REPORT ON THE SUITABILITY OF BOHEMIAN-SAXON SWITZERLAND FOR WORLD HERITAGE NOMINATION

Paul Williams

1 Background

The mission was undertaken at the request of the Czech Ministry for the Environment.

The principle purpose was to consider whether or not Bohemian-Saxon Switzerland has a realistic chance of success if it were nominated for natural World Heritage under criterion viii.

2 Introduction

I had the privilege of visiting Bohemian-Saxon Switzerland from 12-18 September, 2014. The region contains two national parks: Bohemian Switzerland National Park in the Czech Republic and Saxon Switzerland National Park in Germany. The areas of the National Parks are approximately 80 km^2 and 93.5 km^2, respectively, and they join directly at the international border thereby constituting a total protected area of about 173.5 km^2. Adjacent to these National Parks are other protected areas designated formally as being Protected Landscape Areas because of their cultural landscapes: 250 km^2 on the Czech side and 287.5 km^2 on the German side of the international border.

My hosts and guides during the visit included Lukáš Pokorny, Handrij Härtel, Peter A. Schmidt, Heiko Weigel, Jens Michel, Tomáš Salov, Petr Kříž, Jiří Bruthans, Jakub Šafránek, Birgit Hertzog, Jochen Rascher, Heiner Siedel, Jan Drozd, Jürgen Phoenix, Zuzana Vařilová and Jiří Adamovič.

3 Programme

Immediately after my arrival on 12 September I benefitted from a briefing at the Institute of Geology, Czech Academy of Sciences in Prague on the geology of the Bohemian-Saxony region. Then within a period of five days (13-17 September) there were two half-day discussion meetings with the rest spent on field visits to the national parks and protected landscape areas on both sides of the Czech-German border. Expert scientific interpretation of the features seen was provided by my guides, and various management and legal issues were also discussed. The upshot was that I was able to obtain a good understanding of the resources and values of the parks and of the adjacent protected landscape areas. Some appreciation was also acquired of the management problems and legal frameworks supporting conservation.

4 Natural landscape characteristics

4.1 Geomorphological history

The physical landscape of the area comprises a hilly to mountainous terrain developed in Cretaceous marine sandstones of the Elbtal Group. The sequence stratigraphy of these rocks has been detailed by Janetschke and Wilmsen (2013, *Z. Dt. Ges. Geowiss 165(2)*), who identify the sandstones as having seven cyclic depositional sequences with occasional marly interbeds, each sequence being fine grained at the base and progressing to coarser at the top. The sandstone succession in the Bohemian-Saxony region was deposited from about 95 to 90 million years ago. The rocks were exposed to erosion in the Palaeogene following regression of the Cretaceous sea, and up to about 500 m stratigraphic thickness of these sediments now remain. The early erosional history is not known in detail, but it seems that a considerable thickness of uppermost Cretaceous sediments were denuded, perhaps of the order of 1.5 km. Thus by the mid Miocene, about 10-15 million years ago, the land surface was that of an undulating lowland crossed by broad rivers in shallow valleys. Further regional uplift, probably related to on-going Alpine deformation, resulted in renewed incision of the land surface. This led to the development of a lower erosion surface and to isolation of remnants of the Miocene surface as elevated tablelands, which now constitute the highest hills in the sandstone landscape, rising 40-80 m above the general plateau. The lower elevation Pliocene surface has the form of a widespread undulating plateau at around 400 m elevation descending to ca. 320 m towards the Elbe valley. Eocene-Miocene volcanic activity resulted in a scatter of small intrusions and outpourings of mainly basaltic rocks. The eroded remnants of these volcanoes are now expressed as conical hills that rise 20-60 m or so above the general plateau surface, in contrast to the remnants of the Miocene erosion surface that are flat topped.

Further uplift and baselevel lowering towards the end of the Pliocene initiated the latest phase of landscape development. In the early Pleistocene the Elbe River flowed north across a surface of relatively low relief. Tributary streams drained the sandstone country on either side of the river. These were relatively small dendritic systems with most catchments of the order of a few tens of square kilometres in area. As the land uplifted, the Elbe maintained its course by vertical incision at a rate that matched the uplift. In this way an antecedent gorge was created across the rising sandstone plateau; it is about 300 m deep at Rosenkamm/Růžový hřeben near to Děčín and from edge-to-edge roughly 700 - 950 m wide. The river at Bad Schandau now flows at about 120 m above sea-level compared to the surrounding plateau at about 320 m elevation.

Because the sandstone rocks have a high porosity, the water-table (that slopes towards the Elbe valley) was also lowered at a rate that kept pace with the incision of the Elbe River. But the small tributary streams, having less kinetic energy, could not match the incision rate of the Elbe, especially because they were increasingly deprived of surface runoff as the regional water-table lowered. As a consequence of the falling water-table, the springs in these tributary valleys moved progressively downstream towards the Elbe gorge, and so most of the dendritic network further upstream became valleys that were usually dry, carrying water only after heavy rain when there was a temporary rise in the water-table. Dendritic dry valley systems are now a characteristic feature of the sandstone plateau landscape. Dry valleys are more commonly associated with the very porous (ca. 40% porosity) Cretaceous chalk country of France and England, but the Elbe sandstones act in a similar way because they also have a high porosity (ca. 20 %).

There are a few exceptions to this general rule, because some of the larger tributaries, such as the Kamenice, Kirnitzsch and Polenz rivers, have headwaters that drain relative impermeable rocks. Thus they are always supplied with surface runoff and have been able to maintain active channels in deep valleys through the sandstones. They were able to incise sandstone gorges at the same rate as the Elbe to which they drain.

The incision of the Elbe gorge was initiated in the Plio-Pleistocene and continued through the Pleistocene. The history of incision is evident from the staircase of six successively older river terraces above the Holocene floodplain that mark stages in the valley's incision. None of the high terraces has been radiometrically dated, but regional evidence from pollen suggests that the uppermost terrace is at least two million years ago. Cosmogenic dating of river gravels would be required to confirm this but, if correct, this implies an incision of about 200 m in 2 million years, an average rate of 0.1 m per thousand years – a slow to modest rate in some countries, but quite fast by European standards.

The Pleistocene extends back to about 2.6 million years before present. It was a time of great environmental change marked by the repeated expansion and contraction of continental and alpine glaciers and by simultaneous oscillation of sea level by up to 130 m. Although most Pleistocene glaciers did not reach as far south as the Bohemian-Saxon sandstone uplands, profound climatic changes would have been felt there. At the height of glaciation average annual temperatures would have fallen at least 5º C, tree-lines lowered and at times the sandstone plateau would have been a tundra-like terrain with active frost processes shattering rocky outcrops and encouraging cliff edge failure, block toppling and downslope boulder movement. Regional evidence suggests that the continental glacier in the Elster Glaciation, about 300 000 years ago, reached as far south as the exit of the Elbe gorge and blocked the outflow of the river. I was told that this resulted in the ponding of a large lake upstream of the Elbe gorge, but I did not have time to see the field evidence for its extent. It drained when the glacier melted and did not reoccur in later glaciations because their glaciers were smaller.

When the ice finally retreated, sea-level took some time to rise again and so the low Late Glacial to Preboreal baselevel permitted the Elbe River to cut below its present level, as shown by the stratigraphy of sediments along the valley floor. But following establishment of modern sea-level by the mid Holocene aggradation occurred on the floodplain. Thus the present Elbe River flows not on rock but on alluvial sediments.

The overall physiography of the Bohemian-Saxon sandstone plateau is of an undulating upland, surmounted by isolated mesa-like tablelands, cut by gorges and dissected by dendritic dry valleys. It is a polycyclic landscape because of the different episodes of uplift and incision involved in its development. It is also a polygenetic landscape because of the different natural process regimes involved in shaping its morphology, that were driven by climatic changes ranging from warm and humid in the Neogene to alternating dry periglacial and humid temperate in the Pleistocene, and then humid temperate in the Holocene.

4.2 Landforms

Stripping of soil cover along the edges of cliffs and gorges has exposed the underlying sandstone. This reveals a bedrock that is well bedded and strongly jointed. In cliff edge locations the enlargement of deeply penetrating joints along intersecting planes has led to the development of castellated pillars. The resulting morphology could be described as having a 'ruined city' appearance. Isolated pillars reach 10-50 m in height, and when in groups form a sandstone 'stone forest' with morphological similarities to the sandstone Danxia of

Guangdong and Fujian Provinces in China and even to the famous karst Stone Forest of Yunnan, although the sandstone pillars are much less sharply dissected than those in limestone. In Bohemian-Saxon Switzerland sandstone pillars are a major feature of the landscape and are particularly well developed along the edges of escarpments. By international standards they are not especially unusual, because many similar forms are found in other sandstone areas around the world, but those found in this region are the best in Europe.

Horizontal rock surfaces stripped of soil are often pitted by solution pans up to about a metre in diameter and several centimetres deep. Runnels draining from them lead into rinnenkarren grooves down vertical faces. Rock faces are also frequently honeycombed by alveolar weathering pits of centimetre scale and by larger cavities referred to as tafoni, some of which are aligned along bedding planes. These features are characteristic of most sandstone terrains where vegetation cover is limited. Sandstone weathering involves a range of processes, including dissolution of quartz cements that bind grains, loosening of individual grains by salt weathering, and then transportation of loosened sand by rainwater flushing and wind; so the process is part chemical and part mechanical. Iron-stained sandstones are prevalent in the vicinity of basaltic intrusions. Hydrated iron oxides impart a spectrum of colours to the rock ranging from dark brownish red to rusty orange to yellow and cream. Iron bands are occasionally concentrated as hard crusts along joints and have a rusty metallic appearance.

High narrow rock ridges isolated between parallel widened joints are weathered from both sides. The stress field in the rock ridge can sometimes lead to arcuate rock face retreat on both sides, with the chemical and physical weathering processes being preferentially located where rock stress is at a minimum, as recently explained by Bruthans et al (2013) in *Nature Geoscience*. Should opposing hollows in the retreating faces meet, then the break-through produces a rock arch. The most famous landform in the Bohemian-Saxon sandstone area, Pravčická brána (Prebischtor) Arch with a span of 26.5 m and height of 16 m, was produced in this way.

The entire Bohemian-Saxon sandstone plateau is covered in mixed deciduous-coniferous forest with some species introduced by human activity. This vegetation cover helps to support an essentially natural process regime from the point-of-view of landform development, ensuring sustainable on-going geomorphic processes. The forest is carefully managed with intervention used, when appropriate, to restore the natural mix of tree species (as determined from pollen data). As a result the sandstone landforms are in excellent condition, and there is every prospect that the natural values of the region will remain intact for the foreseeable future.

5 Requirements for Natural World Heritage

The principle purpose of the mission was to consider whether or not Bohemian-Saxon Switzerland has a realistic chance of success if it were nominated for natural World Heritage under criterion viii.

According to the *Operational Guidelines for the Implementation of the World Heritage Convention* (2013), **criterion viii** is defined as follows:

to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features.

So to assess if outstanding universal value could be recognised in a nominated area (or areas) from the Bohemian-Saxon Switzerland region using this criterion, it is necessary to consider the requirements for World Heritage and to assess if they could be met in Bohemian-Saxon Switzerland. This requires several questions need to be considered:

- Are the features found in the nominated area(s) the best examples available?

- Does the nominated area stand up readily to international comparison?

- Could the area, with justification, be considered the 'the best of the best'?

In order to judge whether or not the area nominated is equal to or better than the best in the world, a process called 'comparative analysis' is undertaken. It is part of the Justification for Inscription and is a way of assessing how the nominated area measures up against other similar sites around the world.

For natural properties comparative analysis is conducted on a global basis and it takes into account any relevant thematic or global reviews published by IUCN. It is normally conducted in two parts:

(1) to consider similar existing World Heritage properties;

(2) to consider similar properties that may be nominated in the future, especially (but not only) those on Tentative Lists.

5.1 Integrity and state of conservation

The *Operational Guidelines for the Implementation of the World Heritage Convention* also requires that for a property to be accepted as having outstanding universal value it must meet the conditions of integrity and must have an adequate protection and management system.

Integrity is defined in the *Operational Guidelines* as a measure of the wholeness and intactness of the natural heritage and its attributes, although it is appreciated by the World Heritage Committee that no area is totally pristine, and that human activities within an area may be consistent with the outstanding universal value of the area where they are ecologically sustainable.

The *level of integrity* is also an important consideration, because World Heritage is concerned with best that planet Earth has to offer. Thus inscribed properties are expected to meet the highest international standards. This is an important part of the comparative analysis, because different properties with similar values and attributes may not be similar in respect of either integrity or state of conservation, i.e. they may not have equivalent outstanding universal value. One integrity issue that arises concerns the size of the property, because the question must be asked: is the size of the property sufficient to ensure that on-going natural processes will continue uninterrupted?

5.2 Requirements for Integrity

a) ***the wholeness and quality of the natural heritage***

To assess this we ask:
Do the features found in the nominated area constitute the best examples available?
Are the features so exceptional as to transcend national boundaries in their significance and be worthy of being designated as of outstanding universal value?
Do they stand up readily to international comparison and could they be described as 'the best of the best' (or at least *amongst* the best of the best)?

b) ***the intactness of the natural heritage and its attributes***
To assess this we ask:
To what extent has the property suffered from human activity, and does the impact now render the property unable to meet the condition of integrity?
Is there on-going environmental rehabilitation that will repair any existing damage?
Does on-going human activity such as land development threaten the long-term sustainability of the outstanding values?

c) ***the adequacy of the size of the property***
To assess this we ask:
Is the size of the nominated area and buffer zone sufficient to ensure that on-going natural processes will continue uninterrupted, so that the region's significant features and values will be maintained?

The size required of a World Heritage property is not specified, but one can note that some natural properties are quite small in area. For example Skocjan Caves WH Park, Slovenia, with 413 ha; and Trang An WH Park in Vietnam with a core area of 6172 ha and a buffer zone of 6080 ha. Thus the total area of Bohemian-Saxon Switzerland (173.5 km^2) is large enough provided it contains outstanding attributes and that the area is sufficient to maintain these important qualities.

d) ***the prospect of maintaining integrity into the future***
To assess this we ask:
Is the core area optimally delimited for management?
Are the boundaries appropriate for effective protection of the important features of the area; both physical and biological?
Is the area adequately protected by effective legislation?

In general in natural properties it is best for boundaries to follow watersheds (divides), so that entire catchments and the quality of runoff can be managed. Streams flowing into the nominated area from outside pose particular problems, which can sometimes be managed by including the rest of their catchments in the buffer zone. But this is not practicable in the case of large catchments like the Elbe; so the Elbe River surface and its floodplain would be best dealt with as a managed area with the buffer zone (which implies a plan for its control).

5.3 Requirements for Management
The purpose of management of a World Heritage property is to ensure the protection of its outstanding universal value for the benefit of the present generation, and its transmission unimpaired to future generations. As a consequence, several responsibilities are implied:

Responsibility of the State Party (or Parties)
The inscription of a property on the World Heritage List implies that the State Party (or Parties) will carry the ultimate responsibility for management of the site to the highest level

of international conservation practice. The honouring and implementation of any trans-boundary agreements is also the responsibility of the State Parties involved.

Unambiguous Authority
Management of World Heritage properties requires clear unambiguous authority. This does not necessarily fit readily with established interests that may operate at national, provincial and local levels and may involve planning and environmental agencies that sometimes have competing and conflicting interests and sensitivities.

Thus when the World Heritage property is first nominated for inscription, the State Party (or Parties) should already have made clear which authority has final management responsibility. Where does the 'buck' stop?

5.4 Management Structure
Three interlinked levels of administration are usually required for effective sustained management of UNESCO natural properties:

Policy level
One over-arching national or transnational authority with policy-making power that operates within the laws of the country(ies) and requires international standards to be applied to all properties. This operates at a high political level.

Planning level
A governing body charged with the implementation of national (or transnational) policies. It approves management plans for policy implementation at individual property level and delegates authority to individual site managers for the implementation of the policies. This body ensures that policies and international standards are applied to all World Heritage properties within the State concerned.

Management level
Site managers of individual World Heritage properties are responsible for implementing management plans approved by the governing body and should have been consulted in the earlier development of the plan. Effective implementation to appropriate standards requires strong leadership with clear authority and responsibility, as well as support from the governing body. Park management committees must include representatives of the local people, because sustainable management is not possible without the support of the local community.

6 Is it possible to gain natural World Heritage for Bohemian-Saxon Switzerland?

Some doubt has been expressed in a Czech report edited by Härtel and Sukenikova (2010) concerning the likelihood of achieving natural World Heritage if a nomination were presented of sites in the Czech Republic. They conclude that a nomination would only be meaningful in the case of a joint transboundary nomination. In an earlier report produced in Germany by Plachter, Kruse and Kruckenberg (2006) qualified support was also given for a nomination, especially for a trans-border nomination in the context of the World Heritage convention.

Therefore considered opinion on both sides of the border suggests that to go it alone would be unlikely to bring success, but that a joint nomination of transboundary sites could bring success.

This is also my opinion. I consider the case to be marginal, but that it would certainly be enhanced if the nomination drew on the best sites in the Cretaceous sandstone area (Czech Republic/Germany/Poland), regardless of political borders. But even then, the transboundary nomination would still require presentation in an appropriate manner.

6.1 How should comparison be made with other sandstone and pillar landscapes?
Comparative analysis is an essential step in the presentation of a case for World Heritage recognition. The purpose of the analysis is to try to demonstrate that the nominated site has outstanding universal value.

In making a comparative analysis, it is not helpful to claim uniqueness, because every landscape is unique.

It is important to realise that making comparisons between different styles of landforms is a subjective process – who is to say which is best or more important? On what basis?

So it is necessary to find a way to demonstrate objectively the international significance of the nominated landscape.

6.2 Assessing international value
In their book *Sandstone Landforms*, Young et al. (2009) reach the conclusion that sandstone landscapes are primarily controlled by sandstone type and structure, i.e. they are mainly rock controlled. This conclusion was reached because there is little discernible climatic control. There is not much difference in styles of sandstone landscapes in different climatic zones, although at the extremes there are climatic influences such as the effects of glaciation or the effects of wind in deserts.

We may take from this conclusion that each sandstone landscape is best considered on its own merits. In the context of a World Heritage nomination, then, the question should be asked:
what story does this landscape contain that is of major significance for Earth history and so can be considered of outstanding universal value? Or more to the point:

6.3 What story does the Bohemian-Saxon Switzerland landscape contain that is of outstanding universal value? What story should be told?
How does that story compare in significance to the landscape stories contained in other sandstone landscapes? Is the Bohemian-Saxon landscape story at least as important from the point-of-view of understanding Earth's history and natural processes as the stories found in other World Heritage areas?

Recalling criterion viii, does the Bohemian-Saxon landscape contain *outstanding examples representing major stages of earth's history* and *significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features?*

So the critical message here is that it is vital to identify and tell the most important story. This will be a story concerning earth's history that is contained in the Bohemian-Saxon sandstone

landscape. Having done that, then the best sites (also from other parts of the Cretaceous basin) must be chosen to illustrate that story, i.e. the sites where field evidence for the story can be seen and critically examined.

Sandstones are the most common rock type on Earth. Bohemian-Saxon Switzerland is the most extensive sandstone landscape in Europe. So the landscape history of Bohemian-Saxon Switzerland is of major significance for Europe, one of Earth's major continents.

- Bohemian-Saxon Switzerland has a landscape history that extends from the early Tertiary (Palaeogene), when the sandstones were first exposed at the surface, until the present.
- The stages of development of that history can be seen in the landscape
- The broad scale and detailed landforms that developed as a consequence of geomorphological processes are extremely well displayed.
- A set of serial sites drawn from sandstone landscapes within the wider Cretaceous basin provides field evidence of this evolution and illustrates the landforms that have developed.

My recommendation is that, if a nomination is made, it should tell the story of the evolution of Europe's greatest sandstone landscape – one of the world's finest sandstone landscapes.

- It will require a serial nomination to tell that story.
- Each of the serial sites chosen to convey the story will present evidence like successive chapters in a book.
- Each site can only justify its place if the evidence it contains is critical to the story. An essential point is that every site chosen should add value by telling another part of the story. Do not duplicate by illustrating the same points but in a different place.
- Every site critical to the story must be in the core zone.

7 How strong is case of Bohemian-Saxon Switzerland for natural World Heritage recognition?

Because of the existence of many sandstone landscapes on the World Heritage List and of many other excellent sites not yet presented for nomination, it is very difficult –perhaps impossible- to argue that Bohemian-Saxon Switzerland is amongst the 'best of the best' when evaluated against criterion viii. To demonstrate that would require finding an internationally significant point of difference that is unique to Bohemian-Saxon Switzerland and that could also be appreciated by the general public (as well as scientific specialists). In common parlance, Bohemian-Saxon Switzerland requires a 'wow' factor that permits it to stand out from the crowd.

If the above evaluation is correct, then the chance of demonstrating outstanding universal value for Bohemian-Saxon sandstones must be considered low. The landscapes are beautiful by any standards, and often physically impressive, but perhaps do not quite reach the breath-taking quality usually encountered in World Heritage properties – though this is admittedly a subjective evaluation.

Bohemian-Saxon Switzerland has the largest area of sandstone landscape in Europe and this landscape has a long and detailed history that can be clearly demonstrated. In my opinion this

makes it a clear candidate for UNESCO Geopark status, but achieving World Heritage status is more problematic.

8 Conclusions

8.1 Issues of concern

Management.

Several national and local agencies have an interest and role in the environmental management of the Bohemian-Saxon Switzerland region. Sometimes policies and interests may coincide, but sometimes they may conflict. From the point of view of management of a potential World Heritage property, it is essential that management objectives and priorities are clear and that there is an unambiguous line of decision-making. The senior authority must be established and made clear before inscription is sought. Everyone needs to know 'where the buck stops', and who has ultimate responsibility and control.

Integrity

When streams flow into a highly protected zone from a relatively unprotected area there are always concerns about the maintenance of environmental quality. The Kamenice and Polenz rivers are cases in point, because they run through the park but have their headwaters outside it. If a World Heritage nomination is made, the Management Plan must make it clear how water quality can be guaranteed.

Control of park assets

In the case of Bohemian Switzerland National Park an iconic landform, Pravčická brána/Prebischtor Arch, which is a major symbol of the park is effectively in the control of a private owner, because that owner controls access and owns the land under the arch span. Thus appropriate management of that feature cannot be entirely guaranteed by the State Party as would be required by UNESCO. A related issue is that the private owner of the Falcon Nest Hotel (Sokolí hnízdo) is profiting from a public asset by charging a fee to cross private land to gain access to public viewpoints in the vicinity of the arch. Falcon Nest Hotel is also an important historical building, which in my opinion should be maintained by the State. Its catering operations could be leased to a private operator.

Recommendation: that the Czech Government should acquire the Falcon Nest Hotel property for public benefit in posterity.

A similar issue arises with respect to the Bastei Panorama Restaurant in Saxon Switzerland National Park, although the building has no historical importance. The problem in this case is that it was built in exactly the wrong place: literally on top of the castellated sandstone landscape that tourists come to admire and photograph. However, in a serial nomination the Bastei site may not measure up to other locations in the Bohemian-Saxon Switzerland sandstone landscape, so might not be included in a nomination. For example the panorama view across the Elbe valley at Brand-Baude is geomorphologically more significant; and equally good or better sandstone pinnacles are found elsewhere. So living with the *status quo* may not be a problem.

8.2 What is the best way to proceed?

There are two possibilities:

1. Apply for UNESCO Geopark status.
This would require just one site. It could be trans-boundary and would take the form of a single large protected area with internal geo-sites (rather like a buffer zone enclosing several small cores). It could be regarded as a step on the way to future World Heritage nomination of a larger serial property, because achieving Geopark recognition clearly signals the high quality of the site and achieving Geopark status does not preclude applying for World Heritage later.

2. Make a serial transboundary natural World Heritage nomination of sandstone landscapes within the Bohemian Cretaceous Basin.
Success is only likely to be achieved if a convincing point of difference can be found, when comparing Bohemian-Saxon Switzerland to other international sites. Therefore it is necessary to be clear about the internationally outstanding story that is found in Bohemian-Saxon Switzerland.

In my opinion it concerns the history of evolution of the sandstone landscape, which I consider probably to be better understood scientifically in this area than in any other area in the world. Obtaining more facts, such as cosmogenic dates on terrace deposits, would make the case still stronger.

The fact that biodiversity is strong in Bohemian-Saxon Switzerland is also important, because it underpins the claim that natural geomorphic processes are maintained. It is possible that the biological values may be worth pursuing in their own right as a UNESCO Biosphere Reserve, but further professional advice would be required from a biologist to assess if it would be likely to meet the criteria.

Existing environmental rehabilitation is also important, because it is a clear demonstration of effective well-coordinated transboundary management.

8.3 Chances of success?
Very high for a Geopark: all the requirements are there. Relatively easy to prepare.
Marginal for World Heritage: depends on how well the story is presented and the outcome of the critical review that will follow by IUCN experts. The World Heritage Committee requires a case that can be easily appreciated and understood, i.e. it should not be accessible only to specialists, so although based on sound science it must not depend in its presentation on too much technical detail.

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