire fighters have already worked a full day. Various factors come into play in these circumstances which managers need to be mindful of and include overtime, fatigue and rations. Where an initial attack on a wildfire turns into an extended operation, the general guideline is that a fire fighter should not work for more than a maximum of 24 hours before fatigue becomes a serious factor. Ideally, fire fighters should be rotated every 12 hours.

During normal working hours, fire fighters should provide their own rations that should be sufficient for 12 hours. In these circumstances “dry rations” (i.e. no drinks supplied) should suffice. After the first 12 hours rations should be provided and should consist of a minimum of half a loaf of bread, one tin of bully beef and a good energy drink (no fizzy drinks). However it is preferable that management units should budget for, and procure, the standard ration pack as used by Working on Fire teams. Fire fighters should be supplied with a cooked meal after an extended operation shift and be allowed 12 hours to recuperate before being deployed to the fire line again.

Managers should take note of these requirements and should manage staff as they are the primary fire fighting resource in the Park. In extended operations, managers, as incident commanders, should not be involved in actual fire fighting and they should concentrate on managing the operations with the fire fighters as their utmost priority. As such, communication with neighbouring management units is crucial where additional teams are required to rotate staff as well as the manager as the incident commander. Remember, fatigue affects your judgement and your ability to make the correct decisions under high pressure situations.

9.2.9 Wildfire Investigation Report

A Wildfire Investigation Report is to be compiled in addition to the Incident Report when critical losses are experienced (*i.e.* the burning of fire exclusion or infrequent burn compartments, damage to infrastructure, assets, fatality or serious injury, or where the possibility of litigation may arise). In the case of arson fires, the OiC/Park Manager Sehlabathebe. must submit a report to the Logistics Manager and the Legal Officer. The Logistics Manager will notify the Ezemvelo insurers, who will assess the damages. The Wildfire Investigation Report should preferably be completed by the OiC/Park Manager Sehlabathebe. or CM, who have successfully undergone accredited wildfire investigation training. Further information should be obtained from a fire debriefing. The investigation should be carried out as soon as possible after the fire.

A memorandum including the following information should be completed in addition to the standard Incident Report:

Date and time – when the fire started.

Cause of fire – establish how the fire was started.

Origin of fire – determine where the fire started.

Actions taken - a chronological description of what actions were taken to control the fire. List the resources that were applied in reacting to the fire, detailing the incident from the time the call was received/the fire was noted.

What losses were incurred - listing the extent of the damage/loss caused by the fire.

Conclusions – given the evidence uncovered in the foregoing, indicate how the fire behaved and what actions were taken and by whom.

Recommendations – indicate where the liability lies and what steps can be taken to prevent future occurrences.

9.2.9.1 Fire Debriefing/Analysis

The relevant Incident Commander (*i.e.* OiC/Park Manager Sehlabathebe. or FPO) is responsible for the fire debriefing with all the role players as soon as possible after a major fire event. It is recommended that the following aspects must be dealt with for inclusion in the Wildfire Report:

- Cause of fire, date, time and location.
- Immediate reaction by whom and the reaction time.
- Deployment, suppression and guarding of fire.
- Logistics.
- Communication – personnel, media and public.
- Equipment and rations.
- Weather conditions – during fire and accuracy of forecasts.
- Co-operation and support – contractors, District Municipalities, disaster management.
- Ecological implications of burns.
- Shortcomings and resolutions.
- Injuries and losses.
- Recommendations.
- Incident Report with SAPS Case Number.
- Compilation of the Incident and Wildfire Report.

Where someone is injured the OiC/Park Manager Sehlabathebe. must report the incident to the Department of Labour within 24 hours. Record the time of the accident, contact details of person spoken to and complete the required IOD forms as well as an accident report.

9.2.10 Calls for Assistance

9.2.10.1 Responding to Calls for Assistance

Fire is a natural phenomenon and does not recognise man made entities and boundaries. Fire is a serious concern and therefore requires a good working relationship with relevant stakeholders and proper co-ordination of available resources. In the absence of FPAs the Local Fire Warden acts as the FPO and can take control of any fire within the Local Municipality.

When responding to calls for assistance, the OiC/Park Manager Sehlabathebe. must be aware of the possibility of litigation when assisting outside their area of responsibility. It is preferable that assistance should only be given to immediate neighbours to the Park. The OiC/Park Manager Sehlabathebe. must consult with the Fire Warden or relevant land owner/authority. OiC/Park Manager Sehlabathebe. must ensure that their team is fully equipped and well rested. Where possible, assistance may be provided outside this parameter on request from the FPO.

Neighbouring management units should be informed when there is a wildfire. All neighbours and the relevant authorities should be informed telephonically or by radio.

9.2.10.2 Lives at Risk – drop everything and go

In a case where a fire threatens lives, priority must be given to save lives; however, this should not be at the cost of further lives.

In medical emergencies, e.g. where life is at risk, the Mountain Rescue Protocol must be followed.

9.2.10.3 Delegation of Authority

When a wildfire occurs inside the Park, the relevant OiC is the Incident Commander unless where the FPO takes over command. All instructions related to fire are given by the Incident Commander. When assisting with wildfires outside the Park, the Ezemvelo fire team falls under the command of the land owner FPO/Fire Warden.

9.2.11 Media Relations

According to the Communication Policy, public have a right to know what is happening in the Park. The purpose of this policy is to ensure that communications across the Ezemvelo are well co-coordinated, effectively managed and responsive to the diverse information needs of the public and stakeholders of the organization. It is policy to provide the public and stakeholders with timely, accurate, clear, objective and complete information. Neighbours need to be informed of the objectives of the MDP WHS Fire Management Plan and the associated burning strategies. It is essential therefore that information provided to the media, be consistent, truthful and accurate. This will minimise speculation or sensationalist reporting by the media. The Media Relations Officer once notified of major fire incidents will subsequently prepare a press release in conjunction with the relevant OiC/Park Manager Sehlabathebe..

On the instruction from the Ezemvelo Chief Executive Officer (CEO), no staff member will communicate or make comments to the media without a written authority from the CEO or otherwise delegated to do so.

In the event of a media release the Director of Environment will be contacted, he/she will be responsible for delegating the responsible division to respond to the media.

9.2.11.1 When being Interviewed by the Media

Prepare a selection of appropriate questions and answers to give the reporter beforehand. This includes information on the location of the fire, the size of the burnt area, the number of people involved in controlling the fire and the type of vegetation that is being burnt. The following points are important:

- Do not speculate on the origin of the fire, unless you have confirmation on the information received.
- Do research on the topic prior to the interview, so that you understand your topic completely.
- Be mentally prepared for the interview, positive and relaxed. Try to schedule an interview to suit yourself, with regards to time and place.
- Deal with the most important points first.
- If you do not know the answer to a question, do not lie, as this can lead to negative publicity. The media will want to establish a basis of trust and this can be ruined. If it is important information that cannot be divulged then say so. State it's confidential and explain why.
- Never make statements that are "off the record". There is no such thing with a reporter. The chances are very good that you will be quoted.
- Keep your answers short.
- Always look at the reporter.
- Don't get too technical and don't use jargon, slang or abbreviations.
- Be serious, don't try to be funny – your humour is not necessarily easily interpreted.
- Always assume the microphone is on. Don't make remarks that can be used later in a negative way.
- Try not to sound defensive when replying to a question. Always be positive.

- Fires are a good photo opportunity as they provide dramatic visuals of the work that Ezemvelo carries out.

9.2.11.2 Always use the fire event as an educational opportunity. Providing Information for a Featured Article

At times, the media may request information regarding MDP WHS Fire Management Plan or fires in general, which may be featured in a published article. All requests for featured articles must go through the Media Liaison Officer.

9.3 Bibliography

This chapter was synthesised from the following references:

Goldammer, J.G. and De Ronde, C. (Eds.) 2004. *Wildland fire management handbook for Sub-Sahara Africa*. Global Fire Monitoring Centre, Chapter 3, pp. 27-59.

Erasmus, Z. (Ed.) 2006. *Fire Management Policy and Guidelines: Version. 4*. Cape Nature.

10 Ezemvelo 2010. KwaZulu-Natal Nature Conservation Board Communication Policy. Policy No: B12, Board Minute No: 6.1.1. Pietermaritzburg.

11 Monitoring

11.1 Fire Compartment Registers

Fire Compartment Register is the OiCs/Park Manager Sehlabathebe most important tool in planning scheduled burns. It is thus of the utmost importance that these registers are diligently kept up to date by the OiCs/Park Manager Sehlabathebe. Only the approved MDP WHS Fire Compartment Register may be used.

The Fire Compartment Register must be updated twice annually; firstly in February to record the scheduled burns approved at the Annual Fire Management Workshop, and secondly at the end of fire season to record the actual burns that took place. Accuracy is of the utmost importance when compiling these returns. It is advisable to record fire data as soon as possible after the event whilst, memory is still fresh.

11.2 Fire Management Forms

All Fire Management Forms are to be completed and submitted to the relevant CM and Director Parks on the Lesotho side by the 15th November each year. The CM/Director Parks will check the forms and ensure that all the relevant information and maps are attached and in the correct format. The forms will be submitted to the Park Ecologist by the 30 November each year. Copies of submitted reports should be kept on file in the Fire Compartment Register.

The required forms that are to be completed consist of the collated Fire Management Forms with the Fire Season Report Back forming the covering memo, as well as prescribed map with all the fire events clearly mapped. The accurate recording of this information is crucial for future budgeting and operational planning of the Park. This is to ensure that expenditure on fire management operations is auditable.

Only management maps supplied by the Park Ecologist are to be used for recording and submitting fire returns. It is crucial that burns are mapped accurately and where possible, OiCs/Park Manager Sehlabathebe are encouraged to use a Global Positioning System to record the perimeter of the burns. It is also advisable to take pictures of the actual burns to assist in mapping the burns. OiCs/Park Manager Sehlabathebe are also to take note of the completion of the required returns as per the Fire Protection Association (on the South African side) reporting requirements.

11.2.1 Mapping standards

- Actual boundaries of the fire must be recorded, not just the block number
- Boundaries of burns should be mapped to within 50 m of actual
- Any unburnt patches greater than approximately 200m x 200m (or 4 ha) within a fire event should be indicated
- Mapping should take place within one month of the fire event, but preferably immediately after the fire

11.2.2 Research plots

- It is the joint responsibility of the Park Manager and the Natural Resources Officer and Range Ecologist to ensure that the prescribed fire protection and treatments are carried out.

11.3 Risk Management Strategies

Fire and the management thereof pose a significant risk to MTEC and Ezemvelo. To ensure that the objectives of the fire management programme are achieved whilst minimising the risk involved, it is essential that the fire management programme is reviewed, audited and that specific risk management strategies are implemented and complied with.

Specific objectives of this review include the following:

- To minimise the risk of fire management through the provision of appropriate strategies.
- To provide self-assessment and auditing tools for the on-going evaluation of the quality of fire management in the organisation.
- To ensure that problems and shortfalls with regards to fire management in the organisation are identified and rectified timeously.
- To enhance accountability with regards to fire management.

11.3.1 Management Unit Handovers

The history of fire in the management unit plays an important role in the management of the risk that fire poses. The management unit handover in the event of a change of OiCs/Park Manager Sehlabathebe thus needs to include a section on the history and special needs of fire management pertaining to the unit. These special needs should be included in the CAT, however it is essential that all relevant registers, files and agreements are handed over and signed for.

11.3.2 Audits

To ensure that the objectives of the MDP WHS Fire Management Plan are met, it is important that a range of practical, measurable and quality control processes are in place. These will be in the form of an audit and will be implemented at management unit level. The purpose of the audit is to identify and rectify any shortfalls that may exist.

11.3.2.1 Fire Season Preparedness Audit

OiCs/Park Manager Sehlabathebe are responsible for the quality control at a management unit level. It is essential that the OiCs/Park Manager Sehlabathebe conducts self-assessments to determine the preparedness for fire management operations. The focus of this audit is the identification and correction of any shortfalls regarding fire

preparedness prior to the fire season. OICs/Park Manager Sehlabathebe should ensure that the following aspects are addressed and are auditable, *i.e.* that documented proof exists:

- Approved scheduled burns with the CATs completed.
- Proof that all fire fighting equipment has been maintained and is working.
- Vehicle service records (logbook and inspection sheet).
- Human Resource requirements – temporary staff contracts, proof of required training.
- PPE issued.
- Fire emergency drills conducted.

Note:

- Fire Reports are a legal requirement.
- The submission of Fire Reports is a measurable Key Performance Activity and non-compliance will be investigated.
- The accurate completion of Fire Management Forms is a priority and must be completed on time.

11.3.3 Reporting to the South African Police Services and the Lesotho Mounted Police.

All MDTP/invasive fires, irrespective of cause or location, are to be reported to the South African Police Services (SAPS) and the Lesotho Mounted Police within 24 hours of commencing a suppression operation. A statement reflecting the available evidence with regards to the cause of the fire is to be made. Case Numbers are to be recorded in the incident report.

12 Legal Aspects

Legislation regulating fire management in South Africa and Lesotho is comprehensive and it is the managers' responsibility to familiarise themselves with this legislation. This includes the spraying and burning of tracer lines, firebreaks as well as planned burns and the prevention and combating of wild fires. In this section the following legislation will be reviewed briefly:

- Environment Act 2008 (Lesotho)
- Range Management Policy of 2014 (Lesotho)
- National Parks Act of 1975 (Lesotho)
- Labour Code Order 1992 (Lesotho)
- National Veld and Forest Fire Act: No. 101 of 1998 (South Africa).
- Forest Act: No. 122 of 1984 (South Africa).
- Occupational Health and Safety Act: No. 85 of 1993 (South Africa).
- Compensation for Occupational Injuries and Diseases Act: No. 130 of 1993 (South Africa)
- Criminal Procedure Act: No. 51 of 1977 (South Africa).
- Fire Brigade Services Act: No. 99 of 1987 (South Africa).
- Conservation of Agricultural Resources Act: No. 43 of 1983 (South Africa).
- Disaster Management Act: No. 57 of 2002 (South Africa).
- National Environmental Management Act: No. 107 of 1998 (South Africa).
- National Environmental Management: Biodiversity Act: No. 10 of 2003 (South Africa).
- National Environmental Management: Protected Areas Act: No. 31 of 2004 (South Africa).

The following is a summary of the listed Acts.

National Veld and Forest Fire Act: No. 101 of 1998

“The purpose of the Act is to prevent and combat Veld, forest and mountain fires throughout the Republic.”

The Act provides for the establishment, registration, duties and functioning of FPA and the appointment and duties of a *Fire Protection Officer*. Ezemvelo is compelled in terms of Section 4 of the Act to join any FPA registered in the area in which the Park is situated.

Forest Act: No. 122 of 1984

Sections of the Forest Act: No. 122 of 1984 relating to Veldfires are currently still in force because of a savings clause in the National Veld and Forest Fire Act: No. 101 of 1998. This Act requires landowners to prevent and control the spread of Veldfires by maintaining firebreaks on their common boundaries and by taking other appropriate precautions. The Act empowers the Director-General to declare a prohibition on fires in the open air when

required as an extraordinary precaution. During the period of prohibition, no person may make a fire in the open air except within a demarcated picnic or camping area or caravan park or holiday resort, with the further proviso that this type of fire must be properly extinguished when the user is finished with it. This Act has largely been repealed by the National Forest Act: No. 84 of 1998 and the National Veld and Forest Fire Act: No. 101 of 1998.

Occupational Health Act and Safety Act: No. 85 of 1993

The purpose of the Act is "to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work ..."

Every employer must provide and maintain as far as is reasonably practicable, a working environment that is safe and without risk to the health of its employees.

Compensation for Occupational Injuries and Diseases Act: No. 130 of 1993

This Act provides a compensation fund to compensate employees or the dependants of employees, where there has been an accident resulting in injuries, disablement or death.

Written or verbal notice of an accident must be given to an employer as soon as possible after the accident happens by or on behalf of an employee (S38.1). Failure to give notice will not bar a right to compensation if the employer had knowledge of the accident. In terms of Section 39, within *seven days* after receiving notice of an accident, or having learnt of an accident, the employer must report the accident to the commissioner. Failure to report the accident to the commissioner may result in the imposition of a *fine*. It is thus important that Managers keep a good record of all accidents.

Criminal Procedure Act: No. 51 of 1977

The purpose of the Act is "to make provision for procedures and related matters in criminal proceedings." Arson and malicious damage to property are common law crimes and all incidents must be reported to the SAPS within 24 hours.

Fire Brigade Services Act: No. 99 of 1987

The purpose of the Act is “to provide for the establishment, maintenance, employment, co-ordination and standardisation of fire brigade services....”

Conservation of Agricultural Resources Act: No. 43 of 1983

This Act regulates the conservation and use of soil, vegetation and to some extent, water, outside declared mountain catchment areas and urban areas. New regulations on invasive alien plants are stringent and affect veld fire management. The Act contains specific provisions dealing with the prevention and control of wildfires.

Disaster Management Act: No. 57 of 2002

This Act establishes a National Disaster Management Centre, with the objective of promoting an integrated and co-ordinated system of disaster management, with special emphasis on prevention and mitigation, by organs of state in different spheres, statutory functionaries and other role-players involved in disaster management and communities.

National Environmental Management Act: No. 107 of 1998

This Act lays down 20 principles and eight constituents of the principle of sustainable development, which must be considered when making any decision concerning the protection of the environment and must guide the interpretation, administration and implementation of any law concerned with the protection and management of the environment (Section 2 of the Act). This includes the National Veld and Forest Fire Act: No. 101 of 1998.

Of these principles, those requiring special attention in veld fire management include those that require avoiding, minimising or remedying;

- disturbance to ecosystems or loss of biodiversity,
- pollution or degradation of the environment,
- disturbance of landscapes and sites that constitute the nation's cultural heritage, and
- require caution when negative impacts on the environment and on people's environmental rights are possible.

National Environmental Management: Biodiversity Act: No. 10 of 2004

The National Environmental Management: Biodiversity Act: No. 10 of 2004 plays an important role in determining the way the National Veld and Forest Fire Act: No. 101 of 1998 is implemented. "To provide for *inter alia* the management and conservation of biodiversity, the protection of species and ecosystems, the sustainable use of indigenous biological resources and matters connected therewith."

National Environmental Management: Protected Areas Act: No. 31 of 2004

The objective of the Act is to provide for the protection and conservation of ecologically sensitive areas and the declaration of protected areas in terms of the Act. The authority that is responsible for the management of a protected area must draw up a management plan. All managers who are involved in the drafting of management plans must include fire management in the management plans.

Environmental Act: No.80 of 2008

Section 66 of the act provides for issuance of guidelines for the selection and management of protected areas, buffer zones near protected areas and prescribe measures for management and protection of cultural elements, objects and sites registered in accordance with the act. The Act describes the mapping out of the sensitive environmental areas such as, any area of land, river or lake as a protected natural environment for the purposes of promoting and preserving specific ecological processes, natural environmental systems, natural beauty or places of indigenous wildlife or the preservation biological diversity in general. The Director shall, in consultation with relevant Line Ministry, issue guidelines and prescribe measures for the management and protection of natural environmental areas.

National Parks Act: No.11 of 1975

Section 12d of the act prohibits the lighting of fires in the National parks. Any person suspected upon reasonable grounds of having contravened any of the provisions of this Act or of any regulations made there under is found guilty of the offence.

Labour Code Order: No.24 of 1992

section 104 of the act states that in every building in which employees work there should be provided and maintained, so as to be readily accessible, the means of extinguishing fire, which has to be adequate and suitable having regard to the circumstances of the

premises and any process or processes in use. The act further states that a sufficient of employees shall be trained in the proper use of the means of extinguishing fire in every work place.

Final Review of Range Policy: No.2 (d) of 2011

The purpose of the policy is to provide guidance for the development of effective strategies that combats land and vegetation degradation and motivate for improved legislation and implementation thereof. The policy provides for rehabilitation and improvement of quality rangelands to enhance productivity of livestock and restoration of wildlife habitat. In order to maintain plant diversity, the policy also provides for controlled firers in conjunction with proper grazing systems

13 Review

Review of the MDP WHS Fire Management Plan will take place at the Annual Review Meeting in November of each year. Proposed changes must be submitted as agenda items for discussion.

13.1.1 REFERENCE LIST

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13 APPENDICES

Appendix 1: Fire Management Form

Fire Management Form

(One form per fire event)

Management Unit:

Year:

1. Pre-Burn Inspection / Fire Event Reportback

| | | | | | |
|---|--------------------------|-------------------|-----------------|--------------------|---------------|
| Compartment number: | Compartment size (ha) | Area burnt (%) | Date last burnt | Date inspected: | Inspected by: |
| | | | | | |
| | | | | | |
| Compartment objective: | | | | | |
| Fire objective: | | | | | |
| Recommended burning conditions: (Season, weather conditions etc.) | | | | | |

2. Fire Details

| | | | | | | | |
|-----------------|-------------------------|-------|------------|---------|----------|-----------|---------|
| Completed by: | | | | | | | |
| Ignition cause: | Schedule/ Controlled | Arson | Accidental | Runaway | Invasive | Lightning | Unknown |
| Ignition date: | | | | time: | | | |

| | | | | | | |
|-----------------------|-------|-----|-----------------|-----------------|-------------------------|----------------|
| Extinguishment cause: | Rain | Dew | Natural barrier | Fire break/road | Management intervention | Other: specify |
| Extinguishment date: | | | | time: | | |
| Last rain: | date: | | | amount: | | |

3. Fuel Conditions

| | | | | | |
|------------------|-------------|--------------------|-------------------|------------------|-------|
| Greenness: | Very dry | Slightly green | Green | Very green | |
| Mean height (m): | | | | | |
| Density: | Very sparse | Sparse | Moderately sparse | Moderately dense | Dense |
| Uniformity: | Uniform | Moderately uniform | Patchy | Very patchy | |

4. Management Data

| | | |
|---------------|-----------|--------|
| Labour units: | Permanent | Casual |
|---------------|-----------|--------|

5. Meteorological Conditions

| | | | | | | | | |
|--------------------|----------------------------|--|--|------------------------------|---|----|---|----|
| Weather condition: | Hot & dry | Hot & moist | Cool & dry | Cool & moist | | | | |
| Temperature: | Maximum: | | Minimum: | | | | | |
| Relative humidity: | % | | FDI: | | | | | |
| Wind speed: | 1 (calm, smoke vertical) | | 2 (wind felt on face) | 3 (\leq wind raises dust) | | | | |
| Wind Condition: | Constant speed & direction | Constant speed & fluctuating direction | Constant direction & fluctuating speed | Gusty | | | | |
| Wind direction: | N | NE | E | SE | S | SW | W | NW |

6. Post-burn Inspection at \pm 4 weeks:

| | | | | | | | |
|---|-------------------|-------|----------|--------------------|--|-------------|--|
| Date of post-burn inspection: | | | | Inspected by: | | | |
| Area burnt (record on map overleaf): | | | | Map reference no.: | | | |
| Patchiness % | Herbaceous layer: | Clean | | Patchy | | Very patchy | |
| | Woody layer: | Clean | | Patchy | | Very patchy | |
| Intensity: | | Cool | Moderate | Hot | | Very hot | |
| Singe height (woodies): Average percentage of stem height of trees that were singed/burnt | | | | | | | |
| 25% | | 50% | | 75% | | 100% | |

| |
|--|
| Assessment of achievement of fire objectives: |
| Assessment of achievement of compartment objectives: |
| Notes (e.g. Why were fire objectives not achieved?): |

- Refer to explanatory notes before filling out forms.
- Please tick the relevant boxes when filling out forms.
- When mapping the burns on the attached map, please map as accurately as possible, showing which portions of the compartment(s) were burnt and indicate whether the area was mapped directly in the field or done from memory as a “desktop exercise” at a later stage.
- All completed fire data to be submitted by the 30 November of each year to PE via CM
-

| | |
|---------------------|--------------|
| Captured by: | Date: |
| Checked by: | Date: |

Appendix 2: Report Back on Actual Burns



MANAGEMENT UNIT NAME

INTERNAL MEMO

| | | | |
|--------|------------------------|-----------|---------------------|
| DATE : | | FILE NR : | E 9/1 |
| TO : | NAME Park Ecologist | FROM : | NAME DESIGNATION |
| VIA: | CM | | |

SUBJECT: YEAR FIRE SEASON REPORT BACK

1. Introduction

An overview of the past fire season highlighting successes and challenges etc.

The 20xx fire season was a relatively quiet/busy fire season. A total of x fire events were experienced burning x ha or x% of Management unit Name. Of the x scheduled compartments burns that were approved, only x took place which account for x ha of Management unit name. The remaining scheduled burns did not take place because.....or took place in a different season because.....

x Arson fire events were recorded and accounted for x ha. X Runaway fires accounted for x ha. Invasive fires accounted for x ha, Lightning fires accounted for x ha and Unknown fires accounted for x ha being burnt. The research catchments were burnt as scheduled as were the Brotherton Plots. Table 1 is a summary of these statistics

Preparation for the fire season went well and an awareness exercises was undertaken with the neighbouring community.

Standby teams no longer proved a challenge as the additional budget that was allocated addressed the concerns that were raised. As a result, even though there were a substantial number of Arson and Invasive fires, the improved response resulted a relatively small percentage of the management unit being burnt.

Table 1: Summary of Fire Events by event type.

| | No. of fires | Total area burnt | % of Management Unit |
|------------------|--------------|------------------|----------------------|
| Scheduled Fires | | | |
| Arson Fires | | | |
| Invasive Fires | | | |
| Runaway Fires | | | |
| Accidental Fires | | | |
| Natural Fires | | | |
| TOTAL | | | |

2. Report back on actual fire events

The following section (Table 2) is a report-back of the breakdown of the actual fire events that took place for the fire season.

Table 2: Report on actual fire events.

| Event No | Date | Fire Event Type | Comp number | Comp size | % of comp. | Area burnt (ha) |
|----------|------|-----------------|-------------|-----------|------------|-----------------|
| | | | | | | |
| | | | | | | |

3. Report back on actual fire events

The following section is a record and quantification of the cost of fire management operations for the past year.

Table 3a: Tracer Line Information

| | Spraying of tracer lines | Burning of tracer lines |
|--|--------------------------|-------------------------|
| Date started | | |
| Date completed | | |
| Litres of Grammoxone used* | | |
| Number of people employed | | |
| Cost of temporary staff | | |
| Cost of PPE** | | |
| Total Km of tracer lines | | |
| Km driven in vehicles to transport staff to and from destinations*** | | |

* Please ensure that this can be substantiated by your chemicals issue register.

** Please ensure that this can be substantiated by your PPE orders placed.

*** Please ensure that drivers indicate and log fire related trips.

Table 3b: Fire Break Information

| | |
|---|--|
| Total Km of breaks | |
| Date started | |
| Date completed | |
| Number of days to complete | |
| Average number of people employed | |
| Number of teams | |
| Cost of PPE* | |
| Working on Fire teams | |
| Cost of temporary staff | |
| Km driven in vehicles to transport staff to and from destinations** | |

* Please ensure that this can be substantiated by your PPE orders placed.

** Please ensure that drivers indicate and log fire related trips.

Table 3c: Compartment Burns and additional wildfire related costs

| | |
|--|--|
| Number of scheduled burns completed | |
| Total hectares of scheduled burns done | |
| Number of days to complete scheduled burns | |
| Average number of people employed | |
| Cost of temporary staff | |
| Km driven in vehicles to transport staff to and from destinations*** | |
| Cost of Standby Teams for fire season | |
| Additional cost of rations | |
| Combined overtime for permanent staff | |
| Combined overtime for temp staff | |
| Other additional Costs (specify) | |

4. Conclusion

Brief concluding remarks as to

- why objectives were not achieved,
- what challenges were experienced, what mitigating measures will be adopted to address these *etc.*
- What were successes; recognition to staff *etc...*
- Injury on duties
- Damage to property/life
- etc

APPENDICES: (can include photos and graphs, charts or maps to better illustrate events and results)

Signature

Name and Designation

Appendix 3: Format for proposed scheduled burns



MANAGEMENT UNIT NAME

INTERNAL MEMO

| | | | |
|--------|--|-----------|---------------------|
| DATE : | | FILE NR : | E 9/1 |
| TO : | | FROM : | NAME DESIGNATION |

SUBJECT: PROPOSED SCHEDULED BURNS

See the attached table for a summary of proposed burns for MANAGEMENT UNIT NAME for YEAR.

OiCs can include additional information to motivate for the proposed burns, but the table should be used to summarize the proposed scheduled burns.

Signature
Name and Designation

| MANAGEMENT UNIT NAME (SIZE ha) | | | | | | | | | | | | | | |
|--------------------------------------|--------------------------------------|---|------|---|------|---|------|---|------|---|-----------------|----------------------|------------------------|--------------------|
| COMP. NUMBER | DATE LAST BURNED & PERCENTAGE BURNT* | | | | | | | | | | PROPOSE D MONTH | TOTAL ha TO BE BURNT | COMPARTMENT ATTRIBUTES | REASON FOR BURNING |
| | Date | % | Date | % | Date | % | Date | % | Date | % | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| TOTAL PERCENTAGE OF MANAGEMENT UNIT: | | | | | | | | | | | | | | |

* This should be for the past five fire events and should indicate the actual date of the burn and not just the year, as well as the percentage that was burned for that particular year.

Appendix 4: Fire Compartment Register Index Format

SETTING OUT THE CONTENTS OF THE FIRE COMPARTMENT REGISTER

The order of data sheets in the Fire Compartment Register are as follows:-

File index folder: **EXPLANATIONS**

Under this folder the following documents should be displayed:

- i) Explanation of the Fire Compartment Register (*This document*).
- ii) Notes from the 1999 Drakensberg Park Fire Workshop held at Midmar Conference Centre On March 18, 1999.
- iii) Lowveld fire danger rating system (*how to work it out*).
- iv) A copy of the "Fire contract for neighbours" form.
- v) A copy of the "Clearance and maintenance of a fire belt" form.

File index folder: **COMPARTMENTS of BLOCK A**

Under this folder the following data sheets should be displayed:

- ii) (*Management Unit*) Fire Compartment Register (For Block A).
- iii) Fire Management Forms (*data sheets which follow each other in year order*).

File index folder: **COMPARTMENTS of BLOCK B**

Under this folder the following data sheets should be displayed:

- i) (*Management Unit*) Fire Compartment Register (For block B).
- ii) Fire Management Forms (*data sheets which follow each other in year order*).

File index folder: **COMPARTMENTS of BLOCK C – the end**

As above

File index folder: **MAPS**

Each year's fire events are recorded on a map and submitted to Ecological Advice. These maps are filed here and follow each other in year order.

File index folder: **REPORTS**

Each year a fire report is submitted to Ecological Advice. These reports are filed here and follow each other in year order.

File index folder: **SENSITIVITY**

This section of the Fire Compartment Register is used for the "flagged" or shaded compartments as indicated in the Fire Compartment Register data sheet. The sensitivity of a compartment "flags" all sensitive features of a compartment so that those sensitive features are taken into consideration before the compartment is burnt.

EXPLANATION OF THE FIRE COMPARTMENT REGISTER

An example of a Fire Compartment Register is provided below:

KAMBERG FIRE COMPARTMENT REGISTER

BLOCK A (1492 Ha)

| COMP HA | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|------------|------|------|------|------|------|------|------|------|------|------|
|------------|------|------|------|------|------|------|------|------|------|------|

| | | | | | | | | | | |
|-----------|--|--|--|--|--|--|--|--|--|--|
| A1 620 | | | | | | | | | | |
| | | | | | | | | | | |

| | | | | | | | | | | |
|-----------|--|--|--|--|--|--|--|--|--|--|
| A2 890 | | | | | | | | | | |
| | | | | | | | | | | |

| | | | | | | | | | | |
|-----------|--|--|--|--|--|--|--|--|--|--|
| A3 460 | | | | | | | | | | |
| | | | | | | | | | | |

1. Notice that the heading above the page reads "Block A (1492 Ha)". "A Block" comprises of a number of compartments namely; A1, A2 and A3. You will note that the sum of all the compartments = 1492 Ha, thus the block is 1492 Ha.
2. The first row acts as a header for all the tables below it and indicates the compartment number and the year that the fire took place in.
3. From the second row downwards, each individual compartment number and its size in hectares are indicated in the first column. From the second column onwards, is the working part of the table for each year.

| | | | | |
|-----------|----------|-----|-----|------|
| A1 240 | PROPOSED | | | |
| | 25% | 50% | 75% | 100% |

1. The first column shows the compartment number "A1" and the area of the compartment in ha "240".
2. The top half of the second column shows the proposed compartment to be burnt.
3. The bottom half of the second column is divided into four sections. Each section indicates the percentage of the compartment that was actually burnt that year.
4. When filling in the percentage burnt, take the area to the nearest quarter %. For example, if 80% of the compartment was burnt then fill in the 75% and if 90% was burnt then fill in 100%.

| | | | | |
|-----------|---|---|---|--|
| A1 240 | 7 | | | |
| | 7 | 7 | 7 | |

1. The first column shows the compartment number "A1" and the area in ha "240".
2. The top half of the second column proposes that the fire will be burnt in the 7th month of the year (July).

3. The bottom half of the second column shows that the actual burn took place in the 7th month (July) but only 75% of the compartment was burnt. If the Proposed burn and the actual burn have the same number indicated in the column as is the case here (Indicated by the "7" in both top and bottom half of the column) then you have met your burning objective as far as planning your burns is concerned.

| | | | | |
|-----|-------|---|---|---|
| B5 | 5 (2) | | | |
| 380 | 5 | 5 | 5 | 8 |

1. The first column shows the compartment number "B5" and the area in ha "380".
2. The top half of the second column proposes that the fire will be burnt in the 5th month of the year (May). The (2) indicates that two fires occurred in this compartment and that your burns did not go according to plan.
3. The bottom half of the second column shows that two fires actually took place. The first fire burnt 75% of the compartment in the 5th month (May) as planned. The second fire burned 25% of the compartment in the 8th month (August) which was not planned.

| | | | | |
|-----|-------|---|---|---|
| B7 | 9 (2) | | | |
| 980 | 9 | 9 | 9 | 9 |

1. The first column shows the compartment number "B7" and the area in ha "980".
2. The top half of the second column proposes that the fire will be burnt in the 9th month of the year (September). The (2) indicates that two fires occurred in this compartment and that your burning did not go according to plan.
3. The bottom half of the second column shows that 100% of the compartment was burnt in the 9th month (September) but the (2) in the top column tells you that two separate fires occurred in this compartment during the same month. Two fires were not planned for, so you did not meet your objective. If you want to find out what percentage was burnt by each fire, turn to your fire data sheet and look it up.

| | | | | |
|------|---------|---|---|--|
| C3 | 5 7 (2) | | | |
| 1084 | 5 | 7 | 7 | |

1. The first column shows the compartment number "C3" and the area in ha "1084".
2. The top half of the second column proposes that the fire was scheduled to be burnt in the 5th month (May) and in the 7th month (July). The (2) shows that the two fires actually occurred.
3. Note: Very seldom will a fire be scheduled for burning in two different months. In this case the (2) will indicate a planned fire. This situation could occur if you want a cool fire to burn vegetation around a wattle plantation and a hot fire to burn the wattle plantation at a later date.
4. The bottom half of the second column shows that a fire occurred in the 5th month (May) and burnt 25% of the compartment. A second fire occurred in the 7th month (July) and burnt 50% of the compartment. In this case your objective was achieved as indicated by the "5 7 (2)" in the top half of the column.

| | | | | |
|-----|---|---|---|--|
| C8 | | | | |
| 400 | 7 | 7 | 7 | |

1. The first column shows the compartment number "C8" and the area in ha "400".

2. The top half of the second column is not filled in which means that no fires are proposed to be burnt that year.
3. The bottom half of the second column shows that 75% of the compartment was burnt in the 7th month (July). Note: This fire was not planned as the proposed half of the column is empty. The fire could be an arson, run away, invasive, or accidental fire. For fire details look at the fire data sheet.

| | | | | |
|----|-----|---|---|---|
| D6 | (3) | | | |
| 50 | 6 | 6 | 6 | 6 |

1. The first column shows the compartment number "D6" and the area in ha "50".
2. The top half of the second column shows a (3). This predicts that no scheduled fire was planned but three fires actually took place.
3. The bottom half of the second column shows that three individual unplanned fires occurred in the 6th month (June) and burnt 100% of the compartment. For details of the three fires look at the fire data sheet. The (3) in the proposed section of the column indicates that three unplanned fires took place.

| | | | | |
|-----|---|---|---|---|
| D1 | 8 | | | |
| 309 | 6 | 6 | 6 | 6 |

1. The first column shows the compartment number "D1" and the area in ha "309".
2. The top half of the second column shows an "8". This predicts that a scheduled fire has been planned for the 8th month (August).
3. In the bottom half of the second column, an unplanned fire burnt 100% of the compartment in the 6th month (June). You did not meet your objective as a early fire took place in the compartment. For details of this fire look at the fire data sheet.

| | | | | |
|-----|--|--|--|--|
| D1 | | | | |
| 309 | | | | |

1. The first column shows the compartment number "D1" and the area in ha "309".
2. The top half of the second column is empty which indicates that no fires were planned to be burnt that year in the compartment.
3. In the bottom half of the second column is empty which indicates that no fires occurred that year. No fire was proposed and no fire occurred so your objective was achieved.

| | | | | |
|-----|--|--|--|--|
| E3 | | | | |
| 160 | | | | |

1. The first column shows the compartment number "E3" and the area in ha "160". **Note:** The first column is "**Flagged**" or shaded which indicates that there is a sensitive feature in this compartment that needs to be taken into consideration before the compartment is burnt. To find out what the sensitivity is, look it up in the CAT **Before Burning**. Sensitivity of a compartment could be features such as specially protected fauna, bushman paintings, sensitive vegetation, forest margins, fire exclusion plots, experimental plots, buildings etc. It is imperative to look up this feature before burning the compartment.

2. No information is found in the top or bottom half of the second column. This predicts that no fire was planned or took place in this compartment that year.

| | | | | |
|-----|---|--|--|--|
| E8 | | | | |
| 831 | 6 | | | |

1. The first column is "Flagged" so there is a sensitive feature in the compartment which must be looked up in the CAT before burning. The "E8" and "831" indicates the compartment number and its area in ha.
2. The top half of the second column is empty which indicates that there was no burn proposed for that year.
3. The bottom half of the second column indicates that an unplanned burn occurred in the 6th month (June) and burnt 25% of the compartment.

Appendix 5: Fire Fighting Equipment, Maintenance and Preparedness Checklist

MANAGEMENT UNIT NAME

Note: It is the responsibility of the OiC to annually perform the checks below and to sign and file this form for inspection by the Supervisor. Please ensure that proof is kept of the actions that were done as required.

1. Vehicles

- Vehicles to be serviced prior to the fire season.
- All NCS vehicles are to be serviced prior to the fire season and kept in good mechanical condition.
- All NCS vehicles are to be kept with full tanks of fuel after a day's work, so that the vehicle may respond to a fire without any unnecessary delays being incurred.

2. Maintenance of Equipment Checklist

| Equipment | Number | Date Serviced | Cost |
|----------------------|--------|---------------|------|
| Knap Sack Sprayers | | | |
| Beaters | | | |
| Bakkie Sakkies | | | |
| Fire Extinguishers | | | |
| Fire Hoses and Reels | | | |
| Tractor PTO pump | | | |
| First Aid Kits | | | |
| Radios | | | |

3. General Preparedness Checklist

| | | |
|---|------------|-----------|
| Is equipment accessible at all times? | YES | NO |
| Do staff members have access to keys and are they on standby and contactable? | YES | NO |
| Do the required staff have First Aid training? | YES | NO |
| Fire drill with hospitality staff done? | YES | NO |
| Annual re-training: permanent and temporary staff done? | YES | NO |
| Are extinguishers appropriately marked? | YES | NO |
| Do staff know how to use fire extinguisher? | YES | NO |

4. PPE Requirement for Spraying and Burning of Tracer Lines

| Equipment | No. Issued | Cost |
|-----------------|------------|------|
| Aprons | | |
| Chemical Gloves | | |
| Masks | | |
| Cotton Overalls | | |
| Leather Boots | | |
| Leather Gloves | | |
| First Aid Kits | | |

5. PPE Requirement for Burning of Firebreaks

| Equipment | No. Issued | Cost |
|---------------------|------------|------|
| Masks | | |
| Cotton Overalls | | |
| Leather Boots | | |
| Leather Gloves | | |
| Headlamps / Torches | | |
| First Aid Kits | | |

Signed

Date

Appendix 6: Suggested Training Requirements

Level 1: Fire Line Fire Fighting Crew

Target Group: General Assistants and Contract Personnel and Field Rangers.

Goal: To equip fire fighting crews with the basic knowledge to extinguish a fire quickly but safely.

Physical: Minimum fitness standard is required.

Required Training:

- Fire behaviour and types of fires.
- Fire suppression methods.
- Mopping up operations.
- Fire safety.
- Communication procedures.
- Fire fighting equipment and their uses.
- Use of fire units and pumps.
- Standard certificate of competency must be obtained.

Level 2: Crew Leader

Target Group: Labour Supervisors, Senior Field Rangers, OiCs and CMs.

Goal: To obtain those basic skills, knowledge and attitudes vital to supervising a team, or a combination of skills, in order to attain fire objectives effectively and efficiently.

Physical: Minimum fitness standard is required.

Required training:

- Identify, understand and describe fire behaviour in a range of conditions.
- Understand and apply fire suppression tactics to a range of fire problems. Use fire tools and equipment efficiently.
- Communicate in appropriate fire terminology.
- Apply fire safety practices.
- Apply general supervising principles to the crew and the fire problem.
- Communication, briefing and debriefing of crews.
- First Aid level 2.

Practical training:

- Minimum of 5 fires with not more than 2 prescribed fires under the supervision of a qualified crew boss is required.
- Standard A grading of 80% is required for the theory and practical.
- Pre-requisites Grade 7-education level.

Level 3: Fire Boss I (Sector Boss)

Target Group: Conservation Managers and Officers in Charge.

Goal: To obtain critical knowledge, skills and aptitude necessary to maintain preparations and suppress small to medium fires and to control a sector of a large fire.

Physical: None. High resistance to stress.

Required training:

- Introduction to fire management.
- Communication.
- Mapping of fire behaviour.
- Assessment and planning of suppression operation.
- Initiating an attack and extinguishing it to debrief stage.
- Establishment of a command and control structure.
- Initiating and controlling external support.
- Pre-requisite crew boss certificate.
- Standard A grading of 90% in theory and simulations.
- Practical of 3 fires under the supervision of a qualified fire boss.

Level 4 Fire Boss II

Target Group: Officers in Charge and Conservation Managers.

Goal: To obtain critical knowledge, skills and aptitude necessary to suppress large conflagrations, and competence to plan and execute prescribed burns.

Physical: None. Extremely high resistance to stress.

Required training:

- Introduction to fire management.
- Communication.

- Mapping of fire behaviour.
- Assessment and planning of suppression operation.
- Initiating an attack and extinguishing it to debrief stage.
- Establishment of a command and control structure.
- Initiating and controlling external support.
- Pre-requisite Fire Boss I.
- Standard A grading of 90% in theory and simulations.
- Practical of 3 fires under the supervision of a qualified Fire Boss II.

Physical fitness:

Physical fitness is critical in fire management. Fighting wildfires is physically and mentally demanding and can entail long hours. The ability to make good split-second decisions is thus dependant on a person's fitness, which can make the difference in life and death situations.

Physical fitness and work capacity test:

The United States Forest Service began studying job performance requirements in 1965 in order to define minimum fitness standards for its fire-fighters. Based on results of a study conducted by the United States Forest Service, the following tests focused on aerobic measurements were developed:

- **Step Test**

Involves stepping up and down a box of a specific height for 5 minutes. It is a sub-maximal test of cardiovascular performance, so is less risky for individuals who may not have an optimal fitness level. The score is based on post-exercise pulse rate, adjusted for age, weight and gender.

- **Run Test**

The participants must run 2.4 km over a flat terrain in a given time.

- **Pack Test**

The pack test consists of walking a flat course of 5km carrying a weighted pack.

Type of test distance/time result:

Step 5 minutes minimum pulse rate = 45

Run 2.4 km in 11 min 40 sec

Pack/Walk 5 km, 20 kg pack in 45 min

Annual Refresher Training

All personnel, who are involved in wild and prescribed fires, shall complete a minimum of eight hours of fire refresher training and a fitness test annually. At completion of the refresher training and fitness test a competency certificate will be issued. No person will be allowed to fight any fire without this certificate.

Refresher training:

- Fire Behaviour and types of fires
- Fire suppression methods.
- Mopping up operations.
- Fire safety.
- Communication procedures.
- Fire fighting equipment and their uses.
- Use of fire units and pumps.
- Aircraft deployment and water bombing.

| Staff level | Competency required | Training Required | Notes |
|---|---|---------------------|---|
| Fire Team Leader (Ranger, Senior Ranger, Park | Must have sufficient First Aid skills to be able to treat third degree burns, smoke inhalation, major breaks, bleeding, cardiac arrest | First Aid Level 1&2 | Requires refresher course every three years |

| | | | |
|----------|---|--|--|
| Manager) | Sufficient command of English to communicate with staff in the UDPWHS or elsewhere in an emergency | May require formal training in some circumstances | During the interview process preference should be given to candidates with a good command of English |
| | Must have strong leadership characteristics, and be able to motivate staff | Training in leadership and conflict resolution | Essential characteristics that should be actively looked for in the interview process; there is a limit as to how much these skills can be taught in the workplace |
| | Administrative skills – must be able to complete fire forms, draw maps, and effectively use a computer | In house training by Ecologist on use of forms; Map reading course and/or detailed in house training; Computer literacy, including spread-sheets and word processors | |
| | Must understand fire behaviour and the theory and practice of setting and controlling fire | WoF standard fire control management; Incident Commander qualification | |
| | Must understand and be able to implement emergency procedures | In house procedures to be learned and applied | |
| | Radio procedures and etiquette must be understood | In house protocols to be learned and applied | |
| | Must be able to use a GPS to provide location in emergencies and to map fire scars | GPS course, followed by in house refresher training | |
| | Must be able to repair | In house self- | |

| | | | |
|-----------------------|---|---|---|
| | equipment used by the fire team, such as knapsack sprayers | training | |
| Fire Team (Labour) | Must understand the objectives and plan for each day | Senior staff to provide daily briefing | |
| | Must understand emergency procedures | Senior staff to provide training at the beginning of the season | |
| | Must be physically fit and strong | | During the selection process preference should be given to candidates who are physically fit and strong |
| | Must be able to effectively operate all equipment | Senior staff to provide training at the beginning of the season | |
| | Selected staff must be able to repair equipment used by the fire team, such as knapsack sprayers | Senior staff to provide training at the beginning of the season | |

AGREEMENT FOR CLEARING AND MAINTENANCE OF A FIREBREAK

in the

Maloti-Drakensberg Park World Heritage Site

MEMORANDUM OF AGREEMENT entered into between:

THE KWAZULU-NATAL NATURE CONSERVATION SERVICE duly constituted in terms of the KZN Nature Conservation Management Act (Act No. 9 of 1997) by the Officer in Charge

.....

NAME OF OFFICER IN CHARGE

.....

MANAGEMENT UNIT NAME

(Hereinafter referred to as "the Service")

and

the neighbouring landowner to the abovementioned property -

.....

NAME OF OWNER/OCCUPIER

.....

PROPERTY NAME

(Hereinafter referred to as "the NEIGHBOUR"), it being duly and lawfully represented by:

owner/occupier - name:

WHEREAS the above parties desire to enter into an agreement concerning the clearing and maintenance of a fire break for fire protection services as is legislatively required,

IT IS AGREED AS FOLLOWS:

The parties will annually clear and thereafter maintain, fire breaks along the common boundary between their respective properties or along the agreed route as described hereunder:

(a) SERVICE.....
.....
.....
.....
.....(INSERT PROPERTY DESCRIPTION)

and

(b) NEIGHBOUR.....
.....
.....
.....(INSERT PROPERTY DESCRIPTION)

on the following terms and conditions:

1. The said fire breaks will be cleared of all combustible material, including logs and where possible also tree stumps, to a width of as prescribed by the rules and regulations of the Fire Protection Association on each side of the boundary as indicated on the annexed sketch plan (Annexure A). This must be done by the use of one or more of the following methods:

- *a. Hoes
- *b. Rakes
- *c. Herbicides
- *d. Discs/Ploughs
- *e. Graders or other appropriate equipment
- *f. Burning using the following
- *g. Slashing
- *h. Other (specify)
(* Delete where not applicable)

2. (a) I intend to start work on the firebreak no later than (date).....

(b) Manner of clearing

(c) Manner of maintenance

- (d) i) Location of work
- ii) Length and width of fire belt
- iii) Position of affected public road

(SEE ATTACHED SKETCH MAP - ANNEXURE B)

(e) Nature of the SERVICE'S assistance:

- i) Number of personnel
- ii) Tools available
- iii) Other equipment

(f) Public Road Reserve precautionary measures (if any)

.....

3. The cost of clearing and thereafter maintaining, the said firebreaks will be borne by the two parties in proportion to be agreed upon, which will be effected by one or more of the following means:

- *3.1. By each party clearing and maintaining the fire break on his side of the said boundary.
- *3.2. By the parties each clearing and maintaining meter wide breaks along those sectors of the boundary, of approximately equal length, as indicated on the attached sketch plan (Annexure A)
- *3.3. By one party, namely clearing and maintaining the said fire break along the entire common boundary or along the route and by the other party, namely paying half share of the costs of such clearance and maintenance of an invoice by the said

*3.4. By one party, namely
making labourers available to the other party, namely
.....
for the clearing and maintenance of the said fire break under the
supervision of the said or his representative.
(* Delete where not applicable)

4. Not later than the (date) in every year the parties shall, by agreement, set a future date on which, weather permitting, fire break clearance as set out above will commence and alternate date(s) of commencement in the event of weather conditions being unfavourable. Should the parties fail to reach such agreement by (date) in the year, then either party will be entitled to give the other party FOURTEEN (14) DAYS written notice of such commencement dates.
5. Should either party fail to carry out its obligations, then the other party will be entitled, in its discretion, to carry out the clearing and/or maintenance work on behalf of the defaulting party.
6. Where any part of the fire break which is to be cleared and maintained shown in the attached sketch plan (Annexure A) falls within or adjoining a road reserve of a public road, the party responsible for the supervision of that part of the fire break shall take the necessary precautions for the protection of any members of travelling public using the said road. The measures to be taken shall be recorded each year as part of the supplementary agreement mentioned in paragraph 3 above to the satisfaction of the Road Traffic Inspectorate.

FOR THE SERVICE

THUS DONE AND SIGNED ATthis day
of (month) 20.....

AS WITNESSES

.....
Officer in Charge

1.
2.

FOR THE NEIGHBOUR

THUS DONE AND SIGNED ATthis day
of (month) 20.....

AS WITNESSES

.....
NEIGHBOUR

(Description of Title and print name of owner) 2.

Appendix 8: Legal Notification of Intention to Burn



MANAGEMENT UNIT NAME

For Attention:

(To be delivered by hand or registered mail)

RE: NOTICE IN TERMS OF SECTION 12 OF THE NATIONAL VELD AND FOREST FIRE ACT No. 101 of 1998

In terms of the National Veld and Forest Fire Act No. 101 of 1998, we are obliged by law to burn firebreaks. We propose to burn firebreaks on our property, that borders your property on the, weather permitting.

We hereby give you notice in terms of Section 12 of the National Veld and Forest Fire Act No 101 of 1998 that we will be burning firebreaks on the said days and would advise that in terms of Section 12(3) of the Act you are obliged to:-

- a) burn your firebreak on the boundary concerned on the same day or days;
- b) be present at such burning or have your agent attend; and
- c) ensure that a sufficient number of persons are present on your side of the boundary to prevent any spread of fire when the firebreak is burned.

(OiC signature).....

For CEO : EZEMVELO KZN WILDLIFE

DATE:.....

Appendix 9: Compartment Attribute Table (CAT)

MALOTI-DRAKENSBERG PARK WORLD HERITAGE SITE

FIRE COMPARTMENT ATTRIBUTE TABLE *EXAMPLE*

All the information contained in the CAT will be used to determine the reasons for burning which, in turn, will influence how that compartment is burnt to achieve the broader goals of fire management in the MDP WHS.

Management Unit: Prepared by: Date:

| COMP. NO. and SIZE | COMPARTMENT OBJECTIVES | FIRE TYPE and STRATEGY | FIRE FREQUENCY | COMPARTMENT ATTRIBUTES | FIRE MANAGEABILITY (includes access, topography, weather) | NEIGHBOUR INFLUENCE ON STRATEGY |
|--------------------|--|--|---|--|---|--|
| HMSF A01 567 ha | Fire used as alien plant control. Or Manage for <i>Protea</i> woodland. Or Buffer to surrounding communities (prevention of arson fire). | Hot fires in winter. Or Cool fires in cool weather conditions in Autumn. Or Manage with A02 and A03. | Biennial. Or Every 3-4 years. | 1. Biological Good mountain reedbuck habitat. Large eland herds. Aloe communities (10%), forest patches common (30%), grassland (70%). 2. Cultural None. 3. Infrastructure Field Ranger outpost. 4. Research Fixed point photo site standards. Weather station. | 1. Remoteness Difficult to get to. 4 hours walk. 2. Controllability Flat area with predictable winds. Difficult to control runaway fires. 3. Staffing requirements Team of minimum 25 required. 4. Environmental conditions Predictable wind patterns. 5. Animal escape routes Yes. 6. Specific guidelines for attribute protection Burn firebreak around outpost and weather station. 7. Relationship to adjoining compartment Manage together with A02 and A03. | 1. Arson history History of regular arson. Invasive fires are possible. 2. Record of assistance Neighbours not co-operative. No agreement for joint breaks. 3. Assets nearby Plantation on 500m of boundary. 4. Harvesting programmes Harvesting programmes active. |

MALOTI-DRAKENSBERG PARK WORLD HERITAGE SITE
FIRE COMPARTMENT ATTRIBUTE TABLE

Gavin Shaw, Roger Uys and Sonja Krüger
February 2008

A Compartment Attribute Table (CAT) has been developed to be used for all the fire management compartments in the MDP WHS. The purpose of the table is to incorporate all the basic information for each compartment. This information is required to implement the fire principles in each management compartment to protect the attributes of the compartment and thereby achieve the fire management goals and objectives of the MDP WHS.

When completing the CAT for each compartment in a management unit, the OiC of that Management Unit, should add their name and date, e.g. (Gavin Shaw, 2004), to specific entries to place them into context.

The CAT for each management unit will be reviewed at the annual sub-regional fire workshops.

Explanation of the CAT columns (see attached table)

1. Compartment number and size:
The full name (alpha numeric) of the compartment and its size in ha.
2. Compartment objectives:
These are the objectives of the compartment that will achieve the goals and objectives of fire management in the MDP WHS (see Fire Management Plan) or will address specific management objectives of the management unit (e.g. control of alien plants, Oribi management).

3. Fire type and strategy:

A fire type and strategy should be developed with the compartment objectives (see 2) and the compartment attributes (see 5) in mind. For example, if the compartment has *Protea* communities and the objective is to protect these, then a cool fire would be required. The type of fire and required strategy to burn, will dictate the season of burn. If there is a particular strategy that is followed when burning that compartment, then state what it is (e.g. burn A03 with A04). If the strategy changes on an annual basis or depends on the weather *etc.* then state that it varies.

4. Fire frequency:

The proposed burning frequency of the compartment based on the compartment objectives and attributes.

5. Compartment attributes:

These include four categories of attributes, which are of significance:

Biological - The following should be taken into consideration:

- a. Vegetation classes – This is the percentage of each major vegetation type (e.g. grassland, forest, wetland, *etc.*) that is represented in the compartment. The percentage and type (species, maturity and density) of alien plants and transformed lands should also be recorded.
- b. Priority plants – These include species of special concern that have particular fire requirements (e.g. *Widdringtonia* communities).
- c. Priority animals and their breeding and foraging sites– these include; Eland, Oribi, Grey Rhebuck, Mountain Reedbuck, Klipspringer, Vultures, Bald Ibis, Blue Crane, Wattled Crane, Game birds and Reptiles (particularly the Cream Coloured Mountain Snake and Chameleons).

Cultural – These features will include things like the best practise actions to be taken when burning in compartments that contain shelters with rock art, archaeological sites and living heritage sites.

Infrastructure – The following infrastructural features should be considered: visitor camps; ranger outposts (including staff accommodation); repeater sites; electrical and

telephone boxes/poles/wires; pipelines (e.g. aboveground PVC pipes); water tanks/reservoirs; fuel tanks; signage/trail structures; gates/booms; fences/paddocks; visitor sites/car parks/caves; walkways/bridges and tar roads.

Research - The following research features should be considered:

Long term research sites – *i.e.* the Brotherton Burning Trial and Cathedral Peak Catchments at Cathedral Peak, Burgess Plots at Royal Natal and Giant's Castle No Burn Compartments at Witteberg. The monitoring document for each research site will guide the burning practises in that compartment and in adjacent compartments.

Short term research sites – These would include sites where the equipment (such as weather stations) or treatments will be in place for ≤ 5 years. The management actions for these will be determined by the requirements of the research being conducted and should be detailed in the research proposal.

6. Fire manageability

This information is required to help implement the necessary fire type and strategy.

Basic information on the compartment should be provided based on the OiCs experience from burning that compartment.

The following information has been identified as being useful to implement the suggested fire type and objectives for that compartment:

- i) Remoteness – This should include information on:
 - a. Whether the compartment is accessible by road or whether you have to walk in.
 - b. Approximate distance.
 - c. Time to reach the compartment by road and by foot.
- ii) Controllability of burning in that compartment (e.g. relatively easy due to predictable wind patterns or topography).
- iii) Staffing requirement – how many staff and their suggested placement.
- iv) Environmental conditions of compartment, including; wind patterns, presence of natural firebreaks (e.g. rivers or roads), topography/aspect (e.g. fire races up steep dry slope), wetness (related to aspect) and accessibility to water.
- v) Escape routes for animals (*i.e.* burning in such a manner that animals do not get trapped).

- vi) Specific guidelines to protect an attribute (as general principles will not always hold, special actions may be required in some instances to protect certain attributes).
- vii) Relation to adjoining compartments (it might be worth making a note of a special attribute in an adjoining compartment that needs to be considered when burning the compartment in question).

7. Neighbour influence on strategy:

This column has been included to recognise the importance of neighbouring influences from outside the reserve on implementing the suggested fire objective and strategy for that compartment:

- i) Arson history, including the relationship with neighbouring communities and where the arson fires usually come from.
- ii) Record (history) of assistance stating incident, circumstances, assistance rendered and by whom.
- iii) Neighbours assets (e.g. timber plantations).
- iv) Community harvesting requirements- list any that are in place which may impact on the fire type and strategy.

Appendix 10: Fire Danger Index

| STAGES | FIRE BEHAVIOUR | FDI |
|---|--|-----------------|
| BLUE | SAFE flame length: 0 - 1 m | 00 - 20 |
| Low fire hazard. Usually too cold or wet to burn, however, controlled burn operations can be executed with a reasonable degree of safety. | | |
| GREEN | MODERATE flame length: 1 - 1.2 m | 21 - 45 |
| Suitable for controlled burning to remove moribund grass material. Although controlled burning operations can be done without creating a fire hazard, care must be taken when burning on exposed, dry slopes. Keep a constant watch, for unexpected wind speed and direction changes. | | |
| YELLOW | DANGEROUS flame length: 1.2 - 1.8m | 46 - 60 |
| Suitable for controlled burning, however not recommended when fire danger index exceeds 55. Remove moribund grass material. Fire and weather conditions should be closely monitored. | | |
| ORANGE | VERY DANGEROUS flame length: 1.8 - 2.4m | 61 - 74 |
| No controlled burning of any nature should take place. Careful note should be taken of any sign of smoke anywhere, especially on the upwind side of any mountain slope. Any fire should be attacked with maximum force at hand. | | |
| RED | EXTREMELY DANGEROUS flame length: > 2.4m | 75 - 100 |
| All personnel and equipment should be removed from the field. Fire teams, labour and equipment are to be placed on full stand-by. At first sign of smoke, every possible measure should be taken in order to bring the fire under control in the shortest possible time. | | |

Appendix 11: Pre-Scheduled Burn Checklist

MDP WHS PRE-SCHEDULED BURN CHECKLIST

1. Are the firebreaks in place and sufficient to contain the fire? - look specifically at re-growth in breaks where the scheduled burn is in late spring. YES/NO

2. HAVE YOU CONSULTED THE CAT? YES/NO

What are the sensitive features? _____

3. Identify structures and geographical features and vegetation e.g. roads, footpaths, krantzes, rivers, young veld etc. that can be used to contain the fire.

a. Inside compartment: _____

b. Bordering compartment: _____

c. Have you discussed this with the Labour Supervisor? YES/NO

What preventative measures are in place? _____

4. Notification of Neighbouring Land Owners and Authorities

| Name | Farm name | Contact number | Date of notification |
|----------------|-----------|----------------|----------------------|
| (Mr Landowner) | | | |
| | | | |

Notification to FPA, SAPS, District Councils and Local Municipalities

| Name | Institution | Contact number | Date of notification |
|-------------------------|-------------|----------------|----------------------|
| Fire Protection Officer | FPA | | |
| | | | |

General comments

Signed

Officer in Charge:

Labour Supervisor

Date:

Appendix 12: Fire Protocol for the Maloti-Drakensberg Park World Heritage Site

Maloti-Drakensberg Park World Heritage Site

Fire Management Protocol - 2015

1. Trace line preparation Fire Management in the Maloti-Drakensberg Park World Heritage Site

Fire is one of the most important tools for the management of protected areas. Conversely, if this tool is improperly applied this can have negative impacts on the conservation objectives of protected areas. Given the importance of ensuring that fire is used to achieve the objectives it is essential to ensure that careful consideration be given to the planning and execution of annual burning programme. Fire management was discussed at the West Regional Operations Committee on 7 April 2003, and the following was agreed to:

“Decisions on burning must be linked to the objectives of the protected area as listed in the Integrated Management Plan (not all protected areas have management plans yet), and specifically to the Fire Management Plan where these exist. Where neither of these documents exists then priority should be given to producing these”.

2. Legal Requirements

Every station must to join a Fire Protection Association (FPA) in their closest municipality and abide by the rules and regulations of the FPA. This is a statutory requirement of the National Veld and Forest Fire Act No. 101 of 1998. Management Units that span two FPAs must join both. OiCs must take an active role in their local FPA. They must have constructive input in the FPA meetings.

OiCs must sign agreements pertaining to the maintenance of fire breaks with all landowners adjoining their Management Unit. These agreements must be kept on file. These are once-off agreements, which are used from year to year unless a new landowner takes over the property, where after a new agreement must be signed. The fire break agreement may only be signed by the landowner or duly authorised delegates on behalf of the landowner. This does not apply to the change-over of OiCs as these are signed on behalf of the organisation. Any OiC management change must include a full fire history and special needs handover. Ally neighbours, difficult ones, history of firebreak challenges, signed agreements, pending agreements, basically every firebreak gets a full debrief. The Ezemvelo KwaZulu-Natal Wildlife (Ezemvelo) legal department has already drawn up the format of this agreement. OiCs are only allowed to use the said agreement and cannot draw up their own agreements.

Weather permitting, 14 days before the fire season; OiCs need to send out a fire notification (Notification of intent to burn) to all their neighbouring landowners and copy the Fire Protection Officer (FPO)/FPA, notifying them in writing of their attention to burn. Early frosts may allow breaks to be completed in late May but be advised that these breaks may green up and burn through by the end of the fire season. The format of this

notification is also obtainable from our legal department and should not be altered by the OiC. If the notification is posted to the landowner it must be posted by registered mail and the slip kept as proof of notification. If the notification is hand delivered, a copy with the landowner's signature on the notification should be kept as proof of the notification.

No fires of any kind are allowed to be burnt from 12h00 on a Friday, unless with agreement of the FPO and within the FPA members rules and regulations. FPA rules notwithstanding, **No** planned fires are permitted over weekends or from 12h00 on the day before a public holiday and on public holidays.

However, where a reserve falls within and is part of a FPA that allows burning of fire breaks on Fridays after 12:00, stations that deem it necessary in terms of operational requirements can continue to burn after 12:00. Note however that this is deemed inappropriate and even though provision is made for this, stations where this is allowed should endeavour to finish burning on Fridays by 12:00 at the latest.

Before a compartment or a firebreak is burnt the OiCs MUST inform the affected neighbours telephonically. It is not only common courtesy, but legislatively required to inform you neighbour of your intention to burn. This is CRITICAL. This includes your Ezemvelo/neighbouring OiCs. This is to ensure that reserve bordering you is full aware of your intention to burn.

Before any burning takes place the weather bureau must be contacted on the morning of the fire event to enquire about the forecast fire danger rating. If the forecasted danger rating is Blue, Green or yellow you may plan to burn. The planning must include very careful consideration to temperature and humidity forecasts, and the subsequent Burning Index. A Burning Index of above 44 would be considered dangerous. Forecasted average wind speeds of above 15km/hr are considered dangerous. Note that Fire Danger Index forecasts are just forecasts. Actual Fire Danger Index's worked out on the burn site and at regular intervals during the burn, every 30 minutes, must be the final deciding factor weather to commence the burn and when to stop the event. If the forecasted or actual index is orange or red you may not burn under any circumstance. Also not that if the FPO say you may not burn then burning must not commence.

CMs and OiCs must subscribe "Fire Stop" by telephoning 033 330 8421. Fire Stop will require information from you before they put you on their system. This system must include the Fire Danger Index emails. You will receive a detailed daily SMS on your cell phone every morning and afternoon informing you of the actual and forecasted weather conditions. If you are in an area with no cell phone coverage you can phone the weather bureau at 082 2311 611 for the fire danger index in your area. To help you plan your week, phoning 082 2311 602 can obtain a general Berg forecast over a five-day period. It is a standing order that the forecast and actual fire danger rating is known for the particular day you intend to burn. No burning is to take place if you are unsure what the forecast or actual fire danger-rating index is or if the forecasted or actual index is in the orange or red.

Note

A Fire Danger Index indicator, as the 'be all and end all' criterion to burn is also a very fallible indicator and common sense must be applied at all times. For example you can get a Fire Danger Index of 57 yellow with very little wind and high temperatures, which could be safe to burn under, but you can get the same Fire Danger Index at very cold temperatures but high wind conditions which would be dangerous. The wind driven fire will be the worst as wind is the single most influencing factor on fire behaviour after fire fuel conditions.

Before the burn is commenced the pre burn check sheet must be filled in. Local FPA systems must be followed with reference to notification. For example the Lions River FPA requires that their electronic fire detection base is notified.

During the burn the burning check sheet must be followed and then kept as part of the burn records.

An investigation into any fire related incident will be carried out if it took place during orange or red conditions. This could lead to disciplinary actions if found staff are found negligent.

OiCs are to make sure that a notice board is displayed at all reception areas and resorts informing visitors that burning is taking place and at what location the burn will take place. Visitors can obtain this information from the reception office and during extreme fire warnings, visitors should be made aware of the dangers, and in extreme cases staff can advise visitors against hiking in high risk areas. OiCs are to make sure that they **always inform front office desk staff where they are burning** and preferably supply them with a map so that visitors can see exactly where the fire will be.

SUPERVISORY PRESENCE

- !** **OiCs** must be physically present, **for the entire duration of the burn**, on firebreaks where a break adjoins neighbouring properties. OiCs will also be physically present on firebreaks that protect any infrastructure in the reserve.
- !** **OiCs** must be physically present, **until the fire is totally contained and there is no chance that the fire will spread onto the neighbouring property**, on compartment burns where a compartment burn borders onto neighbouring properties.
- !** **OiCs** have to be on the reserve, **for the entire duration of the burn**, when internal breaks or compartments are burnt.

There are no exceptions to these instructions!

Fire retardant overalls and leather boots are to be worn by all personnel on trace line burns, firebreaks and compartment/block burns. No non fire retardant undergarments or synthetics are permitted to be worn under the overalls or on the person's body at any time. Leather gloves and fire retardant headwear are to be worn at all times. All Personal Protective Equipment must be as stipulated as per the Fire Management Plan.

A person who is trained in first aid must carry a first aid kit all times at all fire events. The first aider must carry a radio. Radio communications must be checked and verified before the burn commences. Check for battery levels, spare batteries, frequencies to be used, backup plans etc. Radio communications must also be periodically checked as the burn progresses (moves further from the base) to ensure immediate reaction in the event of an emergency radio call. The first-aider and crew leaders should also carry cell phones. Even if there are no cellular phone communications exactly where they are they can move to areas of cell signal if needed. First aid kit must contain burn treatment equipment as well as basic first aid equipment for other injuries. No compressed vessels such as oxygen cylinders are permitted anywhere near the fire.

Each person on the fire must carry a box of matches. This is used to clear a safety area for you to stand in should you be trapped inside a fire threatened area.

Pre-fire season briefings and training must be given to fire teams consisting of permanent and contract staff.

This will include relevant sections of the fire management protocol, safety aspects, radio protocols, chemical application and effective fire control in firebreaks and during run-away fires. In case of emergencies, the Mountain Rescue Protocol must be followed. This is absolutely critical. Everyone must have been inducted on the fire management protocol.

3. Budgeting for fire season

OiCs must include the following items when preparing their annual budget: It is recognised that there are budgetary constraints and that the budget will not always be provided.

It is critical all staff are trained in fire fighting and fire behaviour. This includes informal fire protection staff.

- The cost of Personal Protective Equipment for both permanent and local labour (PPE)
- The cost of chemicals to spray the trace lines.
- The cost of contract labour to burn the trace lines.
- The cost of labour to burn firebreaks, compartment burns and research plots.
- OiCs are to estimate any standby or overtime allowances that may be paid to staff. Budgets for standby should extend for a minimum of six months.
- Transport costs must be budgeted for the transportation of staff to carry out firebreaks and compartment burns.
- OiCs are to estimate the contract labour wage bill for the fire season. This includes taking on additional staff to prepare the trace lines during March and April. Wages are often confirmed at the annual fire workshop or by the Extended Public Works Programme, which lays down the prescribed wage.
- Staff are to inspect and budget for any repairs or replacement to fire fighting equipment such as beaters, water knapsacks sprayers as well as bakkie sakkies and water tankers. All water points must also be inspected and made serviceable. All fire equipment must be inspected and made serviceable in February / March.
- OiCs are to estimate the costs and budget for fire fighting ration packs.
- OiCs are to estimate and budget for FPA membership fees and any other associated FPA costs.

4. Trace line preparation

Trace lines will alternate in position from year to year and there must be non-consecutive spraying of chemicals on the same line to avoid erosion. For this reason, the burning of firebreaks must alternate between the two sides of a boundary fence from year to year, where possible.

Concentrations of Grammoxone will under no circumstances exceed 75 ml per 16 litres water for short grass (*Themeda*) and 110 ml per 16 litres water for tall thatch type grass (*Cymbopogon*). It is recommended to brush-cut where possible the really tall stands of grass as a trace line as the tall species of grass do not always burn clean especially early in the season.

Trace lines must be sprayed during March and April each year. Die-off of the grass takes approximately two weeks. Four hours of soaking must be allowed for the chemical to work. In expectant rainfall periods, the spraying must be terminated at least four hours before a shower. Early morning spraying must be delayed until the dew has burned off the grass.

Trace lines must be burned in late April and early May before the grass has frosted off. Fire teams must be increased when a delay is expected in the burning of the trace lines to reduce the risk of run-away fires.

A minimum team of six staff per trace line is recommended. These teams must be increased when burning trace lines in rank areas or under dry conditions.

All permanent and contract staff must be supplied with the following required safety equipment:

Protective waterproof over trousers, plastic aprons, gumboots, plastic coated gloves and respirators must be worn by staff whilst spraying trace lines. Soap must be supplied by OiCs so that staff can wash their hands after spraying and before eating. Staff are to be made aware of the dangers of grammoxone and the consequences of non-compliance.

5. Firebreaks

The breaks may only be burned after the first frost. This is normally around about the 1st June, however should heavy frost occur earlier and the chance of wildfires increase, teams can start burning firebreaks earlier. It should also be noted that if breaks are burnt too early, this may lead to the greening of these breaks rendering them ineffective later in the season. A firebreak team consist of a minimum of 25 people per fire break event.

A minimum radio quota per team is:

| | |
|-------------------------|---|
| OiC | 1 radio |
| Supervisor | 1 radio |
| 2 x Fire leaders | 2 radios (one per each side of firebreak) |
| 2 x "Tail-end-Charlies" | 2 radios |

If the first-aider is not one of the listed persons then he/she should have his/her own radio, which makes the total seven radios.

Pre-fire briefings and training must take place so that every person on the fire operation fully understands his/her job. This must be done by the OiC or the Supervisor leading the fire team.

6. Fire Compartment Burns

Fire compartment registers must be maintained by OiC. (Only the approved Fire Compartment Register may be used).

The Fire Compartment Register must be filled in prior to burning with the proposed burns for the year. After the burn has taken place the actual fire event needs to be recorded and the Fire Management Forms inserted into the Fire Compartment Register. Accuracy is important when compiling these returns. It is ideal to record fire data on the day of the fire so that you can record the events of the fire while your memory is still fresh.

All returns are to be submitted to the Park Ecologist, via the CM, by the 30th November each year. The Conservation Manager will check the fire data sheets and ensure that all relevant information and maps are attached.

Lightning fires are to be left alone to self-extinguish or burn to existing firebreaks. The only exception to the rule is when these fires threaten infrastructure or neighbouring properties in which incidences, the fire must be extinguished.

At the Annual Fire Workshop decisions as to which areas are to be burnt will be discussed, agreed upon and documented. Field visits must be undertaken prior to the Fire Workshop to reserves/areas where OiCs and/or Eco-Advice staff believe that there are problems or issues that need to be resolved in the field.

It is the OiCs responsibility to organize a pre-burn inspection for each compartment prior to burning. This should be a field-based inspection, and Eco-Advice staff can be asked to assist. The OiC or Eco-Advice staff may invite any other fire experts where this will add value to the decision making process. Decisions pertaining to burning agreed to at the pre-burn inspection must be documented on the fire data form supplied. The form will indicate the compartment to be burnt, under what conditions and time of year the burn will take place, and the specific objectives of the burn. Where contentious issues cannot be resolved in the field, the relevant Ecological Advice Manager and the Conservation Manager/Park Manager must be called in to assist and decision taken should be in consultation with the CAT.

Once the burning programme has been finalized and approved at the Annual Fire Workshop, the OiC is responsible for ensuring that scheduled burns are carried out according to the agreed plan. Any proposed

deviation from this plan must be discussed and agreed upon by the relevant Conservation Manager and Park Ecologist prior to making any changes.

All climatic data must be recorded on the day of the fire event on the fire data sheet supplied, to ensure the accurate reflection of actual conditions on the day. OiCs are to use their Kestrels to continuously record the relevant information for reporting purposes.

Post-burn inspection after scheduled burns will be done within one month after the fire event, where practical, and within the desired and required data protocols. All OiCs must mark the fire boundaries on a map as accurately as possible for each of the fire events. The recommended way to do this is with a GPS. Google Earth is also a useful tool to graphically present the burn data.

The sensitivity section of the compartment must be adequately assessed before commencing the burn. Advice from Eco-Advice is advisable should the OiC be unsure. Compartment burns must not be undertaken until such time as the boundary breaks are in place. In the case of very early burns, April /May, boundary breaks need not be in place as the season is not conducive to burn protective burns. Adequate staff must be provided.

Animal populations must be taken into consideration (e.g. nesting Wattled cranes). A flight path must be left in the burning compartment so that animals can escape from the fire. Do not surround the animals with fire and burn them. Night burns must be conducted with sufficient torches to allow for the return of staff safely and staff must be instructed to stay together so that no staff member is left behind.

7. Standby teams

Standby teams should be in place by the 1st June each year until 30th September. Under extreme dry years/periods the Park Manager must make a decision to extend the standby period. This decision must be made by no later than 25 August. Standby duties will cease at the end of the fire season. A minimum of eight fire team members are to be on standby throughout the fire season, this includes weekends (Saturday and Sunday), pay days and public holidays. At least one permanent staff member must be part of the team of eight temporary staff. Permanent and contract staff are to be paid the Standby rate approved by Human Resources Division. Standby teams should be observant while on standby especially during the night and weekends. They must notify the OiC immediately if there is a fire or a suspicion of a fire. The suspected fire then needs to be investigated and the fire then needs to be suppressed and made safe as per guidelines in Section 8 below.

Where non-compliance to the standard minimum fire standby crew strength may occur, due to operational or budget challenges, this must be communicated to the CM and/or Park Manager. A sufficient budget must be provided by the Park Manager/support services for the fire season. The details contained in the paragraph above may vary slightly between Management Units due to budget constraints.

Standby teams must be provided with one headlamp each to be able to combat fires at night and ensure their safety, i.e. not walking off the edge of cliffs etc due to them not being able to see in the dark.

8. Wildfires

The OiC must assess each and every wildfire as they occur, and base the decisions made on that particular fire, not on previous history of fires in that area. Even if you are sure of the actions to be taken speak to your Conservation Manager to confirm your decision. If in doubt, you must consult with your Conservation Manager on how to proceed. The preferred option, depending on the weather conditions, using the fire standby teams on hand, is to put out the fire without putting in large back burns. Each and every wildfire must be communicated to the CM of the affected Management Unit, the CMs of neighbouring Management Units, the FPO of the local FPA and any immediately or possibly threatened neighbouring landowners. Take into account that a wind change could affect landowners in a different sector. Field Rangers may be used to assist with fighting fires during a fire emergency only.

Where a wildfire is fanned by strong winds, the fire team must not attempt to put out the fire by beating it, but rather do back burns / burn outs using natural features, such as rivers, cliffs. Firebreaks can also be used and can also be widened to prevent the fire from jumping the firebreak. If the need arises, fire teams from neighbouring stations must be called on as well as your neighbours, local FPA, local municipality and through Disaster Management.

The Fire Protocol must form part of each Management Unit's Standing Orders and must be adhered to by all OiCs and Resort Managers. A copy of this protocol must be inserted into the Fire Compartment Register.

Appendix 13: Standard Operating Procedures Checklist for Fire Breaks

| STANDARD OPERATING PROCEDURES CHECKLIST FOR FIRE BREAKS | | | | | | | | | | COMPLIES | |
|--|----|------|------------|-----|------|----|------|------------|-----|------------|----|
| Management Unit: _____ | | | | | | | | | | Yes | No |
| Description of Break: From _____ to _____ | | | | | | | | | | | |
| 1. If the firebreak is underneath a power line, contact ESKOM where required to switch off the line before commencing with the burning operation. | | | | | | | | | | | |
| 2. The person in charge of the burning operations shall either be an appropriately qualified manager with at least 3 years experience of control burning in conjunction with the labour supervisor with at least 5 years experience of burning breaks. | | | | | | | | | | | |
| 3. If it is a firebreak on the boundary, ensure that the relevant neighbour(s) has been notified in writing. The neighbour or his authorised representative should be present when burning a boundary firebreak. | | | | | | | | | | | |
| 4. Ensure all relevant stakeholders and neighbours are notified before commencing with the burning operations. | | | | | | | | | | | |
| 5. Before commencing with the burning operations, the person in charge shall ensure that proper radio communications are in place. | | | | | | | | | | | |
| 6. The burning operations manager shall check the Compartment Attribute Table to ensure that all the relevant details with regards to the burning of the specific break are known (e.g. dangers, recommended time of burning, etc.) | | | | | | | | | | | |
| 7. Ensure that the FDI does not exceed 55. | | | | | | | | | | | |
| 8. The manager must ensure that sufficient resources are available. The minimum requirement is 1 bakkie-sakkie or fire team consisting of a minimum of 25 trained crewmembers. | | | | | | | | | | | |
| 9. The manager or supervisor must ensure that all the trace lines are to the required standard before commencing burning. | | | | | | | | | | | |
| 10. No burning will be allowed on a Public Holiday or weekend. | | | | | | | | | | | |
| 11. The manager must be present on boundary breaks. For internal firebreaks, the manager must be on station. | | | | | | | | | | | |
| 12. Ensure a minimum additional 50% of resources are available immediately if required. | | | | | | | | | | | |
| 13. When burning, the FDI shall be measured infield (and recorded) every hour, or as soon as the weather conditions start changing. Stop when FDI exceeds permissible limits! | | | | | | | | | | | |
| 14. Always ensure that sufficient resources are guarding and mopping up the rear while burning firebreaks. | | | | | | | | | | | |
| 15. After completion of the burning operations, ensure that the burned area is properly mopped-up before leaving the area. If in any doubt, leave sufficient resources to guard the burned area! | | | | | | | | | | | |
| 16. Notify all relevant stakeholders when the burning is completed. | | | | | | | | | | | |
| FDI Readings | | | | | | | | | | | |
| Time | RH | Temp | Wind Speed | FDI | Time | RH | Temp | Wind Speed | FDI | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Signature of Person in Charge _____ | | | | | | | | | | Date _____ | |

Appendix 14: Standard Operating Procedures for Conducting Control Burns

| STANDARD OPERATING PROCEDURES FOR CONDUCTING CONTROL BURNS | | | | | | | | | | COMPLIES | |
|---|----|------|------------|-----|------|----|------|------------|-----|----------|----|
| Management Unit: _____ Compartment No: _____ | | | | | | | | | | Yes | No |
| 1. The person in charge of the burning operations shall either be an appropriately qualified manager with at least 3 years experience of control burning in conjunction with the labour supervisor with at least 5 years experience of control burning. | | | | | | | | | | | |
| 2. The burning operations manager shall check the Compartment Attribute Table to ensure that all the relevant details with regards to the burning objectives are known (e.g. dangers, recommended time of burning, etc.) | | | | | | | | | | | |
| 2. If a compartment is on the boundary of the management unit, ensure that the boundary firebreaks will be effective in controlling the fire and that the relevant neighbour(s) has been notified in writing as well as on the day of the actual burn and the day before. The neighbour or his authorised representative should be present when burning a boundary break. | | | | | | | | | | | |
| 3. Ensure all relevant stakeholders are notified before commencing with the burning operations. | | | | | | | | | | | |
| 4. Before commencing with the burning operations, the person in charge shall ensure that proper radio communications are in place. | | | | | | | | | | | |
| 5. Ensure that the FDI does not exceed 54. If it is necessary to burn with a higher FDI, ensure written permission has been obtained from the Department. No burning will be allowed if the FDI > 54. | | | | | | | | | | | |
| 6. Ensure that sufficient resources are available. The minimum requirement is 1 bakkie-sakkie or strike unit with 15 trained crew members. | | | | | | | | | | | |
| 7. No burning will be allowed on the day before a Public Holiday or weekend. | | | | | | | | | | | |
| 8. Ensure a minimum additional 50% of resources are available immediately if required. | | | | | | | | | | | |
| 9. When burning, the FDI shall be measured infield (and recorded) every hour, or as soon as the weather conditions start changing. Stop when FDI exceeds permissible limits! | | | | | | | | | | | |
| 10. Always ensure that sufficient resources are guarding and mopping up previously burned compartments. | | | | | | | | | | | |
| 14. After completion of the burning operations, ensure that the burned area is properly mopped-up before leaving the area. If in any doubt, leave sufficient resources to guard the burned area! | | | | | | | | | | | |
| 15. Notify all relevant stakeholders when the burning is completed. | | | | | | | | | | | |
| FDI Readings | | | | | | | | | | | |
| Time | RH | Temp | Wind Speed | FDI | Time | RH | Temp | Wind Speed | FDI | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Signature of Person in Charge

Date



Maloti-Drakensberg Park
World Heritage Site



World Heritage and Sustainable Tourism

Maloti-Drakensberg Park World Heritage Site Sustainable Tourism Strategy (2018-2028)





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Acronyms

| | |
|----------------|---|
| Amafa | Amafa AkwaZulu-Natali |
| AWHF | African World Heritage Fund |
| BCC | Bilateral Coordination Committee |
| BTWG | Bilateral Tourism Working Group |
| CBC | Community Based Conservation |
| CBNRM | Community Based Natural Resource Management |
| CBE | Community Based Enterprise |
| CBO | Community Based Organisation |
| CCF | Community Conservation Forums |
| CTF | Community Trust Fund |
| DAC | Department of Arts and Culture |
| DBSA | Development Bank of Southern Africa |
| DEA | Department of Environmental Affairs |
| DHA | Department of Home Affairs |
| DoT | Department of Transport |
| DPW | Department of Public Works |
| EDTEA | KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs |
| EKZNW | Ezemvelo KwaZulu-Natal Wildlife |
| FEDHASA | Federated Hospitality Association of South Africa |
| Friends of MDP | Friends of Maloti-Drakensberg Park (Non-Profit Company) |
| GoL | Government of Lesotho |
| HOSA | Hiking Organisation of South Africa |
| IDC | Industrial Development Corporation |
| ICT | Information and communications technology |
| JMC | Joint Management Committee |
| JMP | Joint Management Plan |
| KZN | KwaZulu-Natal |
| KZNTA | KwaZulu-Natal Tourism Authority |
| LTDC | Lesotho Tourism Development Corporation |
| MCSA | Mountain Club of Southern Africa |
| MDP | Maloti-Drakensberg Park |
| MDTFCA | Maloti-Drakensberg Transfrontier Conservation Area |
| MDTP | Maloti-Drakensberg Transfrontier Programme |
| MoU | Memorandum of Understanding |
| MTEC | Ministry of Tourism, Environment and Culture |
| N3TC | N3 Toll Concession |
| NCC | National Coordination Committee |
| NDT | National Department of Tourism |
| NGO | Non-Governmental Organisation |
| NPC | Non-Profit Company |
| NRLC | Neighbour Relations Liaison Committee |
| OUV | Outstanding Universal Value |
| PPF | Peace Parks Foundation |
| PPP | Public Private Partnership |
| RTF | Responsible Tourism Foundation |
| SAHRA | South African Heritage Resources Agency |
| SETA | Skills Education Training Authority |
| SNP | Sehlabathebe National Park |

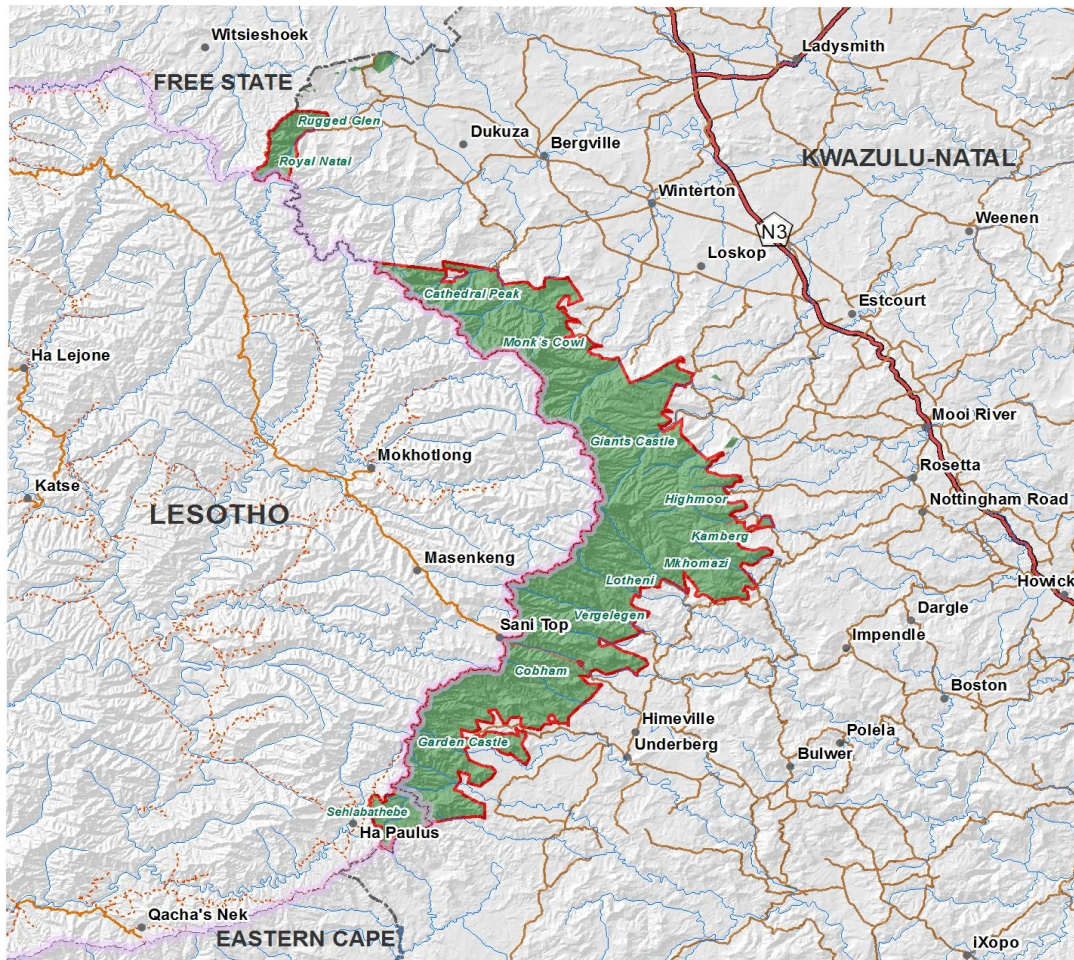
| | |
|--------|--|
| SWOT | Strength, Weaknesses, Opportunities and Threats |
| TBA | To Be Announced |
| TBD | To Be Determined |
| TFCA | Transfrontier Conservation Area |
| TGCSA | Tourism Grading Council of South Africa |
| TIKZN | Trade and Investment KwaZulu-Natal |
| ToR | Terms of Reference |
| UDP | uKhahlamba Drakensberg Park |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| WCT | Wildlands Conservation Trust |
| WHC | World Heritage Centre |
| WH+ST | World Heritage and Sustainable Tourism |
| WHS | World Heritage Site |
| WWF | World Wide Fund for Nature |

1 INTRODUCTION

The Maloti-Drakensberg Park (MDP) World Heritage Site (WHS) is a transboundary protected area spanning the border between the Kingdom of Lesotho and the Republic of South Africa (Figure 1). It was inscribed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) on the World Heritage List in 2000, in recognition of its cultural and natural significance. Achieving WHS status highlights that the site is exceptional, is one of most remarkable places on earth, and effectively belongs to “all the peoples of the world.”¹

¹UNESCO (1992-2015) World Heritage, Accessed on 1 December 2015 from <http://whc.unesco.org/en/about/>

The Maloti-Drakensberg Park World Heritage Site



Legend

-  International Boundary
-  MDP WHS
-  MDP
-  National Roads
-  Provincial Roads
-  Untarred Road
-  Rivers

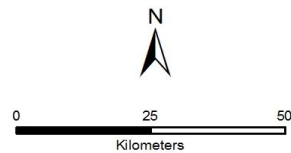
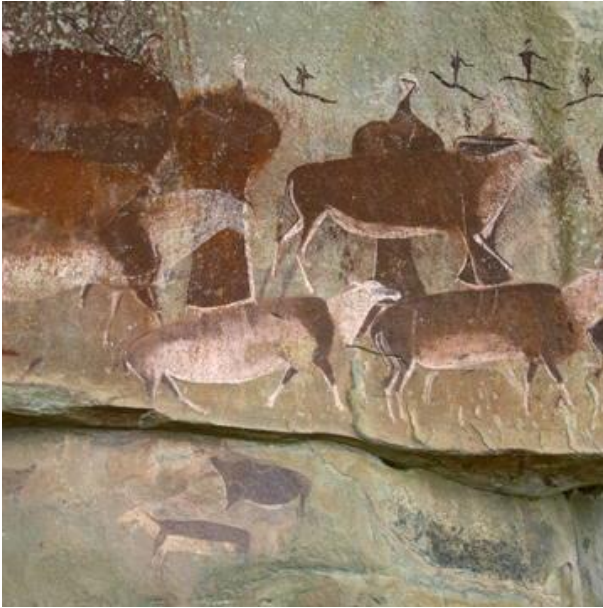


Figure 1: Map of the Maloti-Drakensberg Park World Heritage Site

The MDP WHS comprises Sehlabathebe National Park (SNP) (6,500 ha) in Lesotho and uKhahlamba Drakensberg Park (UDP) (242,813 ha) in South Africa, making it the largest protected area complex along the Great Escarpment of southern Africa.



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Research has established that World Heritage Sites are important travel destinations with huge potential impact for local economic development and long-term sustainability. Travel and tourism is one of the largest industries and heritage tourism is its most rapidly growing international sector. Prior to the development of this document, no strategy existed to unlock the economic potential of the MDP WHS.

This *MDP WHS Sustainable Tourism Strategy* is the culmination of the programme organised with financial support from the Government of Flanders and the IRIS Foundation under the framework of the UNESCO World Heritage and Sustainable Tourism (WH+ST) Programme. The World Heritage Centre, African World Heritage Fund (AWHF), UNESCO Field Offices and the Nature, Culture and Tourism Ministries and

institutions from the Kingdom of Lesotho and the Republic of South Africa also supported the process.

The *MDP WHS Sustainable Tourism Strategy* was developed collaboratively between the Kingdom of Lesotho and the Republic of South Africa to ensure that a common vision and a coordinated and integrated strategy was agreed upon for the entire destination. Members of the Kingdom of Lesotho delegation included four MDP WHS officers, three MTEC Headquarters officers, two LTDC officers and one local tour guide. Eight members of Ezemvelo KwaZulu-Natal Wildlife (EKZNW) and one member from The /Alkunta Project comprised the delegation from the Republic of South Africa. Participants received guidance from a coordination and resource team comprised of Programme Specialists from the (WHC) Paris, the UNESCO Multi-sectoral Regional Office for Southern Africa and the AWHF.

The programme to develop the tourism strategy involved three workshops between January and November 2015. These workshops comprised three phases: (1) Initiation workshop (19-21 February), (2) Follow-up workshop (19-20 June), and (3) Final workshop (5-6 November). These phases included an introduction to the holistic destination approach, which entails involving the geographic region surrounding the WHS. The training placed emphasis on the need to tell the stories of the host communities and the MDP's Outstanding Universal Value (OUV).

Participants received training on how to use the UNESCO *World Heritage Sustainable Tourism Toolkit*, which is comprised of ten 'How To' Guides, which advocate Best Practice. The WH+ST Programme involved a site visit guided by the *Sustainable World Heritage Tourism Checklist*, a Strength, Weaknesses, Opportunities and Threats (SWOT) Analysis, small group and plenary discussions to identify strategic priorities and actions, distance consultations, feedback on results, and ex-situ programme action plans for each delegation.

The *MDP WHS Sustainable Tourism Strategy* identifies the strategic priorities needed to catalyse the unlocking of the economic potential of the MDP WHS through sustainable tourism development over the next 10 years, commencing in 2018. The *MDP WHS Sustainable Tourism Strategy* seeks to secure a meaningful stake in the economic benefits

associated with the MDP WHS for the local communities living around the Park. It also seeks to ensure the First Peoples of southern Africa, (otherwise known as San or Bushmen) and local communities will be treated as respected stakeholders and beneficiaries who are integral to the destination and its economy, and as a result, will contribute towards the protection of the Park, its OUV and its visitors.



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2 OUTSTANDING UNIVERSAL VALUE

The MDP WHS is renowned for its spectacular natural landscape, importance as a haven for many threatened and endemic species. Extending along most of KwaZulu-Natal's south-western border with Lesotho, the property provides a vital refuge for more than 250 endemic plant species and their associated fauna. It also holds almost all of the remaining subalpine and alpine vegetation in KwaZulu-Natal, including extensive high altitude wetlands above 2,750m and is a Ramsar site. The Park has been identified as an Important Bird Area and forms a critical part of the Lesotho Highlands Endemic Bird Area. It also constitutes the principle water production area in southern Africa.

With its pristine steep-sided river valleys and rocky gorges, the property has numerous caves and rock shelters containing a wealth of rock paintings made by the San Peoples over a period of 4000 years. There are also paintings done during the nineteenth and twentieth centuries, attributable to Bantu speaking people. There are an estimated 730 rock art sites, and the number of individual images in those sites probably exceeds 35,000. The images depict animals and human beings, and represent the spiritual life of the San Peoples. These mystical images make the MDP WHS one of the grandest outdoor art galleries on earth. All Peoples of the world are associated with this rock art, which represents a unifying, unfolding cultural heritage of humanity. The rock art represents an exceptionally coherent tradition that embodies the beliefs and cosmology of the San Peoples over several millennia.

Approximately two million people live adjacent to the MDP WHS who are predominantly rural subsistence farmers and cattle herders. These rural communities are caught in a cycle of poverty due to the lack of economic opportunities and development. Commercial activities in the region are limited to tourism and agriculture.

Outstanding Universal Value (OUV) is defined as cultural and/or natural significance, which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community. The MDP WHS meets four of the criteria for demonstrating OUV:



© UNESCO, Veronique Dauge

Criterion (i): "represents a masterpiece of human creative genius and cultural significance"

- The rock art of the Drakensberg is the largest and most concentrated group of rock paintings in Africa south of the Sahara and is outstanding both in quality and diversity of subject.

Criterion (iii): "to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared"

- The San Peoples lived in the mountainous Drakensberg area for more than four millennia, leaving behind them a corpus of outstanding rock art, which throws much light on their way of life and their beliefs.

Criterion (vii): "contains superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance"

- The site has exceptional natural beauty with soaring basaltic buttresses, incisive dramatic cutbacks and golden sandstone ramparts. Rolling high altitude grasslands, the pristine steep-sided river valleys and rocky gorges also contribute to the beauty of the site.

Criterion (x): "contains the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation"

- The property contains significant natural habitats for in-situ conservation of biological diversity. It has outstanding species richness, particularly of plants. It is recognised as a global Centre of Plant Diversity and endemism, and occurs within its own floristic region – the Drakensberg Alpine Region of South Africa. It is also within a globally important endemic bird area and is notable for the occurrence of a number of globally threatened species, such as the Yellow-breasted Pipit. The diversity of habitats is outstanding, ranging across alpine plateaux, steep rocky slopes and river valleys. These habitats protect a high level of endemic and threatened species.

3 KEY STATISTICS

The MDP WHS covers a total of 249,313 ha in Lesotho and South Africa. There are over 730 rock art sites, at least 2520 species of plants and 456 species of vertebrates (see Table 1).

Table 1: Natural and cultural features of the MDP WHS

| | Lesotho | South Africa |
|-------------------------------------|---|---|
| Size of protected area (ha) | 6,500 hectares | 242,813 hectares |
| Number of rock art sites | 90 | ±665 with >35 000 images |
| Plant species & endemics | 515 plants species representing 75 families and 242 genera, with 59 endemics. | 2520 species of plants >456 species of vertebrates |

Sources: Lesotho Tourism Development Corporation (LTDC) and EKZNW

Lodging facilities for tourists include 8 accommodation facilities, at least 241 campsites and over 60 rock shelters, which can accommodate approximately 2500 people per night (see Table 2).

Table 2: Tourism facilities and attractions in the MDP WHS

| | Lesotho | South Africa |
|--|--|--|
| Number of accommodation facilities | 1 | 7 (owned by EKZNW) |
| Capacity of accommodation (i.e. number of guests that can stay) | 39 beds in government owned, privately managed | 668 beds in EKZNW owned and managed huttled accommodation; 270 in private facilities |
| Number of camp sites | 2 | 10 locations with 241 campsites |
| Capacity of camping (i.e. number of guests/tents possible) | 100 people | @ 6 people/site 1446 people per night |
| Number of rock shelters | 55 | 7 (at least) |
| Length of hiking trails | 139 km | 1500 km |

Sources: LTDC and EKZNW

Tourism activities that are available across both countries in the MDP WHS include hiking, rock climbing, horse riding, fishing, bird watching, running, weddings, rock art education, photography and camping. Activities that are currently only available in the South African portion of the MDP WHS include 4x4 trails, mountain biking, 4 wheel bike riding, botanical outings, game drives, canoeing, tennis, golf, bowling, swimming, helicopter flips, conferencing, weddings, cultural trails, vulture hides, cultural experiences including dancing and traditional healer visits, and arranged team building events.

Table 3: Visitation and activities in the MDP WHS

| | Lesotho | South Africa |
|--|---|--|
| Number of overnight visitors per year | 764 bed nights (1 Oct 2017 to 31 Mar 2018) | 62, 041 huttled bed nights 38,528 camping bed nights (1 April 2017 – 31 March 2018)) |
| Number of day visitors per year | 1426 (1 April 2017 to 31 Mar 2018) | 138 176 (1 April 2017 – 31 March 2018) |
| Average length of stay | 2 nights | 2.5 nights |

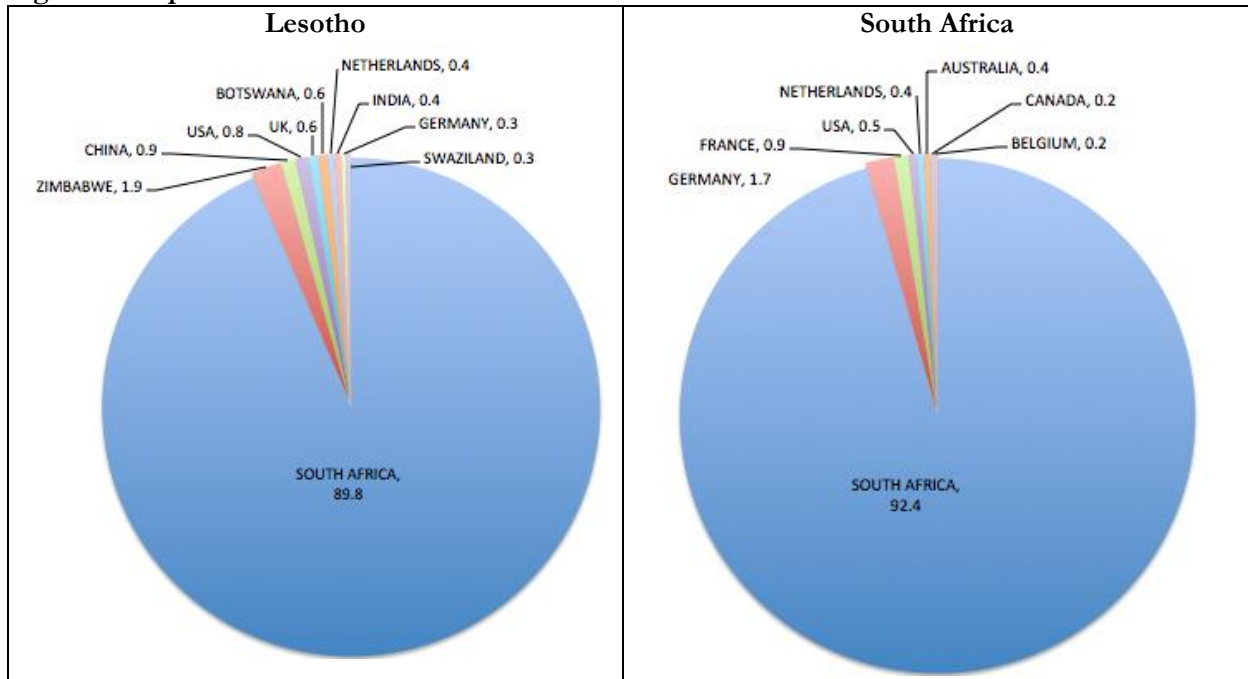
Sources: LTDC and EKZNW

The MDP WHS currently supports an estimated 1723 permanent and 200 casual jobs. This comprises 947 jobs within and around the WHS in Lesotho. In South Africa, it supports 179 tourism jobs and 339 conservation

jobs within EKZNW, up to 200 casual contract jobs, approximately 60 with service providers and another 198 at private accommodation facilities.

The top ten source markets for the MDP WHS in Lesotho and South Africa are described in **Figure 2** below. This illustrates that South Africa is the dominant source market for visitors the WHS, while notably there are no tourists recorded from Lesotho. The data further indicates that tourists from Germany, the USA, Netherlands and UK visit parts of the WHS in both countries.

Figure 2: Top ten source markets to the MDP WHS in Lesotho and South Africa



Sources: Data from the Research and Development Department in LTDC and EKZNW check-in forms.

4 SWOT ANALYSIS

An analysis of the strengths, weaknesses, opportunities and threats (SWOT) to tourism was undertaken by stakeholders (see Table 4). The main strengths in the MDP WHS relate to its unique rich natural and cultural heritage, combined with strong institutions, and strong governance frameworks, and of course, the WHS recognition from UNESCO. A weakness common to both countries is the lack of marketing and promotion to tourists. Other areas for improvement include infrastructure (i.e. quality and maintenance), seasonality, and a lack of collaboration between tour operators. There is a rich array of opportunities, including the opportunity to secure investment for tourism, and to engage with local communities. However, there are a number of prevailing threats, which include climate change, political challenges (i.e. instability and apathy) and a lack of controlled access.

Table 4: SWOT Analysis

| Lesotho | South Africa |
|--|---|
| Strengths | |
| World Heritage Site status from UNESCO | |
| <ul style="list-style-type: none"> - LTDC to market Lesotho - Unique tourism destination, only area in Lesotho with rich cultural and natural heritage - Maloti Drakensberg Transfrontier Programme (MDTP) 20-year strategy in 3 sectors – tourism, culture, environment - Human resources available - Governance structure encompasses all affected stakeholders - Some infrastructure in place | <ul style="list-style-type: none"> - EKZNW is a world-renowned leader in conservation - Protected area - Mixed heritage site - Biodiversity - Stable country/democratic state - Park has a strong legal framework - South Africa has adopted World Heritage laws - Good infrastructure |
| Weaknesses | |
| Lack of marketing (no marketing strategy, not utilizing a WH brand or OUV) Lack of baseline information (e.g. inventory of legislation relating to the WHS, review of management structure options, value chain analysis). | |
| <ul style="list-style-type: none"> - Lack of collaboration between tour operators - Weak legislation and management structure to manage Park - Ungraded accommodation facility - Lack of site specific interpretation - Seasonality – on and off peak severe - Lack of stakeholder participation in the management of the Park (both communities and businesses) - Ineffectiveness of current governance structure, undertaking initiatives on individual basis (no Park focused governance structure) - Lack of overall tourism vision - Not universally compliant for accessibility in the Park | <ul style="list-style-type: none"> - Infrastructure needs maintenance and improvements - Lack of resources, hard to source funds without a clear tourism plan and strategy - Competition for accommodation between the Park and the private sector, in a strong private market - Poor and inconsistent marketing of cultural heritage in particular |

SWOT Analysis continued.

| Lesotho | South Africa |
|--|--|
| Opportunities | |
| Tourism investment opportunities (including foreign investment) | |
| <ul style="list-style-type: none"> - Funding from UNESCO and other organizations - Bi-lateral agreement between Lesotho and RSA and promotes information and knowledge sharing - Adjacent to the South African market | <ul style="list-style-type: none"> - Opportunity for increased marketing (research and product development) - Untapped community involvement and development, to enhance the visitor experience (heritage tourism) and the economic potential of the Park - Park could increase access to improve visitor movement. - Creation of an official MDP gateway facility, to promote and interpret the MDP's OUV; provide all information and booking capabilities at one point. |
| Threats | |
| Climate change (e.g. water scarcity, floods, soil loss, erosion) | |
| <ul style="list-style-type: none"> - Political instability - Wildfires - Vandalism of rock art by tourists - Trespassing - Uncontrolled livestock encroachment | <ul style="list-style-type: none"> - Apathy by decision makers causing delays - Safety and security - Failing infrastructure and maintenance - Poaching and illegal harvesting of natural and cultural resources - Lack of medical facilities close by - Lack of community buy-in - Lack of skills and benefits among community members who may then feel marginalized |

5 VISION AND MISSION**VISION**

Conserving and creating a globally iconic mountain wilderness destination that reconnects humanity to their African origins and generates economic benefits for the local communities, the First Peoples and beyond.

MISSION

To develop and manage a range of authentic tourism products which protect and reflect the Outstanding Universal Value that inspires tourists to visit the Park.

6 STRATEGIC PRIORITIES

The following strategic priorities have been identified for the *MDP WHS Tourism Strategy*:

- **Strategic Priority 1:** Ensure that the Tourism sector helps protect the Maloti-Drakensberg Park World Heritage Site's Outstanding Universal Value.
- **Strategic Priority 2:** To collaborate and partner with the local communities, the region, the First Peoples, and the tourism sector to ensure their empowerment and that they benefit from responsible tourism in the World Heritage Site.
- **Strategic Priority 3:** Educate and communicate the Outstanding Universal Value of the Maloti-Drakensberg Park World Heritage Site locally and around the world to grow understanding, widen appreciation, and drive responsible tourism.
- **Strategic Priority 4:** Develop a world class product and experiences within the Maloti-Drakensberg Park World Heritage Site destination that are based upon and compatible with the Outstanding Universal Value and local values.

7 STRATEGIC ACTIONS

A series of strategic actions have been identified as a means to implement the strategic priorities as outlined below.

Strategic Priority 1: Ensuring that the Tourism sector helps protect the Maloti-Drakensberg Park World Heritage Site's Outstanding Universal Value:

- Establish an appropriate management structure for the MDP WHS, through an analysis of options which include, a review of the Park's Business Model and adaptation of the Tourism Working Group's Terms of Reference (ToR).
- Enhance stakeholder engagement and support communities to develop Community Based Natural Resource Management (CBNRM) and Community Based Conservation (CBC) tourism, and strengthen stakeholder engagement in management of the park through Community Conservation Forums, tourism associations and local boards.
- Develop appropriate policies, legislative tools and plans that support protection of the MDP WHS OUVs, including those that relate to biodiversity, cultural heritage and visitor management.
- Develop and disseminate tourism guidelines for the Park that address responsible tourism product development, including community involvement codes of conduct and memorandums of understanding (MoUs) for tourism operators and tourists (e.g. Leave no trace guidelines).
- Integrate monitoring and evaluation processes to track compliance with plans and guidelines.

Strategic Priority 2: To collaborate and partner with the local communities, the region, the First Peoples, and the tourism sector to ensure their empowerment and that they benefit from responsible tourism in the World Heritage Site:

- Build capacity of local community members and the First Peoples to empower and uplift them by improving stakeholder engagement, developing a community-based tourism strategy, community outreach and awareness, and providing appropriate training facilities and services.
- Enable controlled traditional access to ancestral sacred grounds and other resources through development of a cross-border permitting system, combined with guidance on sustainable harvesting and responsible use of ancestral sacred grounds.
- Enhance local and First Peoples economic benefits by establishing options for strengthening value chain linkages, medicinal plant gardens, and developing a local Community Trust Fund with a mechanism to accrue benefits to the First Peoples.

Strategic Priority 3: Educate and communicate the Outstanding Universal Value of the Maloti-Drakensberg Park World Heritage Site local and around the world to grow understanding, widen appreciation, and drive responsible tourism:

- Collaboratively develop, agree and register brand identity (logo) that reflects the MDP's OUVs, with accompanying identity and brand guidelines.
- Formulate a joint marketing strategy and implementation plan that is in line with MDP and UNESCO goals and objectives, and implement it in participation with tourism information centres, interpretation centres, and development of an electronic gateway platform for promotion and sales.
- Enhance communication of the OUVs through sound communication planning, interpretation centres, and dissemination of information on the flow of benefits derived from sustainable tourism in the Park.

Strategic Priority 4: Develop a world class product and experiences within the Maloti-Drakensberg Park World Heritage Site destination that are based upon the Outstanding Universal Value and local values:

- Develop a plan for all types of tourism products that protect the MDP WHS's OUVs.
- Stimulate the development of new tourism products and activities that are based on market demand, by promoting and facilitating investment that support the Park's OUV and UNESCO dictums (e.g. a cross border pilgrimage heritage route; community-based tourism ventures; community benefit sharing).
- Ensure that there is adequate and well maintained basic infrastructure (e.g. destination access roads, electricity, communications), and tourism infrastructure (e.g. internal hiking trails, an official MDP gateway facility, and signage).
- Ensure high product quality by applying quality standards and upgrading facilities.

8 ONGOING PROJECTS

The table below represents projects which are currently being pursued by Ezemvelo towards the fulfilment of its obligation to strategy implementation.

| Part of the Park | Name of Project | Funding and Source |
|---------------------------|--|---|
| Royal Natal National Park | Re-roofing of all accommodation and Reception building at Thendele Resort using Harvey tiles to eradicate the need for thatch maintenance. | No funding yet. The National Department of Tourism has indicated their willingness to consider the application. |
| Didima, Cathedral Peak | Repairs to thatch roofs. Currently rethatching the Conference Centre and the Restaurant building. Develop an entrance gate and office. Repair access road Repair Mike's Pass road in order to reopen access to the vulture hide and high view points | R900 000 from Ezemvelo KZN Wildlife Funding has been made available by the National Department of Tourism. Construction is expected to commence in 2019. Funding has been provided by Ezemvelo KZN Wildlife and work is underway. R3 million Funding has been provided and work is planned to commence in 2019 |
| Giant's Castle | Upgrade and expand signage as well as development of an 'arrival feature'. Rebuilding Meander Hut Development of a Universally Accessible trail. Development of a cycle trail Redevelopment of Injisuthi Outpost into a small boutique type of accommodation. Development of an events facility for hosting weddings and conferences. | Currently underway. Funding was received from the National Department of Tourism. Funding has been obtained from the National Department of Tourism. Construction is expected to commence in 2019. Funding has been obtained from the National Department of Tourism. Construction is expected to commence in 2019. Funding has been obtained from the National Department of Tourism. Construction is expected to commence in 2019. The Projects unit of Ezemvelo currently seeking funds from external funders. Funding has been obtained from the National Department of Tourism. Construction is expected to commence in 2019. |

9 STAKEHOLDERS

Seven broad categories of stakeholders have been identified for the MDP WHS, which comprise:

- National or local government authorities
- Protected area authorities
- Private sector (tourism and other sectors) – based inside and outside the Park
- Affected communities (including local communities and the First Peoples of southern Africa)
- Civil society organizations and groups with special interests (e.g. Non-Governmental Organisations (NGO's) and Community Based Organisations (CBO's))
- Academic community
- Development community (including donor and development agencies)

The level of stakeholder engagement envisaged is outlined below. This outline was confirmed with stakeholders during the outreach process.

Table 5: Envisaged levels of stakeholder engagement²

| Level of Stakeholder Engagement | Objective | MDP WHS Stakeholder group |
|---------------------------------|--|--|
| Inform | To provide balanced and objective information to improve understanding of the issues, alternatives, and/or solution. | National and local government |
| Consult | To obtain feedback from stakeholders on analysis, alternatives and/or decisions. | National and local government Protected area authorities Private sector – in Park Affected communities Civil society organisations and groups Academic community |
| Involve | To work directly with stakeholders throughout the process to ensure that issues and concerns are consistently understood and considered. | National and local government Private sector – in & outside Park Affected communities Civil society organisations and groups Academic community Development community |
| Collaborate | To partner with the stakeholders in each aspect of the decision, including the development of alternatives and the identification of the preferred solution. | National and local government Private sector – in & outside Park Affected communities Civil society organisations and groups Academic community Development community |
| Empower | To place final decision-making in the hands of the stakeholders. | Protected area authorities |

The table below describes the relevant stakeholder institutions to the MDP WHS in Lesotho and South Africa, within the identified stakeholder categories (see

²Adapted from DEAT (2002) Stakeholder Engagement, Integrated Environmental Management, Information Series 3, Department of Environmental Affairs and Tourism (DEAT), Pretoria, pp8, Accessible from https://www.environment.gov.za/sites/default/files/docs/series3_stakeholder_engagement.pdf

Table 6)³.**Table 6: Stakeholders in the MDP WHS**

| Lesotho | South Africa | |
|--|--|---|
| National or local government authorities | | |
| <ul style="list-style-type: none">Ministry of Tourism, Environment & Culture (MTEC)Lesotho Tourism Development Corporation (LTDC)Ministry of PoliceMinistry of Agriculture and Food SecurityMinistry of Forestry Range and Soil conservation.Ministry of Education and TrainingMinistry of Local Government and ChieftainshipMinistry of Development PlanningMinistry of FinanceMinistry of Defence and National SecurityMinistry of Sports, Gender, Youth and Recreation | <ul style="list-style-type: none">National Department of Tourism (NDT)Department of Environmental Affairs (DEA)Department of Economic Development, Tourism and Environmental Affairs (DEDTEA)Department of Arts and Culture (DAC)Department of Transport (DoT)Trade and Investment KwaZulu-Natal (TIKZN)Amafa AkwaZulu-Natali (Amafa)South African National Defence ForceSouth African Police ServicesDepartment of AgricultureKwaZulu-Natal Tourism Authority (KZNTA)UNESCO World Heritage CenterOkhahlamba Local MunicipalityMooi-Mpofana Local MunicipalityuMngeni Local MunicipalityiMpendle Local MunicipalityiNkosi Langalibalele MunicipalityKwaSani Local MunicipalityuThukela District MunicipalityHarry Gwala District MunicipalityuMgungundlovu District MunicipalityMaloti-Drakensberg Transfrontier Programme (MDTP)Boundless Southern AfricaSkills Education Training Authority (SETA)South African Heritage Resources Agency (SAHARA) | |
| Protected area authorities | | |
| Joint Management Committee (JMC) Bilateral Coordination Committee (BCC) | | |
| Maloti-Drakensberg Transfrontier Programme (MDTP) | EKZNW KwaZulu-Natal Nature Conservation Board | |
| Private sector (tourism and other sectors) – based inside the park | | |
| TBA | Cathedral Peak Hotel | Mkhomazana Lodge |
| Private sector (tourism and other sectors) – based outside the Park, but using the Park | | |
| <ul style="list-style-type: none">Mabotle Self CateringNew Central HotelNthatuoa HotelLetloepe Guest HouseThimo Guest HouseNew Villa Bed and BreakfastSNP Heritage and Management Services LodgeSani Lodge BackpackersMokamoli Motlomelo FreelancingMaluti Tours | <ul style="list-style-type: none">Mont-Aux-Sources (Orion)MontusiThe CavernHlalanathiAlpine HeathLittle SwitzerlandSouthern SunThe NestDragon Peaks | <ul style="list-style-type: none">Champagne Sports ResortSani Pass HotelDrakensberg Gardens HotelBushman’s Nek HotelSani Top LodgeMnweni Cultural and Hiking CentreAmphitheatre Backpackers |

³ Note that some categories are not exhaustive, such as the private sector

| Lesotho | | South Africa | |
|--|---|--|---|
| <ul style="list-style-type: none">• Clarens Extreme• Thaba Tours• Drakensberg Adventure | | <ul style="list-style-type: none">• Cayley Lodge• White Mountain• Champagne Castle | <ul style="list-style-type: none">• Entabeni Lodge• Cleopatra |
| Affected communities | | | |
| Drakensberg Mountain San / First Peoples | | | |
| <ul style="list-style-type: none">• Thamathu• Mateleng• Letlapeng• Sehlabathebe• Mavuka• Semenyane• Tsatsalemeno | <ul style="list-style-type: none">• Edward• Sephelane• Mpharane• Koung• Mafikalisiu• Moshebi• Sekokoaneng | <ul style="list-style-type: none">• AmaZizi• AmaNgwane• AmaNgwe• AmaSwazi• KwaMabaso• Mhlungwini | <ul style="list-style-type: none">• KwaDlamini• AmaHlubi• AbaMbo• KwaNxamalala• Maguzwana• aBatloaka |
| Civil society organizations and groups with special interests (e.g. NGOs, CBOs) | | | |
| <ul style="list-style-type: none">• Khoma – Phatsoa Community Council• Community Conservation Forum (CCF)• Horse association (Thusang Lichaba Pony Trekkers Association)• Local Schools primary and High schools Thamathu Primary School <hr/> <ul style="list-style-type: none">• Thamathu High School• Sehlabathebe Primary School• Lipelong Primary School• Mavuka Primary School• Mavuka Secondary School• Moshebi Primary School• Leqooa Primary School• Mafika-Lisiu Primary School• Sephelane Primary School | | <ul style="list-style-type: none">• N3 Toll Concession (N3TC)• Woza Woza Tourism• Bushman’s River Tourism Association• Midlands Meander Association• Central Drakensberg Tourism Association• Southern Drakensberg CBO• Hiking/Backpackers Club (e.g. Mountain Backpackers)• Hiking Organisation of South Africa (HOSA)• Mountain Club of Southern Africa (MCSA)• Mnweni Wilderness Group• AmaZizi Wilderness Group• Buffalo Thorn Guides• Endangered Wildlife Trust (EWT)• African Conservation Trust (ACT)• Wilderness Leadership School (WLS)• Wildlands Conservation Trust (WCT)• South African San Council (SASC)• The /Alkunta Project• Siyaphambili Tourists Guides and Porter Services• Rock Art Custodians• World Wide Fund for Nature (WWF)• Federated Hospitality Association of South Africa (FEDHASA)• Tourism Grading Council of South Africa (TGCSA)• Traditional authorities• Peace Parks Foundation (PPF)• Bergwatch | |
| Academic community | | | |
| <ul style="list-style-type: none">• National University of Lesotho <hr/> <ul style="list-style-type: none">• Limkokwin University of Creative Technology• Lerotholi Polytechnic | | <ul style="list-style-type: none">• University of KwaZulu-Natal• Durban University of Technology• Witwatersrand University• University of Pretoria• University of Zululand• Mangosuthu University of Technology• Tshwane University of Technology | |
| Development community (donor and development agencies) | | | |
| <ul style="list-style-type: none">• World Bank• UNDP | | <ul style="list-style-type: none">• Industrial Development Corporation (IDC)• Development Bank of Southern Africa (DBSA) | |

| Lesotho | South Africa |
|---|---|
| <ul style="list-style-type: none">• UNESCO• GIZ• AWHF | <ul style="list-style-type: none">• World Bank• Trade and Investment KwaZulu-Natal (TIKZN) |

10 GOVERNANCE

The joint declaration of the Park can be directly linked to the Giant's Castle Declaration made on 14 September 1997. It was a unanimous resolution taken by participants representing Lesotho, South Africa, the World Bank and interested NGOs after a 3-day workshop at Giant's Castle in the then KwaZulu-Natal Drakensberg Park. The declaration recognised the globally significant natural and cultural heritage of the area and endorsed the concept of a Transfrontier Conservation and Development Area embracing the Lesotho Maloti Highlands and the KwaZulu-Natal Drakensberg mountains in South Africa. It recommended that the Governments of Lesotho and South Africa accept and jointly declare their support for a Transfrontier Conservation Area. The joint declaration and management of this Transfrontier Park contributes towards effectively conserving the globally significant natural and cultural heritage of the Maloti-Drakensberg Transfrontier Conservation Area (MDTFCA) together with its scenic splendour. It is one of many achievements resulting from the collaboration on this project between the Kingdom of Lesotho and the Republic of South Africa.



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This initiative resulted in a bilateral MoU signed by the Government of the Kingdom of Lesotho and the Government of the Republic of South Africa at SNP in Lesotho on 11 June 2001, in respect of the Maloti-Drakensberg Transfrontier Conservation and Development Area. The vision of the MoU was to establish a framework for co-operation between the Parties for the purpose of conserving biological diversity and promoting sustainable development of the area. Each individual Park has its own Management Plan, which remains the guiding document for its management and development. A clear management action recorded in each of these plans was the formation and joint declaration of this Transfrontier Park. Subsequently, the MDTP Bilateral Steering Committee was formed.

As part of the MDTP programme, South Africa established a National Coordination Committee (NCC), which is responsible for implementation of MDP programme in the country. All members of the NCC and Joint Management Committee (JMC) chairpersons are also members of the Bilateral Committee. To effectively implement MDTP programme the Bilateral Committee established the following working groups: Biodiversity and Protected Area Network; Cultural Heritage; Tourism and Security.

The MDP WHS is managed through a Joint Management Plan (JMP). The JMP establishes a framework to guide the deliberations of the JMC and management in pursuance of the management objectives of the MDTP. The JMC consisting of members from EKZNW (SA) and the MTEC (Lesotho) was established in 2005. The approval of the JMP by the Ministers from both countries officially mandates the existing JMC to continue facilitation and collaboration on the joint management issues.

In Lesotho, the SNP has been earmarked as a priority in the Ministry by the Honorable Minister of Tourism, Environment and Culture, to ensure that the SNP issues are given adequate budget for operations.

The implementation of the *MDP WHS Tourism Strategy* and the action plan will be coordinated by a Bilateral Tourism Working Group (BTWG) building upon the existing structures in the two countries. The BTWG consists of amongst others, governmental bodies, advisory boards, tourism and marketing organisations and existing World Heritage coordination structures (i.e. SNP and UDP). The BTWG will be strengthened to include officers from the Departments of Culture and Environment. The members from the both the Departments of Culture and Environment will also comprise of the focal points for the WHS and the Transfrontier Conservation Area (TFCA) respectively. Their role will be to coordinate the activities with all the stakeholders and the Ministerial Management. Their role will be to coordinate the activities of all the stakeholders and the Ministerial Management. After enactment of the Biodiversity Resources Management Act, an independent body will be established, as either a Parks Board or a Public Private Partnership (PPP). This body will be responsible for the sustainable conservation and usage (especially tourism) of heritage resources of SNP on behalf of the Ministry of Tourism, Environment and Culture. The BTWG will be coordinated by the proposed Lesotho Parks Board or PPP.



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The functions, roles and responsibilities of stakeholders in the MDP WHS are outlined in the table below.

Table 7: Functions, roles and responsibilities of organisations involved in the governance of the MDP WHS

| Organisation name | Functions | Roles/responsibilities to the WHS |
|--|---|---|
| MDP WHS | | |
| Maloti-Drakensberg Transfrontier Programme (MDTP) (South Africa and Lesotho) | Bilateral structure (South Africa and Lesotho) responsible for conservation, tourism and development. | Collaborative initiative between South Africa and the Kingdom of Lesotho to protect the exceptional natural and cultural heritage of the Drakensberg and Maloti mountains. Plans and facilitate conservation and development activities in the MD TFCA. |
| Joint Management Committee (JMC) | Bilateral structure (South Africa and Lesotho) responsible for the Management of the Park | Collaborative initiative between South Africa and the Kingdom of Lesotho to manage the Maloti-Drakensberg Transboundary World Heritage Site. |
| Bilateral Coordination Committee (BCC) | Bilateral structure (South Africa and Lesotho) responsible for the implementation of the Maloti-Drakensberg Transfrontier Programme | Collaborative initiative between South Africa and the Kingdom of Lesotho to protect the exceptional natural and cultural heritage of the Drakensberg and Maloti mountains. Plans and facilitate conservation and development activities in the MD TFCA |

| Organisation name | Functions | Roles/responsibilities to the WHS |
|---|---|--|
| Lesotho | | |
| Ministry of Tourism, Environment & Culture (MTEC) | Development of policy and legislation on environment, tourism and culture issues | Responsible for, inter alia, formulating and implementing tourism-related policy and planning at a national level |
| Department of Environment | Protection and management of the environment | Responsible for execution of the biodiversity conservation aspects of the Environmental Act. SNP and other Parks to be established fall under the management of this department. Division of Biodiversity Conservation is being set up, within this Department, to manage all protected areas in terms of the Nature Conservation Act. |
| Department of Culture | Conservation and management of heritage resources | To document, preserve, develop, manage, promote and disseminate national heritage for present and future generations for sustainable development. |
| Ministry of Police | Safety and security | Law enforcement and awareness campaign to host communities about safety and security of the visitors |
| Ministry of Agriculture and Food Security | Agriculture and food security | Help local farmers to engage in proper farming activities/practices so as to produce quality food for the visitors. |
| Ministry of Forestry Range Resources and Soil Conservation | Land reclamation and soil and water conservation (through rehabilitation) | Help to restore the rangeland in the buffer zone (restore attractiveness of the area outside the park) they own accommodation facility Range Management |
| Lesotho Tourism Development Corporation (LTDC) | Marketing and promotion of tourism in Lesotho | Responsible for the national marketing and promotion of Lesotho as well as destination management services such as research, collection and analysis of statistics. |
| Khoma – Phatsoa Community Council | Representative of community interests | Consists of elected Councillors and Local Chief and they are responsible for local governance |
| Community Conservation Forum (CCF) | Co-management of the Park | Governed by CCF by-laws in terms of local government legislation and they are representing local association and villages surrounding the Park. Their role is to participate in the Park management and submit the matters of the host communities to Park management |
| South Africa | | |
| Department of Environmental Affairs (DEA) | Focal point for transfrontier conservation, tourism and development | South Africa World Heritage Site focal point, responsible for the management of all World Heritage Sites, transfrontier conservation and the appointment of World Heritage Site Management Authorities. |
| Department of Economic Development, Tourism and Environmental Affairs (EDTEA) | Provincial department responsible for economic development, tourism and environment and conservation | Appointment of EKZNW Board which is responsible for the management of the site on the South African side of the Park. |
| Department of Arts and Culture (DAC) | National department responsible arts and culture, and responsible for government agencies such as South African Heritage Resources Agency (SAHRA) | Plays a significant role on the South African side of the site due to the fact that the site is a mixed site (cultural and natural) |
| KwaZulu-Natal Conservation Services (KZN NCS) | KwaZulu-Natal provincial conservation agency. | Responsible for biodiversity management and ecotourism inside Protected Areas (Resorts) through an agency called EKZNW |
| Amafa AkwaZulu-Natali (Amafa) | KwaZulu-Natal heritage agency. | Responsible for heritage management, supports and guides EKZNW on cultural heritage management issues. |

11 ACTION PLAN

The tables below provide an implementation plan for the next ten (10) years for *MDP WHS Tourism Strategy*. Each of the Strategic Actions related to the four Strategic Priorities are listed. Each action is elaborated in terms of the level that it will take place (e.g. jointly between Lesotho and South Africa, or at national level for a particular country), which stakeholders will be involved and champion the action, the timeframe for implementation, indicators of success, and resources required. For all activities, further review will be required to establish budgets and internal human resources.

| No. | Action | Who (joint or national) | Stakeholders / Champion | Timeframe | Success Indicators | Resources |
|--|---|-------------------------------|----------------------------|-----------|--|---|
| Strategic Priority 1: Ensuring that the Tourism sector helps protect the Maloti-Drakensberg Park World Heritage Site's Outstanding Universal Value. | | | | | | |
| 1.1 | Establish management structure | | | | | |
| 1.1.1 | Analysis of the management structure / governance options (e.g. examples of iSimangaliso etc.) with recommendations and a plan for entity | Joint | JMC | Y1 | Analysis report with recommendations | Internal human resources |
| 1.1.2 | Review the MDP Management Business Model (i.e. regarding concession options and conflict of interest) | Joint | EKZNW & MTEC | Y1 | Review report with recommendations | Internal human resources |
| 1.1.3 | Review and adapt MDTP Tourism Working Group ToR in relation to management structure recommendations | Joint | BCC | Y1 | Revised ToRs | Internal human resources |
| 1.1.4 | Develop MDTFCA coordinating body | Lesotho | MTEC | Y2-5 | Entity established and operational | Political will Financial resources |
| | | | | | | |
| 1.2 | Enhance stakeholder engagement | | | | | |
| 1.2.1 | Tourism activities supporting communities to develop CBNRM and CBC projects (support develop proposals for funding projects and support implementation) | Joint | EKZNW, MTEC | Y1-10 | Proposals developed Funding for CBNRM/CBC secured Proclaimed community conservation areas Biodiversity Stewardship Sites declared | Internal and external human resources |
| 1.2.2 | Develop and strengthen support for and engagement in management of the Park from outside operators and communities through community conservation forums and Local Boards | Joint | EKZNW, MTEC | Y2 | Community Conservation Forums Established & operational Composition of Local Boards (with tourism committee) are representative Annual reports include specific activities relating to action | Internal and external human resources Funding (staff allowances) |

| No. | Action | Who (joint or national) | Stakeholders / Champion | Timeframe | Success Indicators | Resources |
|------------|--|-------------------------------|-------------------------------|--------------------|---|---|
| 1.3 | Develop policy/legislative tools | | | | | |
| 1.3.1 | Inventory of legislation relating to WHS (i.e. gaps / overlap / relating to TFCA & WHS tourism) | Joint | EKZNW & MTEC | Y1 | Inventory report highlighting areas for revision | Environmental lawyer |
| 1.3.2 | Review of management plans and revision integrating cultural heritage tourism | Joint | EKZNW & MTEC | Y1 | Revised management plans | Internal human resources |
| 1.3.3 | Develop Biodiversity Resources Management Bill | Lesotho | MTEC | Y1-3 (Dec 2020) | Bill drafted Bill passed | Internal legal services |
| 1.3.4 | Develop Cultural Heritage Management Plan (including for rock art: overall and site specific) | Joint | EKZNW & MTEC | Y1 (Dec 2018) | Plan developed and available | Internal human resources |
| 1.3.5 | Amend Cultural Heritage Management Act to include World Heritage issues | Lesotho | MTEC | Y5 | Act amended | Internal legal services |
| 1.3.6 | Develop Visitor Management & Monitoring Plan with Standard Operating Procedures (SOP) for sites | Joint | EKZNW & MTEC | Y2-5 | Plan and Standard Operating Procedures (SOP) produced | Internal human resources |
| 1.3.7 | Investment promotion and concessions policy, protecting OUVs | Joint | EKZNW & MTEC | Y2 | Policy drafted Endorsement from UNESCO Board approval | Funding for external financial consultant |
| 1.4 | Develop tourism guidelines | | | | | |
| 1.4.1 | Develop one vision, mission, and objectives for the Park | Joint | EKZNW, MTEC, and stakeholders | Y1 2018 (10 years) | Prospectus produced UNESCO endorsement Board approval | Internal and external human resources |
| 1.4.2 | WHS product development guidelines (Park and buffer zone) | Joint | EKZNW & MTEC | Y1 | Guidelines document | Funding for external consultant Funding for consultation |
| 1.4.3 | Responsible tourism guidelines (including community involvement through concessions and supply chains) | Lesotho | MTEC & LTDC | Y2-5 | Guidelines document | Internal human resources Funding for consultation |
| 1.4.4 | Implement 'Leave no trace' guidelines | Joint | EKZNW & MTEC | Y2-5 | Communication product (e.g. brochure) | Internal funds allocated for printing |

| No. | Action | Who (joint or national) | Stakeholders / Champion | Timeframe | Success Indicators | Resources |
|---|---|-------------------------------|--|----------------------------|---|---|
| | | | | | Guidelines distributed | |
| 1.4.5 | Code of conduct for tour operators | Joint | EKZNW, MTEC & stakeholders | Y2-5 | Code document | Internal human resources Funding for consultation |
| 1.4.6 | MOUs between Park & business operators (Tour operators, tourism associations and other businesses) | Joint | EKZNW & MTEC | Y2-5 | MOUs signed | Internal human resources |
| 1.5 | Integrate monitoring and evaluation | | | | | |
| 1.5.1 | Monitor compliance with guidelines and plans, including the Visitor Management Plan | Joint | EKZNW & MTEC | Y2-10 | Annual data and evaluation report | Internal human resources |
| 1.5.2 | N&S for collection of visitor data developed and implemented | | | | | |
| Strategic Priority 2: To collaborate and partner with the local communities, the region, the First Peoples, and the tourism sector to ensure their empowerment and that they benefit from responsible tourism in the World Heritage Site | | | | | | |
| 2.1 | Build capacity of local community members to empower and uplift them | | | | | |
| 2.1.1 | Improve stakeholder engagement through community meetings with existing committees | Joint | EKZNW, MTEC & Non-Profit Company (NPC) | Y1, ongoing | Number of meetings Number of communities and their members participating | Internal and external human resources Funding for meetings |
| 2.1.2 | Develop community based tourism plans to foster ownership | Joint | EKZNW, MTEC & NPC | Y1, following consultation | Community based tourism strategy | Internal and external human resources |
| 2.1.3 | Provide training and ongoing technical support for local communities (i.e. in vocational tourism; product development) to develop responsible tourism products that promote and protect cultural values | Joint (South Africa to start) | EKZNW, MTEC, Arts Council, SETA, DAC (RSA) & NPC | Y1, ongoing | Number of skilled community members Number of operational viable community tourism enterprises Tourism enterprise turnover from financial statements Report of the flow of benefits to community members | Human resources: Trainers Funding for training |

| No. | Action | Who (joint or national) | Stakeholders / Champion | Timeframe | Success Indicators | Resources |
|------------|---|-------------------------|---|-------------|---|--|
| 2.1.4 | Investigate the need and viability for creation of a MDP Centre of Excellence for skills transfer and mentorship of local communities and the First Peoples (proposed in Kamberg) | South Africa | EKZNW, MTEC, Arts Council, SETA, DAC (RSA) & NPC | Y1-3 | Skills transfer and mentorship centre operational | Human resources: Trainers & Centre management Funding for Centre |
| 2.1.5 | Train people from both countries together to promote learning exchange between RSA and Lesotho | South Africa | EKZNW & MTEC. Arts Council, SETA, DAC (RSA) & NPC | Y1, ongoing | Number of trainees from Lesotho and South Africa | Human Resources: Trainers Funding for training Institutional arrangements for exchange |
| 2.1.6 | Design and develop a community outreach program through schools (including evaluation of Community Based Organisations (CBOs) who could conduct outreach) | Joint | EKZNW & MTEC | Y1 | Plan for outreach program documented Reduced incidence of illegal activities Community cooperation e.g. informants, Neighbour Relations Liaison Committee (NRLC) Number of schools | Human resources for outreach program design and implementation Funding (staff allowances) |
| 2.1.7 | Establish/build capacity of CBOs to conduct outreach | Joint | EKZNW & MTEC | Y1, ongoing | Number of CBOs undertaking outreach | Human resources to train CBOs |
| 2.1.8 | Conduct awareness and education programmes for the communities and schools to minimise illegal activities within the Park and raise awareness of the OUV and importance of rock art, and the importance of welcoming and looking after tourists | Joint | EKZNW & MTEC | Y1, ongoing | Number of awareness raising meetings Number of education programs | Human resources for outreach program design and implementation Funding (staff allowances) |
| 2.2 | Enable controlled traditional access to ancestral sacred grounds and other resources | | | | | |
| 2.2.1 | Establish a permit system for cross border access | Joint | EKZNW, MTEC, CCF (LSO) & | Y1, ongoing | Permit system in place Number of permits issued | Internal human resources and enforcement |

| No. | Action | Who (joint or national) | Stakeholders / Champion | Timeframe | Success Indicators | Resources |
|------------|--|-------------------------------|-------------------------------|-------------------------|---|--|
| | | | Ministry of Forestry (LSO) | | Number of entries with and without permits | |
| 2.2.2 | Guidance on restrictions of certain types of harvesting and use of ancestral sacred grounds | South Africa | EKZNW | Y1 | Guidance document Reduced incidents of illegal harvesting of medicinal plants Number of incursions | Internal human resources and enforcement |
| 2.3 | Enhance local economic benefits | | | | | |
| 2.3.1 | Undertake a value chain analysis and diagnostic | Joint | EKZNW, MTEC & NPC () | Y1 | Comprehensive value chain diagnostic Opportunities identified for community based value chains | Funding for expert to conduct analysis |
| 2.3.2 | Strengthen value chain linkages | Joint | EKZNW & MTEC & NPC | Y1 start but ongoing | Community based Enterprises (CBE) established Number of commercial linkages formed between CBEs and Park/tourism sector | Funding for CBE support and linkage brokerage |
| 2.3.3 | Design and establish a Community Trust Fund (CTF) | Joint | EKZNW, MTEC & NPC) | Y1, ongoing | Feasibility study and business plan for CTF Trust Fund developed and fully and endowed Operational plan for CTF | Funding to conduct feasibility study and business plan Institutional arrangements for financing (e.g. gate entrance fees etc.) |
| 2.3.4 | Design and establish a mechanism to ensure benefits accrue to the First Peoples | Joint | EKZNW, MTEC & NPC (TBD) | Y1, ongoing | Mechanism for First Peoples established | Internal and external human resources |
| 2.3.5 | Develop community medicinal plant gardens | Joint | EKZNW & MTEC | Y1, ongoing | Number of medicinal plant gardens outside the park | Training to manage botanical gardens |

| No. | Action | Who (joint or national) | Stakeholders / Champion | Timeframe | Success Indicators | Resources |
|--|--|-------------------------------|---|-----------------------------------|---|---|
| Strategic Priority 3: Educate and communicate the Outstanding Universal Value of the Maloti-Drakensberg Park World Heritage Site local and around the world to grow understanding, widen appreciation and drive responsible tourism | | | | | | |
| 3.1 | Branding | | | | | |
| 3.1.1 | Collaboratively develop and agree upon the Park's brand identity (logo) and register the brand and its icons to protect this intellectual property | Joint | MTEC, LTDC, EKZNW, KZNTA & stakeholders | Y12018 | Registered Brand Brand Identity Manual | Internal and external human resources Funding (catering, allowances, salaries, design studio fees, etc.) |
| 3.1.2 | Produce a Park identity document that can be used for support and funding | Joint | EKZNW, MTEC & stakeholders | Y1 2019 | Prospectus produced | Internal and external human resources Funding (catering, allowances, salaries, design, printing and consultant fees, etc.) |
| 3.2 | Marketing and promotion | | | | | |
| 3.2.1 | Formulate a marketing strategy in line with the MDP and UNESCO goals and objectives: Promoting OUV, history, culture, community benefits and eco-cultural destination Implement strategy in line with the MDP and UNESCO goals and objectives: Promoting OUV, history, culture, community benefits and eco-cultural destination | Joint | EKZNW, MTEC, NPC and private entities within and around the Park, tourism information centres | Y2: Feb 2018 – Feb 2028 | Marketing strategy and plan UNESCO endorsement Increased occupancy levels / visitor numbers | Internal and external human resources for strategy development Funding for promotion and campaign activities |
| 3.2.2 | Engage with the tourism sector responsible for managing information centres to implement the marketing strategy | Joint | LTDC, MTEC & KZNTA | Y1-10 on going | Number of information centres implementing the strategy Increased occupancy levels / visitor numbers | Funding for promotional material |
| 3.2.3 | Create an electronic gateway platform for private sector to sell their products associated with the MDP WHS (e.g. website; booking platform, smart phone app) Improve content and use of EKZNW web site | Joint | LTDC, MTEC, EKZNW, NPC TBD private entities & tourism information centres | Establish by Y2. Operate Y2 – Y10 | Website & booking platform operational Smart phone app operational | Internal and external human resources (specific training for sellers) |

| No. | Action | Who (joint or national) | Stakeholders / Champion | Timeframe | Success Indicators | Resources |
|---|---|--|--|-----------------------------------|--|---|
| | | | | | Number of visits to website/booking platform Number of app downloads Increase sales of products | Funding for website development and promotional activities |
| 3.3 | Communication | | | | | |
| 3.3.1 | Develop communication plan/strategy and produce communication media to create awareness of the Park, its brand and its OUV (include truth about conditions e.g. “be careful, this is Africa, there are potholes”) | Joint | EKZNW, LTDC & MTEC | Y1: Plan Y2 – Y10 implement | Strategy and plan produced Compliance with plan Increased awareness of the Park | Funding for consultant (for the plan/strategy) Internal human resources including communication officer Funding for awareness campaigns |
| 3.3.2 | Create and enhance interpretation centres in both countries / coordination of events | Joint: Creation in Lesotho; Enhance in South Africa Enhance: Lesotho Create: SA | EKZNW & MTEC | Y2 open Operate Y3- 10 | Interpretation Centres: Sani Pass; Giant's Castle Statistics report | Human resources Trainings/equipment Funding (staff allowances) (option from UNESCO) Exhibiting material |
| 3.3.3 | Research the flow of benefits to stakeholders derived from sustainable tourism in the Park. Communicate the flow of benefits to stakeholders derived from sustainable tourism in the Park | Joint | EKZNW, LTDC MTEC & NPC TBD | Y2 – Y10 | Meeting /forums Electronic newsletter | Funding for material Human resources trained in ICT |
| Strategic Priority 4: Develop a world class product and experiences within Maloti-Drakensberg Park World Heritage Site destination that are based upon the Outstanding Universal Value and local values. | | | | | | |
| 4.1 | Development planning | | | | | |
| 4.1.1 | Develop a plan for all types of tourism product that will protect the MDP's OUV | Joint | EKZNW, MTEC, NDT, Amafa, LTDC, PSEDEP, N3TC, MDTP, NPC TBD, WCT, LHHA, SETA, | Y1 | Development plan | Funding for consultant and consultation to draw up development plan |

| No. | Action | Who (joint or national) | Stakeholders / Champion | Timeframe | Success Indicators | Resources |
|------------|--|-------------------------------|--|-------------------|--|---|
| | | | FEDHASA, Responsible Tourism Foundation (RTF), PPF, Earthwatch & EDTEA) | | | |
| 4.2 | Tourism product development | | | | | |
| 4.2.1 | Needs analysis and market segmentation, and Willingness to Pay study | Joint | MTEC, DEDTEA, EKZNW, MDPT UNESCO, CCF, LTA & Universities | Y1-5 On-going | Market segmentation report Needs analysis report Database on needs assessment | Funding for studies and database development Internal and external human resources |
| 4.2.2 | Attract and promote investment to address needs/market by producing investment portfolios/proposals | Joint | LTDC, DEDTEA, KZN Treasurer (KZNT), WWF, WCT, PSC, GoL, tourism private sector, FEDHASA Boundless Southern Africa & NPC TBD | Y1 On-going | Investment portfolios produced for specified products Tender process conducted Number of concessions agreed Value of investment realised | Funding Human resources |
| 4.2.3 | Facilitate and manage the development of appropriate responsible tourism products in the park that support the Park's OUV and UNESCO dictums | Joint | EKZNW, MTEC, NPC TBD, CCF, RTF, N3TC, WCT, private entities associated with the Park, NGOs & UNESCO | Y1-10 On-going | Investment portfolios specifying responsible tourism products needed Increased diversity and number of responsible tourism activities Sustained Park's OUV | Human resources Funding (staff allowances) |
| 4.2.4 | Develop cross border pilgrimage heritage route | Joint | EKZNW, MTEC, NPC TBD, Department of Public Works (DPW), MDTP, LTA, Amafa | Y1-10 | Feasibility study and terms of reference for route Established pilgrimage/ heritage route | Internal and external human resources for feasibility study |

| No. | Action | Who (joint or national) | Stakeholders / Champion | Timeframe | Success Indicators | Resources |
|------------|---|-------------------------------|--|---|---|---|
| | | | | | | Funding (staff allowances, design and development of route) |
| 4.3 | Provide support infrastructure | | | | | |
| 4.3.1 | Undertake/complete basic infrastructure requirement plans | Joint | EKZNW, MTEC MDTP & NPC TBD | Y1-2 | Infrastructure Needs Report | Funding for infrastructure consultant |
| 4.3.2 | Ensure availability, maintenance and efficiency of infrastructure (e.g. access roads, electricity, communications) | Joint | EKZNW, MTEC Departments of Transport, Energy and Communications | Y1-10 On-going | Improved infrastructure, energy and water efficiency measures | Funding for maintenance Human resources (maintenance) Funding for equipment and materials |
| 4.3.3 | Improve access to and within the destination (e.g. investigate road access between Bushman's Nek and Sehlabathebe; border post; internal hiking trails) | Joint | EKZNW, MTEC, WWF, CCF, Department of Home Affairs (DHA) and DPW | Y1-10: Bushman's Nek – Sehlabathebe Y1-5: internal hiking trails | Km of roads maintained Km of hiking trails maintained | Funding for infrastructure improvements |
| 4.3.4 | Feasibility study for official MDP physical gateway facility | South Africa | NPC TBD | Y2 | Feasibility study report including business plan | Funding for consultant |
| 4.3.5 | Development and operation of an official MDP physical gateway facility (if 4.3.4's outputs recommend establishment) | South Africa | NPC TBD | Y3-10 | Physical gateway constructed and operational Number of visitors to the gateway also visiting the MDP | Funding for the design, development, staffing and operations of the facility. |
| 4.3.6 | Improve basic infrastructure for the whole Park following the EKZNW <i>Building in the Berg - Principles and Guidelines</i> and install signage and entrance features to create a unique identity for the units within the Park (accommodation, access roads) | Joint | EKZNW, MTEC, NPC TBD & private entities associated with the Park | Y5-10, on-going | Number of infrastructure facilities enhanced in line with infrastructure needs report (4.3.1) Number of standardised signs installed | Funding for infrastructure improvements and signage |

| No. | Action | Who (joint or national) | Stakeholders / Champion | Timeframe | Success Indicators | Resources |
|------------|---|-------------------------------|---|--------------------|--|----------------------|
| | | | | | Number of entrance features installed | |
| 4.4 | Ensure high product quality | | | | | |
| 4.4.1 | Create and upgrade accommodation facilities (star graded) | Joint | EKZNW, MTEC, LTDC, partnerships with private sector, Tourism Grading Council of South Africa (TGCSA) | Y1-10 on- going | More star graded facilities created Increased revenue by tourism enterprises Increased number of tourists staying at upmarket facilities Value of increased investment | Funding for upgrades |

12 STATEMENT OF COLLECTIVE COMMITMENT

We, the Kingdom of Lesotho and the Republic of South Africa, as State Parties to the MDP WHS, commit ourselves fully to the implementation of this Sustainable Tourism Strategy. We acknowledge the fact that we would not be able to deliver on this strategy alone, hence our further commitment to work in total collaboration with our local communities and all the public and private partners including civil society and international cooperating partners. . As a result we have identified eco-tourism as a key strategy to unlock the treasures of the Maloti Drakensberg mountain region and promote the development of sustainable community tourism, thus contributing to the livelihoods of the people who are ultimately the custodians of this majestic mountain region. Our vision is to promote and develop this mountain region into a premier alpine tourist destination in southern Africa.

13 SIGNATURES

| | Name | Signature | Date |
|--|-------|-----------|-------|
| Chief Executive Officer Ezemvelo KZN Wildlife | | | |
| Principal Secretary | | | |



Maloti-Drakensberg Park: Statement of Outstanding Universal Value

Brief Synthesis

The Maloti-Drakensberg Park World Heritage site is a transnational property spanning the border between the Kingdom of Lesotho and the Republic of South Africa. The property comprises Sehlabathebe National Park (6,500ha) in Lesotho and uKhahlamba Drakensberg Park (242,813 ha) in South Africa. Maloti-Drakensberg Park World Heritage site is renowned for its spectacular natural landscape, importance as a haven for many threatened and endemic species, and for its wealth of rock paintings made by the San people over a period of 4000 years. The property covers an area of 249,313 ha making it the largest protected area complex along the Great Escarpment of southern Africa.

The Maloti Drakensberg range of mountains constitutes the principal water production area in southern Africa. The areas along the international border between the two countries create a drainage divide on the escarpment that forms the watershed for two of southern Africa's largest drainage basins. uThukela River from uKhahlamba Drakensberg Park flows eastwards into the Indian Ocean. The rivers of southern Maloti Drakensberg including Sehlabathebe National Park drain into the Senqu/Orange River which flows westwards into the Atlantic Ocean, and extension of the uKhahlamba Drakensberg Park World Heritage Site to include Sehlabathebe National Park (SNP) will add special hydrologic qualities to the area.

With its pristine steep-sided river valleys and rocky gorges, the property has numerous caves and rock shelters containing an estimated 690 rock art sites, and the number of individual images in those sites probably exceeds 35,000. The images depict animals and human beings, and represent the spiritual life of the San people, representing an exceptionally coherent tradition that embodies their beliefs and cosmology over several millennia. There are also paintings done during the nineteenth and twentieth centuries, attributable to Bantu speaking people.

Extending along most of KwaZulu-Natal's south-western border with Lesotho, the property provides a vital refuge for more than 250 endemic plant species and their associated fauna. It also holds almost all of the remaining subalpine and alpine vegetation in KwaZulu-Natal province, including extensive high altitude wetlands above 2,750m and is a Ramsar site. The Park has been identified as an Important Bird Area, and forms a critical part of the Lesotho Highlands Endemic Bird Area.

Criterion (i): *The rock art of the Maloti-Drakensberg Park is the largest and most concentrated group of rock paintings in Africa south of the Sahara and is outstanding both in quality and diversity of subject.*

Criterion (iii): *The San people lived in the mountainous Maloti Drakensberg area for more than four millennia, leaving behind them a corpus of outstanding rock art, providing a unique testimony which throws much light on their way of life and their beliefs.*

Criterion (vii): *The site has exceptional natural beauty with soaring basaltic buttresses, incisive dramatic cutbacks and golden sandstone ramparts. Rolling high altitude grasslands, the pristine steep-sided river valleys and rocky gorges also contribute to the beauty of the site.*

Criterion (x): *The property contains significant natural habitats for in situ conservation of biological diversity. It has outstanding species richness, particularly of plants. It is recognized as*

a Global Centre of Plant Diversity and endemism, and occurs within its own floristic region – the Drakensberg Alpine Region of southern Africa. It is also within a globally important endemic bird area and is notable for the occurrence of a number of globally threatened species, such as the Yellow-breasted Pipit. The diversity of habitats is outstanding, ranging across alpine plateaux, steep rocky slopes and river valleys. These habitats protect a high level of endemic and threatened species.

Integrity

The uKhahlamba Drakensberg Park, composed of 12 protected areas established between 1903 and 1973 has a long history of effective conservation management. Covering 242,813 ha in area, it is large enough to survive as a natural area and to maintain natural values. It includes four proclaimed Wilderness areas almost 50% of the Park, while largely unaffected by human development, the property remains vulnerable to external land uses including agriculture, plantation forestry and ecotourism, although agreements between Ezemvelo KZN Wildlife and local stakeholders have been implemented to manage these threats.

Invasive species, fire, infrastructural developments, soil erosion, tourist impacts on vulnerable alpine trails, and poaching also threaten the integrity of the site. The lack of buffer protection of the mountain ecosystem over the border in Lesotho exacerbates these threats.

Boundary issues highlighted at time of inscription included the gap belonging to the amaNgwane and amaZizi Traditional Council between the northern and much larger southern section of the Park. There are existing planning mechanisms that restrict development above the 1,650m contour to maintain ecological integrity. Processes are underway to develop a cooperative agreement between the Ingonyama Trust Board, amaNgwane and amaZizi Traditional Councils and Ezemvelo KZN Wildlife. Extending conservation areas by agreements with privately-owned land along the escarpment to the south of the property was also recommended. Finally an important step to strengthening integrity has been the development of the Maloti Drakensberg Transfrontier Conservation and Development Area (MDTFCA), which has recognised the importance of a Transboundary Peace Park linking the Sehlabathebe National Park in Lesotho with uKhahlamba Drakensberg Park. The MDTFCA Coordinating Committees in both South Africa and Lesotho are cooperating in planning processes. The Sehlabathebe National Park (6,500ha) has been protected since 1970 as a wildlife sanctuary and a national park, and gazetted in 2001 to enhance protection of the biodiversity and scenic qualities of the property. The extension to include SNP has enhanced protection of the biodiversity and cultural values of the property.

The property contains the main corpus of rock art related to the San in this area. A comparatively high concentration of rock art sites seems present in the western buffer zone in Lesotho and future surveys of these should be undertaken to judge their potential contribution to the Outstanding Universal Value. Although the area has changed relatively little since the caves were inhabited, management practices, such as, the removal of trees (which formerly sheltered the paintings) and the smoke from burning grass both have the capacity to impact adversely on the fragile images of the rock shelters, as does unregulated public access.

Authenticity

The synthesis of rock art sites and their natural setting in Maloti-Drakensberg Park convey a very strong sense of authenticity in setting, location and atmosphere but also material, substance and workmanship. It should be noted as a positive factor that in large parts of the property no systematic conservation or consolidation treatment has been attempted, which has

left the rock art sites perhaps more fragile but with the utmost possible degree of authenticity. The sites remain closely integrated with their surrounding landscape and credibly convey the narratives of San life and activity in respect to the harsh climatic conditions of the area and necessary exploitation of natural resources and shelter. This San rock art tradition does not terminate at the end of the Late Stone Age but continues, and is expressed at sites associated with both Khoi and Iron Age Peoples. Potential influences of UV rays and weathering on the images could lead to fading of colors and reduce the clarity of image content, which in turn - could lessen their ability to display their meaning. It is important that explanatory materials assist the interpretation of the image content as understood by the San people.

Protection and Management Requirements

Management of the Park is guided by an Integrated Management Plan with subsidiary plans, and is undertaken in accordance with the World Heritage Convention Act, 1999 (South Africa, Act No. 49 of 1999); National Heritage Resources Act, 1999 (South Africa, Act 25 of 1999); National Environmental Management: Protected Areas Act, 2003 (South Africa, Act 57 of 2003); National Environmental Management Biodiversity Act, 2004 (South Africa, Act No 10 of 2004); KwaZulu-Natal Nature Conservation Management Amendment Act (South Africa, No 5 of 1999); the Game Preservation Proclamation (Lesotho, No. 55 of 1951); the Historical Monuments, Relics, Fauna and Flora Act (Lesotho, No. 41 of 1967); the National Heritage Resources Act 2011 and Environment Act (Lesotho, No. 10 of 2008); World Heritage Convention Operational Guidelines; Environment policies in Lesotho and Ezemvelo KZN Wildlife policies. In terms of these legislation, all development within the property or within its buffer zone is subjected to an Environmental Impact Assessment and Heritage Impact Assessments respectively, which consider the Outstanding Universal Value of the property. In addition all World Heritage sites are recognized as protected areas, meaning that mining or prospecting will be completely prohibited from taking place within the property or the proclaimed buffer zone. Furthermore, any unsuitable development with a potential negative impact on the property will not be permitted by the South African and Lesotho Ministers responsible for Environment and Culture.

Invasive species and fire are major management challenges. This poses a threat to the ecological integrity of the Park as well as to the yield of water from its wetlands and river systems. The interaction between the management of invasive species and the management of fire should also be carefully considered, taking into account the effects of fire on fire-sensitive fauna such as endemic frogs. Management of fire and invasive species is being addressed jointly by Lesotho and South Africa, ideally within the framework established for transboundary protected area cooperation.

There is a need to ensure an equitable balance between the management of nature and culture through incorporating adequate cultural heritage expertise into the management of the Park and providing the responsible cultural heritage authorities with adequate budgets for the inventory, conservation and monitoring tasks. This shall ensure that all land management processes respect the paintings, that satisfactory natural shelter is provided to the rock art sites, that monitoring of the rock art images is conducted on a regular basis by appropriately qualified conservators, and that access to the paintings is adequately regulated. Furthermore, there is a need to ensure that Heritage Impact Assessments are undertaken in conjunction with Environmental Impact Assessments for any proposed development affecting the setting within the property.

**Cultural Heritage
Management Plan
for the Maloti-Drakensberg Park World Heritage Site**



Citation

Cultural Heritage Working Group- Maloti Drakensberg Transfronteir Programme: Cultural Heritage Management Plan for the Maloti-Drakensberg Park World Heritage Site. Version 1.0, MDTP, Pietermaritzburg

Approval

The Cultural Heritage Management Plan for Maloti-Drakensberg Park World Heritage Site is approved for implementation from the last date of signature below:

Republic of South Africa

| TITLE | NAME | SIGNATURE AND DATE |
|--|------|--------------------|
| | | |
| Chief Executive Officer: Ezemvelo KwaZulu-Natal Wildlife | | |
| Chief Executive Officer: Amafa aKwaZulu-Natali | | |

Kingdom of Lesotho

| TITLE | NAME | SIGNATURE AND DATE |
|---|------|--------------------|
| THE PRINCIPAL SECRETARY: MINISTRY OF TOURISM, ENVIRONMENT AND CULTURE (MTEC) | | |
| THE DIRECTOR: DEPARTMENT OF CULTURE MTEC | | |

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Inorder to communicate the meaning of rock art and related sites at snp, mtec has commissioned a service provider to carry out research, develop some designs and install exhibitions in the enviro centre and site museum. in addition, the provider would be required to develop appropriate interpretive signage and various related elements for effective interpretation of the site, and complementing the existing interpretation. Exhibition installation has not been completed.34

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NO REMOVAL OF MEDICINAL PLANTS WILL BE PERMITTED FOR ANY PURPOSE, INCLUDING CULTURAL PURPOSES. HOWEVER, PROPAGATIVE MATERIALS WILL BE MADE AVAILABLE FOR LEGITIMATE MEDICINAL PLANT NURSERIES ON REQUEST. ROCK ART MANAGEMENT OBJECTIVES 36

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The 249, 31 ha Maloti-Drakensberg Park World Heritage Site, stretching from Royal Natal in the north to Sehlabathebe in the south, was declared a mixed World Heritage site on June 2013, Phnom Pehn in Cambodia.

While there is evidence of Early Stone Age and Middle Stone Age archaeology within the Park, it is mainly the activities of Late Stone Age communities that have contributed to its nomination as a World Heritage Site on cultural criteria. Archaeological excavations indicate that humans occupied the Maloti Drakensberg region over a period of 20 000 years up until the Colonial times. The oldest dates obtained from excavations focusing on the Stone Age for the Southern Drakensberg are around 8 000 years before present (Good Hope Shelter Cave); and 5 000 years before present for the Northern Berg. The legacy of rock paintings by early Bushman hunter-gatherers lent considerable weight to the Park's bid for World Heritage status. Rock art embodies a scarce and non-renewable heritage. It is material evidence of the spiritual and aesthetical achievement of the San and it also serves as a medium through which their cultural continuity, change, cosmology and life ways can be communicated to present and future generations. Such a concentration of well-preserved and diverse rock paintings does not exist anywhere else in Africa, studies have recorded approximately 600 painting sites containing about 40 000 images in the Park.

This document has been prepared to address issues regarding the management of heritage sites in the Park. While it is acknowledged that numerous categories of heritage resources exist within the Park, special attention is paid to rock art sites, as these have formed an important component of the nomination to World Heritage status.

The document will be revised as site-specific management plans are added, removed or audited on an annual basis or as specified in the monitoring plan for that specific site.

The Park falls under the direct management of the KwaZulu-Natal Nature Conservation Board and the Lesotho Department of Culture under the Ministry of Tourism, Environment and Culture. As a World Heritage site, all heritage sites within its boundaries are a national responsibility. The responsibility for management of these sites is carried out by Amafa aKwaZulu-Natali, the provincial heritage agency, on an agency basis, for the South Africa Heritage Resources Agency, as mandated by the KwaZulu Natal Heritage Act (Act 4 of 2008) and the South African Heritage Resources Act (Act 25 of 1999) as well as the Lesotho Department of Culture.

NOTE

There are differing opinions regarding the appropriateness of the terms Bushmen, Abathwa or San. This document recognises this, but for ease of use, has elected to make use of the term San, which it does without any implied prejudice. The local San decendant community, located near the Kamberg Management Unit, South Africa, prefers the term Drakensberg Mountain San. This term will be used when specifically referring to them.

Preparation

The Cultural Heritage Management Plan (CHMP) for the Maloti-Drakensberg Park World Heritage Site (MDP WHS) is based on the 2015 UDP CHMP (Amafa: 2015), the draft document prepared for the EKZNW Intergrated Management Plan (EKZNW: 2017) and the Cultural Heritage Management Plan for Sehlabathebe National Park (Challis: 2015, Challis *et al.* 2015) and was prepared, reviewed and submitted to the MDTP Cultural Heritage Working Group, by a multi-disciplinary team consisting of:

Amafa aKwaZulu-Natali, Republic of South Africa

Ezemvelo KwaZulu-Natal Wildlife, Republic of South Africa

Ministry of Tourism, Environment and Culture, Kingdom of Lesotho

Rock Art Research Institute of the University of Witswatersrand

Independent Heritage Practitioners

South African National Parks, Republic of South Africa

Department of Environmental Affairs, Republic of South Africa

Eastern Cape Parks and Tourism Board, Republic of South Africa

Eastern Cape Provincial Heritage Resources Agency

DEFINITIONS

Adaptive re-use: refers to the process of reusing an old site or building for a purpose other than which it was built or designed for.

Alter means to modify or change the structure, appearance or physical properties of the heritage site or object, whether by way of structural or other works by painting plastering or other decorations or any other means.

Amafa means Amafa aKwaZulu-Natali (KwaZulu-Natal Provincial Heritage Agency) established in terms of the KZN Heritages Resources Act 4 of 2008.

Archaeological: The definitions provided in both the National Heritage Resources Act 5 of 1999 (RSA) and the National Heritage Resources Act 2011 (Lesotho) applies.

Conservation or Heritage Conservation in relation to heritage resources, includes preservation, maintenance and sustainable use of a place or objects so as to safeguard their cultural significance.

Cultural heritage in terms of the World Heritage Convention (UNESCO) 1972, means “monuments, architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of Outstanding Universal Value from the point of view of history, art or science, groups of buildings, groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of significance from the point of view of history, art or science, sites, works of man or the combined works of nature and man, and areas including archaeological sites which are of Outstanding Universal Value from the historical, aesthetic, ethnological or anthropological point of view.” For the purpose of this document, living heritage features (such as mountains, pools, rivers, boulders, etc.) and palaeontological features are included under this definition.

Cultural significance means of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance (as defined in NHRA Act No. 25 of 1999).¹ The National Heritage Resources Act of 2011 (Lesotho) defines **Heritage significance** in a similar manner.

Drakensberg means the Drakensberg Mountains as known in South Africa, specifically applicable to the Maloti Drakensberg Transfrontier Conservation and Development Area.

Ezemvelo or Ezemvelo KZN Wildlife means the KwaZulu-Natal Nature Conservation Service established in terms of section 20 of the KwaZulu-Natal Nature Conservation Management Act 9 of 1997.

Heritage Objects (as defined by NHRA Act No 25 of 1999- RSA) means:

- Any archaeological artefact, palaeontological and rare geological specimens and meteorites found in South Africa;
- Antiquities e.g. utensils, coins, weapons, jewellery, seals, pottery etc. that have been in South Africa for more than a 100 years;
- Original fabric removed from South African historical buildings;
- South African items of numismatic (medals and coins) and philatelic interest that have been in South Africa for more than 100 years;
- South African zoological, botanical and geological specimens that have been in South Africa for more than a 100 years.

(as defined by NHRA 2011- Lesotho) means:

- An archaeological object, A palaeontological or rare geological object,
- Meteorites,
- Ethnographic art objects,
- Military objects
- Objects of decorative or fine arts,
- Objects of scientific technological interest,
- Books, records, documents, photographic positives and negatives, film, video material or sound recordings, or
- Any other object that the Minister may declare as a heritage object.

Heritage Resource (as defined by KZN Heritage Resources Act 4 of 2008) means:

- Archaeological artefacts and sites (material remains resulting from human activity which is in a state of disuse and is in or on the land and are older than a 100 years, including artefacts, human and hominid remains and artificial structures and features);
- Living Heritage Sites (includes the cultural tradition, oral history, and performance, ritual, popular memory, skills and techniques, Indigenous Knowledge Systems as well as the artefacts/objects and cultural space/landscape associated therewith – that communities recognize as part of their cultural heritage);
- Rock art (being a form of painting or engraving on a fixed rock surface or a loose stone slab, older than a 100 years, executed by a human agency plus a 50 meters radius surrounding the area);
- Features, structures and artefacts associated with military history, which are older than 75 years and the sites on which they are found;
- Historical buildings or parts thereof older than 60 years;
- Public monuments and memorials;
- Wrecks of any vessel or aircraft and their associated cargo, which are older than 60 years;

¹ Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations [Burra Charter]. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects. Places may have a range of values for different individuals or groups. Cultural significance is a concept which helps in estimating the value of places. The places that are likely to be of significance are those which help an understanding of the past or enrich the present, and which will be of value to future generations [Australia ICOMOS 1988].

- Graves and traditional burial places inside and outside formal graveyards; Landscapes and natural features containing cultural significance;
- Palaeontological and rare geological specimens; and
- Meteorites.

(as defined by the Lesotho NHRA 2011) means: a heritage site and object declared as a heritage site and object under this Act.

Local Community means any community of people living or having rights or interest in a distinct geographical area.

Maloti means the high-lying mountainous areas, covering approximately 70% of Lesotho, and specifically referring to the sensitive alpine region occurring mostly within the MDTFCA.

Management in relation to heritage resources, includes conservation, presentation and improvement of heritage resources.

Outstanding Universal Value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole. The Committee defines the criteria for the inscription of the properties on the World Heritage List. (UNESCO, 1972)

Palaeontological Site means a site containing fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace fossils, and **Palaeontological** refers to any fossilised remains or trace fossils.

Park means the Maloti-Drakensberg Park World Heritage Site.

Stakeholders means interested individuals or groups concerned with or affected by any activity and its consequences.

Wilderness Area means an area designated for the purpose of retaining an intrinsically wild appearance and character, or capable of being restored to such and which is undeveloped and roadless, without permanent improvements or human habitation

World Heritage site means a World Heritage site as defined in the World Heritage Convention Act 49 of 1999.

ABBREVIATIONS

| | |
|---------|---|
| Amafa | Amafa aKwaZulu-Natali (KZN Heritage Agency) |
| APO | Annual Plan of Operations |
| CDP | Concept Development Plan |
| CEO | Chief Executive Officer |
| CHMP | Cultural Heritage Management Plan |
| CURE | 1998 Cultural Resource Management Plan for the uKhahlamba-Drakensberg |
| DEA | Department of Environmental Affairs |
| DoC | Department of Culture of the Ministry of Tourism, Environment and Culture |
| EIA | Environmental Impact Assessment |
| EKZNW | Ezemvelo KwaZulu-Natal Wildlife |
| EMF | Environmental Management Framework |
| EMP | Environmental Management Plan |
| GIS | Geographical Information System |
| HIA | Heritage Impact Assessment |
| ICOMOS | International Council on Monuments and Sites |
| IDP | Integrated Development Plan |
| IMP | Integrated Management Plan |
| IUCN | International Union for the Conservation of Nature |
| MDP WHS | Maloti-Drakensberg Park World Heritage Site |
| MDTP | Maloti-Drakensberg Transfrontier Programme |
| MEC | Member of the Executive Council |
| MOA | Memorandum of Agreement |
| MOU | Memorandum of Understanding |
| MTEC | Ministry of Tourism, Environment and Culture of the Kingdom of Lesotho |
| NEMA | National Environmental Management Act |
| OUV | Outstanding Universal Value |
| PA | Protected Area |
| RABAS | Rock Art and Baseline Archaeological Survey |
| RARI | Rock Art Research Institute, University of the Witwatersrand |
| SAHRA | South African Heritage Resources Agency |
| SNP | Sehlabathebe National Park (Lesotho properties within the MDP WHS). |
| UNESCO | United Nations Educational, Scientific and Cultural Organisation |
| UDP | uKhahlamba-Drakensberg Park (RSA properties within the MDP WHS) |

The MDP WHS is located in the ancient Great Karoo Basin, a large shallow basin that formed the locus for the deposition of continental shelf sediments from over 200 million years ago. This inter-continental basin spanned beyond the present margins of the African subcontinent when Antarctica, Africa, Australia, India, New Zealand and South America formed a super-continent known as Gondwanaland. During the prolonged sedimentation phase, which totalled 7000m in places, climate changed from glacial conditions (Dwyka tillite) through temperate to desert conditions when windblown sand deposits represented the final stage of sedimentation to form the Clarens Formation. The basin sediments formed near horizontal, conformably bedded sedimentary formations. As Gondwanaland began to break up through rifting, extensive basaltic lava outpourings started some 187 million years ago, forming the Drakensberg volcanic group.

The Geomorphology of the Park is varied owing to the considerable geological and climatological differences between the lower altitude sandstone regions and higher altitude basalt outcrops. Substantial climatological contrasts play an important role in establishing site-specific geomorphologic processes. Areas above ca. 2800m host landscape components that are typical to 'alpine' or 'periglacial' environments where cold temperatures, ice and snow are important controlling factors. The steep slopes and deep valleys to the east of the Great Escarpment, combined with a high annual precipitation, produce substantial hydraulic gradients along fluvial channels and on slopes, thus providing for a diverse landscape which hosts a wide assortment of erosional and depositional features. Some features that are no longer actively forming are referred to as 'fossil-', 'relict-' or 'paleo-' landforms. Such landforms may have developed under a different climate than that of today thus reflecting a constantly adjusting landscape. The Park has landforms that are both Holocene (last 10 000 years) and Pleistocene (last 2 million years) in age (Grab 2004).

The mountain range was also known as the Drakensberg some time before the Voortrekkers (Dutch immigrant settlers) settled in KwaZulu-Natal in 1838. The Drakensberg, so called by the Dutch settlers because to them the eastern part of southern Africa's Great Escarpment, resembled the ridges on a dragon's back. The name uKhahlamba was the name originally given to the mountain range by the amaZizi. The amaZizi is the descendants of the first black African group who occupied the foothills of the northern Drakensberg at around 1600 AD. The name refers to a row of upright spears or as is more popularly known – a barrier of spears. Referring to the height of the escarpment rising up to 3 000m or more in places and is referred to as The Maloti in the Kingdom of Lesotho meaning: 'The mountains'. Some Voortrekker legends also recall how a father and son, out on stroll, "saw" a dragon afloat in the misty clouds surrounding the high peaks of the Berg; and even the Zulu believe that the "Inkanyamba", a mythological python-type of creature with a horse-like head and mane lives on top of these mountains and that it can control weather conditions and that especially Berg thunderstorms were ascribed to the actions of this creature. The Basotho hold similar beliefs and, indeed, it is thought that this was something shared between San- Sotho- and Zulu-speakers, and one reason why the San were revered, and employed, as rain-makers. There is an enormous 'rain-animal' painted at site E01 in the SNP, which is very similar to the animal described by the San man Qing in 1873 as a creature of the rain, which San rainmakers would capture in the spirit world, and influence its movements to influence the weather.

Archaeological excavations have shown that humans occupied the Maloti Drakensberg region \pm 20 000 years ago. The oldest dates relating to excavations focusing on the Stone Age in the Southern Drakensberg date back to about 8 000 years before present, 5 000 years before present for the Northern Drakensberg and 3 500 years before present in the Central Drakensberg.

The Park's status, as a World Heritage Site is dependent on the holistic and inclusive protection and management of its resources in order to ensure its integrity. The unique attributes of the Drakensberg Mountain Range include its scenic and picturesque landscapes which generate a sense of place, and also the high biodiversity value of the region as well as its unique heritage resources, specifically referring to San rock art.

The legacy of rock paintings by early San hunter-gatherers lent considerable weight to the Maloti-Drakensberg Park bid for World Heritage status. San rock art represents a masterpiece of human creative genius and it also bears a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared (UNESCO criteria for World Heritage Site Nomination). Rock art embodies a scarce and non-renewable heritage. It is material evidence of the spiritual and aesthetic achievements of the San and it also serves as a medium through which their cultural continuity, change, cosmology and their life ways can be communicated to present and future generations. Some researchers are of the opinion that nowhere is there such a collection of well-preserved and diverse rock paintings anywhere else in Africa, especially in the area sub-Saharan Africa (Prins, F. pers. comm. 2007). Studies have recorded over 750 painting sites containing in excess of 24 000 individual images in the Park. There are 661 sites on the South African component of the World Heritage Site (ACT pers comm 2016) and 93 sites in the SNP. Within the MDP WHS lies the Cathedral Peak area that in itself contains some of the largest concentrations of rock art in Africa. Here 17 sites, containing 3909 individual images, are found in an area of only 5,5km long (Mazel et al. 1999).

No clear answer was found, after consultations with colleagues from Lesotho, historians and stakeholders, on the origin/meaning of the word "maloti". It seems that the name simply refers to the mountains in the highlands of Lesotho.

1.1 Origins of the Park

Names of individual proclamations of land by the Natal Colonial Government, Natal Provincial Administration and Department of Forestry since 1903 were generally based on or linked to farm names or individual geographical features. Some confusion has always existed for Natal National Park, later renamed Royal Natal National Park, which was proclaimed under provincial legislation prior to the establishment of the National Parks Act, i.e. despite the name it was never a national park in the true sense of the word..

When the State Forests were transferred to the Natal Parks Board in 1993 the consolidated area was named, but not proclaimed, as the Natal Drakensberg Park.

The 24th session of the World Heritage Committee in December 2000 listed the park as the "uKhahlamba/Drakensberg Park".

Seven years later on 18 December 2007 in Notice 1199 in Government Gazette 30950 the park was proclaimed under section 1(xxiv)(a) of the World Heritage Convention Act as the "uKhahlamba Drakensberg Park".

The 37th session of the World Heritage Committee in June 2013 approved the inclusion of the Sehlabathebe National Park in Lesotho as an extension of the uKhahlamba / Drakensberg Park into a "transboundary World Heritage site". The name of the site as listed by UNESCO was as a result changed to "Maloti-Drakensberg Park".

Etymologically considered, the name 'Sehlabathebe' comes from the two words: 'sehlaba' and 'thebe'. Thus literally taken the name, 'Sehlabathebe' may mean either a shield-like plateau (Sehlaba se kang thebe) or one who pierces another's shield (Ea hlabang thebe). Historically, this name is said to have been the name of a certain Mosotho man believed to have been the first resident of the place alongside the Bushmen he found there. The name was later on given to the entire place. That is, the place is named after Mr. Sehlabathebe whose clan is said to have been that of Batšoeneng by some of the informants (Machaha Mokharanyane, interview with) Mr. Sehlabathebe settled at the place known as Ha Katela village today (Mapheelle Nkuebe, interview with). The village is named after Katela who is said to have been

the son of Mr. Sehlabathebe. This was the most popular explanation given by almost all the interviewees concerning the origin of the name ‘Sehlabathebe’. The only exception to this was the explanation by one Mr. Mapheelle Nkuebe according to whom the place was given the name ‘Sehlabathebe’ because of an incidence which took place there in which one man pierced another man’s shield (thebe) with a spear in war.

The place called Sehlabathebe National Park today was originally known as Tsoelikane (Balene and ‘Mamokuena Tebese, interview with). Tsoelikane is actually a name of a small meandering river that runs through the Park. The name comes from the verb ‘tsoelikana’ which means to meander—indicating the serpentine course or meandering nature of this river. The name is also a diminutive form of another bigger river called Tsoelike found further down away from the Park. The name ‘Tsoelike’, carries the same meaning of a meandering river. It is not uncommon in Lesotho to find two close rivers or mountains named such that the name of one is a diminutive form of another because of its smaller size compared to the bigger one. That is what lies behind the names of rivers like Senqu and Senqunyane and mountains like Popa and Popanyane.

Before it was turned into a National Park, Tsoelikane was a place of good pastures and plenty of water. This automatically turned it into a place of choice for many pastoralists coming from all over Qacha’s Nek District. Thus people from places as far as Tsoelike, Ha Makoe, Matebeleng and Ha Sekake had their cattle posts (metebo) situated at this place (Balene and ‘Mamokuena Tebese, Mensiki Mabofola, interview with). What made it even more ideal for the pastoralists were its many caves which served as shelters for animals during adverse climatic conditions and were also modified to serve as family houses and shepherds stations (metebo).

Because of the value many pastoralists attached to the place, turning the place into a national park and driving out those who had their cattle posts within it met a fierce opposition from the people. Several public gatherings/forums (lipitso) were held by chiefs and Government officials to explain to the people how a move to turn the place into a national park would benefit them and the place in general. One person who is said to have played a critical role in convincing the Sehlabathebe community to accept the Government proposal was Chief Makotoko Theko (‘Makanetsi Bitsoane, ‘Mataelo Kele, interview with). He skillfully used Basotho’s sense of communal rights as opposed to individual rights and the power of language to persuade the community. The Chief explained to his people that a personal flock (private property) only benefits the owner while turning the place into a place of employment would benefit the community. He helped the people understand that creation of a national park at their place would create a lot of job opportunities for their community.(By Francis C.L. Rakotsoane).

On 7 August 2013 Park management submitted a motivation to the Biodiversity Conservation Operations Committee of Ezemvelo to change the name of the park to “Maloti Drakensberg Park World Heritage Site”.

In Notice 1063 of 2014 in Government Gazette No. 38232 the Minister of Environmental Affairs published the intention to change the name to “Maloti-Drakensberg World Heritage Site”. This process has not been concluded.

The 115 year history of establishment of the park from individual proclamations through to consolidated non-proclaimed and changed proclaimed names has resulted in some confusion in the public. It is important that a coordinated branding process be undertaken to clearly establish the park identity.

1.2 History of Conservation in the MDP WHS

The MDP WHS has a rich conservation history of more than 115 years. Until inclusion of SNP the Park was managed as a consolidated unit, but used to consist of a number of separate protected areas proclaimed between 1903 and 1989 according to the various Forest Acts and Provincial Ordinances applicable at the time.

In 1903 the Natal Colonial Government took preliminary steps to establish the first protected area in the Drakensberg by way of a Government Notice (No. 735 of 29 October 1903), which stated its intention to proclaim a “game reserve on the Crown Land in the vicinity of Giant’s Castle”. The area was declared a “Demarcated Forest” in 1905 but later proclaimed a game reserve in terms of Government Notice No. 356 of 1907, which allowed for the enforcement of the game protection laws. Subsequently, over the years since 1916, there have been twelve proclamations or amending notices which have increased the size of Giant’s Castle. Several Government-owned farms and adjoining Crown Land in the vicinity of Mont-Aux-Sources were to become the nucleus of a second protected area in the Drakensberg. The Natal National Park was formally established by the Natal Provincial Administration on 19 September 1916, and an advisory committee appointed to study the area, control the land and develop its potential. Additional land was added to the Park increasing its original size of 3 294 ha to 8 094 ha and in 1950 the adjoining area was proclaimed Rugged Glen Nature Reserve making the total protected of 8 856 ha. The land added east of the uThukela River, known as Lion Ridge, is leased from the Amazizi Community and was proclaimed as part of the park on 18 December 2007. As a result of the visit by the British Royal family to the Park in 1947, the name was changed to Royal Natal National Park. In terms of the provincial Nature Conservation Ordinance several other nature reserves were proclaimed in the Drakensberg. These were Kamberg Nature Reserve in 1951, Lotheni Nature Reserve in 1953 and Vergelegen Nature Reserve in 1967. Following the establishment of the Natal Parks, Game and Fish Preservation Board (later the Natal Parks Board) in 1947 all of the above protected areas were managed by this organisation until the establishment of the KwaZulu-Natal Nature Conservation Service, known as Ezemvelo KwaZulu-Natal Wildlife. The Game Pass component of Kamberg was never proclaimed under provincial legislation so only received official protection on 18 December 2007 when proclaimed as part of the park.

Concerns regarding the exploitation of indigenous forests were already expressed in reports submitted to the Natal Colonial Government in 1880, 1889 and 1902. In 1927, three areas were demarcated as State Forests and these have been retained as protected areas in successive legislation. These were Cathedral Peak (including Cathkin Forest Reserve), Monk’s Cowl, and Cobham State Forests. This ensured that the high rugged terrain along the face of the escarpment (mostly above 1800 m) remained as Crown Land (unallocated) but areas could be hired out for grazing. A parliamentary resolution in 1934 called for the protection of national mountain catchments in the headwaters of the most important rivers of South Africa for the conservation of water supplies. As a consequence, the then Department of Agriculture and Forestry was given responsibility for the implementation of this resolution, and extensive areas of mountainous land were transferred into its custody.

It was, however, only after World War II in 1948 that the Drakensberg Catchment Reserve (later the Drakensberg Catchment Area) was proclaimed “with a view of the future needs of the country, the mountain slopes should be held by the State in perpetuity, and that this land, being of so little value for farming and the slopes generally very steep, should not be given out either for cultivation or grazing.... In delimitation, the area should embrace the stretch between the Little Berg and Basutoland with one, possibly two, rows of farms below the Little Berg....”. This ensured the protection of these important water-producing areas of South Africa. This national authority later became the Department of Forestry, which was responsible for the management of the Drakensberg Catchment Area for a period of nearly fifty years.

Large parts of the State Forest areas were subsequently proclaimed Wilderness Areas: In 1973 the Mdedelo (27 000 ha) and uMkhomazi (56122 ha) Wilderness Areas were proclaimed as Wilderness Areas in terms of the Forest Act No. 72 Of 1968. They were two of the first three wilderness areas to be so proclaimed in South Africa and Africa. Subsequently, the Mzimkhulu (28 340 ha) and Mlambonja (6 270 ha) Wilderness Areas were proclaimed in 1989, bringing the total area of Wilderness to 117 765 ha. The management policy for Wilderness areas is to retain the wild character of these areas by prohibiting all forms of man-made developments (e.g. roads, buildings) or other signs of modern man. All proclaimed Wilderness Areas were included in the Wilderness Zonation of the Park in 2006; however, other areas with wilderness character were zoned as Wilderness and must be managed to the same standard. This has implications for cultural heritage management and, especially, interpretation.

Mpongweni Cave in the Mzimkhulu Wilderness Area declared as a National Monument in terms of the National Monuments Act (Act No 28 of 1969). The motivation, timed for the opening of the Wilderness Area in 1979, was that it "would emphasise the importance currently placed on the preservation of the Drakensberg rock art and the place that the art plays in providing the particular atmosphere and character of the Drakensberg" (Motivation by Secretary of Forestry dated 23.4.79, NMC file 16/N/A/2). The site is not fenced, but a bronze plaque was erected.

In 1993 all the State Forests in the Drakensberg were handed over from the Department of Water Affairs and Forestry to the Natal Parks Board for management. The consolidated area of 242 813 ha was managed as the Natal Drakensberg Park, but was never proclaimed as one single unit resulting in challenges where provincial legislation was applicable in some areas and national legislation in others. The Park was listed in the Directory of Wetlands of International Importance (Ramsar Site No. 886) on 21 January 1996 for a number of reasons (Bainbridge, 1991).

Up until the 1990s the importance and management of the cultural heritage resources of the area, although well known and documented, was incidental to those of nature conservation and water production. In the late 1990s a shift towards recognising the cultural resources, especially rock art, took place. The renewed focus on the rock art of the park by archaeologists, and a recognition by Natal Parks Board of the value of this resource, coincided with South Africa becoming a signatory to the World Heritage Convention. The RSA government was eager for the listing of South African sites and the heritage resources within the park was recognised as having values that would meet the criteria for listing as a World Heritage site. The process of preparing the nomination dossier was initiated by Roger Porter of Natal Parks Board with support from prominent South African archaeologists. It was fortuitous that a cultural heritage management plan (CURE Version 1) for the park was already developed by this stage by archaeologists from the Natal Museum, and subsequently reviewed by Amafa, in support of the nomination. The good relationship between NPB and Amafa was instrumental in the preparation of various documents relating to the nomination process. This culminated in the successful listing of the site under natural and cultural criteria during the 24th session of the World Heritage Committee in late 2000.

The MDP WHS was proclaimed as a World Heritage site of natural and cultural significance under the World Heritage Convention Act on 18 December 2007 (Government Gazette No. 30590, Notice 1199). The proclamation excluded Sehlabathebe National Park in Lesotho and was then known as the uKhahlamba Drakensberg Park World Heritage Site.

SNP was established in 1970 as a "Wild Life Sanctuary and National Park" according to the provisions of the repealed Game Preservation Proclamation No. 33 of 1951. Creation of wildlife sanctuaries was only ambiguously defined and the proclamation was replaced by the National Parks Act of 1975. The date of effect of the Act has been gazetted as 29 June 1987. However, SNP was only officially and legally established as a National Park in November 2001 (Cohen S., 2008).

In 1997, a declaration recognising the biodiversity, cultural and ecological importance of the Lesotho Highlands and the Drakensberg Mountains was signed by Lesotho and South Africa. Preparatory reports were subsequently produced and funds obtained from the Global Environment Facility (GEF) through the World Bank for initiation of the Maloti-Drakensberg Transfrontier Conservation and Development Project (MDTP). The preparatory phase of the project in 1999 focussed on the area lying above the 2750m contour line along the eastern escarpment also including Bokong and Tšehlanyane reserves in Lesotho. The studies identified a number of important biodiversity areas, particularly along the escarpment, around SNP and between Bokong and Tšehlanyane reserves. The planning was informed by the UNESCO Biosphere Reserve (BR) concept and envisaged an alpine escarpment core area surrounded by a buffer and transition zone with more intensive agricultural activities away from the alpine zone and taking place in the lower lying areas.

In 2001, a Bilateral Memorandum of Understanding (BMoU) which recognised the need for environmental protection and committed Lesotho and South Africa to joint cooperation in order to manage the environmental problems in the Maloti Drakensberg Area was signed. The MoU led to the preparation of a project proposal to create the Maloti-Drakensberg Transfrontier Conservation and Development Area, (MDTFCDA) and subsequent securing of funds to initiate Phase I of the MDTP which was extended to run until December 2009.

One of the strategies for the MDTP was to establish and effectively manage transboundary protected areas. The MDP WHS is a product of fusing SNP in Lesotho, and UDP WHS in South Africa to form a transboundary protected area. Subsequently a process was undertaken to prepare a nomination file for declaration of SNP as an extension of the UDP WHS. The joint property was then inscribed as the MDP WHS in June 2013 by the World Heritage Committee (WHC) at its 37th ordinary sitting in Cambodia. (extracted from MALOTI-DRAKENSBERG PARK WORLD HERITAGE SITE COMPACT SITE STRATEGY by Mr Paul Nkofo, July 2017).

After many years of discussion starting in the late 1990's regarding joint management of the uKhahlamba Drakensberg Park and Sehlabathebe National Park, the 37th session of the World Heritage Committee met in Phnom Penh, Cambodia from 16-27 June 2013 and approved the inclusion of the Sethlabathebe National Park in Lesotho as an extension in to a "transboundary World Heritage site", resulting in the name change from uKhahlamba Drakensberg Park to Maloti-Drakensberg Park World Heritage Site. The inclusion was nominated by the Kingdom of Lesotho as an extension to the existing World Heritage site and was the result of collaboration between the Kingdom of Lesotho and the Republic of South Africa dating from 1997 in the context of the transnational conservation initiative known as the "Maloti Drakensberg Transfrontier Conservation Area" that includes the Maloti Highlands in Lesotho and neighbouring high lying areas of KwaZulu-Natal, Eastern Cape and Free State in South Africa.

2. VISION, MISSION AND CULTURAL HERITAGE OBJECTIVES

The Vision and Mission of the Maloti-Drakensberg Park World Heritage Site, as described in the Joint Management Plan (JMP), provide overarching context for the management of cultural heritage. The JMP for the Park also outlines broad cultural heritage Objectives and some associated Strategic Outcomes.

Vision:

A transnational World Heritage site that protects its Outstanding Universal Value, and is supported by people of the region and beyond.

Mission:

A World Heritage site that maintains the natural and cultural values representative of the mountain grassland landscape, enjoys support from the people of the region and beyond, and contributes significantly to the socio-economic development of the region through eco-cultural tourism, provision of ecosystem services and the provision of sustained benefits to the people.

Cultural Heritage Objectives and Strategic Outcomes:

Park objectives were identified based on management challenges, issues and opportunities. Objectives have then been translated into Strategic Outcomes, which form the basis for the management activities and targets set out in the operational management framework in the management plan. At an MP level these objectives and outcomes are of necessity quite broad; this plan provides more detailed objectives, and, importantly, the approaches and policy framework to achieving these outcomes.-

3. PURPOSE OF THE CULTURAL HERITAGE MANAGEMENT PLAN

The CHMP should meet the requirements of both countries' heritage legislation, and the requirements of UNESCO in terms of the listing of the site, while aligning with the policies of both Ezemvelo KZN Wildlife, Republic of South Africa, and the Ministry of Tourism, Environment and Culture (MTEC), Kingdom of Lesotho, the appointed management authorities. The CHMP should be read in conjunction with, and as a subsidiary document to, the Maloti-Drakensberg Park World Heritage Site Joint Management Plan.

The Purpose of the CHMP is to:

- facilitate achievement of the objectives and strategic outcomes of the park in relation to cultural heritage;
- provide an integrated overview and understanding of the cultural heritage of the Park by drawing together information to present an overall description through time;
- provide an assessment of the significance of cultural heritage sites and the landscape as a whole, and provide a Statement of Significance and grade;
- highlight issues affecting the significance of the site, or which have the potential to affect it in the future;
- provide cultural heritage conservation guidelines and approaches appropriate to the site and its context, ensuring that the significance of the site is retained;
- provide a framework to deepen people's understanding and appreciation of cultural heritage; and
- maximise the educational, scientific and socio-economic value of heritage resources located within the Park and its Buffer Zones in a sustainable manner that does not impact on the integrity or spiritual value of these sites.

The plan is not in itself site and resource specific, but is intended to inform and shape medium and long-term management strategies, including those relating to conservation, access, interpretation, research and business planning.

Detailed site-specific management plans for sites open to the public are attached as Appendices to this document.

4. APPROACH FOLLOWED FOR THE DEVELOPMENT OF THE CULTURAL HERITAGE MANAGEMENT PLAN

This Cultural Heritage Management Plan draws on guidance and content contained in previous management plans for the uKhahlamba Drakensberg Park (known as CURE documents, 1998-2014) the CHMP adopted in 2015 and the Cultural Heritage Management Plan for Sehlabathebe National Park (2015). To ensure that the contents and structure of the plan is in line with international best practice, it also takes guidance from various international documents such as the Burra Charter (ICOMOS Australia 1979, Conservation Plans for Historic Places (Heritage Lottery Fund of the United Kingdom, 2004), The Conservation Plan: A Guide to Preparation of Conservation Plans for Places of European Cultural Significance (Semple Kerr, 2000), The National Trust's Guidance Notes (The National Trust). Other documents perused included the Cultural Heritage Audit for the uKhahlamba/Maloti Drakensberg Transfrontier Conservation and Development Area (1999).

This plan focuses mainly on rock art and living heritage, but also makes statements with regard to, and provides guidelines for, the management of other cultural resources. As a document to be used for quick referencing by a wide range of users, it avoids unnecessary jargon and acronyms.

Extensive archival research has produced a comprehensive list of documents, which includes formal scientific publications, reports and inventories. For the sake of having a complete historical overview of activities related to cultural heritage resources anecdotal reports and surveys are also included. A comprehensive bibliography is maintained by Amafa and Ezemvelo, and a condensed version is attached as Addendum 1. Even though there is no specific bibliography on the Lesotho side, publications are kept in MTEC and other privately owned archives (Morija Museum, National University of Lesotho, David Ambrose).

Consultation has formed an important part in the development of this plan and presiding plans. Numerous stakeholder focus groups were consulted. Stakeholders included: Rock Art Custodians, tour guides, hospitality sector, San representatives, traditional authorities, private land owners, commercial forestry, tertiary academic institutions, and heritage agencies and institutions. Internal and external subject specialists and advisors have provided advice on various aspects of the cultural resources and its management.

5. THE VALUES AND PURPOSE OF THE MDP WHS

The values of a place are those remarkable attributes that exemplify it and are largely the reason that it has been proclaimed as a protected area. The values are important in planning and management, as they are the aspects of the place that must be protected. Outstanding Universal Value² as recognised under the World Heritage Convention means cultural and/or natural significance that are so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole. The purpose of the Park is to protect, present and derive value from these values.

Statement of Outstanding Universal Value

The following is an extract from the statement of significance including the statement of outstanding universal values, authenticity and integrity, as approved by the World Heritage Committee in December 2000:

“The uKhahlamba Drakensberg Park is renowned for its spectacular natural landscape, importance as a haven for many threatened and endemic species, and for its wealth of rock paintings made by the San people over a period of 4000 years. The Park, located in the Drakensberg Mountains, covers an area of 242,813 ha making it the largest protected area along the Great Escarpment of southern Africa.

With its pristine steep-sided river valleys and rocky gorges, the property has numerous caves and rock shelters containing an estimated 600 rock art sites, and the number of individual images in those sites, probably exceeds 35,000. The images depict animals and human beings, and represent the spiritual life of this people, now no longer living in their original homeland. This art represents an exceptionally coherent tradition that embodies the beliefs and cosmology of the San people over several millennia. There are also paintings done during the nineteenth and twentieth centuries, attributable to Bantu speaking people.”

The Park is listed for cultural criteria (i) and (iii):

Criterion (i) represent a masterpiece of human creative genius

The rock art of the Drakensberg is the largest and most concentrated group of rock paintings in Africa south of the Sahara and is outstanding both in quality and diversity of subject.

This criterion applies not only to the work of individual artists represented at rock art sites in the MDP WHS, but also the collective genius of the society that developed the sophisticated symbolism, metaphors and multiple meanings displayed in the art. The site displays outstanding examples of the art tradition, as well as exceptional talent the execution of the paintings. The MDP WHS has a variety of exceptionally well preserved rock art in which details of content and technique can be clearly seen (Deacon 2002).

Criterion (iii) bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared

The San people lived in the mountainous Drakensberg/MalotiMaloti area for more than four millennia a rock shelter near to the SNP in Lesotho has human occupation dating to 83,000 years ago, leaving behind them a corpus of outstanding rock art which throws much light on their way of life and their beliefs.

The MDP WHS has well documented ethnographic and historical evidence to interpret the rock art in relation to the cosmology and beliefs of the San. The art is not seen as the only testimony to the cultural tradition. It formed an integral part of the social fabric at the time it was created and evidence of the activities that inspired the art is present. This places the art in its historical and social context. Sufficient research has been done, and could still be done, to make valid comparisons and connections between living traditions and those that have disappeared over the last century in the region. For example, the presence of entopic patterns and trance postures in the art is a clear indication that the artist experienced altered states of consciousness that that this had a close connection with their artistic tradition (Deacon 2002).

Integrity

The property contains the main corpus of rock art related to the San in this area. Although the area has changed relatively little since the caves were inhabited, management practices, the removal of trees (which formerly sheltered the paintings) and the smoke from burning grass both have the capacity to impact adversely on the fragile images of the rock shelters, as does unregulated public access.

Authenticity

The authenticity of the paintings, and their shelter and cave settings, as a reflection of the beliefs of the San peoples, are without question. The images are however vulnerable to fading that could lessen their ability to display their meaning.

In summary, the Park achieved cultural World Heritage status because:

- The exceptional concentration, quality, diversity of subject, detailed depictions, and spiritual significance of San rock art which is regarded by many to be the finest prehistoric rock art in the world, having a high degree of complexity of meaning, and including some of the last rock art ever painted.
- Living heritage value that includes rituals performed within the Park and ancestral sites that are frequently or regularly visited for such purposes.
- The sense of place that is a result of a symbiotic relationship between a place and the community members exercising their cultural right in that particular place.
- Authenticity that contains the realness of the cultural sites.

² Reference: <http://whc.unesco.org/archive/opguide05-en.pdf>

6. OVERVIEW OF THE CULTURAL HERITAGE OF THE MDP WHS

6.1 Description of the MDP WHS and its Context

Institutional and Administrative Framework for the Management of MDP WHS

The Park was listed as a World Heritage Site by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) on 29 November 2000, and proclaimed as a WHS on 18 December 2007 in terms of the World Heritage Convention Act No. 49 of 1999 (WHCA). The KwaZulu-Natal Nature Conservation Board, established in terms of the KwaZulu-Natal Nature Conservation Management Act No. 9 of 1997, was declared by the Minister of Environmental Affairs and Tourism as the Authority for the uKhahlamba Drakensberg Park World Heritage Site on 11 July 2008 (Gazette No. 31220, Notice No. 741) and re-appointed on 18 July 2014 (Gazette No. 37830, Notice No. 568). Powers and the duties of the Management Authority shall be exercised in terms of sections 13 and 15 of the WHCA, and in compliance with sections 33, 35, 36, 37, 39, 40(1) & (2) and 42. The Board's implementing agency is KwaZulu-Natal Nature Conservation Service generally known as Ezemvelo KZN Wildlife, shortened to Ezemvelo.

The Authority is accountable both to the Member of the Executive Council (MEC) for Economic Development, Tourism and Environmental Affairs, in terms of the KZN Nature Conservation Management Act No. 9 of 1997, and the Minister (Minister of Environmental Affairs), in terms of the World Heritage Convention Act No. 49 of 1999. Given that this could lead to lack of clarity or even conflict, this relationship is clarified and described in a Memorandum of Understanding (MoU).

Key aspects of the MoU are that the Minister, MEC and Board agree that the IMP is the primary document for decision making and resource allocation, and agree not to promote activities or initiatives that may threaten the site. Furthermore, the parties agree to work together in achieving the objectives of the site.

In addition, the MEC will ensure that all provincial departments, parastatals, local government and national departments operating within the province are aware of the WHS values and the roles and responsibilities of the Board, and will endeavour through appropriate interventions and channels to ensure that decisions made by other organs of state in effecting their mandates do not negatively impact on the WHS values, or the powers and responsibilities of the Board.

When the Park was nominated for WHS status, UNESCO noted a mismatch between the management requirements and the expertise of Ezemvelo, which seemed focused largely on biodiversity conservation. "ICOMOS is concerned that the different management plans have not yet been harmonized by means of a master plan. It is very important that the objectives and policies of the Cultural Resource Management Plan are properly integrated with those relating to the natural heritage, so as to avoid any possible conflicts. The staff of the Nature Conservation Service (Ezemvelo) is exclusively related to the natural heritage. ICOMOS strongly recommends that a cultural heritage unit be established within the Service" (UNESCO, 2000, p. 3). Acknowledging this limitation and to prepare for WHS status, a Memorandum of Understanding was signed in 1999 whereby Amafa agreed to provide the necessary capacity for cultural heritage management within the MDP until Ezemvelo had recruited suitably qualified cultural resource management staff.

The sub-directorate Research, Professional Services and Compliance of Amafa is entrusted with the above responsibility. Amafa currently has two staff members dedicated to the management of the rock art sites in the Park. A Senior Heritage Officer is dedicated to the management of the rock art in the Park, while a Rock Art Monitor assists field staff in the physical and practical aspects of rock art management. The Deputy Director: Research, Professional Services and Compliance supervise and manage the Rock Art function and promotes institutional co-operation on all aspects of cultural heritage management aspects of the Park. Amafa's Archaeology and Built Environment Section are also available to provide management and conservation advice for built infrastructure.

The Memorandum of Understanding dated July 2005 spelling out collaboration, mutual support and channels of communication, is in place. In terms of the memorandum the following liaison forums are created.

- Amafa-Ezemvelo Liaison Committee: Dealing with policy issues as well as issues of common concern. The meeting is attended by members of the Executive of both organisations, with a rotating chair.
- The Quarterly Cultural Heritage Management Meeting: Dealing with heritage management issues within the Park. The meeting is attended by Senior Conservation Managers from the Park, the Amafa Deputy Director: Research, Compliance & Professional Services and the Amafa Senior Heritage Officer: Rock Art. Amafa chairs the meeting and minutes are made available to the Amafa-Ezemvelo Liaison Committee. Conservation Managers and other stakeholders are invited to attend the meeting in an observer capacity.

While the MoU between Amafa and EKZNW provides a framework for institutional co-operation, a more structured agreement is required.

Whilst the staff structure of the park was changed to make provision for a cultural heritage manager, the inability of Ezemvelo to appoint cultural heritage staff has resulted in this "temporary" solution being extended. In 2014 Amafa however prepared a 5 year handover plan to further capacitate Ezemvelo in their role as custodians and managers of the cultural resources within the park and positioning Amafa in an advisory role. Part of the purpose of the CHMP is to effect that transition. Given the current financial limitations it is however unlikely that Ezemvelo will be able to secure both the financial and human resources required to be fully competent in this matter; therefore Amafa is set to remain a valuable partner and advisor in the management of cultural heritage.

Amafa operates within the framework of the KZN Heritage Act (Act 4 of 2008) and the South African Heritage Resources Act (Act 25 of 1999).

While adequate measures are in place to manage and monitor rock art, one of the problems of this arrangement is that there are no staff specifically responsible for the tourism development of cultural resources (see Duval and Smith 2012 for an analysis of this problem).

SNP was established in 1970 as a "Wild Life Sanctuary and National Park" according to the provisions of the repealed Game Preservation Proclamation No. 33 of 1951. Creation of wildlife sanctuaries was only ambiguously defined and the proclamation was replaced by the National Parks Act of 1975. The date of effect of the Act has been gazetted as 29 June 1987. However, SNP was only officially and legally established as a National Park in November 2001 (Cohen S., 2008).

In 1997, a declaration recognising the biodiversity, cultural and ecological importance of the Lesotho Highlands and the Drakensberg Mountains was signed by Lesotho and South Africa. Preparatory reports were subsequently produced and funds obtained from the Global Environment Facility (GEF) through the World Bank for initiation of the Maloti-Drakensberg Transfrontier Conservation and Development Project (MDTP). The preparatory phase of the project in 1999 focussed on the area lying above the 2750m contour line along the eastern escarpment also including Bokong and Tšehlanyane reserves in Lesotho. The studies identified a number of important biodiversity areas, particularly along the escarpment, around SNP and between Bokong and Tšehlanyane reserves. The planning was informed by the UNESCO Biosphere Reserve (BR) concept and envisaged an alpine escarpment core area surrounded by a buffer and transition zone with more intensive agricultural activities away from the alpine zone and taking place in the lower lying areas.

In 2001, a Bilateral Memorandum of Understanding (BMoU) which recognised the need for environmental protection and committed Lesotho and South Africa to joint cooperation in order to manage the environmental problems in the Maloti Drakensberg Area was signed. The MoU led to the preparation of a project proposal to create the Maloti-Drakensberg Transfrontier Conservation and Development Area, (MDTFCDA) and subsequent securing of funds to initiate Phase I of the MDTP which was extended to run until December 2009 in Lesotho.

One of the strategies for the MDTP was to establish and effectively manage transboundary protected areas. The MDP WHS is a product of fusing SNP in Lesotho, and UDP WHS in South Africa to form a transboundary protected area. Subsequently a process was undertaken to prepare a nomination file for declaration of SNP as an extension of the UDP WHS. The joint property was then inscribed as the MDP WHS in June 2013 by the World Heritage Committee (WHC) at its 37th ordinary sitting in Cambodia. (extracted from MALOTI-DRAKENSBERG PARK WORLD HERITAGE SITE COMPACT SITE STRATEGY by Mr Paul Nkofo, July 2017).

In Lesotho only two staff members received sustained training throughout management plan writing process. These staff members will be suitable to take the role of Monitor, but only with sufficient further training in techniques of documentation and record-keeping. Additional staff was trained by Amafa in September 2017.

It is suggested that the Ministry increase finances to improve the Park's protection. This is perhaps the most important measure to be taken soonest. Once the Park is secure from poachers, smugglers, stock thieves and villagers grazing their animals, the conservation strategy can at least start with a stable footing. Safeguarding the park will necessarily mean expanding and better-equipping the units of field rangers.

UNESCO's Requirement g) states that there must be allocated a 'specific and adequate annual budget to allow for medium-term planning in conservation, inventorying and monitoring.' This can only be carried out to international standards with the establishment of a permanent Monitoring Team. As mentioned in the preface, this might be implemented by creating jobs (and enhancing existing roles) at three levels:

- SNP patrol staff trained in safeguarding heritage resources (particularly rock art) sites
- Regional MTEC Department of Culture (DoC) officials trained to monitor rock art sites
- National level Senior Heritage Officer(s) for the SNP employed at the new National Museum of Lesotho

The latter would be qualified archaeologists who would travel regularly from Maseru to oversee the conservation strategy and maintain links between SNP staff, MTEC DoC officials and their counterparts on the South African side of the combined World Heritage Site.

The Legislative Basis for the Management of Cultural Heritage in the MDP WHS

Conserving, managing, interpreting and deriving value from the cultural heritage of the park are undertaken within a broad framework of legislation and policies. The following legislation is applicable in South Africa:

National Environmental Management Act No. 107 of 1998

The overarching environmental legislation for South Africa is the National Environmental Management Act No. 107 of 1998. Section 2 of the Act sets out overarching national environmental management principles.

The principles apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and (a) apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the social and economic rights, (b) serve as the general framework within which environmental management and implementation plans must be formulated, and (c) serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in relation to the environment.

The definition of "environment" included cultural heritage, so the whole of NEMA is relevant. However, in the specific context of cultural heritage Section 4(a)(iii) specifies that "the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied." In addition, in the context of education and awareness, Section 2(4)(h) requires "Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means."

Most importantly, Section 2(4)(o) refers to the role of government as trustee of the environment on behalf of the people of South Africa: "The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage." This provides the overarching context for the role of Ezemvelo and Amafa in protecting the site.

The National Environmental Management Act 107 of 1998 Environmental Impact Assessment (EIA) Regulations, require that various activities require environmental authorisation before they may commence. In addition, in terms of Regulation RN.546, Listing Notice No.3, there are a number of activities that require environmental approval specifically as a result of their proximity to a World Heritage Site. The implication of this is that if any of the activities listed in Appendix D are proposed in the Park, or within ten kilometres of it, they will be subject to either a basic assessment or a full scoping and EIA process. A number of general activities and those proposed for either tourism development or operational management within the Park or its buffer areas will thus also require environmental authorisation.

World Heritage Convention Act (WHCA) 49 of 1999

The MDP WHS is a natural and cultural World Heritage Site, subject to the requirements of this Act. Its objectives include:

- a. Ensuring the identification and transmission to future generations of the cultural and natural heritage of the Republic,
- b. Ensuring that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage of the Republic,
- c. Encouraging investment and innovation in connection with the World Heritage sites.
- d. Encouraging job creation in connection with the World Heritage Sites,
- e. Promoting the development of culturally, environmentally and, if applicable, economically sustainable projects in connection with World Heritage Sites, and
- f. Promoting empowerment and advancement of historically disadvantaged persons in projects related to World Heritage sites.

National Environment Management: Protected Areas Act 57 of 2003

The South African component of the MDP WHS was proclaimed on 18 December 2007 in terms of the World Heritage Convention Act No. 49 of 1999 (WHCA). The WHCA and the National Environment Management: Protected Areas Act 57 of 2003 (NEM:PAA) provide the legislative basis for management of the site. The WHCA places into South African law the requirement to manage World Heritage sites in terms of the Operational Guidelines for the Implementation of the World Heritage Convention.

NEM:PAA provides Regulations for the Proper Administration of Special Nature Reserves, National Parks and World Heritage sites (Notice GN R1061 in Government Gazette Number 28181 of 28 October 2005). Key elements of these regulations relevant to cultural heritage management include:

- It is an offence in terms of Section 4(h), (i) and (j) to:
 - intentionally cause pollution, deface cultural heritage resources, harm or cause death to any individual or population of any protected species;
 - significantly alter or change the sense of place or any environmental, cultural or spiritual values; or
 - remove or be in possession of a cultural artefact.
- Section 20(1)(i) specifies that any organised or special event, including sporting or cultural events, requires prior permission from the Management Authority.
- Section 32 specifies that management authority may grant a local community access to part or parts of world heritage site for cultural, spiritual, heritage or religious purposes, as long as this is in line with the management plan of the protected area.
- Section 39(1)(a)(iii) specifies that no person shall, except with the prior written permission of a management authority, remove any fossil, archaeological remains or cultural artefacts.

KZN Heritages Resources Act 4 of 2008

The KZN Heritage Resources Act 4 of 2008 provides for management of cultural heritage in KZN.

The KwaZulu-Natal Heritage Regulations under the KZN Heritages Resources Act 4 of 2008 were gazetted on 15 March 2012 (Extraordinary Provincial Gazette No. 40, 2 April 2012). The regulations outline procedures for:

- Making application to obtain written approval of the Council to demolish, alter or make an addition to a structure which is, or which may reasonably be expected to be older than 60 years, as contemplated in section 33(1) (a) of the Act.
- Obtaining prior written approval from the Council in terms of section 35(1)(b) of the Act to damage, alter, exhume, or remove from its original position or otherwise disturb a grave not located in a formal cemetery.
- Application to Council for the destruction, damage, excavation or alteration of battlefield sites, archaeological sites, rock art sites, palaeontological sites, meteorite or meteorite Impact sites in terms of section 36(1) of the Act.
- Reporting requirements for discovery of archaeological or palaeontological material in terms of section 36(2) and graves in terms of section 52(1)(d) of the Act (all activity or operations in the general vicinity of such material/site must cease and a written report must be sent to the Council within a period of 30 days from the date of making such a discovery).

The National Heritage Resources Act 25 of 1999

In terms of Section 5(1)(a-c) of the National Heritage Resources Act 25 of 1999 all authorities managing heritage resources must recognise the following principles:

- Heritage resources have lasting value in their own right and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival;
- every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interests of all South Africans;
- heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a unifying South African identity.

In terms of Section 5(2)(a-b) the authority has a responsibility to ensure that heritage resources are effectively managed to:

- Develop the the skills and capacities of persons and communities involved in heritage resources management; and
- Make provision for the ongoing education and training of existing and new heritage resources management workers.

In terms of Section 5(2)(5) where heritage resources contribute significantly to research, education and tourism they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.

Section 44(1) requires heritage resources authorities to, wherever appropriate, co-ordinate and promote the presentation and use of places of cultural significance and heritage resources which form part of the national estate and for which they are responsible for public enjoyment, education, research and tourism. This may include the erection of explanatory plaques, interpretive facilities/centres and visitor facilities, as well as the training and provision of guides.

ICOMOS Guidelines on HIA for Cultural World Heritage Properties (2010) are applicable, but all the guidelines are however captured in South African heritage legislation.

KwaZulu-Natal Nature Conservation Management Act No. 9 of 1997

The KwaZulu-Natal Nature Conservation Management Act No. 9 of 1997 provides for management of biodiversity and protected areas in KZN.

Section 4 prescribes that the members of the Board must have an interest in nature conservation and must be drawn from specified categories to achieve, as far as is practical, a balance of interests and expertise within the Board. Section 4(8)(b)(vii) specifically states that one member of the Board must have extensive knowledge of the protection and management of heritage resources.

National Environment Management: Biodiversity Act 10 of 2004

The National Environment Management: Biodiversity Act 10 of 2004 provides for Threatened and Protected Species Regulations which may be applicable in terms of use of species for cultural heritage purposes.

KwaZulu-Natal Planning and Development Act 6 of 2008

The KwaZulu-Natal Planning and Development Act 6 of 2008 provides planning legislation, notably the requirement for all infrastructural development to be approved by the relevant Local Municipality. This Act came into effect on 1st May 2010 and regulates all building and planning activities in municipal areas. As all protected areas now fall within municipal areas, planning permission is now required for all structures that are built within these areas.

There are of course many other pieces of legislation and regulations that govern the management of human resources, health and safety, vehicles and equipment, fire preparedness, financial controls, acquisition of goods and services etc. It is not the intention here to list or explain all of these; however, park managers do need to know the contents and implications of these. Many of the requirements of these laws are however implemented through the development and implementation of organisational policies.

The following legislation applies to Lesotho:

- Historical Monuments, Relics, Fauna and Flora Act (No. 41 of 1967);
- Proclamation of Monuments, Relics, Fauna and Flora (Legal Notice No. 36 of 1969);
- Proclamation of Monuments, Relics, Fauna and Flora (Amendment) Notice (Legal Notice No. 81 of 2006); and
- Environment Act (No. 10 of 2008).

The Historical Monuments, Relics, Fauna and Flora Act of 1967 has now been repealed in many respects and replaced by The National Heritage Resources Act 2011 (Act 2 of 2012) of the Kingdom of Lesotho.

The National Heritage Resources Act 2011 decrees that all national heritage resources are vested in the state.

Under Section 2 of the National Heritage Act 2011: "archaeological" in relation to a heritage site or object, means –

- a) Any remains of materials resulting from human activity which are in a state of disuse and are in or on land and are older than fifty years,
- b) rock art in the form of painting, engraving or other graphic representation on fixed rock surface, or loose rock stone which was executed by human and is older than fifty years old;
- c) features, structures and artefacts associated with military activities and are older than fifty years including the sites on which they are found;

and "intangible cultural heritage" includes any form of expressions, sayings, musically produced tunes, notes, audible lyrics, songs, folklore, oral traditions, poetry, music, dances that may have existed or exist in relation to the heritage of Lesotho'

Part V of the National Heritage act 2011 addresses the issuing of permits and lists prohibited activities in order to protect heritage resources including structures, archaeology, burial grounds and graves. Section 24 of the Act states that –

- (1) No person shall demolish, damage or despoil, excavate, develop, alter or exhume any part of a heritage site.
- (2) No person shall demolish, damage or despoil, excavate, develop, alter remove from its original position or export from Lesotho a heritage object.
- (3) No person shall relocate or disturb the position of a fixed heritage object.

[unless carried out in accordance with a permit as stated in subsection (7)]

(4) Where a burial ground, grave or sacred place has been declared a heritage site under this Act, a person who wishes to do any activity referred to in subsection (1) shall, before making an application to the Council –

- (a) Consult a community which or individuals who by tradition have interest in the burial ground, grave or sacred place; and
- (b) Reach an agreement with the community which or individuals who by tradition have interest in the burial ground, grave or sacred place.

- The 1972 UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage
- Standards of heritage management set by the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM),
- ICOMOS (2010) guidelines on the requirements for conducting HIAs in WH properties.

International Charters

The following international charters are applicable in management of the cultural heritage of the Park:

- Burra Charter
- Venice Charter
- UNESCO Convention for Safeguarding of Intangible Cultural Heritage
- United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)
- ICOMOS charter for the protection and management of archaeological heritage

7. THE HISTORY OF THE MDP WHS

7.1 The Prehistory of the Park

Present knowledge of the cultural heritage of the Park is biased in terms of past research projects with a very strong San rock art component. However, the cultural heritage of the Park is more diverse and covers different periods. Archaeological sites from the Early, Middle and Later Stone Age and the Late Iron Age are present in the Park, indicating that this region may have been occupied by humans over the last million years.

There is some evidence for early human presence in the area since the Early Stone Age (1.5 million - 300 000 years ago). There is also evidence that early modern man inhabited the foothills of the Drakensberg during the Middle Stone Age (200 000 – 30 000 years ago). San hunter gatherers were the first modern people to occupy the area where the Park is today. The earliest convincing archaeological evidence for San in the region dates back to 8000 years ago, however, evidence from adjacent parts of south eastern Lesotho suggests that San populations may have already inhabited the area around 20 000 years ago.

One of the most important archaeological sites in understanding the prehistory of the MDP WHS and its environment is that of Sehonghong Shelter in Lesotho. This site dates back to the late Pleistocene (40 000 to 12 000 ya). Sehonghong Shelter was first excavated in 1971, where a sequence of Middle and Later Stone Age assemblages, dating to before 32 000BP were uncovered (Carter & Vogel 1974). The sites good preservation conditions lead to follow up excavations in 1992. The newer excavations have been valuable in understanding the Middle Stone Age/Later Stone Age transition.

It is, however, the Later Stone Age or Holocene communities that have contributed to its nomination as a World Heritage Site on cultural criteria. These San hunter-gatherer left behind a large amount of archaeological evidence including rock art that today are some of the most unique prehistoric paintings on the continent. Their activities and beliefs were reflected on the walls of their shelters by their artists – the battles, the hunts, the animals and birds, the mythological beings, bees and fish, ladders and digging sticks, dances and families. The oldest dates obtained from excavations focusing on the Stone Age from inside the MDP WHS comes from 8 000 years BP at Good Hope Shelter in the Southern Berg and 5 000 years before present for the Northern Berg. They painted till as late as around AD 1720-1820 (Deacon & Deacon, 1999; Write & Mazel, 2007). The Later Stone Age rock art left behind by the San represent the most abundant and important cultural heritage of the Park. Their population was small, probably never more than a thousand at a time, and therefore had little significant impact on the vegetation or wildlife of the area.

During the last 2000 years various linguistic groups of San inhabited the area. These included the *!Ga !ne* in the southern parts, the *//Xegwi* in the central and northern KwaZulu-Natal Drakensberg region and the *Baroa* in areas adjacent to Lesotho. These populations were either displaced or assimilated by later immigrant groups although their descendants still live in the area.

By the end of the first half of the first millennium AD, the Bantu-speaking farming communities were migrating into the region occupying the foothills and valleys below the Drakensberg Mountains. The Bantu-speaking communities introduced settled life, domesticated livestock, crop production and the use of iron (Huffman, 2007). Over the next centuries into the second millennium AD, the Nguni groups in the greater region developed, giving rise to socio-cultural complex societies that eventually led to the rise of complex societies such as the Zulu Kingdom in the 1800s AD. Bantu-speaking farmers soon appeared in the region of the MDP WHS and were responsible for Late Iron Age prehistoric villages such as the Mgoduyanuka in the grasslands below the mountain range (see Huffman, 2007).

Around 600 years ago the first black farmers moved into the area and occupied the foothills of the northern KwaZulu-Natal Drakensberg. The people living towards the north were known as the amaZizi and to the south, the amaTolo. In the mid-nineteenth century, a hybrid group of San-, Khoe- and Bantu-language speakers, including runaway slaves and Europeans inhabited much of the southern Maloti-Drakensberg. They became known as the AmaTola. The AmaTola also painted rock art and it is suggested that they believed that horses and baboons had special powers, thus making paintings of these animals would protect them during cattle raiding expeditions. The *amaZizi* formed a series of loosely organised chiefdoms in the northern and central Drakensberg. With the expansion of the Zulu state in the early 1820s the amaZizi were attacked and dispersed by the *amaNgwane*. Many fled to the Eastern Cape but some remained behind where they eked out a miserable existence as bandits. The *amaNgwane* moved into the Bergville area towards the end of the eighteenth century but they also fled into Lesotho and the Eastern Cape when attacked by the Zulu and other groups. Other groups who occupied parts of the central and southern Drakensberg from the late 1700s onwards include the *amaHlubi*, *amaNgwe*, *amaBhele*, *amaBhaca* and various refugees from Zululand and Lesotho. Although never part of the Zulu state of King Shaka, most of these groups are culturally related to the Zulu.

Relations between these people and the San were complex during the Nineteenth Century, but from 1816, under the leadership of King Shaka, the rise of Zulu military power in Zululand far to the north-east brought an end to peace in the region as successive waves of refugees displaced by the Zulu army settled towards the Drakensberg, in turn attacking those already there. Most of these groups were given permission to settle along the base of the Drakensberg by the Natal colonial authorities in the early 1840's as part of Lord Shepstone's Native Policies.

Some archaeological sites, such as certain painted shelters, as well as some natural features on the landscape continue to feature in the beliefs and ritual of local communities. These living heritage sites are also an important component of the cultural heritage of the Park. In 1837 Dutch settlers (the Voortrekkers) with horses and wagons arrived in the foothills of the uKhahlamba-Drakensberg Mountains. Many turned to livestock farming and hunted wild game. This brought them into conflict with the San, who were partly dependent on hunting. The shrinking of the San's traditional hunting grounds and the political dynamics among the Nguni-Zulu farming communities and the arrival of the white settlers all contributed to instability and hardships for the San. With the encroaching settlement of Voortrekkers amongst the foothills of the Drakensberg the very existence of the San people was threatened. Clashes over hunting grounds, private ownership of land, and the arrival of cattle led to increasing numbers of cattle raids by the San people. When the area became part of the British colony of Natal in 1843 many of their farms were abandoned but later re-occupied by British settlers. Tensions and battles over resources increased and eventually the situation became so bad that the San were pursued and hunted by the settlers with support of the Natal colonial authorities. The last sighting of San people in the Drakensberg Mountains was in the early 1880's (Wright & Mazel 2007). However, many 'Zulu' people are also San descendants and/or associate themselves with San customs. Some remember how their grandparents prayed and practised rituals at rock art sites, they are also aware of San songs that have been conserved by oral tradition. These descendants are typified as "secret" because they kept their status secret as they feared retribution, since they became used to conflict with other ethnic groups.

Important, although something that was not discussed or discovered by the survey team, is the issue of living San descendants with connections to the SNP and its environs. This, it was understood, falls under the remit of the **Intangible Heritage Survey**. For San Descendants, however, the rock art in the shelters of the Maloti-Drakensberg constitutes a very tangible heritage.

7.2 History of Eco-Cultural Tourism in MDP WHS

The area has been a major centre for tourism in South Africa since the first half of the twentieth century (Pearce, 1973).

There are 15 entrance points to the Park and the Park can currently accommodate 2 000 people per night in 10 centres and receives about 200 000 paying visitors per year (Duval & Smith, 2012). In addition, almost 2 200 beds are provided nearby private enterprises outside the Park, and many private operators run businesses related to access to the Park. Approximately 27,300 tourists visited the open rock art sites in 2009 (Duval and Smith 2012; this figure includes visits to the Didima Rock Art Interpretative Centre). While there are difficulties in calculating the economic value of rock art in the MDPWHS, Duval and Smith (2012) estimate the turnover generated by the open rock art sites in 2009 was between R1,218,823 and R1,425,213 (this figure includes entry fees to the UDP but excludes income from food and accommodation).

Mpongweni Cave in the Mzimkhulu Wilderness Area declared as a national monument in terms of the National Monuments Act (Act No 28 of 1969) (as amended in 1979, 1981 and 1986). The motivation, timed for the opening of the Wilderness Area in 1979, was that it "would emphasise the importance currently placed on the preservation of the Drakensberg rock art and the place that the art plays in providing the particular atmosphere and character of the Drakensberg" (Motivation by Secretary of Forestry dated 23.4.79, NMC file 16/N/A/2). The site is not fenced, but a bronze plaque was erected.

Formal interpretation of the rock art is currently limited to three nodes: Main Caves at Giants Castle, Kamberg Rock Art Centre, and Didima Rock Art Centre at Cathedral Peak.

Following incidents of vandalism, access to Main Caves at Giants Castle has been controlled since 1957; the interpretation at Main Caves dates back to 1969 when the site was formally developed for tourism by the then Natal Parks Board through the instillation of displays, a San Diorama and paved paths (Blundell, 1996). In 1998, the Main Caves tourist site was completely refurbished by Amafa and EKZNW, including building a wooden viewing platform to reduce dust and keep visitors away from the rock art, and guides were employed and trained to explain the paintings.

In 2000, the National Department of Environmental Affairs and Tourism initiated the establishment of the Kamberg Rock Art Centre via the Poverty Relief Fund. This project consisted of the construction of an audiovisual centre, refurbishment of visitor accommodation, construction of a pathway up to Game Pass Shelter, and the training and employment of local unemployed youth to act as guides and custodians. Although successful in the beginning, the project has not lived up to expectations: this might be due to the failure of the Kamberg Rock Art Trust who was appointed to manage the project. It is suggested that the Trusts failure and subsequent non-existence is due to both institutional and capacity constraints of the Trustees. The Trust is now dormant with Ezemvelo managing the centre and access to Game Pass Shelter whilst Amafa continues to train the Custodians and monitor the site.

In 2003, EKZNW opened a new rock art interpretation centre at Didima, Cathedral Peak, with museum-style displays and an auditorium for audiovisual presentations. This centre was part of the construction of the new Didima Resort which was built around a rock art theme. The resort also contains small artificial rock art shelters with limited interpretation along walkways between the accommodation units. Several rock art sites in the area are officially opened for public visitation; visits to these should be preceded by a visit to the Didima Rock Art Centre for orientation purposes. At present Centre includes a basic archaeological exhibit, the history and meanings of the paintings in Cathedral Peak, as well as the history of researchers that specialised in rock art. Guides at the Cathedral Peak Hotel and guides from Ezemvelo were trained and accredited as rock art custodians.

One of the requirements relating the Poverty Alleviation funding for establishment of the Kamberg Rock Art Centre was that members of the local Thendele community were to be offered temporary and/or permanent employment. For several years the Centre functioned well with a manager, small tea room and a curio shop, along with trained local guides to take visitors to the Game Pass shelter. These guides were referred to as 'custodians' and this led to a programme where local unemployed community members were trained to accompany visitors to certain rock art sites not only in the Park but also in the buffer zone. This became known as the custodian programme, and a Policy was developed by Amafa that required that all persons accessing open rock art sites be accompanied by a custodian. This programme has worked well in certain parts of the Park, especially the north, but problems with regards to the Kamberg Rock Art Centre and its management in recent years necessitated the reform of the custodian programme and its uniform application across different circumstances. Duval and Smith (2012) also recognised these issues, and with special reference to Kamberg, they showed that the system demotivated the custodians, and not deliver good tourism, conservation or socio-economic outcomes. The turnover in custodians is increasing and it is becoming difficult to find people willing to apply for the task. The custodian programme could never really be implemented at accessible sites in the south of the Park where few communally owned areas border on the Park.

In 2015 the Council of Amafa removed the Custodian Policy; as such having a local community member accompanying visitors to a site is now voluntary. At present most of the accessible rock art sites in the north of the park still have local people accompanying visitors to rock art sites to ensure appropriate behaviour. This system works very well here where there is a combination of accessible sites, high tourism volumes and a good working relationship with these custodians.

Elsewhere visitors intending to access open rock art sites now sign a register and receive a temporary access permit. It must be noted that this is also applicable to sites where custodians are still present. These temp access permits contains information with regard to acceptable behaviour at rock art sites. An additional benefit to the new system is that more reliable visitor statistics can be gathered from the visitor books and this will assist in future planning and management of rock art sites. In general, however, there has been a failure in recognising the value that cultural heritage, especially rock art, can play in attracting tourists and creating jobs (see also Duval & Smith, 2012). In the past, Ezemvelo has not had a clear philosophy for the presentation and conservation of the cultural resources of the MDP WHS. This has resulted in inconsistency in management, conservation and display of these resources. New initiatives to improve the marketing of the park will focus on the cultural heritage component.

SNP embraces spectacular scenery with distant views extending over the rolling hills towards the edge of the escarpment. Activities currently include hiking, pony rides, trout fishing and 4x4 driving. These activities are underdeveloped and require regulation. 4x4 driving and trout fishing in particular is popular but should be very well regulated due to their environmental impact such as vegetation damage, erosion and threat to other endangered species. Clear hiking trails are still to be established, mapped and demarcated. Pony rides require attention with regards to safety

and security measures, liability waivers, regulated routes and tariffs as well as suitable tack. Horses for tourists are currently sourced from the surrounding villages on an ad hoc basis as a means of income for the communities.

Overnight accommodation, including camping, is currently provided at the New Lodge. Facilities are basic but comfortable and suitable for self-catering visitors. Partially functioning solar panels generate some electricity for water heating but use of a generator is required at times which detracts from peaceful surroundings.

Sehlabathebe National Park was the first national park in Lesotho when it was proclaimed in 1970. Remote and rugged, with an average elevation of 2 400 metres, it covers 6 500 hectares of high mountain plateau bordering on South Africa. The park is characterised by high-altitude grasslands, alpine flora, waterfalls, lakes and impressive sandstone rock formations. It is home to eland, rhebok and the secretive oribi antelope, wild cats and jackals, and birds of prey such as the black eagle and rare bearded vulture.

This pristine environment makes Sehlabathebe ideal for eco-activities such as guided hiking, rock climbing and pony trekking, and there are some good fly fishing sites and Bushman paintings. Day hikes include those to Bushman's Pass at the edge of the escarpment or to the Tsoelikane Waterfall, with its beautiful, deep pool.

Facilities include a Heritage Centre, conference facilities and thatched rondavels. There is also Jonathan's Lodge, which was originally built in the 1970s for the personal use of the then prime minister, Leabua Jonathan. Other accommodation comprises the ranger station situated just outside the park, a campsite near the Matebeng Pass, and home-stay ventures in nearby Thamathu.

A monitoring programme for the highly threatened southern African bearded vulture is carried out by the Maloti-Drakensberg Vulture Project. Of the 25 vultures fitted with satellite transmitters over the last six years, ten have been killed – either in power line collisions or by poisoning. Only about 400 individual birds and 100 breeding pairs remain in the wild in South Africa and Lesotho.

This is not only the most important water catchment area of two countries but also an area of significant global biodiversity, characterised by unspoiled mountain scenery and a unique yet fragile ecosystem. The park provides a vital refuge for many endemic plant species and their associated fauna, particularly endemic highland birds, and there are rock art sites with Bushman paintings and other archaeological and cultural resources of universal significance.

Supported by the governments of Lesotho and South Africa, the Maloti-Drakensberg Transfrontier Programme has been active in conserving the natural and cultural heritage of the park. The development and subsequent management of accommodation facilities and other nature-based tourism ventures has contributed toward sustainable livelihoods for local communities through job creation and the establishment of joint ventures. (For further information, consult the 'Environmental Conservation' section.)

8. ECOLOGICAL CONTEXT OF MDP WHS

The ecological context is relevant to the understanding of the history of human occupation and use of the park, and how the Park is currently managed to maintain biological diversity. Those key elements of ecology pertinent to cultural heritage management are summarised here.

Fire regime

Fire is an important natural feature and ecological process of the Drakensberg, and the fauna and flora appear to have evolved to either tolerate being burnt or to avoid fire by making use of natural fire refugia. Uys *et al* (2006) provides an in depth review of fire effects on different components of biodiversity, and makes recommendations on fire regimes linked to biodiversity objectives. Understanding of the natural fire regime is critical for cultural heritage managers in terms of understanding the evolution of the landscape and how that affected, and was affected by, people, how fire may threaten cultural heritage, and the issues that need to be considered in balancing the achievement of natural and cultural objectives.

Fire is a natural process that contributes to soil and landscape formation through inter alia causing rapid heating of rock surfaces with consequent exfoliation or splitting of rocks. San rock art, which is between 8000 and 150 years old, is undergoing a natural process of weathering and attrition. Fire has the potential to accelerate the loss of this non-renewable heritage through (1) physical impact of heat on paint pigments, (2) exfoliation of the rock surface itself, and (3) producing ash and dust that covers the paintings. A recent study (Topp 2009) found that a significant number of rock art sites either had signs of fire damage or were under imminent threat of fire damage. However, it is important to recognise that fire was a tool by the San for hunting purposes and it was this, in part, that moulded the landscape into that which we find today.

It is anticipated that climate change will impact on the fire ecology of the Drakensberg. Whilst these impacts are not known with any certainty, it is predicted that with increasing temperatures there would be a reduction in frost and hence a later start to the burning season and increased difficulty in completing firebreaks. The increase in CO₂ is predicted to increase the growth rates and fire resilience of cycads, bracken fern and trees, including facilitating the ingress of *Acacia* species from the lowlands, and a possible change in grass species composition which in turn may influence fire behaviour. A southerly shift of the low pressure frontal systems may change the strength and direction of bergwinds, and therefore fire behaviour and the distribution of forest patches and other woody communities. All of these could have implications for the conservation of rock art in particular.

Mammalian fauna

Key elements relevant to the cultural heritage of the park are highlighted here.

Sixty-six species of mammal occur within the Park, but several species that are known to occur in the Drakensberg ecosystem have not yet been formally recorded within the Park, and thus the true total is likely to be higher. Several large mammal species became extinct in the late 1800's and early 1900's, such as lion and wild dog. The largest population of the South African near-endemic Grey rhebok (*Pelea capreolus*) in a protected area is also found here (Rowe-Rowe, 1994). The Eland (*Tragelaphus oryx*) population consists of approximately 1700-1800 individuals (Krüger & van der Westhuisen, 2011) and is also one of the largest populations of this species in South Africa (Rowe-Rowe, 1994). The Park has the single largest Oribi population (approximately 450, Krüger & Ndumo 2015) of any protected area in South Africa and probably southern Africa.

The natural carrying capacity for wild ungulates of this environment is extremely low, estimated to be as low as 1 Animal Unit per 50 ha (Rowe-Rowe and Scotcher, 1986). This is owing to the phenomenon that the sourveld grasslands have an extremely low nutritional and energy value from late summer until the end of winter. The smaller antelope species need to feed very selectively and are therefore widely dispersed and occur at low densities. The large-bodied eland, a mixed feeder, aggregates in large numbers on recently burnt grass in mid-summer. The herds then become scattered and widespread to all altitudes in autumn and winter, switching their diet from grasses to forbs and woody plants.

The low densities and seasonal movement of herbivores would have had implications for Stone Age and Iron Age inhabitants of the area.

9. GEOLOGICAL CONTEXT

The oldest layers of rock in the Maloti-Drakensberg Park World Heritage Site date back to about 250 million years and consist of sandstone and mudstone. Geologically, they belong to the Upper Beaufort Group and were laid down in flood plains and river valleys. These layers are located at an altitude of about 1300 metres. The second oldest rock layers are known as the Stormberg Group and physically they make out the foothills; the lowest of these layers are known as the Molteno Formation dating to about 220 million years ago and they contain the first examples of dinosaur trace fossils. These layers are located at an altitude between 1500 and 2000 meters. Above the Molteno Formation, the Elliot Formation, also known as the Red Beds because of the presence of purple mudstone and sandstones can be found and they date to about 180 to 170 million years ago. Physically, they make out the steep slopes of the mountain. Red Beds are known for their fossilized wood and dinosaur remains.

Above the Elliot Formation, the Clarence Formation can be found also known as Cave Sandstones. They date to about 170 to 160 million years ago and today they represent the line of cliffs and overhangs where the San lived and where the most rock art can be found. Cave Sandstone is the most significant feature of the Little Drakensberg.

At about 160 million years ago the Gondwana landmass began breaking up, accompanied by volcanic activity and over the next 20 million years, basalt lava flowed from the fissures. The outflows lasted about 50 million years, from the early Jurassic period to the Cretaceous period and capped the sedimentary rock formations. This basalt layer eroded back to form the massive cliffs of the High Drakensberg.

10. DESCRIPTION OF CULTURAL HERITAGE

The cultural heritage of the Park is described in the following sections below: Rock Art, Living Heritage, Palaeontological Heritage, Stone and Iron Age, and Built Environment.

10.1 Rock Art

Overview

544 sites were verified by African Conservation Trust during the RAMP II between 2010 and 2012. Part of the Bushmans Nek area was not completely surveyed during this project, and this area was surveyed by Amafa in 2016 and an additional five sites added to the database bringing the total number of known sites to 549. The number of rock art sites in the SNP currently stands at 97, as recorded during the 2015 survey by the Rock Art Institute of the University of Witwatersrand South Africa Current estimates (2018), based on the above mentioned surveys, suggests that the Park contains an absolute minimum of 17 000 individual images. Information contained in older databases suggests a higher number of images, but it must be cautioned here that recorder bias, inconsistent recording protocols, fragmented imagery and other factors might skew precise recording of the number of individual images.

Inventory

The *Cultural Heritage Audit For the uKhahlamba/Maloti Transfrontier Conservation and Development Area (Final Report 1999)* lists the lack of a systematic surveys/incomplete and non-digitised databases and inventories as critical issues with regards to the management of rock art in the area. In 1999 the then Natal Museum housed a substantial, but paper and photograph database. A copy of this database was lodged with Amafa and the then KZN NCS and was beginning to be computerised. But in all most site records were incomplete or incorrect and based on data collected by Mazel (1981, 1982, and 1983) between 1979 and 1981. The proper inventorying of the area was seen as the *Audit's* first identified priority.

Today the South African Heritage Resources Information System (SAHRIS) now contains all the previous inventories made of rock art in the MDP WHS. It also houses the very complete RAMP (Rock Art Mapping Project) I and RAMP II, 2010-2012, projects by ACT and the surveys completed by Tommy Topp. The RAMP inventories were funded by the National Lottery Distribution Trust Fund and created the first digital archive of rock art in the Park. The project, run in partnership with the University of KwaZulu-Natal (UKZN), included a comprehensive database containing records for just under 6 000 sites, including 80 previously undocumented rock art sites, all visited by their archaeologist. A number of sites were also visited by survey teams who scanned and created accurate 3D models of the shelters.

Virtual tours and videos were also created, and spatial mapping and analyses were conducted by the GIS team.

The rock art inventory is complete on the South African side of the WHS, and a detailed inventory of Sehlabathebe National Park has recently been completed (Challis 2015).

Research

The first researcher that focussed on combining ethnographic results with rock art to obtain more information regarding the symbolic significance of rock art and to uncover how the San's worldview was represented in rock art, was Patricia Vinnicombe. Vinnicombe began her interest in rock art early and made tracings that she exhibited in London in 1954 and 1956 and this made her aware of the fact that she knew little about the significance of the art. From 1958 up to 1961, she embarked on a processual, numerical analysis of rock art under the supervision of Mr. B.D. Malan of the Historical Monuments Commission. To follow up the quantitative analysis with a history of rock art, archaeological fieldwork was completed between 1969 up to 1974 in Lesotho and the Drakensberg. The "*People of the Eland: rock paintings of the Drakensberg Bushmen as a reflection of their life and thought*" was published by her in 1976.

The next prominent scientist that followed on Vinnicombe's work was J.D. Lewis-Williams who became the father of a school-of-thought known as Shamanism since he linked different postures, images and abstract figures known as therianthropes to different stages of trance. The Rosetta Panel at Game Pass Shelter, Kamberg formed the basis of his theory. Lewis-Williams founded the Rock Art Research Centre in 1978 and in twenty years R.A.R.I. established itself as a world leader in rock art recording, publication, tracing and outreach programmes. His and Thomas Dowson's publication "*Images of Power: understanding San Rock Art*" are based on research mainly in the Maloti-Drakensberg Park World Heritage Site.

Other individuals who focussed mainly on copying the art, but also endeavoured to add some significance, were: Harald Pager who made hand-coloured photographic copies of rock art in the Ndedema Gorge, Walter Battiss who made hand-painted water colour copies and Wilcox who also researched the art.

Scientific ways of digitally restoring rock art shelters that have suffered under natural weathering and or vandalism were initialised by Justine Wintjes who digitally restored several rock art sites. eBusingatha Shelter and Good Hope Shelter were the first to be done.

The African Conservation Trust, under the guidance of Carl Grossman, also contributed by 3D scanning of rock art sites and precise recording of both the rock art and its surrounding setting to assist, not only with archival documentation but also with the management of the sites since natural

and human factors impacting on the art was also recorded in detail and scans of the parent rock can be divided digitally in a grid-pattern that creates a frame work for comparative condition assessments in the future.

Currently the following rock art specialists contributed immensely to the interpretation of the art in generally, but also in the Drakensberg: Janette Deacon, Benjamin Smith, Geoffrey Blundell, Justine Wintjes, Melanie Duval, Jeremy Hollmann and Siyakha Mguni.

Since 2009, the focus in research shifted from focussing on the interpretation of the art to the management of rock art and rock art tourism. For example, work from Melanie Duval and Ben Smith, with reference to “*Seeking sustainable rock art tourism: the example of the Maloti Drakensberg Park World Heritage Site*” and Tommy Topp’s publication, “*The value of San Rock Art in the uKhahlamba Drakensberg World Heritage Site*”. Students under the supervision of S. Mguni at the University of the Witwatersrand are also carrying out research to improve the management of rock art sites.

The current living heritage value of rock art and anthropological research were initiated by both Frans Prins, with reference to “The Secret San” and by Ndukuyakhe Ndlovu who researched the spiritual usage and significance of San paintings for local, indigenous people.

The ARAL Project surveyed SNP for cultural resources in 1981. Between 2005 and 2006 the MDTP also engaged an archaeologist, Frans Prins, to research and produce recommendations on the cultural resources in the study area.

10.2 Living Heritage

Overview

It is important to refer here to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). The following Articles from this document should be noted:

Article 11:

Indigenous peoples have the right to practise and revitalise their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites, artefacts, designs, ceremonies, technologies and visual and performing arts and literature.

While heritage legislation lists several categories of heritage resources, and offers blanket protection to these, there is demand, particularly of a ritual nature, to make use of these resources. While the non-consumptive use of heritage sites within the legislative framework is encouraged, some traditional leaders perceive the paint within rock art sites to be imbued with strong powers and then remove (scratch) some of the pigments from the rock surface to use in the production of their traditional medicine. While this practise is in contravention of heritage legislation, it poses certain problems related to freedom of religious expression. Until such time as a legislative change occurs such behaviour will be treated as illegal. However, a strategy on how to deal with the matter needs to be devised.

Inventory

The MDP WHS contains various living heritage sites. Most of these are situated within the lower altitude areas of the Park and the surrounding Buffer Zone. These are the areas most accessible to local communities who live adjacent to the Park and who attach living heritage values to particular sites. However, it is not only local communities who attach living heritage values to the Park but also certain groupings such as the //Xegwi San descendants of the Mpumalanga Province who refer to the Drakensberg generically as their “sacred ancestral home”. The living heritage sites of the Park can be divided into four broad categories namely a) natural sites or features b) archaeological sites with living heritage values c) graves and d) places of worship. There are some overlaps between these categories. Natural features include certain mountains, pools, waterfalls, forests, ochre pits, caves and boulders.

Archaeological sites with living heritage values include certain rock art sites as well as certain old homesteads of African leaders that are still frequented by local and affected communities. Some grave sites situated within the Park are still frequented by the relatives of the deceased and thus have living heritage values. There are many places of worship within the Park and the associated Buffer Zone. These are mostly areas utilised by independent African church groups. These include individual spiritual diviners who perform rituals at deep lakes to consult water serpents which they believe exist in the deep waters. Living heritage sites are utilised by all the known ethnic groups who live or used to live adjacent to the Park. These include Zulu-speaking, Southern Sotho-speaking and Basotho communities. Initiation sites are mostly associated with the Southern-Sotho speaking groups and Basotho. San descendants live in various areas adjacent to the Park especially in the South African part of the Park. Despite social and cultural change some descendants continue to interact with rock art sites and regard them as sacred.

Other examples of living heritage sites are Penwarr 7 (an initiation site), Inkanyamba Cave (rain making site), Game Pass Shelter and Waterfall Shelter (visited by Zion Christian Church pilgrims, who believe that the Holy Ghost blessed the water and also that the mythological creature, the Inkanyamba visits the pool at the bottom of the waterfall). Some natural springs are identified by ancestors as sources of spiritual healing by using the water from the springs. Sites such as these fall into one of the prioritised categories for management as such cases call for a model of joint management by both the related communities and heritage conservators. As these sites are deemed to be sacred areas for ritual purposes, they should not be opened for public visitation as their religious entirety must be respected.

In 2007 Gavin Anderson produced a report on rock art sites in the proposed buffer zone of the Park with living heritage associated with them (Anderson 2007).

Due to the sometimes sensitive nature of living heritage sites and the geography of the park it is not possible to produce an accurate database of all sites associated with living heritage. Frans Prins (2008) provided a list of 35 known sites associated with living heritage together with some basic management guidelines (Addendum 2). This list does not contain detailed information on specific users and exact location as per agreement with the users; this information is however known and recorded elsewhere.

The collective psyche of a large proportion of the population of South Africa and Lesotho value parks and game reserves. Many locals associate these places with special events, activities and holidays, translated into long standing family traditions. The fact that various venues within the park and immediate surroundings are popular wedding and holiday destinations testifies to this.

Research

Peter Jolly, Frans Prins and recently Michael Francis, Jeremy Hollmann, Lawrence Msimanga, Melanie Duval and Ben Smith all played an important role regarding anthropological research and uncovering the living heritage value of many rock art sites and natural features imbued with mythological, religious and legendary meanings.

Frans Prins, both an archaeologist and anthropologist, is one of the major stakeholders and contributors in this field. He published several papers on the “Secret San” after it was discovered that many Zulu people are also San descendants and that they can remember how their grandparents prayed and practised rituals at rock art sites, they are also aware of San songs that were conserved by oral tradition. These descendants are typified as “secret” because they kept their status secret as they feared retribution, since they became used to conflict with other ethnic groups.

Prins assisted with a survey and contextualisation of living heritage sites within the MDP WHS as contribution to the Cultural Heritage Management Plan for the area.

Recently, Michael Francis, Jeremy Hollmann, Lawrence Msimanga and Ndukuyakhe Ndlovu are at the forefront of the analysis of how rock art sites are used by both ritual Zulu specialists and by people that believe they are San descendants. Francis produced a paper on the contested histories of the Drakensberg Mountains to analyse the fluidity of identity of groups and individuals that value rock art sites as pilgrimage destinations. Jeremy Hollmann and Lawrence Msimanga from the University of KwaZulu-Natal published a paper on the “extreme case” of the removal of rock art from uMhlabane rock art shelter in the AmaZizi area and the reason why this is so contested is that the site is still used as a prayer locality by locals, today.

Lesotho has been an important research destination since the 1920s, attracting archaeologists and anthropologists with interest in rock art, anthropology, archaeology, palaeontology, paleoecology, bioarchaeology and montane vegetation. Archaeological interest in the Lesotho area began as early as the 1920s when the Leo Frobenius expedition visited the kingdom. The archaeological sites are important, not only for a better understanding of Lesotho but also for their implication to much of southern African archaeology. Much has been published about the significance of these sites to the understanding of hunter-gatherer lifestyles, the interaction of later Stone Age communities with farmers and the drawing of inferences that can be used elsewhere in the sub-region (Mitchell 2002, 2009). This is important because hunter-gatherer communities continued to exist alongside farming communities until very recent times (Mitchell 2009). Many archaeological sites have been recorded through this and subsequent expeditions. Much of the research carried out in Lesotho, however, has been done by foreign experts usually with huge research projects in world-renown universities.

Recently Francis Rakotsoane undertook an oral history research on the Sehlabathebe National Park and its landscape elements in order to assess the surrounding communities’ attachment to the natural elements of the Park’s landscape and to determine ways in which people of these communities value the local biodiversity. Furthermore the study was also intended to establish a link between rock art and the local communities. That link does not seem to exist other than utilizing some rock art sites as shelters for their livestock during harsh winter seasons. This calls for co-management between the Park and the local communities.

10.3 Palaeontological Heritage

Overview

The basalt areas of the Park do not contain fossils, but the Karoo basin sedimentary rocks are rich in fossils.

The park encompasses bountiful rock outcroppings of the Karoo Supergroup, a series of sedimentary rock strata laid down between 260 and 190 million years ago. These rocks preserve abundant fossilized remains of land-dwelling vertebrates, including early mammals, early turtles, and early dinosaurs. They are world-famous for their fossil richness, and for documenting three of the Earth’s greatest extinction events. In particular, the Park has extensive outcrops of the Stormberg Group of sediments, which are the uppermost (youngest) rocks of the Karoo Supergroup. The Stormberg rocks can be further subdivided into the red, muddy Elliot Formation and the buff, sandy Clarens Formations. These are easily distinguishable in section – the Clarens forms towering cliffs of sandstone over the softer-weathering Elliot. In these sediments, scientists have found incredible dinosaur body fossils and footprints, including such iconic species as *Massospondylus carinatus* (described by Sir Richard Owen in 1854) and *Lesothosaurus diagnosticus*. These dinosaur fossils give us invaluable clues as to how dinosaurs diversified and dominated the Earth’s terrestrial ecosystems for 160 million years. Fossilized footprints in these sediments were among the pieces of evidence scientists have used for understanding plate tectonics and the breakup of Pangaea in the Jurassic period some 200 million years ago.

At lower elevations, particularly on the eastern fringes of the park, rocks from the Beaufort Group crop out. These rocks are older and stratigraphically lower than those of the Stormberg Group, and they preserve earlier moments in the deposition of the Karoo Supergroup. In these rocks can be found the remains of mammal-like reptiles, the vertebrates that ultimately gave rise to the mammals we see today. Fossils of a shrew-like creature, *Megazostrodon*, considered one of the earliest mammals, are occasionally found in the region.

Inventory

The palaeontological heritage of the Park has only been superficially researched and is poorly documented. Individual sites are however well known, with some receiving academic attention. There is a broad spectrum of palaeontology present in the Drakensberg, including paleobotany, imprints (notably footprints), and remains of mammal-like reptiles and dinosaurs.



Fig 1.1 The location of fossil footprints in the Cathedral Peak Game Reserve.



Figure 1.2 A probable Massospondylus fossil at Esikolwini Shelter, Cathedral Peak.



Figure 1.3 Close up of the fossil at Esikolwini

Research

There is a 150-year tradition of fossil prospecting in the Stormberg Group, but much of this history has focused on the rocks on the western and southern boundaries of Lesotho. The Stormberg rock outcrops in the park have been drastically underexplored relative to these areas. There have been recent investigations on the Lesotho side by French researchers who have uncovered complete, articulated dinosaur skeletons of exceptional quality, and there have been recent spectacular finds of fossils in the Free State. It is a certainty that similar finds await us in the MDPWHS.

10.4 Stone Age and Iron Age Sites

Overview

All archaeological sites are protected by heritage legislation (Section 35 of NHRA,Section 36 of KZNHA and Lesotho NHRA of 2011). The legislation and associated regulations clearly defines the applicable constraints and actions when dealing with archaeological sites.

Due to the spatial, temporal and cultural diversity of these sites it would be onerous in this document to produce generic management guidelines to cover the magnitude of sites, features, ecofacts and artifacts that is known to occur. Cognizance must here be taken of the fact that the Park has not been subject to a full-scale intensive archaeological survey, and due to the nature of archaeological sites there is a high probability that a significant number of sites remain unrecorded. As such, it is important that all archaeological sites receive general protection in applicable heritage legislation and no person may destroy, alter, damage, remove, excavate or bring onto any site any equipment for the detection of such sites unless permitted by Amafa or MTEC.

One of the most destructive impacts on archaeological sites, in general, is development, specifically infrastructure development. Section 38 of NHRA, Section 36 of KZNHA and Section 28 of Lesotho NHRA regulates the processes which should be followed during certain categories of development. Furthermore, subsections 4(a)(i) and (iii) of NEMA sets out the principles that the loss of heritage resources should be minimised during any development process.

Inventory

A number of Stone Age and Iron Age sites have been recorded, but with minimal excavation and research. Excavations and research mostly conducted and associated with rock art sites. The research is fairly dated and the need exists for additional research to better understand these aspects of the Park’s prehistory.

RECOMMENDATION:
Ensure that all relevant staff are trained in the use and application of SAHRIS, as all recorded archaeological sites are on this database, and all newly recorded sites should be entered into this database.

On the Lesotho side there is no database in place yet; should be developed for the country

10.5 Built Environment

Overview

General principles for management of built environment structures should include adherence to applicable sections of the NHRA (Section 34) KZNHA (Section 33 and Sections 11 and 27 of Lesotho NHRA). Thus alteration, demolition or any change to buildings listed as being significant or deemed older than 60 years should go through the relevant permitting procedures. Buildings older than 60 that are identified as being significant should be maintained to standards and practices that preserve their historical fabric. In the case of Lesotho age for build heritage does not apply as long as the building has been declared as a heritage site. Sehlabathebe has several cattle post ruins which are still somewhat intact and are thus protectedd by this act including the Old Jonathan Lodge. The lodge and the cattle posts form part of the built heritage resources that the park has. It was only in 2015 when Wits University did a thorough documentation of all the cattle posts within the park including the rock art sites. Restoration however must adhere to the principles set out by both Amafa (Amafa document 2015), MTEC and ICOMOS.

Inventory

A complete built environment and public memorial survey for the entire Park (not including SNP), excluding a few very isolated structures, was completed in 2014 (Cellier 2014). Each structure was recorded and assessed for significance and condition. Structure-specific management recommendations are provided.

Note must be taken that the most significant clusters of built environment have been identified at Cobham, Lotheni, Kamberg and Royal Natal. The cluster of pioneer vernacular buildings at Lotheni has a history of maintenance as this is used as an open air museum. Continued maintenance is essential to maintain the value of these structures. The cluster of buildings at Stillarus (Kamberg) has not suffered significant neglect but there are signs of deterioration. Of most concern is the situation at Royal Natal where varius reports (Cellier 2014) has documented the rapid decline of structures of both historical and social importance. This issue has also lead to continued negative public and politiactal sentiment. Specific reference can be made to ongoing discussions on the Heritage Portal website (www.heritageportal.co.za).

11. ASSESSMENT OF SIGNIFICANCE

11.1 Criteria Used to assess Significance

One of the main purposes of a conservation plan is that it “requires the systematic evaluation of the significance of a place..., of establishing where that significance is vulnerable to threat and using that information to develop policies and subsequent actions to guide its sustainable management.” It addresses the questions: What is it? Why does it matter and to whom?

The assessment of significance in respect to historic sites generally derives from the International Council for Monuments and Sites’ *Charter for the Conservation of Cultural Significance*. Levels of significance can be summarized as follows:

- **Exceptional** - features of exceptional/international significance or which contain elements with a significance beyond national boundaries
- **Considerable** - features of considerable/national significance
- **Some** - features of some/regional significance
- **Limited** - features of limited/local significance

- **Unknown** - features of unknown significance
- **No** - features of no significance

Negative or intrusive features also have a bearing on significance values.

Each heritage site is significant in its own right. All sites are representations of individual people that are in turn representations of the society within which they live. As such all heritage resources can be assigned significance according to the following categories, as set by the National Heritage Resources Act (No 5 of 1999):

- Aesthetic
- Spiritual
- Architectural
- Historical
- Scientific
- Social
- Linguistic or technological value/significance
- Rarity
- Representatively

Rock Art

National Significance

All previous national monuments were categorised as Grade II heritage resources during the promulgation of NHRA. As such there are no formally proclaimed Grade I sites (sites of national significance) in the Park. The handful of sites that previously enjoyed National Monument Status are all in the process of being re-graded by Amafa in order to establish whether or not their current Grade II status is applicable, or whether they should become Grade I and proclaimed as such.

Lesotho is in the process of engaging with the establishment of the Heritage Council, which will work with the gazetting of the High Significant Rock Art Sites within SNP; as it is a requirement for UNESCO. In SNP, twenty-seven rock art sites have been identified as of High Significance. The above deals with individual sites. The Park as a whole however should be considered to be graded as a Cultural Landscape, as allowed for by NHRA and KZN HA. An initial grading exercise has been conducted by Amafa for each of the applicable categories:

Aesthetic value: Exceptional

“There is still a great deal of work to be done for there are a thousand paintings to delight the eye and reveal the story of a lost people. The painters have gone but an immortal monument is their work. So a people disappear and leave art of the highest order to perpetuate their memory: Will we be remembered by a mine dump or a poem?” (Walter Battiss, 1939)

The rock art of this region is globally significant as it contains some of the finest prehistoric rock art depictions in the world. The Drakensberg rock paintings are distinct for their use of the shaded polychrome technique, in which human figures, eland and other animals are represented through use of more than two colours, delicately graded into each other. The minute detail contained in the paintings has also impressed researchers. Compared to rock art in other parts of the world, the Drakensberg images are small and intricate. An eland, for example, may be represented as a 35cm tall image with clearly indicated eyes, a mouth and ears. It will have a mane of individually painted hairs no more than 1,5mm long and neat black cloven hooves. Animals are shown not only side-on, walking and running, but also lying down, leaping and looking back over the shoulder. They are also viewed from the front and the rear. Human figures are also depicted in sophisticated positions (Derwent, S. 2006:86).

Quantitative value: Exceptional

The Cathedral Peak area contains the largest concentration of rock art sites in Africa: 17 sites including 3909 individual images, in a 5,5km long Gorge (Mazel, A.D. & Wahl, E.J & Roberts, S.E. 1999).

Interpretive value: Exceptional

While rock art in the southern part of the MDP WHS are more narrative and includes depictions of rituals being carried out (e.g. rain-making rituals such as depicted at Sheltered Vale rock art site) as well motifs relating to the contact period, often showing horses, ox-wagons, Colonial soldiers and conflict scenes, e.g. Bellevue Shelter, Beersheba, etc; rock art in the Northern Drakensberg is more shamanistic, including mainly hallucinatory motifs, e.g. “ropes to God”, magnificent dream images such as the “Moon Goddess” and the “Sorcerer” of Sorcerer’s Rock. Images of bees, ladders and a butterfly scene (a rare depiction at Eland Cave) seem to be limited to the Northern Drakensberg (Prins, F. 2007: pers com). In the Didima Valley alone, researchers discovered 12 depictions of bee swarms (Didima Centre Museum Exhibition).

The Drakensberg is also the “heart-land” of Shamanist interpretations. The Rosetta Panel at Game Pass Shelter, Kamberg, led rock art specialist, Prof. David Lewis- Williams to speculate on the religious and cognitive depth and abstract reality of San rock art; previously only being regarded as depictions of the life-ways of the San and art for art’s sake. Research has subsequently suggested that the majority of rock art is directly related to shamanism or altered states of consciousness, (e.g. metaphors for trance – dying, flying, the under-water feeling; the depiction of therianthropes being images that consist of both animals and human-attributes; images that were depicted that related to the different stages of trance: iconics, construals; and iconics and entoptics and even placement of the art on the rock surface, e.g. a human figure or animal being painted as if it is going into the rock surface, or coming out of it – the rock surface being symbolic of a veil between the physical and supernatural world.

For the sake of clarity, the metaphor for trance as depicted in the Rosetta Panel, namely death needs to expand upon. The San say a shaman “dies” the moment he enters a trance. Trance is sometimes called a “half-death”. This metaphor for death refers to the similarities between a dying antelope, (especially an eland) and the conduct of the shaman during an altered state of consciousness: both tremble severely, have blood coming from their noses, bow their heads downwards, sweat profusely, contract in spasms and fall down in a state of unconsciousness. These attributes are clearly depicted in the Rosetta Panel at Game Pass Shelter. In the panel a therianthrope can be seen (motif combining both animal and human features) clutching onto the tail of a dying eland. The therianthrope mimics the actions of the eland: when an eland dies its hair stands erect and

in the Rosetta panel both the hair of the eland and the therianthrope stands erect; in the panel the eland has its head lowered and is stumbling, with its hind legs crossed, this is duplicated in the motif of the therianthrope, whose legs are also crossed.

The Rosetta Panel allowed researchers to “break the code” concerning symbolism in San rock art: here both the San shamans and dying elands exhibit similar experiences. Next to the shaman holding the tail of the dying eland, is another shaman in a bent forward position its arms stretched out to the back. This depiction correlates with a stage during a trance dance when the shaman enters an altered state of consciousness, he will find himself experiencing spasms in his stomach when magical potency starts to “boil” in his stomach. The potency travels up his spine and later explodes through a hole in the top of the head. This process is so painful that the shaman may bend forward and later fall unconscious. Sometimes shamans are depicted leaning on dancing sticks when the potency starts to boil in their stomachs. They are then portrayed as “walking on all fours” just as an antelope, in this position they are transported to a semi-animal, semi-human state of being, in order to create a bridge between the physical and spiritual world. Using the supernatural power of the eland, the shaman’s spirit leaves the body and travels to the spirit world. In other paintings we see lines leaving the top of the dancer’s head, and travelling into cracks in the rock face, behind which the spirit world lies. This implied that the shaman died in this world and entered the spirit In order to plead with their god for the power to heal the sick, to make rain and to influence the movements of the wild animals..

Rare depictions and motifs: Considerable

There are a number of unusual or rare depictions within the Park:

- a) In the Southern Drakensberg, some San shamans were depicted with diverse facial features: this suggests specialisation and the development of a more stratified society. Research suggesting that this was the result of relations of mutual reciprocity between the San and the other groups, e.g. the Nguni speaking people: the San traded their services as ritual specialists and trackers to receive goods such as milk, sorghum, millet and protection from Colonial expansion.
- b) Baboon-men therianthropes, depicted in the Southern Berg.
- c) Isolated hartebeest heads: metaphor for the head of /Kaggen (god and trickster-deity of the San).
- d) Insects such as themoths and bees, painted in the Northern Berg.
- e) Many unique hallucinatory motifs in the north, e.g. the Moon Goddess and the Sorcerer of Sorcerer’s Rock.
- f) Many sites in the Southern Berg depicting cattle, as well as hybrid groups with horses – showing interaction between San, African farmers and Europeans.

RECOMMENDATION:

The grading and proclamation of individual sites and the Park as a whole should continue.

International Significance

The following is an extract from the statement of significance including the statement of outstanding universal values, authenticity and integrity, as approved by the World Heritage Committee in December 2000:

“The uKhahlamba Drakensberg Park is renowned for its spectacular natural landscape, importance as a haven for many threatened and endemic species, and for its wealth of rock paintings made by the San people over a period of 4000 years. The Park, located in the Drakensberg Mountains, covers an area of 242,813 ha making it the largest protected area along the Great Escarpment of southern Africa.

With its pristine steep-sided river valleys and rocky gorges, the property has numerous caves and rock shelters containing an estimated 600 rock art sites, and the number of individual images in those sites, probably exceeds 35,000. The images depict animals and human beings, and represent the spiritual life of this people, now no longer living in their original homeland. This art represents an exceptionally coherent tradition that embodies the beliefs and cosmology of the San people over several millennia. There are also paintings done during the nineteenth and twentieth centuries, attributable to Bantu speaking people.”

The Park is listed for cultural criteria (i) and (iii):

Criterion (i) represent a masterpiece of human creative genius

The rock art of the Drakensberg is the largest and most concentrated group of rock paintings in Africa south of the Sahara and is outstanding both in quality and diversity of subject.

This criterion apply not only to the work of individual artists represented at rock art sites in the MDP WHS, but also the collective genius of the society that developed the sophisticated symbolism, metaphors and multiple meanings displayed in the art. The site displays outstanding examples of the art tradition, as well as exceptional talent the execution of the paintings. The MDP WHS has a variety of exceptionally well preserved rock art in which details of content and technique can be clearly seen (Deacon 2002).

Criterion (iii) bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared

The San people lived in the mountainous Drakensberg area for more than four millennia, leaving behind them a corpus of outstanding rock art which throws much light on their way of life and their beliefs.

The MDP WHS has well documented ethnographic and historical evidence to interpret the rock art in relation to the cosmology and beliefs of the San. The art is not seen as the only testimony to the cultural tradition. It formed an integral part of the social fabric at the time it was created and evidence of the activities that inspired the art is present. This places the art in its historical and social context. Sufficient research has been done, and could still be done, to make valid comparisons and connections between living traditions and those that have disappeared over the last century in the region. For example, the presence of entopic patterns and trance postures in the art is a clear indication that the artist experienced altered states of consciousness that that this had a close connection with their artistic tradition (Deacon 2002).

Integrity

The property contains the main corpus of rock art related to the San in this area. Although the area has changed relatively little since the caves were inhabited, management practices, the removal of trees (which formerly sheltered the paintings) and the smoke from burning grass both have the capacity to impact adversely on the fragile images of the rock shelters, as does unregulated public access.

Authenticity

The authenticity of the paintings, and their shelter and cave settings, as a reflection of the beliefs of the San peoples, are without question. The images are however vulnerable to fading that could lessen their ability to display their meaning.

In summary, the Park achieved cultural World Heritage status because:

- The exceptional concentration, quality, diversity of subject, detailed depictions, and spiritual significance of San rock art which is regarded by many to be the finest prehistoric rock art in the world, having a high degree of complexity of meaning, and including some of the last rock art ever painted.
- Living heritage value that includes rituals performed within the Park and ancestral sites that are frequently or regularly visited for such purposes.
- The sense of place that is a result of a symbiotic relationship between a place and the community members exercising their cultural right in that particular place.
- Authenticity that contains the realness of the cultural sites.

Living Heritage

No grading has taken place but it is suspected that no individual sites would be of exceptional significance. It should also be noted that some of the sites associated with living heritage include rock art, but only a small amount of these sites are related to the cultural traditions of the San.

Cognizance must be taken of the fact that there is a fairly large population of South Africans who have attached a continuous and dynamic response and meaning to the Park (and the Drakensberg as a whole), not only as a place of recreation, but specifically for its restorative and contemplative values.

Stone Age And Iron Age Sites

All sites within Sehlabathebe have been graded based on their potential for excavation

Palaeontological Heritage

No grading has taken place. However, due to the unexplored nature of the Park there is a high probability of future discoveries of significant sites and specimens; such discoveries might rate high in significance categories such as research potential and rarity.

Built Environment

Virtually all buildings in the Park (except SNP) have been informally assessed and graded for significance (Cellier 2014). A number of buildings have been assessed to have outstanding importance and significance. The formal grading and proclamation (if necessary) needs to be undertaken.

12. ISSUES AND VULNERABILITY

The cultural heritage of the MDP WHS is vulnerable to compromise or damage from a number of factors. Some of these are typical of rock art sites in southern Africa, others are more particular to the site, its nature, location, management and stakeholders. *Inter alia*, it might be vulnerable to:

- Disaster, particular fire; Damages caused by visitors and grassland fires are some of the most pressing threats to the rock art (Topp 2010).
- Criminal damage, including vandalism and arson;
- Theft of archaeological material;
- Degradation or demolition through neglect of timely or appropriate maintenance and management;
- Misuse, either from inappropriate use or overloading;
- Inappropriate, ill-judged or ill-planned presentation or other change;
- Removal of historic fabric or historically significant elements;
- Inappropriate change in its environs, including deleterious physical changes to its natural setting, inside or outside the park, and substantive increases in visitation volumes; and
- Natural weathering processes, including rockfalls and collapse of rock shelters.

Organisational challenges

ICOMOS stated on inscription that it is concerned about the separate management plans and urged for the integration of the then CURE document in to an overarching management plan to avoid conflict. This CHMP is designed to ensure integration and harmonisation of cultural heritage management into the overall management of the Park.

While there has been significant interaction with Amafa and other cultural heritage practitioners, not all Ezemvelo staff have undergone formal rock art sensitisation programmes (see also Duval & Smith, 2012); it is hoped however that Amafa's new standardised Rock Art Monitoring Curriculum

will fulfil this requirement to some extent. Furthermore, the lack of institutional capacity in Ezemvelo poses a long term threat to the management of rock art and other cultural heritage (discussed previously in Institutional Arrangements).

The lack of understanding of rock art by Ezemvelo's ecotourism department is also of concern. As Duval & Smith (2014: 45) states: "Given the current management model, the preservation of the UDP's rock art sites requires rebalancing the spurious debate between preservation and utilisation and thereby opens up the potential of developing rock art tourism".

Natural Processes

Rock art is subject to degradation and loss from natural weathering processes. Whilst rock weathering and fading of paintings has always taken place, previously there was a process of continual painting or re-painting. Now that there is no further painting taking place there is a unidirectional process of degradation and loss of paintings, and this places a responsibility on management to both understand and to manage factors relating to weathering and degradation. Some research has been done on weathering processes of rock art pigments and the parent material on which rock art is painted, but much remains to be learned.

The natural breakdown of these sandstones, most notably in the Clarens Formation, is destroying much of the indigenous rock art heritage that exists there. Research by Meiklejohn, Hall and Davis (2009) suggest that rock moisture regimes and to a lesser extent, rock thermal regimes exert the most damaging influence on San paintings. It is argued that granular disintegration and the enlargement of existing sandstone pores and bedding planes close to the rock surface, facilitate an increasingly dynamic moisture regime, which leads to an accelerating rate of weathering. Mol and Viles (2010) showed that the extensive flaking and honeycombing, the most dominant weathering processes occurring in rock art shelters, is most likely caused by water pockets in the near-surface zone, which are replenished through internal moisture transport, driving the superficial weathering processes. Conservation strategies should therefore take internal processes into account as much as their superficial expression.

Many paintings are exposed to direct solar radiation for varying periods. Hall, Meiklejohn and Arocena (2007) found that pigments were composed of ferric oxide (the ochre) and a gypsum-clay mix (the white) and to occur as a layer on top of, rather than penetrating into, the sandstone. Thermal data show that there are significant differences between the white and the ochre pigments, and that these thermal variations may induce pigment-to-pigment stresses within the painting. The pigmented areas also exhibit different temperatures to the surrounding paint-free rock, suggesting that there may be both within-painting and between painting and rock (including the rock beneath the painting) stresses that can lead to degradation.

Anthropogenic Factors

In a report titled 'Brief summary of the rock art verification in the uKhahlamba Drakensberg Park World Heritage Site' a rock art verification was carried out in the Park between October 2009 and April 2011 (Topp, 2011). This inventory revealed high percentages of both fire and human damage, both of which can be managed and in most cases controlled. Topp estimated that at least 24% of sites have possibly been damaged by fire and 25% of sites have some form of human damage (graffiti, scratching etc.).

In the SNP, Lesotho, there is cross-border smuggling and stock theft as well as poaching the Park's game animals. Smugglers and stock thieves, as well as herdboys grazing their livestock in the mountains, are responsible for making fire in the rock art shelters and thus leading to damage to the rock art and archaeological deposits.

Proper policing of the park by a dedicated team of armed Field Rangers and community members is a very necessary action that should be implemented by MTEC in collaboration with the existing border patrols. SNP Field Rangers need to be employed, and need to be prepared to engage with persons using the park in ways that affect the conservation of this World class Cultural Heritage.

Staffing establishment

The staffing of EKZNW is exclusively related to natural heritage and ICOMOS has strongly recommended that a cultural unit be established within EKZNW (ICOMOS, 2000 p3). This issue continues to be raised at various forums (Mazel, 2012).

Lack of human capacity to manage cultural heritage was identified as a key risk in the IMP (Ref)

The staffing of Ezemvelo was previously exclusively related to natural heritage; ICOMOS strongly recommended that a cultural unit be established within Ezemvelo (ICOMOS, 2000). Attempts have been made since at least 2005 to employ a cultural heritage manager. While a cultural heritage manager post now exists on the Park staff establishment, funding constraints mean that this post has yet to be filled. Cultural heritage management advice is still provided under agreement by Amafa, while monitoring is undertaken by existing management staff. One of the responsibilities of the cultural heritage manager/unit should also be to develop a coordinated strategy for developing archaeo-tourism, including carrying out detailed analysis of tourism dynamics around rock art sites located in similar socio-economic environments (Duval and Smith, 2012). Ezemvelo has full time staff employed as a guide at Main Caves at Giants Castle and at the Didima Rock Art Centre.

Since its establishment in the 1970s, the park staff was mostly comprised of staff members related to natural heritage, It was only with the declaration as an extension of UDP in 2013 that two culture officers were deployed to SNP on permanent basis. The two officers' mandate includes conservation and protection of both tangible and intangible cultural heritage resources within the park and its buffer zone.

Funding levels at MDP WHS

Capital and operational funding for the Park is sourced primarily from the KwaZulu-Natal Provincial Government. Funding is furthermore generated from commercial operations within the Park and various external sources. It must be noted that no funding from National is received for this mandate.

Funding for the Lesotho side is solely sourced from Government budget.

Management effectiveness in MDP WHS

In context of cultural heritage resources it must be stated that notwithstanding budgetary and staffing constraints the relationship with Amafa and the current management strategies and programmes has allowed the Park to score well in the applicable METT assessments. Based on the METT assessment performed in 2017 for Sehlabathebe the score was high in general for the Park due to cultural heritage issues, even though the overall score for the MDP was low

Zonation plan

Protected areas are required to be zoned according to National Environmental Management Protected Areas Act No. 57 of 2003 chapter 41 (2) (g). The act requires the zoning of protected areas indicating what activities may take place and the conservation objectives for the different zones. The purpose of zonation within a protected area is to identify types and levels of usage that are acceptable based on an area's sensitivity and resilience, and to manage visitor experience and inter-user conflict. Zonation is used to identify areas in which infrastructure or activities may be located, and the nature of such infrastructure or activities.

The final management zonation is a composite of ecological zonation (based on natural resource sensitivity), sense of place, cultural features, patterns of environmental settings, and existing development and use patterns. The final zonation map is represented as a desired state, *i.e.* directing management towards a vision for each zone, which reflects and respects the broader conservation and eco-cultural tourism objectives for the protected area. Biophysical features that are readily located on the ground have been used to demarcate and delineate the zone boundaries.

The purpose of the zonation of the UDP WHS is to control the intensity and type of use within it, in efforts to ensure the overriding goals of biodiversity conservation and cultural heritage management are met whilst enabling acceptable levels of eco-cultural tourism and other resource use. On this basis, within some zones, the permissible intensity of use will be relatively higher than in others.

Soundscape Management

Ezemvelo and MTEC will preserve, to the greatest extent possible, the natural soundscapes of the Park. Preservation of natural sound is important for the appreciation and enjoyment of cultural heritage, and to understand, particularly, rock art in context.

Operational Management framework

This section translates the strategic framework described in Section 3 above into management activities and targets, which will be used to inform annual plans of operation and the resources required to implement them. The management targets will form the basis for the monitoring of performance in implementing the plan and are thus measurable.

Legal compliance and law enforcement

Through its mandate to undertake the conservation and management of protected areas in KwaZulu-Natal, Ezemvelo must ensure that the province's protected areas are appropriately legally protected and that the laws governing the use of protected areas and the prohibition of particular activities are enforced. In fulfilling this role, the managers of MDP WHS will adhere to the following guiding principles:

- All reasonable efforts must be made to ensure the effective conservation of cultural heritage within the Park.
- Cooperative structures should be established to enable participation by key stakeholders in creating awareness of cultural heritage legislation, cultural heritage management requirements, and in addressing offences and breaches of the law.
- Law enforcement within the Park will be undertaken through surveillance, monitoring and appropriate reaction in the event of an offence.

The Authority recognises, in general, that the levels of illegal activities within and around the Park are a threat to the the safety of its users and attainment of the Park's stated Vision, Mission and Objectives. More specifically, illegal access and the known frequent use of the Park as a corridor for cross-border crime (e.g. drug, livestock and fire-arm smuggling) are particular serious threats resulting in *inter alia* tourist harassment, undesirable arson fires, and damage to rock art sites.

In respect of cultural heritage management:

1. The Park security strategy must ensure coordinated participation in all possible local, regional and transfrontier security forums and networks, while optimising security in and around the Park.
2. This strategy must ensure sufficient capacity to deal with heritage-related illegal activities in the Park. Key to this is maintenance of appropriate channels of communication with Amafa to investigate and prosecute heritage-related crimes. However, it is acknowledged that neither Ezemvelo nor Amafa have sufficient personnel to staff all rock art and other cultural sites in the MDP WHS (see also Duval & Smith, 2012, with reference to rock art sites).
3. The Park will maintain ongoing vigilance through cost-effective surveillance, monitoring programmes and reaction and investigation capabilities.
4. As with any security strategy, a key focus of addressing heritage-related crime is proactive education and awareness of relevant sectors of society. Management will however not tolerate illegal impact on cultural heritage resources and will prosecute to the full extent of the law.
5. All management and Ecological Advice staff must undergo appropriate training and sensitisation in respect of cultural heritage management and cultural heritage legislation.

Stakeholder Engagement

Constructive relationships with adjacent landowners and communities are an important aspect of the effective conservation of protected areas; however, engagement with the broad range of local, national and international stakeholders is essential. Stakeholder engagement should be aimed at developing a strong sense of partnership between neighbouring communities, other stakeholders and Park management. The following guiding principles should be adhered to:

- Efforts should be made to ensure that the communities living around the Park are aware of the cultural heritage significance and value of the Park, and the role this plays or could play in contributing to local economic development.
- Community participation should be undertaken to engender a sense of ownership, pride and ultimately support for its cultural heritage objectives.
- A common understanding of the issues that affect both the Park and the surrounding communities should be developed and efforts to resolve them should be undertaken cooperatively.
- Key stakeholders must be identified and appropriate channels of communication created and engagement undertaken.
- Due to the fact that the authors of the rock art shares cultural and genetic affiliations with communities geographically distinct from those surrounding the park, efforts should be made to engage with these communities, who themselves have expressed a sense of intellectual ownership of these resources.

The Authority encourages community involvement in the management of the Park through collaboration with adjoining communities in the following programmes and projects:

Local Board

Community participation in the Park is realised through a Local Board which is established in terms of Chapter 5 of the KwaZulu-Natal Nature Conservation Management Act. The Ezemvelo KwaZulu-Natal Wildlife Board Policy No.4.9 provides an operational relationship framework between the Park and its Local Board to ensure effective community participation in the management of the Park.

Community Levy Trust Fund

Communities adjacent to the Park benefit from income generated by the Park through a community levy paid by visitors. These funds are administered through the Community Trust Fund and provided to communities for development needs as prescribed by Ezemvelo KwaZulu-Natal Wildlife Board Policies No. 4.16 and No. 4.6.

Externally Funded Projects

The Park procures external funding for specific Park related projects; priority is given to training members of the community and the creation of community Small, Micro and Medium Enterprise (SMME) business and employment opportunities.

The RAMP I and II projects were funded by the National Lottery via the African Conservation Trust and Amafa has funded a number of key projects such as the 2015 Built Environment Survey, graffiti removal, 3D scanning and infra red photography of rock art and the majority of other rock art related conservation activities.

The the Kamberg and Didima Interpretive Centres were funded by various government entities, along with private donor funding.

Custodian Programme

This program was designed to allow for local empowerment and job creation/economic opportunities.

San Descendants

San descendants should be major stakeholders in the management of cultural resources of the MDP WHS. The managers of the Park acknowledge this and have started a process of promoting and respecting the living heritage associated with these people. MDPWHS does not allow the collection of animals from protected areas for traditional use, but allowances have been made and the Park makes two eland per year available for traditional ceremonies for San descendants. At present there is an ongoing debate surrounding the access and spiritual ownership of some heritage resources. The relationship between the Park, organised San representatives, communities claiming dependency from the Mountain San, and other local communities' spiritual leaders needs to be investigated and formalised.

13. ECO-CULTURAL TOURISM MANAGEMENT

Principles

In developing and managing cultural tourism within the Park, the following guiding principles (from the IMP) should be adhered to:

- Tourism products developed within the Park must be appropriate to the OUV and purpose for which the Park has been proclaimed and must not compromise the attributes that impart significance nor increase threats to cultural heritage conservation.
- Must consider and be sensitive to living heritage.
- The focus of tourism must be on activities and not additional infrastructure; accommodation demands should largely be met outside the park whilst the park should provide for low-impact activities. Activities should align to the Transfrontier Conservation Area vision of low-impact, low-carbon footprint activities, and to facilitate cross-border activities and travel.
- Existing facilities must operate at optimal capacity prior to consideration being given to the construction of any new facilities.
- In developing tourism products, requirements for environmental impact assessments and environmental authorisation, and heritage impact assessments, must be considered and adhered to; in all cases the park must lead by example.
- Tourism products should be designed to capitalise on the unique beauty, biodiversity features and cultural features of the Park.
- Tourism products should be developed in response to tourism market demands and opportunities within the Park and should be carefully assessed to determine their viability; all tourism products and activities must be demonstrably self sufficient (profitable) prior to construction/initiation.
- The development of tourism products within the Park must be integrated with tourism strategies and plans in the region, particularly the Maloti Drakensberg Route.
- Tourism should be used as a tool for the generation of economic activity and employment in the communities surrounding the Park.
- Tourism facilities must be used to interpret the natural and cultural environment, and landscaping must represent and display the natural vegetation of the area.

Current management and presentation

In terms of heritage legislation, access to rock art sites is restricted. In order to overcome the conflict created between the desire of the public to access rock art, and the management desire to limit damage, as well as other management issues, a number of policies have been developed.

Twenty six rock art sites are currently open to the public in the South African part of the Park. The public may visit these if in possession of a permit, or if accompanied by accredited custodians. However, in practice there is public visitation to sites not on the official open list.

Criteria that were used to determine which sites are open include an understanding of existing tourism dynamics (i.e. sites that were already visited by tourists), the proximity of the sites to accommodation and restaurants, the potential for creating community employment, accessibility and the desire to include sites from across the Park.

The list of open sites has been compiled after careful consideration, but is open to review by the Amafa-Ezemvelo Liaison Committee as well as other interested and affected parties. These sites have been identified, officially opened and are actively managed.

The result of the current presentation of the rock art is a regrettably low quality of visit at many sites, although some (e.g. Sigubudu) offers a good experience due to an effective guide. This might be the result of the dominance of nature based activities and management (Duval & Smith, 2012).

Table 1: Rock Art Site and Their Zones

| <u>ROCK ART SITE</u> | <u>ZONE</u> |
|---|-------------------------------|
| Waterfall Shelter, Game Pass Shelter, Main Caves South, Main Caves North, Sigubudu 1, Tendele Camp (or Devil's Hoek), Procession Shelter, Aleit's Shelter, Lower Mushroom Shelter (or Mushroom Hill Cave), Ikanti 1, Ikanti 2, Ikanti 3 | LOW USE ZONE |
| Battle Cave, Mpongweni North (or Siphonweni), Boudary Rock (or Emerdale), Pholela Cave, Pornograhpic Shelter, Varnish Shelter, Painter's Cave (or Tsuayi's Shelter), Mystery Shelter (or Ngwangwane Shelter no: 8), Bees Shelter | PRIMITIVE WILDERNESS |
| Bathplug Cave | SEMI-PRIMITIVE WILDERNESS |
| Lion's Rock | Cathedral Peak Hotel Property |
| Good Hope Shelter No.1, Good Hope Shelter No.2 | Outside the Park |

Formal interpretation of the rock art is currently limited to three nodes: Main Caves, Kamberg Rock Art Centre, and Didima Rock Art Centre.

Main Caves, Giant's Castle has been documented for receiving the most guests that come to the Park to view rock art (vistors statistics). Following incidents of vandalism, access to Main Caves has been controlled since 1957; the interpretation at Main Caves dates back to 1969 when the site was formally developed for tourism by the then Natal Parks Board through the instillation of displays, a San Diorama and paved paths (Blundell, 1996). In 1998, the Main Caves tourist site was completely refurbished by Amafa and EKZNW, including building a wooden viewing platform to reduce dust and keep visitors away from the rock art, and guides were employed and trained to explain the paintings. Between 600 and 800 paying guests visit Main Caves on a monthly basis. The guide stationed at the site, is both an accredited guide and rock art Custodian.

Main Caves is a multi-layered heritage site, including both an open-air museum, displaying the life-ways of the Bushman, two rock art sites: one in the northern and the other in the southern sections of Main Caves, as well as a military history site, consisting of a defensive enclosure, within the northern section.

The clarity and diversity of the paintings add to the high tourism value of Main Caves: the southern shelter contains historical or contact phase paintings such as cattle, horses and Iron Age agriculturalists depicted with knobkerries as well as eland, while the northern section contains both naturalist or narrative paintings of felines, eland, hartebeest; and more abstract paintings such as therianthropes (images that are half-animal and half-human) that may be linked to shamanism or altered states of consciousness. The fact that the site is easy accessible and well-developed makes it easy for both the elderly and children to visit the site. The restaurant at the Camp and the reliable tour times further makes this site attractive, especially to tour operators.

Proposals to improve the conservation of the site include the possible replacement of the wooden boardwalk, which may pose a fire-threat, with a 4-everwood boardwalk.

Kamberg Rock Art Centre, Kamberg includes Game Pass Shelter. The site includes of the most breath-taking and inspiring rock art in the Park. The Rosetta Panel, that formed the basis for the improved understanding of the symbolic value of the art, and especially the art's relationship with San cosmology and religion, was researched in-depth by Professor David-Lewis Williams, contributing to Kamberg being known as the "heart-land" of shamanist rock art interpretations in South Africa. Game Pass Shelter is also one of the rock art destinations that are aesthetically pleasing, since the presence of vandalism is limited because guests are accompanied to the site by Amafa accredited Custodians. Lastly, Game Pass Shelter is also a living heritage destination, being used by San-descendants, usually in June each year to carry out a pilgrimage. The spiritual leader of the group also received training from Amafa as a rock art Custodian and this ensures that no harm comes to the site during the ceremonies.

In 2000, the National Department of Environmental Affairs and Tourism, via the Poverty Relief Fund, employed the Rock Art Research Institute of Wits University to redevelop Game Pass Shelter (DEAT, 2004; Smith, 2006). This involved infrastructural improvements, building an interpretation centre and training guides.

Kamberg Rock Art Centre also include an audio-visual room and Amafa has proposed that except for the usual DVD, that introduces the guests to Kamberg and the research that was carried out at Game Pass, several other DVDs could be included, especially if guests chose to stay more than one day at Kamberg.

Proposals to improve the visitors' experience to Kamberg include the training of several of the hospitality venues' (surrounding Kamberg) staff as rock art custodians since the Current Custodian programme at Kamberg is experiencing problems. This site, as with all the rock art destinations in the MDP WHS, needs to be marketed better.

Didima Rock Art Centre and rock art sites within Cathedral Peak: In 2003, EKZNW opened a new Rock Art Interpretation Centre at Didima, near Cathedral Peak, with museum-style displays and an auditorium for audiovisual presentations. Several rock art sites that are officially opened for public visitation can be visited in one day's time, such as: Procession, Lower Mushroom and Aleit Shelters. These hikes can and should be preceded by a visit to the Didima Rock Art Centre and its audio-visual show for orientation purposes. At present Centre includes a

basic archaeological exhibit, the history and meanings of the paintings in Cathedral Peak, as well as the history of researchers that specialised in rock art. Guides at the Cathedral Peak Hotel and guides from Ezemvelo were trained and accredited as rock art custodians.

Proposal to improve the visitors’ experience to the Didima Interpretive Centre and audio-visual room: some of the lights in the exhibits are not working and maintenance of the Centre should be kept in a good condition. The Centre is not well-visited because the price, especially for local tourists, are said to be too high. Sometimes the audio-visual presentation is working and sometimes not and this must be addressed. The Didima Rock Art Centre has an outdated and poorly written Business Plan (Sikhakane & Ndlovu, 2004). This Plan needs to be reviewed as a matter of urgency. Of all the rock art interpretive facilities the Centre has received the most publicity, especially shortly after its opening in 2003. It received coverage on DSTV and SABC in 2004.

“In spite of these important developments, tourism marketing of the [MDP WHS] persisted in focusing almost exclusively on the area’s natural beauty. Consequently, the new rock art developments did not receive significant numbers of tourists and rock art has not yet developed into a major attraction and source of social empowerment” (Duval and Smith, 2012).

Current Management and Presentation

The 2015 Rock Art Survey report suggested that 17 Rock Art Sites can be open to the public. However, Decision 41 Com 7B.38 of the World Heritage Committee has suspended non-urgent conservation interventions at the rock art sites , pending completion of staff training and instigation of a programme for implementation of the recommendations of the Rock Art and Baseline Archaeological Survey;

Inorder to communicate the meaning of rock art and related sites at snp, mtec has commissioned a service provider to carry out research, develop some designs and install exhibitions in the enviro centre and site museum. in addition, the provider would be required to develop appropriate interpretive signage and various related elements for effective interpretation of the site, and complementing the existing interpretation. Exhibition installation has not been completed.

14. CULTURAL HERITAGE MANAGEMENT

The MDP WHS is listed as a WHS of dual significance, having both natural and cultural OUV that needs to be protected. One of the key issues identified is the threat to the ongoing world heritage status should degradation of cultural heritage continue.

In managing the MDP WHS cultural assets and protecting the OUV of the Park, the following broad guiding principles will apply:

- Management of cultural resources should follow the Operational Guidelines for the implementation of the World Heritage Convention.
- in terms of the World Heritage Convention Act (Act No.49 of 1999) of South Africa and National Heritage Resources Act of 2011 - Lesotho.
- Access to sites will be in accordance with the requirements of the Cultural Heritage Management Plan and site-specific management plans.

Principles

Key **principles** for the conservation of the cultural heritage can be summarised as follows:

- Minimum intervention into the archaeological and historical fabric or disturbance of it; all intervention must be reversible.
- Archaeological, historical and other heritage elements of the Park are conserved through suitable management systems and actions.
- Heritage resources must be presented in such a way which enhances its significance.
- Conservation to recognised international standards and best practice in respect of site management, monitoring, maintenance, physical control and visitor management.

Policies

The policies for cultural heritage management are divided into four main themes (Maintenance, Physical Conservation, Visitor Management and Research) and are summarised in the table below:

| Maintenance: | Physical conservation: | Visitor management: | Research: |
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| <p>Maintenance can be defined as the continuous protection of the setting, fabric and contents, distinguishing it from repair, which would indicate restoration or reconstruction. (Burra Charter, Article 1.5)</p> <p>Maintenance includes baseline documentation, completion of condition assessment reports and continuous monitoring (regular inspections and the replication of recording methods). This is based on the principle of preventative care with minimum intervention. Examples include the following:</p> <ul style="list-style-type: none">i. checking that the fire breaks are maintained,ii. removing dead wood inside caves and rock shelters that pose a fire threat,iii. trimming shrubs that may abrade rock art panels,iv. checking that the visitors’ infrastructure (fences, walk ways, signage) are maintained and repaired if necessary. | <p>Conservation means all the processes of looking after a place so as to retain its cultural significance (Burra Charter, Article 1.4) This also includes direct intervention at a site, e.g. stabilisation, adaptation, restoration and reconstruction.</p> <p>a) Stabilisation (Article 1.6) can be defined as preserving what exists as it is or is retarding deterioration (not improvement) Examples include:</p> <ul style="list-style-type: none">i. establishing a drip line, consolidation treatment to stabilise paintings and engravings. <p>NOTE: Presently Conservation Specialists do not support the implementation of a drip-line or consolidation treatment as it results in water accumulation which leads to exfoliation at sensitive areas in the parent rock.</p> <p>b) Adaptation: Adaptation entails modifying a place to suit compatible uses and it is acceptable where it will supplement the conservation of the place, and if it does not substantially subtract from the cultural significance of a site.</p> <p>Adaptation must be limited to that which is essential to allow use of the place in accordance with the Statement of Goals and Objectives within the IMP. An example may be:</p> <ul style="list-style-type: none">i. modifying a site to allow for low impact tourism (The construction of fences, signage, board walks, benches, etc. at rock art sites). <p>c) Restoration involves returning the existing fabric to a known earlier state by removing accretions without introducing new materials (Article 1.7 & 19).This can only be done if there is sufficient evidence of an earlier state and only if removing the fabric reveals the cultural significance of the place/setting.</p> <p>This process is limited to</p> <ul style="list-style-type: none">i. the removal of post-contact graffiti (younger than 100 years)ii. the removal of stains caused by lichen and vascular plants the removal of birds and insect nests obliterating the art. <p>NOTE: At present Conservation Specialists do not remove swallows’ nests if they are situated in close proximity to the rock art - but not obliterating it, as swallows tend to built on the same spot every year and if one removes the nest, the chance exists that a new nest will be constructed over the art.</p> <p>d) Reconstruction: implies returning a site as near as</p> | <p>The management of visitors includes</p> <ul style="list-style-type: none">i) The development of site access policies addressing the public, media and ritual demands on sitesii) The employment of guides, custodians, and the implementation of a permitting system where custodians are not presentiii)The development of interpretive programmesiv) The construction and maintenance of visitor’s facilities e.g. signs, physical barriers, walk ways etc. <p>Such work must adhere directly to the strategies related to adaptation.</p> | <p>Research strategies and priorities include:</p> <ul style="list-style-type: none">i) Supporting both applied and theoretic researchii) Research should be undertaken using current best practice.iii) Research benefit should outweigh potential risks.iv) Duplication of research should be discouraged.v) Research should be conducted by recognised institutions, or in partnership with them.vi) Foreign researchers must partner with Lesotho and/or South African Institutions. |

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| | <p>possible to a known earlier state (Article 1.8 & 20). This is aimed at legibility as well as the aesthetic presentation of a site/artefact. New as well as old materials can be used in the process. Reconstruction must be limited to the repair of a dilapidated entity (it should not involve the majority of the fabric).</p> <p>NOTE: Reconstruction is not permissible in South Africa as there are no San descendants who are still practicing artists. Therefore no skills regarding renovation or retouch exist (It is however allowed in Australia, where the original tradition is still carried out).</p> | | |
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Context of cultural heritage management in relation to biodiversity management

Conservation management is covered in detail in theIMP. Certain aspects are repeated here where it pertains to or may impact on cultural heritage.

Fire management

The present philosophy (approach) to fire in the MDPWHS is the culmination of many years of research, implementation and monitoring of fire behaviour and effects, culminating in a review of the effects of fire on fauna and flora in the Drakensberg during 2005 (Uys, 2006) and the development of an updated Fire management Plan in 2011. Management aims to mimic ‘natural’ fire effects as far as possible.

Monitoring (Topp) has highlighted that many sites or paintings have been or may be impacted by fire.

In addition to biodiversity objectives, fire regimes need to be tailored according to environmental conditions, risk management requirements and resources at hand. Given the dual listing of the WHS and the non-renewable nature of the rock art, specific measures will be put in place to safeguard cultural heritage sites. These will include removal of flammable vegetation from the immediate vicinity of the paintings and burning of fire breaks where appropriate. Specific attention must be given to undertaking this task prior to the onset of each fire season, and taking into consideration that many areas not scheduled for burning will be burnt through arson, invasive or accidental fires. Monitoring is essential. The success of meeting objectives and targets needs to be monitored and fed back into an adaptive management framework.

Animal management

Any removals for cultural reasons must go through due process. The Park supports making a limited number (currently two) eland available for cultural ceremonies for Bushman descendants. The sex of the animals provided will be determined based on the current age and sex composition of the population, based on monitoring results. Only animals indigenous to the area will be introduced for biodiversity reasons as well as to maintain the authenticity of the cultural landscape.

Plant Management

No removal of medicinal plants will be permitted for any purpose, including cultural purposes. However, propagative materials will be made available for legitimate medicinal plant nurseries on request. Rock Art Management Objectives

Maintenance or continuous preventative care of heritage resources (mainly rock art sites) as well as physical conservation thereof. This includes adaptation, stabilisation and restoration carried out in a manner which does not impact negatively on the cultural integrity of the resource.

14.1 Rock Art Management

The management of rock art sites includes strategies for managing the deterioration of rock art, preventative care and direct intervention

In managing the deterioration of rock art, there are three critical issues that should be addressed:

- i) Observation of the physical effects/symptoms associated with deterioration.
- ii) Identification of the process/es responsible.
- iii) Understanding the process/es responsible.

The information above guides management intervention, recorded in the form of a generic, or site specific management plan to be imposed. It is important that such plans be cooperatively developed, and that responsibility and accountability be clearly defined.

The Table 2 below provides specific actions related to threats to rock art:

Table 2. Rock Art Threats and Actions

| Risk: | Action: | Persons responsible: | Criteria to measure the outcome: | Time frame: | Outcome: |
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| Human Agents of deterioration | | | | | |

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| <p>Vandalism: (Graffiti) – <i>Applied technique:</i> the addition of material to the rock surface</p> <ul style="list-style-type: none"> - charcoal - chalk - paint: oil or water-based - other <p>Vandalism: (Graffiti) – <i>Removal technique:</i> the removal of the rock substrate in order to mark the rock surface: e.g. scratched or deeply incised, hacked off pieces</p> <p><u>Content:</u> names & initials, dated names, designs, outlining of motif, imitation of motif</p> <p><u>Location:</u> Directly over the pigment or art or adjacent to the art on the main panel</p> <p>Vandalism also includes other forms of abrasion against rock art, shooting or any other act of defacement and deliberately introducing water/any other liquid to painted surfaces.</p> | <p>All visitors must be accompanied by an Amafa-accredited custodian, who will relate the code of conduct to the guests and supervise their behaviour.</p> <p>Site specific management plans will specify the number of guests allowed to visit rock art sites, in accordance with the size of the cave/shelter. Limiting the size of the group will allow the custodian to adequately supervise the group and ensure that no vandalism takes place.</p> <p>Monitoring The Custodian has the duty to monitor the site and report back on any undesirable situation. Monthly monitoring forms following a prescribed format will assist this process.</p> <p>The sooner charcoal graffiti is removed from the rock substrate, the easier the process will be, when charcoal remains on the rock surface for long time-spans; pigments become internalised with the rock matrix.</p> <p>The restoration of applied graffiti or the rehabilitation of the rock surface with reference to engraved vandalism, constitute direct intervention.</p> <p>A Heritage Impact assessment is needed to investigate the impact of alterations on the integrity of the site.</p> <p>Management must adhere to the principle of minimum intervention and reversibility of actions.</p> <p>A Photographic and written documentation process must form part of any intervention programme.</p> <p>Rock art sites that are not open to the public should not be shown on maps.</p> | <p>Custodian→Rock Art Monitor (RAM) (Amafa)→Senior Heritage→Officer: Rock Art (SHO:RA) (Amafa) (Park Rangers Culture officer Senior Museum Curator) SHO:RA (Amafa)→Deputy Director: Research, Professional Services and Compliance (DD:RPSC) (Amafa) → Cultural Heritage Management Group (CHMG) (Culture officer Senior Museum Curator)</p> <p>Custodians/Field Ranger (FR)→ Officer in Charge (OIC)→ RAM (Park Rangers Culture officer)</p> <p>Accredited Conservator on appointment and permit from Amafa and MTEC.</p> <p>Accredited Conservator on appointment and permit from Amafa.</p> <p>Practitioner on appointment by Amafa. This report, accompanied by a permit application to start the restoration or rehabilitation, will be send to the Permit Review Committee who will decide whether the permit will be issued or not.</p> | <p>Reduced incidences of vandalism.</p> <p>Reduced incidences of vandalism.</p> <p>Reduced incidences of vandalism.</p> <p>Reduced incidences of vandalism.</p> <p>Reduce/prevent the impact of alterations on the integrity of the site.</p> | <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Need driven</p> <p>Need driven</p> <p>Need driven</p> | <p>Reduction in graffiti</p> <p>Reduction in graffiti</p> <p>Reduction in graffiti</p> <p>Reduction in graffiti</p> <p>Reduction in graffiti</p> <p>Minimum intervention</p> |
| <p>Touching of Art. Skin contains oils and fats that cause deterioration of the paintings. It also results in contamination of the art compromising chemical analysis.</p> | <p>Any area within 50m radius (surrounding) the site is protected by law and an Amafa-accredited Custodian must accompany visitors.</p> <p>The custodian will inform the people that they may not remove, alter, change, destroy</p> | <p>Custodian→SHO:RA (Amafa)→DD:RPSC (Amafa) Park Ranger and Culture Officer</p> | <p>Effectiveness of the Custodian Programme</p> <p>Effectiveness of the Custodian Programme</p> | <p>Ongoing</p> <p>Ongoing</p> | <p>No deterioration of rock due to touching.</p> <p>No deterioration of rock due to touching.</p> |

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| <p>Touching rock art may also result in a polishing effect that also leads to colour loss.</p> <p>Certain recording techniques such as tracing or rubbings necessitate touching of the art.</p> <p>Abrasion (Rubbing/scratching against paintings, accidentally removing pigment: Such damage can be caused by un/intentional leaning against the paintings. Equipment such as backpacks may have metal clasps that can scratch the art. Abrasion can also result when people are trying to take photos in confined spaces. Continued abrasion ultimately leads to removal of pigments from the rock face.</p> | <p>anything on the site and its immediate surroundings, nor touch the art.</p> <p>Visitors' numbers should be limited to allow for good supervision of guests on site.</p> <p>Any tracing requires a permit from Amafa. Such tracing may only be carried out by suitably qualified persons.</p> <p>All visitors must be accompanied by an Amafa-accredited Custodian, who must inform the guests to remove their back packs before entering an area within 5m of the rock art site.</p> <p>The Custodian will also tell the people to be careful not to accidentally lean or touch the rock surface.</p> <p>Numbers will be limited to allow for sufficient supervision.</p> | <p>Custodian→ SHO:RA (Amafa)→ DD:RPSC (Amafa) Park Ranger and Culture Officer</p> <p>Custodian→ SHO:RA (Amafa)→ DD:RPSC (Amafa) Park Ranger and Culture Officer</p> <p>SHO:RA (Amafa)→ DD:RPSC (Amafa) →PRC Park Ranger and Culture Officer</p> <p>Custodian→ SHO:RA (Amafa)→ DD:RPSC Park Ranger and Culture Officer</p> <p>Custodian→ SHO:RA (Amafa)→ DD:RPSC (Amafa) Park Ranger and Culture Officer</p> <p>Custodian→ SHO:RA (Amafa)→ DD:RPSC (Amafa) Park Ranger and Culture Officer</p> | <p>Recording of visitor numbers</p> <p>Permit</p> <p>Effectiveness of the Custodian Programme</p> <p>Effectiveness of the Custodian Programme</p> <p>Recording of visitor numbers</p> | <p>Ongoing</p> <p>When required</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> | <p>No deterioration of rock due to touching.</p> <p>No deterioration of rock due to tracing.</p> <p>No deterioration of rock due to abrasion.</p> <p>No deterioration of rock due to abrasion.</p> <p>No deterioration of rock due to abrasion.</p> |
| <p>Fire. Camp fires, cigarette and candle smoke as well as fire resulting from controlled burns causes soot to be deposited on the rock surface and covers the paintings, it also causes flaking/(paint peeling off from rock surface).</p> | <p>Visitor information.</p> <p>Push controlled fires outside the 20m Buffer Zone. Clear vegetation posing a fire hazard within the 20m Buffer Zone of the rock art site, where practical.</p> <p>Custodians completing monthly monitoring reports must inform both the SCM of the Park as well as Amafa SHO:RA, if vegetation is posing a fire threat.</p> <p>The SCM should do a pre-burn assessment of sensitive sites and burn a fire-break around it; where practical.</p> <p>In case of unscheduled burns, SCM should identify fire-sensitive sites and take immediate steps to avoid potential fire damage (by once again burning a fire-break at</p> | <p>Custodian→ SHO:RA (Amafa)→ DD:RPSC (Amafa) → CHMG Park Ranger and Culture Officer</p> <p>Custodian→SCM / SHO:RA (Amafa)→ DD:RPSC (Amafa) Park Ranger and Culture Officer</p> <p>SCM</p> | <p>Reduction in damage to rock art by fire.</p> <p>Monthly Monitoring</p> <p>Assessment</p> <p>Vegetation control</p> | <p>Ongoing</p> <p>Monthly</p> <p>When required</p> <p>Ongoing/ Immediate when required</p> | <p>No new fire damage.</p> <p>No new fire damage.</p> <p>No new fire damage.</p> <p>No new fire damage.</p> |

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| | least 20m from the site); where practical. | Park Ranger and Culture Officer | | | |
| | | SCM | | | |
| Dust. Dust settles over the paintings, bonds with the minerals in the art and creates a dark crust over it – little can be done to remove it. Hence intervention should focus on prevention of dust causing agents. Dust and water in combination further compromise painted surfaces. | Visitor information | Custodian→ SHO:RA (Amafa)→ DD:RPSC (Amafa) Park Ranger and Culture Officer | Reducing/preventing dust. | Ongoing | No new damage done by dust. |
| | Vegetation planting may reduce dust, but is a direct intervention. Ezemvelo (Ecological Advice) and MTEC as well as Amafa need to be consulted before any such intervention will be permitted. | Park Ranger and Culture Officer Ecological Advice | Reducing/preventing dust. | When required | No new damage done by dust |
| Applying liquid to painted surfaces. Pouring liquid onto art to improve visibility quickly causes irreparable damage to the art. This will result both in colour loss as well as lime, silica and salt accretion over the art. Furthermore, dust bonds more easily to wet surfaces | Provision of public information | Custodian→ SHO:RA (Amafa)→ DD:RPSC (Amafa) Park Ranger and Culture Officer | Reduction in damage caused by pouring liquid on rock art. | Ongoing | No new damage caused by liquids |
| Access control: Damage, both intentional and unintentional can be reduced by ensuring adequate access to rock art sites. | Paths to unmanaged sites should be decommissioned and allowed to overgrow and must not be maintained in cases where heritage sites are closed to the public. | SCM Park Ranger and Culture Officer MTEC | Paths to became overgrown | When required | No access to unmanaged sites |
| | Paths leading to or past sensitive sites must be closed or re-routed. | SCM | Paths closed | When required | No access to unmanaged sites |
| | Unmanaged sites or sites not opened to the public must not be recorded on hikers ‘maps or on literature or displays. | SHO:RA (Amafa) Park Ranger and Culture Officer Senior Museum Curator | Maps containing correct information | Ongoing | No access to unmanaged sites |
| | Site information is kept confidential and is not made public. | SCM | Provision of correct information | Ongoing | No access to unmanaged sites |
| | Ongoing monitoring patrols to all sites open to the public. | SCM Park Ranger and Culture Officer | Monitoring cards | Monthly | No access to unmanaged sites |
| | All public centres should have signage reminding visitors of the custodian and access rules. | RAM (Amafa) SHO:RA (Amafa) | Suitable literature and signage | When required | No access to unmanaged sites |
| | No camping allowed inside caves or shelters containing rock art. | Park Ranger and Culture Officer | Patrols | As per Clustering Monitoring Regime | No access to unmanaged sites |
| | Every MDP WHS camp should have a notice board or pamphlets showing which sites are opened for overnight camping. | SCM MTEC SHO:RA (Amafa) | Monitoring cards Populating rock art database | As per Clustering Monitoring Regime | No access to unmanaged sites |
| | Regular and ongoing monitoring. Amafa-accredited Custodians on a monthly basis, | Park Ranger and Culture Officer Senior Museum Curator | | | No access to unmanaged sites |
| | Annually by the SHO:RA, and | Custodians→RA M (Amafa) | | | |
| | by EKZNW and MTEC officials according to their schedule. | →SHO:RA (Amafa)/FR | | | |

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| | <p>This information will be used to populate the rock art database, in order to identify threats timeously and to implement strategies to limit or prevent deterioration.</p> | | | | |
| <p>Visitor Management: Visitor numbers must be treated with caution (Duval & Smith, 2012). Understanding the needs of visitors will assist in developing management strategies which protect rock art while accommodating visitor expectations.</p> | <p>By maximising appreciation and enjoyment, visitors are most likely to be receptive to conservation measures. Guests usually link a well-conserved site to good management practices. Ensuring there is evidence of site management contributes in this regard.</p> <p>Minimise direct or indirect damage by ensuring the following interventions are effected appropriately: - staff and custodian presence - sign boards - information pamphlets - site museums - and barriers to mitigate threats.</p> <p>Visitor Infrastructure. The topic is covered in the discussion on economic value of heritage sites.</p> | <p>Custodian</p> <p>Park Ranger and Culture Officer MTEC</p> <p>MTEC</p> <p>MTEC</p> | <p>Visitor statistics</p> | <p>Ongoing</p> | <p>No new damage to rock art sites</p> |
| <p>Natural Agents of Deterioration</p> <p>Weathering: In conservation terminology, the rock on which paintings are found is called the “substrate”. Weathering or deterioration of the rock itself is one of the most common problems affecting rock art. Weathering is chemical alteration and mechanical breakdown of rock material as a result of exposure to air, moisture and organic matter.</p> <ul style="list-style-type: none"> • Mechanical weathering: occurs as a result of external or internal sources of stress and includes heat, moisture, crystal growth, frost, salts. • Chemical weathering: Structure & composition of the rock changes, as a result of the reaction between the minerals & elements in the substrate with water or oxygen: leads to solution, oxidation and carbonisation. | <p>Weathering Vegetation surrounding rock art sites, including those that are managed for the public, should be retained whenever possible, due to its value in shielding and reducing the impact of direct sunlight on paintings; for site microclimate control; and to buffer daily extremes in temperature and humidity. This obviously excludes vegetation that is causing a threat due to abrasion. Should the decision be made that vegetation need to be planted in front of a cave or shelter with rock art, one must remember that this constitutes direct intervention and that the relevant permits are needed from Amafa and EKZNW and MTEC.</p> <p>With regard to natural block collapse or instability of the rock matrix: Custodians to be trained to identify and report on structural instability such as cracks and fissures and alert Amafa staff.</p> | <p>Custodian→RAM (Amafa)→SHO:RA (Amafa) Park Ranger and Culture Officer</p> | <p>Photographic recording</p> | <p>As per Cluster Monitoring Regime</p> | <p>Reduced weathering incidences</p> |

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| <p>Commonly encountered types of weathering</p> <ul style="list-style-type: none"> • Honeycomb weathering: Is caused by differing resistance of the minerals in the rock surface to weathering. It results in many small hollows. • Cavernous weathering: Occurs commonly in sandstone, identified visually as scalloping of the rock surface. Salt and water are the primary causal agents. • Granular disintegration: Involves a deterioration of the rock matrix and natural cements that hold the rock together. • Natural block collapse: Loss of rock from the remaining parent rock, as a result of the weakening of the substrate along cracks and fissures caused by pressure (expansion and rapid cooling of particles during bushfires and when water freezes in cracks). | | | | | |
| <p>Water: Ground water, condensation, humidity and direct water contact, such as rain have an impact on the substrate of rock art panels. Surface water - flowing water creates dark patches on the rock surface and around such dark patches are often lighter regions caused by the deposition of minerals (e.g. salts) carried in water. Salt/silica accretion or lime encrustation may build up and obscure the painting or it could be deposited behind the rock face, eventually causing it to flake off. Direct exposure to water will also cause pigment loss. Within the northern part of the Park, an added impact – that of acid rain caused by highveld power plants – may be felt. This has however not been tested.</p> | <p>Prevention of or attempts to stop / limit water from flowing over the paintings. Such work could include stabilisation and direct intervention by construction of a drip-line to divert water flow.</p> <p>The construction of drip lines constitute a direct intervention and an HIA is required, along with a permit issued by Amafa</p> <p>The principle of minimum intervention and reversibility of actions must be applied.</p> | <p>RAM (Amafa) →SHO:RA (Amafa)</p> <p>Park Ranger and Culture Officer</p> <p>PRC Park Ranger and Culture Officer</p> | <p>Monitoring Cards</p> <p>Permit</p> | <p>As per the Cluster Monitoring Regime</p> <p>When required</p> | <p>Reduced incidents of water damage</p> <p>Reduced incidents of water damage</p> |
| <p>Fire Fire causes soot to be deposited on the rock surface, covering and obscuring paintings and causing flaking. Extreme heat from veld fires can cause large-scale exfoliation of rock surfaces, due to rapid thermal expansion.</p> | <p>A 20m buffer area, as required by the KwaZulu-Natal Heritage Act should be enforced where practical, when scheduled burns are carried out. Dry vegetation in close proximity to rock art sites must be removed. Managers should refer to the Fire Compartment Attribute Table to identify sensitive heritage features.</p> | <p>SCM Park Ranger and Culture Officer Park Manager</p> | <p>Fire Compartment Attribute Table</p> | <p>As per burn schedule</p> | <p>No new damage by fire.</p> |
| <p>Vegetation The most obvious threats posed by vegetation are those related to fire and abrasion and the management interventions for those threats apply. There are various categories of</p> | <p>Keep vegetation around the shelter neatly trimmed. Unless necessary, do not remove trees or top-soil as this constitutes development requiring a permit. Any work of this nature needs to be directly supervised by a CM or Amafa SHO: RA.</p> | <p>CM or SHO:RA (Amafa) →SCM</p> <p>Park Ranger and Culture Officer</p> | <p>Monitoring</p> | <p>As per Cluster Monitoring Regime</p> | <p>No new damage due to vegetation.</p> |

| | | | | | |
|---|---|--|--|---|---|
| <p>vegetation that need to be evaluated in greater detail:</p> <ul style="list-style-type: none"> • Vascular plants: plant leaves and stems may brush the rock surface and have an abrasive effect on the art. Root action can cause existing cracks to widen and thus weaken the physical structure of the rock. • Algae. These are simple plants, often requiring wet conditions. Certain algae can form thick layers over painted surfaces, eventually causing the rock surface to break down, or alternatively, pigment loss. • Lichen: Lichens grow on trees, walls and rocks. They extract nutrients from the growth substrate. They have varying colours and tend to withstand drier conditions than algae. They cause direct physical and chemical damage to the rock surface • Mosses: These often occur in wetter and damper parts of a rock shelter, and have a physical and corrosive effect on the rock surface. | <p>Remove dead plant matter inside the shelter that poses a fire hazard.</p> <p>While vegetation may pose a threat, this needs to be evaluated against the benefits raised in para 10.5.3.1.1.1 Vegetation also may benefit a site in consolidation of shelter deposits and soils in the vicinity and in suppressing airborne dust, preventing deposition over paintings.</p> <p>Prevent damage caused by heat from fire and soot covering paintings, by burning fire-trails around sensitive sites, at least 20m from the site, where practical.</p> <p>Only experts should intervene to try and remove lichen, mosses and algae growing too close to or over art, this constitutes of direct intervention requiring a permit.</p> | PRC | Permit | When required | Restoration of rock art. |
| <p>Damage caused by animals.</p> <p>a. a) Abrasion by animals: Domestic and wild animals rub against paintings and cause flaking. Mud is also deposited over paintings.</p> <p>b. Animals trample cave deposits and shelter floors. This raises dust, but may also cause damage to archaeological deposits</p> <p>c. Urine and excrement leads to salt deposits on the cave surface, transported by ground water and deposited as yellow patches over the art.</p> <p>d. Animals may lick paintings and rock surfaces.</p> <p>e. Animals cause fluctuations in the micro-climate of the cave/shelter environments</p> <p>f. Bird & Insect Nests, termite trails and termite mounds: Birds and insects build nests covering paintings, (e.g. swallows & wasps' nests. Nests obscure the art and causes pigment loss. It has been noted that existing nests, encourage nest-building nearby.)</p> | <p>Construct fences where appropriate. Within 10 m of a rock art site this constitutes of direct intervention requiring a permit.</p> <p>The removal of birds' and insects' nests constitutes direct intervention requiring a permit.</p> | <p>RAM (Amafa) →PRC</p> <p>Park Ranger and Culture Officer Park Manager</p> <p>PRC</p> | <p>Erection of fence</p> <p>Removal of nests</p> | <p>When required</p> <p>When required</p> | <p>No damage by animals</p> <p>No new damage by nests</p> |

Table 3: Consequence Matrix: Rock Art

| THREAT | MINOR (1) | MEDIUM (2) | SERIOUS (3) | MAJOR (4) | DISASTER (5) |
|-------------------------------------|---|--|---|--|---|
| Vandalism | Near-painting, confined to single incident and promptly reversible impact | Near-painting, multiple incidents reversible impact | On painting. | Impact that is not confined to a single site. | Impact that is widespread, unconfined and long-term recovery, leaving major residual damage (typically years). |
| Touching of art | At single painting/site with no visible impact | At single site and with visible impact. | Widespread with visible impact. | Widespread impact, with loss of some paintings | Loss of 10% of paintings |
| Abbrasion | Near-painting, confined and promptly reversible impact | Near-painting, multiple incidents reversible impact | On painting. | Impact that is not confined to a single site. | Impact that is widespread, unconfined and long-term recovery, leaving major residual damage (typically years). |
| Fire (human) | Near-painting confined and short-term reversible impact | At several sites. Not on paintings. | On painting. | Impact that is not confined to a single site. | Impact that is widespread, unconfined and long-term recovery, leaving major residual damage (typically years). |
| Dust | Light, paintings visible | Medium, paintings obscured | Heavy, paintings not visible | Impact that is not confined to a single site. | Impact that is widespread, unconfined and long-term recovery, leaving major residual damage (typically years). |
| Applying liquid to painted surfaces | Impact of single site, paintings visible | Impact on single site, paintings obscured | Paintings obscured | Impact that is not confined to a single site. | Impact that is widespread, unconfined and long-term recovery, leaving major residual damage (typically years). |
| Access control | Illegal access, but no tangible signs of impact | Illegal visitation with tangible signs of impact on site, but not on paintings | Impact on paintings | Impact that is not confined to a single site. | Impact is widespread |
| Visitor management | Near-site confined and promptly reversible impact | Near-site confined and short-term reversible impact (typically a week). | Near-site confined and medium-term recovery impact (typically a month). | Impact that is unconfined and requiring long-term recovery, leaving residual damage (typically years). | Impact that is widespread and unconfined and requiring long-term recovery, leaving major residual damage (typically years). |
| Weathering | Not applicable. | Visible at one site, on painting | Visible at several sites, on paintings | 10 or more sites | More than 25% of sites |
| Water | Near-paintings | Visible on paintings at one site | Visible on paintings at several sites | 10 or more sites | More than 25% of sites |
| Fire (Natural) | Near-site confined and short-term reversible impact | At single site and on paintings | Visible on paintings at several sites | 10 or more sites | More than 25% of sites |
| Vegetation | Near-paintings confined and medium-term recovery impact | On paintings at a single site | Impacting on several sites | 10 or more sites | Impact that is unconfined and requiring long-term recovery, leaving residual damage (typically years). |

| | | | | | |
|--------------------------|----------------|---------------------------------|----------------------------|------------------|------------------------|
| Damage caused by animals | Near-paintings | At single site and on paintings | Impacting on several sites | 10 or more sites | More than 25% of sites |
|--------------------------|----------------|---------------------------------|----------------------------|------------------|------------------------|

Site-specific management plans have been produced for sites open to the public or for sites requiring specific intervention (Addendums 2)

14.2 Built Heritage Management

In terms of NHRA and KZN HA, Ezemvelo is responsible for the maintenance of all built environment structures of significance and/or that are over 60 years old, as well as of any public memorials within the Park. It is therefore incumbent that Ezemvelo consult with Amafa and, ideally, qualified heritage architects, with regard to the maintenance and upkeep of these categories of structures. It must be noted here that neglecting to maintain any structure of significance or over 60 years old can be deemed as a wilful act of demolition, and as such is a contravention of the act for which Ezemvelo can be held liable.

Preventative maintenance by responsible managers is required to prevent damage to and, ultimately, higher costs of major restoration. Any preventative actions/maintenance on significant structures and or older than 60 years should however take heritage conservation principles into account, and can only be implemented through a permit from Amafa. The principles that should be followed in the maintenance, management and restoration of these structures is set out in both the Burra and Venice Charters and the Amafa guidance document (Amafa 2015). Specifically refer to Articles 4, 9, 11 and 12 of the Venice Charter.

In line with both cultural heritage management and conservation principles Ezemvelo should pursue the adaptive re-use of buildings wherever possible, such as previous domestic dwellings being used as offices (see Article 5 of the Venice Charter).

Table 4: Consequences Matrix: Built Environment

| THREAT | MINOR (1) | MEDIUM (2) | SERIOUS (3) | MAJOR (4) | DISASTER (5) |
|----------------------------|---|--------------------------------------|---|---|--|
| Vandalism | Confined to single incident and promptly reversible impact | Multiple incidents reversible impact | Destruction of fabric of a single structure | Impact that is not confined to a single site. | Impact that is widespread, unconfined and long-term recovery, leaving major residual damage (typically years). |
| Fire (human & natural) | Confined to a single structure and short-term reversible impact | At several sites. | At proclaimed site. | More than 10 structures | Impact that is widespread, unconfined and long-term recovery, leaving major residual damage (typically years). |
| Alterations without permit | At one structure | At several structures | 10 or more structures | More than 25 structures | At proclaimed structure |
| Demolition without permit | One structure | Several structures | 10 or more structures | More than 25 structures | Proclaimed structures |

Recommendations:

- Link Celliers (2014) report to asset register.
- Ensure that all OiCs have copies of relevant sections of the report.
- Supply Technical AServices with a full copy of the report and workshop this and the legislation with them (Amafa, Park Management, EcoAdvice).
- Implement biennial condition assessment of buildings identified as being significant and/or older than 60 years, preferably by the in-house architect after training by Amafa.
- Consideration should be given to the in-house architect receiving training in heritage architecture. Such formalised training is available at DUT and the KZN Institute of Architects.
- All heritage resources are in the process of being recorded in SAHRIS (joint Amafa/Ezemvelo responsibility).
- Add map showing age and significance of structures on map.

14.3 Paleontological Heritage Management

In summary, the MDPWHS contains abundant paleontological resources from the Karoo Super-group, particularly dinosaur and other vertebrate fossils from the Elliot and Clarens Formations. These resources remain poorly known and underexplored relative to other areas in South Africa and Lesotho.

The first priority for the Park is to obtain in map form all existing data on fossils within the Park and the Buffer Zone. A tertiary institution would be required to undertake this task [Prof Bruce Rubidge of Wits University Evolutionary Studies Institute].

Of primary importance is prospecting for and documenting body and footprint fossil sites within the park. This is an endeavour that may be largely conducted with the help of academics and citizen scientists and that will take years of data collection to complete.

It is important to train both staff and citizens as ‘fossil spotters’. A plan for the documentation of fossils, after training, would include establishing a database of new fossil localities, with GPS coordinates, locational and stratigraphic information, and images of the fossils. These new fossil sites would need to be evaluated and documented by a trained expert palaeontologist, and then be assessed for their importance and heritage priority.

Body fossils (e.g., skulls, skeletons) are almost always at high risk for destruction due to erosion and weathering. These could be excavated by trained teams from an institution with necessary skills and facilities to conduct proper excavations. Excavations would have to take place after securing the proper permitting from either SAHRA or Amafa or MTEC. Footprint fossils (technically ichnofossils) should in almost all cases be left in-situ, as the excavation process is extremely damaging to them and to their context relative to other ichnofossils. Additionally, they should be carefully managed (e.g. no glues should be used on them, no structures should be built over them). Instead, ichnofossils should be documented with a 3D method such as photogrammetry and left to naturally weather slowly. The weathering process often reveals new ichnofossils.

Theft of fossils is a very real possibility, and it is a crime that is difficult to stop. Staff should be on the lookout for unapproved excavations or people with excavation equipment.

Table 5: Consequences Matrix: Palaeontology

| THREAT | MINOR (1) | MEDIUM (2) | SERIOUS (3) | MAJOR (4) | DISASTER (5) |
|---|---|--|---|--|---|
| Vandalism | Near-fossil, confined to single incident and promptly reversible impact | Near-fossil, multiple incidents reversible impact | On fossil. | Impact that is not confined to a single site. | Impact that is widespread, unconfined and long-term recovery, leaving major residual damage (typically years). |
| Access control | Illegal access, but no tangible signs of impact | Illegal visitation with tangible signs of impact on site, but not on fossils | Impact on fossils | Impact that is not confined to a single site. | Impact is widespread |
| Visitor management | Near-site confined and promptly reversible impact | Near-site confined and short-term reversible impact (typically a week). | Near-site confined and medium-term recovery impact (typically a month). | Impact that is unconfined and requiring long-term recovery, leaving residual damage (typically years). | Impact that is widespread unconfined and requiring long-term recovery, leaving major residual damage (typically years). |
| Weathering | Not applicable. | Visible at one site, on fossil | Visible at several sites, on fossils | 10 or more sites | More than 25% of sites |
| Illegal removal of fossils | Part of a fossil | Complete fossil | 2-5 fossils | More than 5 fossils | Proclaimed site |
| Developments (Road, building construction, etc) | Visible at one site | Destruction of a site | Impact on 2-5 sites | More than 5 sites | Proclaimed site |

14.4 Living Heritage Management

Table 6: Living Heritage Threats Ratings

| THREAT | MINOR (1) | MEDIUM (2) | SERIOUS (3) | MAJOR (4) | DISASTER (5) |
|---|---|--|---|--|---|
| Vandalism | Tangible damage to a site | Tangible destruction of a site | Tangible destruction of 2-5 sites | Tangible destruction of more than 5 sites | Tangible destruction of proclaimed site |
| Access control | Illegal access, but no tangible signs of impact | Illegal visitation with tangible signs of impact on site, but not on fossils | Impact on fossils | Impact that is not confined to a single site. | Impact is widespread |
| Visitor management | Near-site confined and promptly reversible impact | Near-site confined and short-term reversible impact (typically a week). | Near-site confined and medium-term recovery impact (typically a month). | Impact that is unconfined and requiring long-term recovery, leaving residual damage (typically years). | Impact that is widespread unconfined and requiring long-term recovery, leaving major residual damage (typically years). |
| Developments (Road, building construction, etc) | Visible at one site | Destruction of a site | Impact on 2-5 sites | More than 5 sites | Proclaimed site |

14.5 Archaeological Site Management

Table 7: Consequences Matrix: Archaeology

| THREAT | MINOR (1) | MEDIUM (2) | SERIOUS (3) | MAJOR (4) | DISASTER (5) |
|---|---|--|---|--|---|
| Vandalism | Near-site, confined to single incident and promptly reversible impact | Near-site, multiple incidents reversible impact | On fossil. | Impact that is not confined to a single site. | Impact that is widespread, unconfined and long-term recovery, leaving major residual damage (typically years). |
| Access control | Illegal access, but no tangible signs of impact | Illegal visitation with tangible signs of impact on site, but not on fossils | Impact on fossils | Impact that is not confined to a single site. | Impact is widespread |
| Visitor management | Near-site confined and promptly reversible impact | Near-site confined and short-term reversible impact (typically a week). | Near-site confined and medium-term recovery impact (typically a month). | Impact that is unconfined and requiring long-term recovery, leaving residual damage (typically years). | Impact that is widespread unconfined and requiring long-term recovery, leaving major residual damage (typically years). |
| Illegal removal of material | Part of a site | Complete site | 2-5 site | More than 5 site | Proclaimed site |
| Developments (Road, building construction, etc) | Visible at one site | Destruction of a site | Impact on 2-5 sites | More than 5 sites | Proclaimed site |

15. ENVIRONMENTAL INTERPRETATION AND EDUCATION

An IUCN heritage outlook report for the MDP WHS (Osipova et al. 2014) highlighted “Some Concerns” regarding the Park’s education and interpretation programmes, noting that “a lot more could be done in the fields of education and interpretation of the natural features, biodiversity and rock art in the site”.

Environmental interpretation and education of the MDP WHS will be aimed at creating an awareness, understanding and appreciation of its biodiversity, cultural heritage and ecosystem services, and their significance. In developing an environmental interpretation and education programme, the following guiding principles should be adhered to:

- There should be a strong focus on neighbouring communities, in efforts to engage, inform and benefit them.
- Wherever possible, local community members should be trained to assist and operate environmental interpretation and education tours.

The above also applies to Lesotho

16. RESEARCH, MONITORING AND REPORTING

16.1 Cultural Heritage Research:

Research is essential to understand and conserve cultural heritage, and the Park has a long history of research projects. New cutting edge technologies and methods are ushering in a new era in rock art research which provides opportunities to address long-standing questions and management issues e.g. C₁₄ dating of paintings, photogrammetry (3D scanning), high resolution digital photography, rock chemistry.

The park will actively seek opportunities for and facilitate research, especially in connecting with new techniques. As there is no institutional research capacity in Amafa or Ezemvelo or MTEC, and little national capacity, collaboration essential – both with national academic institutions and international archaeologists and institutions. This research however needs to be actively managed to ensure that it does not damage the heritage, that maximum value is derived from it, and that it complies with the legal requirements.

Principles

Both so-called applied and theoretical research are supported. However, Amafa and Ezemvelo and MTEC will facilitate and provide additional support to research projects that ultimately improve the understanding and guide the management of heritage resources.

All research should be undertaken using current best practice and internationally accepted norms and standards.

The methods generally associated with archaeological research and management practices can be of a destructive nature. The potential benefits to be gained from a research project should be weighed against these risks. As such, research should focus on adding to the existing body of knowledge, or reviewing established interpretations; duplication of research effort, especially where this may result in physical impact or require provision of logistical support, is discouraged.

Research should be conducted within, in partnership with, or with the endorsement of recognised research institutions, recognised professional body and/or be affiliated with Amafa or Ezemvelo or MTEC.

Researchers from outside Lesotho and South Africa must undertake their research in collaboration with a Lesotho or South African partner institution and/or be part of a recognised research programme.

Amafa, Ezemvelo and MTEC do not affiliate themselves to any specific programmes or institutions and as such do not provide preferential access/rights to any individual, programme or institution; collaborative and multidisciplinary research is encouraged.

Policy

All research undertaken within the Park must be compliant with both cultural heritage and protected area legislation. As such, no research may be initiated/conducted without a current research project registration from Ezemvelo, which in turn will only be granted with a concurrent permit from Amafa (in terms of the KZN Heritage Resources Act 5 of 2008, the National Heritage Resources Act 25 of 1999, and in terms of the Regulations for the Proper Administration of Nature Reserves (GG35021)) and MTEC in terms of the National Heritage Resources Act of 2011 Cultural heritage research within the Park without both these permissions is illegal and any person found undertaking research without the relevant authorisations will be prosecuted in terms of both protected area and cultural heritage legislation.

A committee, comprising representatives from Amafa, Ezemvelo, MTEC and other stakeholders from the cultural heritage research and conservation fields, will be established with a mandate *inter alia* to formalise research priorities, review applications, evaluate findings and extract management recommendations.

Monitoring & Evaluation of research

All registered research projects will be recorded in the Ezemvelo Research and/or MTEC Projects database.

All researchers will be required to submit annual progress reports and electronic and paper copies of all reports, theses and publications; failure to supply the required reports will result in future permit applications being declined.

Findings and recommendations of all research projects will be presented by the project coordinator and/or researcher to the Heritage Review Committee and subsequently to any other relevant forums for discussion and possible adoption.

Recommendation:

Paleontological research in the Park must be promoted through establishment of a partnership with an institution that is part of the Centre for Excellence in Palaeosciences. While agreements should not be exclusive, there would be merit in establishing a focused programme with a single South African institution so that fossils collected will all be stored in a single institutional archive, and the institutional memory and record keeping about these resources will be centralised.

16.2 Cultural Heritage Monitoring

Monitoring and reporting is a critical component of the adaptive management cycle. It enables the effective assessment of management interventions and, if necessary, can be used to direct modifications of management in an effort to achieve the outcomes required.

Rock Art

Regular inspections of the rock art sites, by Amafa, EKZNW and MTEC staff, take place.

A comprehensive Cluster Monitoring Programme has been introduced throughout the MDP WHS with a view to documenting human and natural impacts on rock art sites. The implementation of this programme means that the sites will be monitored more frequently, and is one of the most comprehensive rock art monitoring programmes in the world (van de Vanrer-Radford pers comm.).

Rock art sites are monitored at different frequencies depending on whether they are opened to visitors or have no access. Open Sites, which allow access for the public under permit and/or the direct supervision of an Amafa-accredited Custodian, are inspected on a monthly basis. Closed sites are inspected annually.

The criteria being recorded have been aligned with SAHRIS so that all data can be captured directly into SAHRIS.

Most of the rock art monitoring is undertaken by the approximately 96 Field Rangers employed within the MDP WHS. Field Rangers carry out a variety of functions entailing law enforcement, biological monitoring and cultural heritage monitoring.

There has also been the start of environmental studies related to rock art sites, e.g. Hoerle & Salomon's (2004) study at Game Pass Shelter. However, there is at present no planned and systematic environmental monitoring programme in place.

Records must be maintained of all key management interventions and of problem events or incidents affecting cultural heritage resources. These interventions should also be recorded into the SAHRIS database and submitted to the Ezemvelo Incident Database.

Built Environment

All built environment structures should be monitored on at least an annual basis during asset checks, with particular and more detailed focus on structures of significance. A regular report on the state of conservation of built heritage should be produced.

Other Heritage

There are no formal monitoring programmes in place for paleontological heritage, living heritage sites (except where these are also rock art sites) nor iron age sites. There rely on reactive reporting of issues by staff, academics and public.

General

The effectiveness of management of the protected area, including cultural heritage, is assessed on an annual basis using the Management Effectiveness Tracking Tool (METT, Version 3). The contribution of cultural heritage management to the overall management effectiveness score has increased in this version of the METT.

16.3 Reporting

The IMP outlines generic reporting requirements.

The Ezemvelo Board is required in terms of its delegation to report annually to the Minister of Environmental Affairs on progress and issues relating to management of the site. This report is prepared as a separate chapter in the KZN Nature Conservation Board Annual Report.

The SA component park reports annually to the Board and to DEA on protected area management effectiveness based on an assessment using the METT Ver. 3. All management units are assessed individually and a weighted average score for the park as a whole is derived. The assessment is coordinated and summarised by Scientific Services.

Periodic reporting on cultural heritage in the context of Outstanding Universal Value is required via DEA and MTEC to ICOMOS and the World Heritage Committee; the detail of these reports are provided by Ezemvelo, MTEC and Amafa.

16.4 Cultural Heritage Management Plan review

An annual review of the content and implementation of the CHMP must be conducted, with the objectives of:

- Determining how effectively the management plan has been implemented.
- Assisting in determining the focus for the annual plan of operation and the setting of appropriate time frames and budgets.
- Enable effective adaptive management by identifying changes and modifying management interventions.

The following changes may be made following the annual reviews:

- Any recommended minor amendments to the management plan that do not affect the substance of the vision, objectives or zonation.
- The results of an evaluation of the management effectiveness for the protected area.

Any substantive changes (that are likely to result in amendment to the vision, objectives, policies and/or zonation) proposed or required should be noted in a running list appended to the minutes of the annual reviews, for consideration at the major 5-yearly reviews with stakeholder participation.

Any urgent significant changes to the management plan must be supported by the Cultural Heritage Working Group and Park Management Committee before being subjected to the appropriate stakeholder participation process. Only thereafter can the proposed amended CHMP be submitted for authorisation.

A comprehensive review of the CHMP is conducted every 5 years.

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1999: *Cultural Heritage Audit For the uKhahlamba/Maloti Transfrontier Conservation and Development Area (Final report)*.

2001 Ouzman, S., *The problems and potentials of developing and managing public rock art sites in southern Africa*. Pictogram 12: 4–13.

ADDENDUM 1

LIST OF KEY DOCUMENTS RELEVANT TO MANAGEMENT OF CULTURAL HERITAGE RESOURCES

Physical Surveys of the Park:

1910: Trooper White
1933: Mason, A. Y, Rock paintings in the Cathkin Peak area, Natal
1976: Vinnicombe, P., People of the Eland
1970s-early 1980s: Department of Forestry
1981: Analyses of Rock art Lesotho (ARAL)
1981: Mazel, A.D., Up and down the Little Berg: archaeological resource management in the Natal Drakensberg. MA thesis, University of Cape Town.
1984: Mazel, A.D., Archaeological survey of the Natal Drakensberg, Natal, South Africa, *Journal of Field Archaeology* 11: 345-56.
2003-2011, African Conservation Trust (RAMP I & II)
2005-2006: Cain, C.R., Cultural Heritage Survey of Lesotho for the Maloti Drakensberg Transfrontier Project: Palaeontology, Archaeology, History and Heritage Management
2007: Anderson, G., The Living Heritage Survey of the Designated Buffer Zone of the uKhahlamba Drakensberg World Heritage Site, Unpublished Report: Umlando Archaeological Tourism and Resource Management
2009: Topp, T., Bushman Paintings Project in the Cobham Area of the uKhahlamba Drakensberg Park, Unpublished Report
2011: Topp, T., Brief summary of the Rock Art Verification in the UDP WHS, Unpublished report
2013: Prins, F.E. Cultural Heritage Impact Assessment of the Proposed Establishment of a new Dairy, 650 000m³ Dam and the Cultivation of an additional 15HA of Virgin Veld, on the Farm Clovelly No. 16370, Underberg, KwaZulu-Natal Unpublished Report: Active Heritage
2014: Cellier, J.P. Built Environment and Public Memorial Survey for the Maloti Drakensberg Park World Heritage Site. Unpublished Report, Kudzala cc.

Other Relevant Surveys:

1874: Orpen, J. M. A glimpse into the mythology of the Maloti Bushmen. *Cape Monthly Magazine* 9 (49): 1–13.
1908. Mäeder, O. [Br. Otto. O. C. R.] Buschmann-Malerei aus Natal. *Anthropos* 3 : 1047–1049.
1923: Commission for the Protection of Natural and Historical Monuments of the Union of South Africa's Register of Monuments
1957: Wilson, A.L., Wilton Material on the Natal slopes of the Drakensberg. *South African Archaeological Bulletin*
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1982. Cherry, M.A., Bibliography of rock art in Natal and Lesotho: 1874-1981. *Annals of the Natal Museum*, 25(1), pp.173-220.
1992: Mazel, A.D., Changing fortunes: 150 years of San hunter-gatherer history in the Natal Drakensberg, South Africa, *Antiquity* 66: 758-67.
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2017: Laue, G., Challis, S. and Mullen, A. Concerning heritage: lessons from rock art management in the Maloti-Drakensberg Park World Heritage Site. In S. Makuvaza (ed.) *World Heritage Site Management Planning*. Springer.

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ADDENDUM 2

Living heritage sites in the MDP WHS and surrounding areas with management guidelines. Information provided by Frans Prins in 2008

| Name | Type | Value to whom | Description | Status | Land use guidelines |
|---------------------------------|----------|---|---|---|---|
| Sentinel Peak | Mountain | Batlokoa | Lair of iNkanyamba, rain animal of the bushmen; snake-like animal lives on top of the mountain, when clouds cover peak indicates that the animal is waking up. | Ethnographic memory. No active rituals or rites – as far as we know | - No building. - Grazing permitted. - Visitors must not be ritually polluted i.e. no one who has committed murder, been to a funeral recently, undertaken a long journey, or who is menstruating. |
| aMaZizi Sacred Forest | Forest | aMaZizi | Graves of first aMaZizi chiefs | Active | Don't venture into forest, this will dishonour ancestors; must get permission from present aMaZizi iNkosi to do anything in or close by forest; no fire over graves, this angers ancestors. |
| Cannibal Caves | Cave | aMaZizi | Cannibals lived there up to 1870's; Sidinane (Chief) lived there. Some bushman paintings, but very degraded. Still features in oral history. | Active oral history but no rites etc. | No development within 50 m radius. |
| Busingatha | Cave | aMaZizi? | Rock art panel removed for visit of Royal couple in 1940s – now in the Natal Museum. Locals (elders) do not take people to the shelter. | Ethnographic memory | No development within 50 m radius. |
| uBebe | Cave | Adherents of Milion religious cult | Visited by adherents of religious cult, lead by Prophet called Milion; graffiti on shelter walls from members of the cult. Active | Active | No development within 50 m radius. |
| Sangoma | Cave | Traditional healers? | Traditional healers believe that this site has spiritual potency; rites relating to paying respect to the San ancestors of the shelter (libations) are still conducted there by some traditional healers; site in process of being 'developed' for tourism as overnight site for hikers | Active | No development (houses, power lines, roads etc.) within viewshed of shelter. |
| Mphophomeni | Pool | Local elders and some traditional healers | Sacred pool, believed that bushmen buried in this pool; most local people avoid it | No active rites etc. but this pool is avoided by most traditionalists – can bring misfortune if water spirits are not approached in the traditionally correct way | No alien vegetation above or surrounding the pool; no pollution of water; no development within 50. |
| Esibayeni | Cave? | | Paintings? | Already quite degraded; used for tourism | |
| Mahovo? Cliffs | | | Avoided by locals who believe that zombies live there. | Active oral belief | |
| aMangwane Sacred Forests | Forest | Amangwane people | Graves of earlier chiefs in the forest; possibility that Matiwane was buried there after being murdered by King Dingane. | Active | No entry into the forest; no development near to forest. |
| Zikhali's Horn (Cathedral Peak) | Mountain | aMangwane people | The mountain shows where the aMangwane re-grouped after the mfecane disturbances, under the leadership of Zikhali, son of Matiwane. | Active | |
| Doreen Falls | Pool | Local elders and some | Sacred pool, believed that bushmen buried in this pool; | No active rites etc. but this pool | No alien vegetation above or surrounding the pool; no pollution of |

| Name | Type | Value to whom | Description | Status | Land use guidelines |
|--|-------------------------|---------------------------------------|--|---|--|
| | | traditional healers | most local people avoid it | is avoided by most traditionalists – can bring misfortune if water spirits are not approached in the traditionally correct way. | water; no development within 50m. |
| Indluyabathwa Cave | Cave | San descendants | San descendants live near this cave and still visit; contact-period art as well as eland and elephant. | Active | No buildings within 50m; no power lines within 100m. Some tourism development potential |
| Ntabamhlophe Mountain | Mountain | Mhlunzwini people | Nkanyamba association; iSangoma collect sacred plants associated with the hill; two rock art sites. Bushmen lived on the mountain till as late as the 1870s, known as the “abantu bamushile” and were considered friendly and as rain making experts; Brother Otto records details in his book(s). | Active | No development that would impact on medicinal plants e.g. houses, roads. |
| Langalibalele Burial Site and Annual Ceremonial Area | Graves | AmaHlubi | Graves of King Langalibalele and his daughter? | Active | Do not burn over graves; provide continued access; maintain paths. |
| Ntabakayikhonjwa (Giant’s Castle) | Mountain | AmaHlubi? | Associated with Nkulunkulu (supreme being); rain making | Active | Only point with a fist otherwise will be struck by lightning or go mad or suffer great misfortune. |
| Zangoma | Mountain slope | ? | Associated with powerful medicinal plants; two sangomas went there, the mountain opened up and swallowed them. | Oral tradition/history | Would need to observe correct customary rules before visiting. |
| Hlathikulu Forest | Forest | ? | Associated with witchcraft, evil and zombies; muthi murders are supposed to have taken place there; “children should be accompanied by adults at all times”. | Active oral history | Local community would not be sad to see forest removed/destroyed; community dispute the boundary of the protected area and believe that the forest belongs to them |
| Highmoor 2 | Cave | San | Removal of pigment from San paintings, probably by Lesotho people; last removal in 1970s; reported in S.Afr.J.Science, 1984, Val Ward. | ? | No development within 50m |
| Eland Cave | Cave | San | Rituals still take place in the cave | Active | No development within 50m |
| Ochre Pits (Kamberg) | Ochre pits | San and Zulu | San used pigments from these pits for paintings in the area, possibly including those at Game Pass; aMaZulu use it for decorating walls of huts | Active (Zulu) | No development within 20m |
| KwaThwalelinye (Kamberg) | Mountain (rock feature) | Zulu | Women go to this site when they have fertility problems; chickens are sacrificed; also associated with the iNkanyamba | Active | No development within 200m |
| Mpophomeni Waterfall | Waterfall | Zulu traditional healers and Zionists | Zionists and traditional healers collect water from the waterfall for mixing with plant medicine to make intelezi – sprinkled around homesteads to keep evil away; Zionists use the water for baptism | Active | Management Plan for this site; no development in catchment of the river, none within 100m below the waterfall. |
| Game Pass Shelter | Cave | San descendants | Rituals performed by San descendants two days per year (closed to public); world-famous rock art of great academic value as the ‘Rosetta stone’ of rock art | Active | No development within 200m of site, other than path; closed to public two days per year for rituals. |

| Name | Type | Value to whom | Description | Status | Land use guidelines |
|-------------------------------------|-------------|-------------------------|--|---|--|
| Inkanyamba Pool and Inkanyamba Cave | Cave & pool | San descendants (Dumas) | Associated with the oral history of the Duma people | Active oral tradition? | No development within 50m; no development in catchment that may lead to impact on water quality. |
| Izangoma Pools | Pool | Zulu | iNkanyamba sometimes manifests itself here; in the early 1990s a woman was pulled into the water by the iNkanyamba and became a Sangoma; used as an initiation pool for Sangomas | Active | No development within 50m; no development in catchment that may lead to impact on waer quality; no tubing or canoeing. |
| Ingeleni (Kamberg) Mountain | Mountain | Zulu, San | Used currently for rain making; bushmen used to point fingers at the mountain and make rain for the aMaZulu | Active | Do not point finger at the mountain; keep the mountain as pristine as possible. |
| Mtshilwane | Mountain | Zulu, San | Used currently for rain making; Bushmen used to point fingers at the mountain and make rain for the Zulus | Active; of lesser importance than Ingeleni (Kamberg) Mountain | Do not point finger at the mountain; keep the mountain as pristine as possible. |
| Waterfall below Mkhomazi | Waterfall | Zulu | Rain animal lives in the pool below the waterfall | Active | No development within 50m; no development in catchment that may lead to impact on water quality |
| Jacob's Ladder | Waterfall | Zulu | People pour beer into the water to venerate spirits. | Active | No development within 50 m; no development in catchment that may lead to impact on water quality |
| "Muddy Puddle" | Hot spring | Zulu | Traditional healers collect white clay; water is sacred and collected for medicinal purposes. | Active | No development within 50m; no development in catchment that may lead to impact on water quality. |
| KwaDumisa | Grave | Zulu?; San descendants | Dumisa was buried there, he was the protector of the Bushmen – asked them to live under his protection; Dumisa provided ivory to traders in Port Natal in the 1850s; Duma people have annual ceremony at the site. | Active | No development or land use change within 20m; no burning over grave. |
| KwaKhanti | Cave | | Pigment removal from rock art in the early 2000s. | | No development within 50m. |
| Snow Hill Shelter | Cave | | Pigment removal from rock art in the early 2000s; Sangomas were using this site for the training of students/initiates in the late 1990s. | | No development within 50m. |
| Domsela | Cave | Archaeologists | Bushmen were interviewed at this site who explained the meaning of the paintings; this is of national importance | | No development within 50m. |



CULTURAL HERITAGE RESOURCES IMPLEMENTATION PROGRAM

FOR

MALOTI DRAKENSBERG PARK WORLD HERITAGE SITE
(LESOTHO), BASED ON RECOMMENDATIONS OF CULTURAL
HERITAGE MANAGEMENT PLAN 2015

2019 - 2022

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1. INTRODUCTION

The year 2013 saw the inscription of Sehlabathebe National Park (SNP) into the World Heritage Status as an extension of uKhahlamba World Heritage Site. The inscription however brought with it a host of requirements that SNP had to fulfill, and over the years, the Park with substantive support from the government of Lesotho, embarked on a series of activities in an attempt to meet UNESCO's requirements as per Decision 37 COM 8B.18. It follows that, amongst some of the requirements by the World Heritage Committee, was that, there should be a documentation of all the rock art sites within the park, and so in 2015 University of Witwatersrand (Wits) through its Rock Art Research Institute (RARI) was engaged to conduct such a research.

Two documents were produced after a four months long extensive documentation of all rock art and heritage sites within the park. One document – Rock Art and Baseline Archaeological Survey of Sehlabathebe National Park – provided detailed information of all the rock art sites within the park as well as other heritage sites in the park. The other document – Cultural Heritage Management Plan for Sehlabathebe National Park – on the other hand detailed out, site specific management plans and interventions to prevent further damage to the rock art or stone walls.

This document will therefore detail out an implementation program utilizing only one of the above reports, which is the proposed management plan developed by the consultant. The plan briefly discusses intervention activities to be done at each site for conservation and protection purposes. The full report included sites that were marked as being of low significance, and some having low archaeological excavation potential, whilst the management plan covered those of having high potential in terms of significance and archaeological excavation value, but more importantly in need of immediate intervention. This program covers the authorization links all the way to the resource mobilization, monitoring and reporting; then the action plan table and the actual implementation program table with cost implications will also be shown.

2. IMPLEMENTATION PROGRAM

2.1 Implementation program coordination (Authorization)

In order for this implementation program to be executed, there will be direct involvement of Ministry of Tourism, Environment and Culture through its Departments, SNP management and all relevant stakeholders. Two Departments play a leading role; namely the **Department of Culture** and **Department of Environment** in relation to this document. With regard to the general management of the SNP, the Department of Environment through its Parks Division plays the authoritative role, thus all issues relating to SNP have to gain approval from such Department. In relation to the World Heritage status, the Department of Culture has so far been playing an authoritative role, and making sure that the park maintains its status and meets all the requirements of the World Heritage Committee.

It is by default then that, the Department of Culture will play a leading role in executing this implementation program, and to be more specific do so through the office of the Museum Curator which is the current office responsible for the World Heritage issues.

2.2 Implementation program coordination (Stakeholders)

SNP is part of the Maloti Drakensberg Park World Heritage site (MDPWHS), so there exists bilateral coordination mechanism which consist of the structures shown below and the roles they play in implementing this program (only those relevant to this implementation program):

- **Bilateral Coordinating Committee (BCC)** – This is an authoritative bilateral body of the management of the MDPWHS made up of the Principal Secretaries and Directors from institutions and ministries directly involved in the management of the park. All the activities planned on either side of the park (Lesotho or Republic of South Africa), have to get a final approval from this bilateral body, and so this implementation plan having been developed through the relevant bilateral working group, will finally have to go via the BCC before submission to the relevant bodies of UNESCO.
- **National Coordinating Committee (NCC)** – The NCC is an authoritative management body at national level, and in the context of Lesotho it is comprised of Directors from different Ministries that have direct and indirect stake in the management of the park, and in this context particularly with SNP. The implementation program will be tabled during NCC sitting so as to enable the participants to identify the different roles each of them will play.
- **Cultural Heritage Working Group (CHWG)** – This is a bilateral working group comprised of officials from both countries. It is a sub-committee of the Maloti Drakensberg Transfrontier Programme mandated to, among other things, coordinate and manage all efforts towards sustainable management of Cultural Heritage Resources within the Maloti Drakensberg Transfrontier Conservation and Development Area (MDTFCA) of which the MDPWHS is part of. In this context, since only the Lesotho part of the park has been requested to submit an implementation program of the Rock Art Management Plan done in 2015, the working group assists Lesotho with drafting the implementation program as well as submitting it through the necessary committees and finally to UNESCO for the final approval.

In summary, this section paints a picture of how this implementation program should be executed, but more importantly shows the different authoritative and technical bodies which will each play a vital role in its implementation and success. It is important to show hereafter the approval blueprint of the activities entailed herein

this program, so as to clearly show the link between the coordination at stakeholder level and at internal or departmental level.

2.3 Approval blueprint (Activities within the Implementation Program)

The following is an activities' approval blueprint detailing out the different offices through which this implementation program success depends on:

- **SNP Office** – The Park Manager and Culture Officers will identify and execute activities within the Implementation plan in coordination with the office of the Museum Curator. Financial implications of activities are identified by this office.
- **Museum Curator** – This office having been informed by the one above, will make recommendations to the national and bilateral coordinating on the processes required; as well as liaising with international bodies on heritage management issues. This office budgets and liaises with the one below for resource mobilization.
- **Director Culture / Director National Environmental Services** – This is the office that gives a final approval on the proposed activities, it is also a focal point in terms of regional and international collaboration concerning heritage management issues. This office motivates for financial allocation for implementation of activities.

This part of the implementation program identifies the different offices and their roles in the approval and resource mobilisation of the activities entailed in this program. This is a road map of approval in terms of activities and their finances when the implementation program has gone through the authoritative steps detailed out earlier, and it has been given approval for implementation.

2.3.1 Resource allocation, identification and mobilization

Both the Department of Culture and Environment are responsible for the budgeting of activities entailed herein the implementation program, as the two departments play direct roles in the management of SNP in general on daily basis. Additional funds will however be sought from donors at different stages of the implementation program and according to the different planned activities.

2.3.2 Specialists, Contractors and Suppliers identification and engagement

The Department of Culture in consultation with AMAFA (A Heritage authoritative body in South Africa) will identify and engage relevant specialists to implement parts of this implementation plan through the relevant working groups, this is because AMAFA has much more experience and houses reasonable amount of expertise to offer guidance in relation to identification of specialists in the field of heritage, but as for contractors and suppliers the legal, accounts and procurement offices of MTEC will take part in their identification and engagement.

2.3.3 Reporting and meetings approach

There are three levels of reporting entailed herein; one is at international level which will be through the submission of the state of conservation report by the two countries to the World Heritage Committee, while the other will be at ministerial level and working group level. At ministerial level, constant reporting through the normal reporting channels of SNP and MTEC will take place on regular basis. As for the state of conservation report, the two countries will develop it through the Cultural Heritage Working Group annually, and send it through proper channels for reporting at international level.

2.3.4 Reporting Protocol

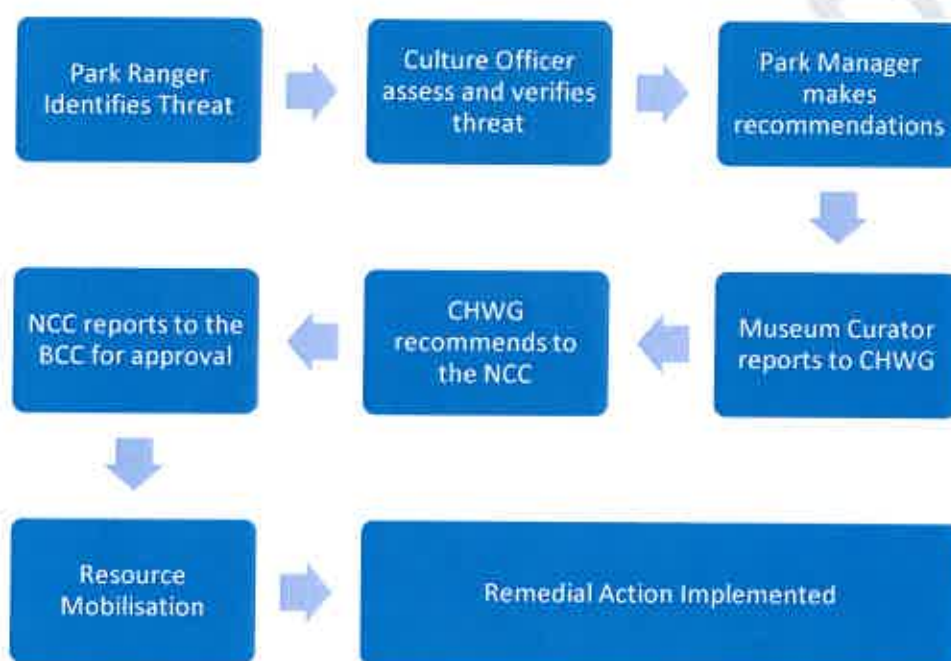


Figure 1: Reporting protocol

The general flow of reporting during the implementation of this program, and monitoring work that follows suite has been shown above -:

- 1) Threat or Intervention is identified by field rangers during their monitoring and patrol of the park;
- 2) SNP Culture Officers analyses the reports from park rangers and make necessary assessments and verifications then report to the Park Manager;
- 3) The Park Manager together with his team compile a report to the Museum Curator detailing out activities or recommendations to be engaged on.
- 4) The Office of the Museum Curator is informed and assesses the report from SNP, then reports to the CHWG, which will make recommendations to MTEC management or NCC. The NCC will report to the BCC for information and authorization.

- 5) Having given the necessary approval and assessment, resources in terms of expertise or finances are mobilized through relevant channels, then activities are initiated;
- 6) Remedial actions are undertaken according to the implementation program;

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Table 1: IMPLEMENTATION ACTION PLAN

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SNP IMPLEMENTATION PROGRAM 2019/20

pg. 1

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