

# Barberton Makhonjwa Mountains

## 2020 Conservation Outlook Assessment

### SITE INFORMATION

**Country:** South Africa

**Inscribed in:** 2018

**Criteria:** (viii)



Situated in north-eastern South Africa, the Barberton Makhonjwa Mountains comprises 40% of the Barberton Greenstone Belt, one of the world's oldest geological structures. The property represents the best-preserved succession of volcanic and sedimentary rock dating back 3.6 to 3.25 billion years and forms a diverse repository of information on surface conditions, meteorite impacts, volcanism, continent-building processes and the environment of early life. © UNESCO

### SUMMARY

#### 2020 Conservation Outlook

Finalised on 01 Dec 2020

#### GOOD WITH SOME CONCERNS

The geological values for which the site is inscribed on the World Heritage list are in good condition and the site retains its status, recognized upon inscription in 2018, as one of the world's best examples of volcanic and sedimentary rock succession through the diverse repository of information on surface conditions, meteorite impacts, volcanism, continent-building processes and the environment of early life that it displays and conserves. There are a number of low level threats which may impact the conservation of these values, including mining concessions adjacent to the site which require careful management, as well as unregulated agriculture, timber harvesting, and illegal collection of geological samples. The protection and management of the site is of some concern, with several issues therein subject to requests of the State Party from the World Heritage Committee. Despite positive steps towards addressing these issues, many are yet to be fully resolved with ongoing efforts required. Whilst the Integrated Management Plan provides a sound framework for the protection and management of the site, challenges in securing the sustainable finance required in order to implement the Plan effectively are ongoing, but ringfenced funding to secure a geologist for the site is encouraging to this end. Legislative achievements have also been made towards enhanced protection of key geosites, which will improve the integrity of the site. Overall, the good condition of the existing geosites which comprise the World Heritage site, coupled with the low level threats, are such that the overall conservation outlook for Barberton Makhonjwa Mountains is "good with some concerns".

## FULL ASSESSMENT

### Description of values

#### Values

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##### Other important biodiversity values

► **Native plant and animals species protected by Nature Reserves**

Prior to listing as a World Heritage Site, a large proportion of Barberton Makhonjwa Mountains was protected as a Nature Reserve. The Mpumalanga Tourism and Parks Agency (MTPA) is responsible for biodiversity conservation and tourism development. Currently, the World Heritage Site is managed similarly to the management to protect biodiversity values as Nature Reserves. MTPA authority extends in an oversight capacity for private reserves such as Nkomazi Wilderness, the practical management of which remains the responsibility of the land owner. IMPs have been completed for Barberton and Songimvelo Nature Reserves by MTPA and for Nkomazi Wilderness by its owners (State Party of South Africa, 2017). The 2017 Nomination Dossier states that MTPA has plans to expand biodiversity protection by way of their systematic Biodiversity Conservation Plan which identifies biodiversity hotspots based on real data that allow for objective setting of regional conservation priorities. The Angle Station and Oosterbeek Nature Reserves, between Barberton (Mountainlands) and Songimvelo Nature Reserves, were formally declared under the National Environmental Management Protected Areas Act, no 57 of 2003, Provincial Notice 30 of 2017, dated 7 April 2017, as nature reserves. In addition, SAPPI manages other natural areas that include indigenous forest patches, river lines, grassland fire-break belts, high ridges and other areas which could in future be considered for formal protection. This is particularly relevant for the site as it includes most of the high ridges and peaks where the most prominent rock exposures occur. It also includes river lines required to be kept clear of timber species and other alien plants in terms of the National Forest Act (1998) and in terms of the Forest Stewardship Council rules. Both these “rivers & ridges” features include important geological outcrops at a landscape-scale that are not only highly visible but will be areas kept accessible for geological researchers.

### Assessment information

#### Threats

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##### Current Threats

Low Threat

Threats due to almost half the key geosites demonstrating the values of the site being offsite with no buffer zone was cited as a threat during IUCN's review, and in the World Heritage Committee's summary and recommendations at the time of inscription in 2018. There are also threats due to ongoing timber harvest, grazing, farming and mining on and adjacent to the WHS. Finally, the lack of geological expertise in the management, interpretation and education at the site was identified as a threat for a WHS listed solely for criterion (viii).

► **Other Activities**

Very Low Threat

*(More than 45% of the geosites that support OUV are located outside the WHS Boundaries)*

Inside site, extent of threat not known  
Outside site

Although the site contains 75% (71 of 95) of the Grade 1 geosites in the area, and the IUCN field mission verified that "all of the key features of early Earth crustal evolution listed in the dossier" are represented in the site "by world-class geosites that are reasonably undeformed and only very slightly metamorphosed" (IUCN, 2018), a number of important geosites, which would enhance the OUV of the site are not included within the boundaries of the site. The IUCN review of the nomination Dossier and

the World Heritage decision (IUCN, 2018; World Heritage Committee, 2018), make clear recommendations to the State Party that all of the geosites should have adequate protection, and that progress should be made towards an effective buffer zone in part to encompass the greater than 45% of the key geosites that are not within the WHS boundary. Since inscription, a map has been produced, a description of buffer arrangements has been detailed and the State Party has published notices locally regarding protection of the geosites. The African World Heritage Fund recently also approved a grant to fund the development of a buffer mechanism guiding manual to assist land users adjacent to the World Heritage site in following the correct processes when developing land. The guiding manual is expected to be finalised by the end of June 2021.

► **Other**

**Low Threat**

*(Lack of geological expertise in management of a site listed solely for criterion (viii))*

Inside site, throughout(>50%)

The IUCN review and the opinion of the World Heritage Committee, 2018 was that the State Party should not continue to manage the site solely as a nature reserve, but instead should have at least one geologist on site to protect and communicate the outstanding universal value of a site listed only for the geological criterion (viii). Globally there are few sites listed solely for criterion (viii), and it can be considered a threat to the OUV (albeit indirect) to not have geological expertise within staff capacity, responsible for management, interpretation, or education of the site's geological values. In order to address this, an application has been submitted on behalf of Mpumalanga province to appoint a Management Authority with the intent to appoint a geologist, once the Management Authority has been officially approved and appointed by the the Minister of Fisheries, Forestry and Environment, including 'ring-fenced' budget designated to fund the position (IUCN Consultation, 2020).

► **Crops, Forestry/ Wood production, Livestock Farming / Grazing**

**Low Threat**

*(Timber harvest, farming, and grazing)*

Inside site, scattered(5-15%)

Timber plantations and farming/ grazing lands are present within the World Heritage Site (State Party of South Africa, 2017). The nomination filed noted "there are no budgets or staff to protect geosites and manage visitor access" in these areas, and that in the future, "The basis of any management protocols drawn up will be that each land-owner can continue to derive income from their land using existing or current land uses, save only that they must not have any negative impact on the OUVs of the Property." The threat is based on the fact that, the management does not include an adequate description of the elements that support a finding of OUV for specific geosites, and no geological expertise in WHS management. Until these issues are addressed it is a threat to the values that without this basic information agreements cannot be drawn up in the future that would "not have any negative impact on the OUV's of the Property". The four requests by the World Heritage Committee, 2018 pertain to this threat. As mentioned above (see \*Lack of geological expertise in management of a site listed solely for criterion (viii)), efforts are underway to appoint a staff member with geological expertise to be tasked with addressing this issue.

► **Mining/ Quarrying**

**Low Threat**

*(Mining operations)*

Inside site, scattered(5-15%)

Outside site

The nomination Dossier (State Party of South Africa, 2017) and communication between IUCN and State Party (Supplementary Information 2018) notes "Two companies adjacent to the Property have objected, both of which have been in operation for several decades before the nature reserves were proclaimed. Although their existing mining rights areas have been specifically excluded from the WHS, their objections are based on WHS status restricting their ability to prospect and expand in the future. Current legislation provides for the conditional continuation of mining rights obtained before the prohibition on mining in protected areas, was imposed by NEMPAA and MPRDA in 2003." That is, these 2 companies would still have the right to do exploratory mining within the World Heritage Site, and beneath the World Heritage Site. Although these threats were noted, the World Heritage Committee, 2018 meeting requested that Buffer Zone arrangements be arranged, including related to this threat. Buffer mechanism arrangements have now been addressed as above (\*see More than 45% of the geosites that support OUV are located outside the WHS Boundaries). Additionally, the MTPA won a legal case in July 2017 in which the Constitutional Court judged in favour of the MTPA that no new mining may happen

within the Barberton Nature Reserve (IUCN Consultation, 2020).

► **Other Activities**

**Low Threat**

*(Illegal collection of komatiite lava)*

Inside site, extent of threat not known

World-renown rock types from Barberton-Makhonjwa Mountains are targets for illegal collecting, and samples of komatiite lava have already been subject to illegal sample collection (IUCN, 2018). The absence of a geological manager and geological interpreters to monitor key sites increases the risk of illegal collecting however efforts are currently underway to address this through the appointment of a geologist (as above) (IUCN Consultation, 2020).

## Protection and management

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### Assessing Protection and Management

► **Management system**

**Some Concern**

The management system is overseen by the Mpumalanga Tourism and Parks Agency (MTPA) and consists of a number of different protection regimes which require different approaches to protection and management. The areas of the site which fall inside the formal protected areas managed by MTPA prior to inscription are likely well conserved. Geosites inside the World Heritage site but outside the protected areas had limited or no protection at the time of inscription (IUCN, 2018), and therefore subject to threats from grazing, agriculture and timber harvest. A number of key geosites in the region were also not included within the site's boundaries. This has been addressed through subsequent protection afforded by the South African National Heritage Resources Act, no 25 of 1999 and the declaration of the 51 Grade 1 sites which are now officially 'listed in the Schedule as part of the Barberton Makhonjwa Mountain as National Heritage Sites.' (IUCN Consultation, 2020). Concerns also remain over the lack of geological expertise in the sites management, given it's listing solely for criterion (viii). Efforts are underway to address this through the appropriate channels, however remains to be fully resolved as it is pending the formation of the official Management Authority (IUCN Consultation, 2020).

► **Effectiveness of management system**

**Mostly Effective**

At the time of inscription, IUCN stated that the protection status of the World Heritage site does not fully meet the requirements of the Operational Guidelines, as there was a need for the geosites located outside the protected areas to have received statutory protection amongst a number of other issues. However, within the site, given the high proportion covered by formally protected areas, with effective supporting legislation, the management system can be considered mostly effective, despite the concerns. Additionally, as detailed above, this has been somewhat addressed through subsequent protection afforded by the South African National Heritage Resources Act, no 25 of 1999 and the declaration of the 51 Grade 1 sites which are now officially 'listed in the Schedule as part of the Barberton Makhonjwa Mountain as National Heritage Sites.' (IUCN Consultation, 2020).

► **Boundaries**

**Some Concern**

The contiguous boundary of the site encompasses most of the key geosites representative of the Barberton Greenstone Belt and indeed the boundaries were delineated in order to include the most significant of these (IUCN, 2018; World Heritage Committee, 2018). However, there are still large numbers of important geosites, which lie outwith the boundaries. As such, it was requested at the time of inscription to extend a buffer zone to the site which included these areas (World Heritage Committee, 2018). A mapping exercise has been carried out and buffer arrangements are being put in place with the State Party publishing notices locally regarding protection of the geosites. The African World Heritage Fund approved a grant to fund the development of a buffer mechanism guiding manual to assist land users adjacent to the BMM WHS in following the correct processes when developing land, which is expected to be finalised by the end of June 2021 (IUCN Consultation, 2020).

► **Integration into regional and national planning systems**

**Some Concern**

The five areas of the site which fall under formal protected areas are effectively protected by a number of environmental laws and regulations including the National Environmental Management: Protected Areas Act, No. 57 of 2003 (NEMPAA) and the Mpumalanga Tourism and Parks Agency Act, No. 5 of 2005 (MTPAA). Additionally, now the site is inscribed, the site is protected under the World Heritage Convention Act, No. 49 of 1999 (WHCA). New mining and mineral exploration rights in these areas are also specifically prohibited. However, concerns were noted by IUCN and the Committee prior to and at inscription related to managing the WHS within a framework that includes substantial private land, including prior and continuing use that allows grazing, farming, and timber harvest, and existing mining rights (IUCN, 2018; World Heritage Committee, 2018).

► **Relationships with local people**

**Mostly Effective**

Support for the World Heritage listing was widespread among all types of landowners throughout the World Heritage site at the time of inscription, with the nomination secured through a participative process (IUCN, 2018).

► **Legal framework**

**Some Concern**

The legal framework for the conservation of the site is provided through a number of national and local regulations including a number of environmental laws and regulations such as the National Environmental Management: Protected Areas Act, No. 57 of 2003 (NEMPAA) and the Mpumalanga Tourism and Parks Agency Act, No. 5 of 2005 (MTPAA) and the World Heritage Convention Act, No. 49 of 1999 (WHCA). However, concerns remain related to providing primacy to protection of the OUV that led to inscription as a WHS. The province are awaiting the appointment of a Management Authority and the final declaration of the BMM WHS (IUCN Consultation, 2020). Whilst this process is still pending the legal framework remains of some concerns, despite the encouraging progress.

► **Law enforcement**

**Data Deficient**

Site is newly inscribed and there is no information related to the effectiveness of law enforcement. There is no reported evidence of degradation as such (IUCN Consultation, 2020), but the absence of geological management and interpreters means that there has been little monitoring of the outcrops by trained geologists capable of recognizing degradation other than independent research groups. The appointment of the geologist will address this issue, when completed.

► **Implementation of Committee decisions and recommendations**

**Data Deficient**

The Committee had four recommendations at inscription related to the threats noted in this Outlook assessment (World Heritage Committee, 2018). The State Party has yet to report to the World Heritage Committee on these requests and so is not assessed in this assessment category.

► **Sustainable use**

**Some Concern**

Grazing, farming, timber harvest, and mining are allowed on and adjacent to the WHS (IUCN, 2018) at the time of inscription, however mining is reportedly no longer to be permitted. Some of the key geosites that demonstrate OUV are offsite, but there is no buffer zone to extend the WHS protections to these sites as the State Party felt that such a buffer zone is unnecessary (IUCN, 2018). At this point these are known and identified as recommendations by the Committee, and significant efforts have been made towards establishing effective buffer mechanisms, as detailed above. However these processes are ongoing, and as such sustainable use of resources are of some concern with regards to the conservation of the site.

► **Sustainable finance**

**Some Concern**

The World Heritage Committee expressed concern related to sustainable finance (World Heritage Committee, 2018) upon inscription, specifically that the proposed additional financial commitments to the site are expedited, and that funds are made available for adequate staffing, including specific geological expertise, in the management bodies for the site. Since the time of inscription, it has been reported that funds have been ringfenced for the appointment of an on-site geologist. Whilst this is an

encouraging sign, until such a time when staffing capacity has been secured through these funds, sustainable financing is of some concern.

► **Staff capacity, training, and development**

**Some Concern**

Concerns were noted by the Committee relating to staff funding at the time of inscription, and indeed recommendations specific to this topic were made (World Heritage Committee, 2018). The lack of geological expertise on the park staff for a WHS inscribed solely for criterion (viii) is currently in the process of being addressed through the recruitment of a geologist (IUCN Consultation, 2020), but until the position has been filled, staff capacity is of some concern.

► **Education and interpretation programs**

**Some Concern**

The Barberton Makhonjwa Geotrail, a 37 km-long paved public highway through a geological cross-section of the Barberton Greenstone Belt from Barberton to the Swaziland border provides interpretation and education through high quality interpretive displays that illustrate the geological evolution of the early Earth. However, there is a clear need for more signage at key BMM boundary access points and additional training of the staff in geology and geological stewardship (IUCN, 2018). Additionally, the nomination dossier notes continuing the same programs as existed when the site was protected as a series of Nature Reserves (State Party of South Africa, 2017). Without geological expertise in park management, there is some concern on this topic.

► **Tourism and visitation management**

**Mostly Effective**

The nomination Dossier spoke of good existing level of services and access, which was supported during the field mission (IUCN, 2018; State Party of South Africa, 2017).

► **Monitoring**

**Some Concern**

There are concerns related to staff capacity and expertise to perform the relevant monitoring (no geological expertise in park management) (IUCN, 2018), and lack of concomitant activities to address threats to the geological values at the site. These concerns remain at the time of writing, However the process is well underway to addressing these through the appointment of an on-site geologist and the legislative achievements towards the conservation of the site's values following the inscription of the site (see above).

► **Research**

**Mostly Effective**

The Barberton Greenstone Belt is subject to extensive academic research. There is ongoing scientific research on the early history of the earth preserved in this outstanding site.

## **Overall assessment of protection and management**

► **Assessment of the effectiveness of protection and management in addressing threats outside the site**

**Some Concern**

There were a number of threats to the values of the WHS identified from review of the nomination dossier by IUCN. These were not adequately addressed in the supplemental information provided by the State Party. The concerns were carried through in four recommendations by the World Heritage Committee that were part of the inscription in 2018. There is no evidence that the protection and management has been upgraded in response to the concerns and the recommendations.

## **State and trend of values**

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### **Summary of the Values**

► **Assessment of the current state and trend of World Heritage values**

**Trend: Data Deficient**

► **Assessment of the current state and trend of other important biodiversity values**

**Good**

**Trend: Data Deficient**

Site was inscribed in 2018 therefore no change relative to baseline. No data to develop a trend. However, concerns are noted that affect the biodiversity values and if not addressed, may lead to a trend of degradation of the values.

## REFERENCES

### Nº References

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- 2 IUCN Consultation (2020). IUCN World Heritage Confidential Consultation: Barberton Makhonjwa Mountains, South Africa.

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- 5 State Party of South Africa. (2017). Nomination of Barberton Makhonjwa Mountains as a World Heritage Site. [online] Pretoria, South Africa: Department of Environmental Affairs, pp.1-66. Available at: <https://whc.unesco.org/en/list/1575/documents/> (Accessed 12 March 2020).

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- 6 World Heritage Committee (2018). Decision 42 COM 8B.5. Barberton Makhonjwa Mountains). In: Report of decisions of the 42nd session of the World Heritage Committee (Manama, 2018). [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/list/1575/documents/> [Accessed 12 March 2020].