IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 06 November 2017

Please note: this is an archived Conservation Outlook Assessment for Stevns Klint. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Stevns Klint

SITE INFORMATION

Country:
Denmark
Inscribed in: 2014
Criteria:
(viii)

Site description:

This geological site comprises a 15 km-long fossil-rich coastal cliff, offering exceptional evidence of the impact of the Chicxulub meteorite that crashed into the planet at the end of the Cretaceous, about 65 million years ago. Researchers think that this caused the most remarkable mass extinction ever, responsible for the disappearance of over 50 per cent of all life on Earth. The site harbours a record of the cloud of ash formed by the impact of the meteorite – the exact site being at the bottom of the ocean off the coast of Mexico’s Yucatán Peninsula. An exceptional fossil record is visible at the site, showing the complete succession of fauna and micro-fauna charting the recovery after the mass extinction.
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SUMMARY

2017 Conservation Outlook

Good

The site’s features providing evidence of the meteorite impact and its outstanding fossil record are well preserved and the site has been and will remain of iconic scientific significance. The site benefits from a strong legislative framework, effective collaboration of a number of local organizations that cover its management and a very strong support and engagement of the local community and private landowners. The current threats to the site’s values are very low and well regulated. The anticipated increase in visitation will need to be properly addressed and will require additional resources.

Current state and trend of VALUES

Good
Trend: Stable

The site’s iconic features providing a globally exceptional representation of the Chixulub meteorite impact and its outstanding fossil record have been well preserved and threats to these values are almost non-existent. The site has an iconic scientific importance and will remain highly significant in the future.

Overall THREATS

Very Low Threat

Threats to the OUV of the property are very low when it comes to quarrying and fishery. The property is very robust and the risks from the threats are well managed by the relevant authorities. Impacts of tourism might, however, affect the property. With the increase in visitation impacts on the site’s values might increase due to uncontrolled fossil collecting which will require regulatory measures to be enhanced accordingly. While this is already being addressed by the development of rules of conduct and management measures to restrict visitation to defined locations, enforcement of any new regulations will be the

biggest challenge.

Overall PROTECTION and MANAGEMENT

Highly Effective

The site benefits from a strong legislative framework, effective collaboration of a number of local organizations that cover its management and a very strong support and engagement of the local community and private landowners. Following the inscription of the site a new management structure will be established and its effectiveness is still to be evaluated at a later stage.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **A globally exceptional testimony to the impact of meteorite on the history of life**
  Criterion:(viii)

  Stevns Klint is a globally exceptional testimony to the impact of meteorite on the history of life on Earth. The property provides a globally exceptional representation of the evidence of the Chixulub meteorite impact that took place at the end of the Cretaceous Period, c.65 million years ago. This impact is widely believed by modern scientists to have caused the end of the Age of the Dinosaurs, and led to the extinction of more than 50% of life on Earth. Stevns Klint is highly significant in terms of its past, present and future contribution to science especially pertaining to the definition of and explanation of the Cretaceous/Tertiary (K/T) boundary (SoOUV, 2014).

- **Outstanding fossil record**
  Criterion:(viii)

  The outstanding fossil record at Stevns Klint provides a succession of three biotic assemblages including the most diverse end-Cretaceous marine ecosystem known. The million years recorded in the rock at Stevns Klint provides evidence of a climax preimpact community, fauna that survived a mass extinction event, and the subsequent faunal recovery and increased biodiversity following this event. The fossil record shows which taxa became extinct and which survived and reveals the tempo and mode of evolution of the succeeding post impact fauna that diversified to the marine fauna of

today, thus providing important context for the main K/T boundary layer exposed at Stevns Klint (SoUV, 2014).

Other important biodiversity values

- **Natura 2000 - hosting some of Europe's most valuable and threatened species and habitats**

  Stevns Klint is one of few areas in Denmark where the nature type chalk grasslands can be experienced. Specific species of mosses, lichens, mushrooms and plants that are all linked to chalk grasslands grow here. The area is a protected natural habitat and hosts rare fauna such as amphibian, lizard and viper. The former, crested newt (Triturus cristatus), is registered on the EU's Habitats Directive Annex II and IV, and requires that special efforts have to be made for its habitat.
  In addition, rare spiders and ground beetles are found, which are known only in few places elsewhere in Denmark. Stevns Klint is also a "hot spot" for breeding bats, and houses 11 out of 17 Danish species. Some of the species are protected according to the EU's Habitats Directive.

- **Important bird migration route**

  The site lies on an important bird migration route between Scandinavia and southern Europe and Africa (IUCN Evaluation, 2013). It is one of very few sites in Europe where hundreds of endangered raptors pass during migration from Sweden to continental Europe.

Assessment information

Threats

Current Threats

Low Threat

The current threats to the site's values are limited to one active chalk quarry located between the two component areas of this serial site and impacts of tourism. The quarry is subject to strict regulations and poses no threat to the site's values.The level of visitation has shown a marked increase after the designation as WHS. Development of a plan for guiding the visitors has been initiated by publishing a document 'Enjoy Stevns Klint' in order to control the movements of the visitors in the area by guiding them to defined visitor areas. The regulations and management measures related to tourism and visitation will benefit from a revision in the years to come in order to reflect potential further increases in visitation... Fishery is not a threat to the core values of the property and impact on the biological values and seabed is expected to be addressed in the next generation of management plan for the respective area compiled by the Danish EPA. Landslide and/or erosion are not considered a threat.

► Tourism/ visitors/ recreation

Low Threat
Inside site, scattered(5-15%)

Current levels of visitation are still relatively low, but it is expected that visitation will increase which can lead to increasing impacts due to uncontrolled fossil collecting. This threat is managed through the legislative framework for protection of natural heritage in Denmark and regional and municipal planning to support the protection of the site. There are necessary regulations and management measures in place for managing visitation; however, these will need to be sustained and adequately resourced in the future (SoOUV, 2014; IUCN Evaluation, 2013).

► Mining/ Quarrying

Low Threat
Outside site

The site is a serial property with a small gap between the two components at Sigerslev Kridtbrud where an active chalk quarry exists, including a quay for

seaborne export. Permission to extract in the specified areas has been granted to OMYA A/Sand runs for the time being until 2033 (IUCN Consultation, 2017). Shipping associated with the export is very limited and well regulated, but requires continued supervision. The quarrying area is not part of the World Heritage site and the activity is not regarded as having negative influence on the site. The quarry is the only active one in the Municipality of Stevns (IUCN Evaluation, 2013; Nomination file, 2012).

► Fishing / Harvesting Aquatic Resources

Low Threat
Outside site

Fishing within the area of the inscribed property is restricted to sport fishery and angling. Stevns Municipality is part of a project - Fishing Zealand - a large cooperation project consisting of several municipalities on Zealand and surrounding islands and volunteer sport fishermen who work together with local businesses and tourism organizations to develop sustainable sport fishing tourism and improve fishing opportunities throughout the region. The project makes a positive contribution to sport fishing tourism and growth in local businesses, but also to the environment and to sport fishermen. Fishing is not considered to affect aquatic vegetation and wildlife inside the property (IUCN Consultation, 2017).

► Avalanches/ Landslides

Very Low Threat
Inside site, localised(<5%)
Outside site

Erosion and landslides can cover outcrops of the fish clay that represent a unique testimony of the event at the K / T boundary. On the other hand, landslides could generate new unique fossil findings. In the worst case scenario, a particularly accessible and / or fine outcrop will disappear for some time, but the opposite could as well be the case. The OUV of the property inscribed will not be compromised as it stretches 15 km along the coastline (IUCN Consultation, 2017).

Potential Threats

Very Low Threat

Even though the sea-levels are projected to increase, based on the predictions for the next hundred years the site will remain mainly above sea-level and its accessibility will not be limited. Potential quarrying is only a theoretical threat and will disappear in 2028 when the rights for chalk extraction lapse.

▶ Temperature extremes

Very Low Threat
Inside site
Outside site

Even with increasing sea-levels as predicted for the next hundred years, the boundary of the site will still be mainly above sea-level and accessibility will not be limited (IUCN Evaluation, 2013).

▶ Mining/ Quarrying

Very Low Threat
Inside site, throughout(>50%)
Outside site

New permissions for extraction of chalk which could severely impact the property, are unlikely to be approved. Although a belt running along the coastline on land is mapped as a reserve for future quarrying by the regional authority, there are a number of other legislations that would prevent this e.g. The Act on the Protection of Nature. The basis for the reservation of the raw material interests is based on the possibility of landowners to claim compensation if the area is taken out of the raw material plan before 2028, where the extraction right of recovery lapses (IUCN Consultation, 2017).

Protection and management

Assessing Protection and Management

▶ Relationships with local people

Mostly Effective

There has been a strong support from the local community for the nomination of the site and high level of engagement in its preparation. Landowners have been well informed about the process and supportive (IUCN Evaluation, 2013; SoOUV, 2014). Following the inscription of the site on the World Heritage List a process was initiated to have the property declared as a conserved area, a designation which is among the strongest national protection regimes. Local land owners of the buffer zone strongly opposed the process and have filed complaints against the proposal. However, the local community including the landowners still express their support for the World Heritage status of the area, and the level of engagement is still high (IUCN Consultation, 2017).

► Legal framework

Highly Effective

The site is subject to a number of national and municipal legal instruments, including the Planning Act, the Danish Act on the Protection of Nature and the Act on Coastal Protection. The site has also been designated as an Area of National Geological Interest. The existing regulatory framework provides adequate protection to the site’s values (IUCN Evaluation, 2013). On the basis of a proposal submitted by Stevns Municipality and the Danish Society for Nature Conservation, the Preservation Board has decided to designate Stevns Klint as well as some minor adjacent areas as conservation area, which means that all the inscribed property will be subject to conservation and thus obtain the strongest possible protection under national law. Currently, the designation has not yet been approved as the Environment and Nature Appeal Board has to make their final decision on the matter, which is expected to happen in 2020 (IUCN Consultation, 2017).

► Enforcement

Some Concern

Geological findings of outstanding scientific or exhibition value belong to the Danish state (Museum Act) and are managed by the National Geological Museum. The finder will receive compensation if findings are considered to have a value. Whether the findings come to the museum's recognition depends on whether the museum is contacted by the finder. The proposal to declare the property a conservation area will provide some legal power for

enforcement of specific terms but the outcome of the proposal is still unknown. However, even if approved, enforcement of new regulations might be challenging (IUCN Consultation, 2017).

► Integration into regional and national planning systems

Mostly Effective

The site is located within 300 m belt of sea-shore where strict regulations are in place.

► Management system

Highly Effective

The organizational structure for the management of the site has undergone an audit based on the experience gained following the site’s inscription of the World Heritage List. An advisory body has been set up, the World Heritage Council, as well as a coordinated and decision-making association, World Heritage Stevns, both composed of individual institutions' areas of responsibility and stakeholder roles. World Heritage Stevns is led by a board consisting of representatives from Stevns Municipality, Stevns Tourist Association, Østsjællands Museum and from the Local Reference Group which was established to ensure that important stakeholders are involved, that visible activities are coordinated and that sustainable management and development of Stevns Klint as a World Heritage site is achieved. World Heritage Stevns is responsible for the implementation of the management plan approved by the municipality as part of the World Heritage application, and at the same time acting as link between the various stakeholders for Stevns Klint World Heritage. (Stevns Klint Management Plan, 2017-2020, www.stevnsklint.org)

► Management effectiveness

Data Deficient

No systematic management effectiveness assessment has been undertaken given the recent inscription of the site on the World Heritage List.

► Implementation of Committee decisions and recommendations

Highly Effective

The authorities have undertaken measures to respond to the requests made by the World Heritage Committee in its Decision 38COM.8B.10:
a) "Establish without delay the revised and specific management system proposed to assume responsibility for the property upon inscription on the World Heritage List" - The management system has been revised to ensure responsibility for the property. A new Management Plant has been developed and revisions will be carried out every four years.
b) "Retain policies to ensure that no mining and/or quarrying activities take place within the property, nor any adjacent extraction activities that could impact the property" - The situation with regards to quarrying remains as was at the time of inscription and it can be concluded that quarrying is not a threat to the property.
c) "Ensure effective implementation of fossil collecting guidelines, including appropriate curation of key specimens" - Steps have been taken in order to preserve the outstanding fossil record. Guidelines for collecting samples and fossils have been developed and incorporated into the proposal for establishing a conservation area which means that the guidelines will become legal power. The final decision as to whether the area will become a conservation area is not expected to happen before 2020. Until then and probably afterwards it will remain challenging to enforce the guidelines and it must always be of the utmost importance to continuously work to address this issue.
d) "Ensure effective engagement of the private landowners in the protection and management of the property on an ongoing basis" - A relatively short time has been available since the nomination to address this issue. In order to engage the local citizens a Local Reference Group has been established and the engagement of private landowners and other stakeholders in the protection and management of the site is strong throughout this organization. However, more can be done to engage locals in protection and management to the property.
e) "Ensure effective presentation of the property, to provide for a high quality visitor experience, supported by appropriate education and interpretation facilities" - There has been a lot of information about the world heritage on the internet, specific apps, information boards, traditional information posters, school services, animation video etc. An ambitious project including a visitor center has been prepared and is in the phase of application for funding.

f) "Continue strong processes of local community engagement in the property, and the commendable shared management approach with local communities and stakeholders" - Community engagement includes one or two yearly World Heritage Days, community meetings for special themes and a partner programme designed to include private companies and organizations. (Stevns Klint Management Plan, 2017-2020, www.stevnsklint.org)

► Boundaries

Highly Effective

The site comprises the 15km long coastal cliff of Stevns Klint. The boundaries of the site encompass all most important geological features and accommodate the natural processes of coastal erosion. The buffer zone follows the national 300m coastal protection zone on land and the boundaries of the Natura 2000 area of Stevns Klint seawards (Nomination file, 2012; IUCN Evaluation, 2013).

► Sustainable finance

Highly Effective

Ongoing management funding has been provided through the Stevns Municipality. A number of activities are coordinated and funded by various organizations, e.g. the Danish Nature Agency, Østsjællands Museum (Nomination file, 2012).

► Staff training and development

Highly Effective

The staff of Østsjællands Museum includes a qualified geologist, and about 25 part-time guides. Staff of the Stevns Municipality are also involved in the management of the site (Nomination file, 2012). The new organizational structure with the association of World Heritage Stevns includes a director with wide experience in world heritage matters, a full time site manager,and a communications consultant (www.stevnsklint.org)

► Sustainable use

Highly Effective

The site provides opportunities for tourism, research and education which are all intended to be carried out in a sustainable way however a concrete management plan or strategy has yet to be developed (Stevns Klint Management Plan, 2017-2020).

► Education and interpretation programs

Highly Effective

The Østsjællands Museum has developed a number of education programmes and coordinates dissemination of information about the site's geology through production of education materials and various activities, such as lectures and participation in radio and TV shows (Nomination file, 2012, Stevns Klint Management Plan, 2017-2020).

► Tourism and visitation management

Mostly Effective

The Stevns Museum attracts about 15,000 visitors annually, which represents a twofold increase since the inscription, and the area as a hole is visited by about 125,000 tourists every year. A number of visitor facilities are found along the cliff and plans for all visitor sites as well as a tourism strategy have been developed inspired by the UNESCO Sustainable Tourism Toolkit. A process of establishing a new visitor center situated in Boesdal has started in 2015, an opportunity opened up by the Danish Government's call for pilot projects under the pilot scheme for coastal and nature tourism. The project development has been followed up by a design of a proposal to raise funding for developing Stevns Klint World Heritage Site (Fund Application, 2017).
The potential impacts of increasing visitation are included in the monitoring system. In expanding existing facilities and preparing interpretation concept, it is necessary that conservation and scientific values of the site are given proper attention.

► Monitoring

Mostly Effective

The Stevns Municipality is responsible for the monitoring of the site in collaboration with the Østsjællands Museum coordinated and prepared by the association World Heritage Stevns. The Danish Nature Agency is

responsible for the monitoring of Natura 2000 sites (Nomination file, 2012, Stevns Klint Management Plan 2017-2020).
The management plan and the statement of tourism policy describe how threats should be monitored. However, it is too early to conclude whether the planned monitoring is sufficient.

▶ **Research**

Highly Effective

Stevns Klint is very well known internationally and research is carried out by researchers from all over of the world. Locally, research is carried out at Østsjællands Museum. In 2017 a geological professional reference group was established with representatives from the Department of Geosciences at the University of Copenhagen, GEUS, the National Museum of Natural History and the Østsjællands Museum. The group will discuss scientificquestions regarding Stevns Klint. (Nomination file, 2012, Stevns Klint Management Plan, 2017-2020).

Overall assessment of protection and management

Highly Effective

The site benefits from a strong legislative framework, effective collaboration of a number of local organizations that cover its management and a very strong support and engagement of the local community and private landowners. Following the inscription of the site a new management structure will be established and its effectiveness is still to be evaluated at a later stage.

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

Highly Effective

There are very few threats to the site’s values. The active chalk quarry that is located between the two component areas of the site is subject to strict regulations and monitoring.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **A globally exceptional testimony to the impact of meteorite on the history of life**

Good
Trend:Stable

The site provides an exceptional testimony of the evidence of the Chixulub meteorite impact showing evidence of global mass extinction and has an iconic scientific importance. The values of the site are well preserved and are currently not threatened (IUCN Evaluation, 2013).

▶ **Outstanding fossil record**

Good
Trend:Stable

The site displays an outstanding fossil record with very good state of preservation (IUCN Evaluation, 2013; Nomination file, 2012).

Summary of the Values

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

Good

Trend: Stable

The site’s iconic features providing a globally exceptional representation of the Chixulub meteorite impact and its outstanding fossil record have been well preserved and threats to these values are almost non-existent. The site has an iconic scientific importance and will remain highly significant in the future.

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

Good

Trend: Data Deficient

Holtug Kridtbrud is designated as SAC/Natura 2000 due to the priority habitat type chalk grasslands, the species crested newt (Triturus cristatus) and the Chara habitats. The marine habitat area Stevns Rev is designated as SAC/Natura 2000 and contains the habitat reef and sandbanks (Natura 2000 Management Plan 2016).

Additional information

Benefits

Understanding Benefits

► Contribution to education

The Østsjællands Museum has developed a number of education programmes and coordinates dissemination of information about the site's geology through production of education materials and various activities, such as lectures and participation in radio and TV shows (Nomination file, 2012, Stevns Klint Management Plan, 2017-2020).

► Importance for research

The site provides a globally exceptional representation of the evidence of the Chixulub meteorite impact which is widely believed by modern scientists to have caused the end of the Age of the Dinosaurs, and led to the extinction of more than 50% of life on Earth. This is the most significant and readily accessible site, of hundreds available, to see the sedimentary record of the ash cloud formed by the meteorite impact. In addition, the site has iconic scientific importance as the most significant and accessible of the 3 localities where the radical theory for asteroid driven extinction was developed through the seminal work of Walter and Luis W Alvarez, with their co-workers. Stevns Klint is highly significant in terms of its past, present and future contribution to science especially pertaining to the definition of and

explanation of the Cretaceous/Tertiary (K/T) boundary (SoOUV, 2014).

▶ **Outdoor recreation and tourism**

With the current visits to Stevns Klint of about 125,000, which will probably continue to rise when the building of the visitor center at Boesdal and the development of the other 8 sites along the cliff is a reality, the recreational value of the property inscribed represent a significant factor for residents as well as for tourist.

A balance needs to be found in order not to over-exploit the site.

▶ **Tourism-related income**

It is widely recognized that a designation of an area or place as World Heritage site is of great importance to the affected society and the wide acknowledgment of its great potential to contribute to the local economy. An increase in visitors has already proven that fact.

Summary of benefits

The site is of iconic scientific importance as it provides a globally exceptional evidence of the meteorite impact which is widely believed to have caused the end of the Age of the Dinosaurs.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Østsjællands Museum		A number of education programmes and research activities.
2	World Heritage Stevns		Monitoring programme involving local community

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	Presentation of the property	Development of several other sites in order to support the visitor centre at Boesdal. Some development at Højeruplund is planned, building of stairs with viewpoint at Stevns Lighthouse and improvement of the passage along the quarry Sigerslev Kridtbrud.	
2	Visitor experience	Development of a conceptual framework for access, visitation and interpretation.	
3	Sustainable tourism	Partnership programme supporting the development of sustainable local tourism. A clear communication of what it takes to become a partner can be an incentive for future partners, including what actions may be taken in order to apply for participation in the program.	

REFERENCES

№	References
1	Decision 38 COM 8B.10.
2	Fund Application – Stevns Klint UNESCO World Heritage, 2017 https://stevns.dk/sites/default/files/om_kommunen/planer_po…
3	IUCN Evaluation, 2013.
4	Natura 2000 Management Plan 2016-2021, Holtug Kridtbrud http://mst.dk/media/130766/n182_n2000plan_2016-21.pdf
5	Nomination of Stevns Klint, 2012. http://whc.unesco.org/uploads/nominations/1416.pdf
6	Statement of Outstanding Universal Value, 2014. In Decision 38 COM 8B.10.
7	Stevns Klint Management Plan, 2017-2020. http://stevnsklint.org/onewebmedia/Forvaltningsplan%202017-…