Lena Pillars Nature Park

2020 Conservation Outlook Assessment

SITE INFORMATION

Country: Russian Federation
Inscribed in: 2012
Criteria: (viii)

Lena Pillars Nature Park is marked by spectacular rock pillars that reach a height of approximately 100 m along the banks of the Lena River in the central part of the Sakha Republic (Yakutia). They were produced by the region’s extreme continental climate with an annual temperature range of almost 100 degrees Celsius (from -60 °C in winter to +40 °C in summer). The pillars form rocky buttresses isolated from each other by deep and steep gullies developed by frost shattering directed along intervening joints. Penetration of water from the surface has facilitated cryogenic processes (freeze-thaw action), which have widened gullies between pillars leading to their isolation. Fluvial processes are also critical to the pillars. The site also contains a wealth of Cambrian fossil remains of numerous species, some of them unique. © UNESCO

SUMMARY

2020 Conservation Outlook

Finalised on 01 Dec 2020

GOOD

Due to the relatively robust nature of the values contributing to the Outstanding Universal Value of Lena Pillars Nature Park, the remoteness and lack of inhabitants of the site, and the existing protection and management regime, which is effective overall in spite of some remaining concerns, the overall conservation outlook of the World Heritage site is assessed as good. The 2015 extension of the site to include the Sinsky plot area has further strengthened the integrity of the site and has addressed the requests of the World Heritage Committee with regards to the site's boundaries. However, a number of other requests remain to be addressed, including inclusion of geologists among the specialist staff members and developing focused educational and awareness raising programme around the site's geological values. In 2018, the Nature Park was re-designated as a National Park with the total area of 1,217,941 ha. While this represents a positive step, potentially resulting in a strengthened legal protection regime; it is unclear how exactly the area of the World Heritage site overlaps with the boundaries of the new national park. Given that the total size of the World Heritage site is bigger than that of the newly created national park, some areas of the World Heritage site have not been included in the boundaries of the national park. It also remains to be confirmed that the re-designation of the nature park as a federal national park would have a positive effect on the available budget levels.
FULL ASSESSMENT

Description of values

Values

World Heritage values

► Spectacular rock pillars
The cryogenic pillars (up to ca. 200 m high) that line the banks of the Lena River are rocky buttresses isolated from each other by deep and steep gullies developed by frost shattering directed along intervening joints. These pillars are the most notable pillar landscape of their kind known (World Heritage Committee, 2013). The areas added to the World Heritage site in 2015 include the most impressive area of carbonate pillars in the Lena Pillars region and the surrounding karstic area (IUCN, 2015).

► Cambrian fossil remains
The internationally renowned and important exposures of Cambrian rocks tell us key stories about our planet and the early evolution of life during the entire Cambrian Explosion. Due to a platform type of carbonate sedimentation within the tropical belt of the Cambrian Period, without subsequent metamorphic and tectonic reworking, and magnificent impressive outcrops, the property preserves an exceptionally continuous, fully documented, and rich record of the diversification of skeletal animals and other bio-mineralized organisms from their first appearance until the first mass extinction event of that period (World Heritage Committee, 2013), including the first metazoan reefs (IUCN, 2012). The Sinsky plot, added to the property in 2015 through a minor boundary modification process, includes the Sinsk Formation, famous for its early Cambrian fossil fauna of an extraordinary preservation (State Party of the Russian Federation, 2015).

► Other evidence of thermokarst processes
Thermokarst processes that are documented (e.g. by sinkholes, karst-erosioni valleys, thermokarst lakes, interrupted surface courses of rivers and streams, karst springs) at the property have developed in an area of a great permafrost thickness (up to 400-500 m) (State Party of the Russian Federation, 2010).

Other important biodiversity values

► Eastern Siberian ecosystems (steppe, forest, tukulan, rock) with associated flora, fauna and landscapes
Mainly low larch taiga with some pine forests, meadow and steppe vegetation in river valleys. Valleys of the Buotama River, small taiga rivers and creeks are covered with dwarf birch and occasional forb meadows. Fragments of steppe vegetation are spread on well warmed bedrock slopes of the Lena and specially Buotama riverbanks. Overall, the ecosystem and relief of the area make up interesting landscapes with significant aesthetic appeal and touristic potential (State Party of the Russian Federation, 2010). 42 mammal species have been recorded in the area, mainly representing the typical fauna of middle-taiga subzone (State Party of the Russian Federation, 2015).
Assessment information

Threats

Current Threats

Due to the remoteness, lack of transport infrastructure and non-existent population, as well as the robustness of the geological values underpinning the Outstanding Universal Value of the site, overall the level of threats remains very low. Fires represent the biggest threat to the site's wider ecosystem however, its geological values are mainly robust against this threat.

▶ Livestock Farming / Grazing
   (Small-scale livestock farming)

Three traditional Evenki farms on site, one engaged in deer farming, two in horse breeding and also some haymaking over 300 ha of agricultural areas. Reportedly also some small-scale unauthorised cattle farming and meadow burning also occurs (State Party of the Russian Federation, 2010).

▶ Fire/ Fire Suppression
   (Forest fires)

Forest fires represent the biggest threat to the World Heritage site; however, its geological values are mainly robust against this threat. 11 forest fires affecting a total of 18,000 ha were recorded in 2001, another fire affecting 130 ha in 2006. Cooperation agreement to control fire risk in place (State Party of the Russian Federation, 2010). The biggest fires occurred in summer 2016 (RIA Novosti, 2016) and affected large areas due to a combination of weather conditions and difficult terrain which made fire-fighting response difficult and less efficient.

Potential Threats

Increased visitation and climate change might lead to increased threats to the site's values (including geological values associated with cold thermokarst processes, as well as additional biological values) in the future.

▶ Tourism/ visitors/ recreation
   (Visitation by tourists)

Visitor numbers have been increasing but are reported to be below carrying capacity (State Party of the Russian Federation, 2016; Totonova, 2018). 14,485 visitors were registered in 2017 and 20,953 in 2018, with the carrying capacity of the site estimated at 35,000 visitors per year (Nature Park Lena Pillars, 2019). A new visitor centre and associated infrastructure are being planned (State Party of the Russian Federation, 2016), which might further increase visitors numbers. However, geological values of site are very robust against impacts from visitation (State Party of the Russian Federation, 2010).

▶ Habitat Shifting/ Alteration
   (Climate change)

Climate change has lead to increase in mean annual temperatures on site by 1.1 C from 1951 to 1991. Whilst there is no more recent data available, if continued, this could affect thermokarst phenomena, extent of permafrost and associated ecosystems and landscape elements (North-eastern Federal University Yakutsk et al., 2010).
Shipping Lanes
(Shipping accidents on the Lena river)

Lena river is a main transport artery of the wider area and therefore carries the potential for accidental discharge of chemicals in the immediate vicinity but outside of the site, with potential to harm some of the biota within. However, there is an emergency plan to mitigate against this potential threat (Northeastern Federal University Yakutsk et al., 2010).

Overall assessment of threats

The extremely remote location and robust character of the site render threats to the site's integrity and values at a very low level. Forest fires represent the biggest current threat to the World Heritage site and their severity might increase, as is already happening with the most serious recorded forest fires occurred in 2016. However, the degree of threat posed by fires to the geological values for which the site is listed are less so than for the wider ecosystem within the site. Potential threats including increased effects from climate change and tourism visitation are also still present.

Protection and management

Assessing Protection and Management

Management system

At the time of inscription, the site was designated as a Nature Park at national level, governed by the Statute of the State Enterprise Nature Park “Lena Pillars” of the Republic of Sakha (Yakutia) (2006) and the Management plan of the Lena Pillars Nature Park (State Party of the Russian Federation, 2015). A new management plan for 2017-2021 was later developed (State Party of the Russian Federation, 2016). In 2018, the Nature Park was re-designated as a National Park with the total area of 1,217,941 ha (Government of the Russian Federation, 2018). However, it is unclear how exactly the area of the World Heritage site overlaps with this new protected area, as it appears that the Buotamsky plot became a National Park (Lena Pillars National Park), while the Sinsky plot remained in the status of Nature Park (Lena Pillars Nature Park). It is also unclear whether a new management plan has also been developed.

Effectiveness of management system

No formal management effectiveness assessment of the site has been documented although management appears to be adequate to deal with the current threats to the site's integrity (IUCN, 2012).

Boundaries

The boundaries of the World Heritage site are clearly defined. In 2015, a proposal for a minor boundary modification was submitted by the State Party of the Russian Federation and was subsequently approved by the World Heritage Committee (World Heritage Committee, 2015). Through this process the Sinsky plot of the Nature Park, located within the Sinyaya River catchment, was added to the World Heritage site and its total area was increased by ca. 9% to 1,387,000 ha (State Party of the Russian Federation, 2015; IUCN, 2015). This addressed the requests previously made by the World Heritage Committee with regards to the boundaries of the site.

In 2018, the Nature Park was re-designated as a National Park with the total area of 1,217,941 ha (Government of the Russian Federation, 2018). However, it is unclear how exactly the area of the World Heritage site overlaps with this new protected area. Given that the total size of the World Heritage site is bigger than that of the newly created national park, some areas of the World Heritage site have not been included in the boundaries of the national park.
Integration into regional and national planning systems

Integration into regional or national planning systems is not documented.

Relationships with local people

There are some areas traditionally used by Evenki indigenous people. The validity of the boundaries of these areas is respected by the park administration. Traditional use of the land includes hay-making and hunting. Co-existence of traditional rights and use, and legal land ownership appears to be appropriately considered (IUCN, 2012). In 2015, the State Party reported a plan to create a Nature Park Committee consisting of representatives of each Evenki ancestral community and Nature Park administration. The committee will be responsible for dealing with any disputes around hunting, licenses, transportation routes, natural resources use and matters of traditional natural territory management (State Party of the Russian Federation, 2015). Although there is no information on the functioning of this committee, this could help resolve remaining issues surrounding the use of the traditional use zones.

Legal framework

At the time of inscription, the site was designated as a Nature Park at national level, governed by the Statute of the State Enterprise Nature Park “Lena Pillars” of the Republic of Sakha (Yakutia) (2006) and the Management plan of the Lena Pillars Nature Park (State Party of the Russian Federation, 2015). In 2018, the Nature Park was re-designated as a National Park with the total area of 1,217,941 ha (Government of the Russian Federation, 2018). A Federal entity “National Park Lena Pillars” has also been established to manage the national park, guided by a new Statute (Ministry of natural resources and ecology, 2019). Sinsky plot (Lena Pillars Nature Park) is managed by the Directorate of biological resources and specially protected natural areas of the Republic of Sakha (Yakutia).

Law enforcement

Enforcement of existing protection regime is overseen by the "special inspection" team which, according to the latest available information, consisted of 11 staff members: 6 government district police officers, 4 senior government inspectors and the head of inspection at the last point of reporting (State Party of the Russian Federation, 2015). Surveillance activities include patrolling by water in summer and patrolling on snow-mobiles in winter. In 2016, 110 control patrols were conducted (State Party of the Russian Federation, 2016).

Implementation of Committee decisions and recommendations

The addition of the Sinsky plot, located within the Sinyaya River catchment, to the World Heritage site in 2015 (State Party of the Russian Federation, 2015; IUCN, 2015) the requests previously made by the World Heritage Committee with regards to the boundaries of the site.

Sustainable use

Small scale traditional natural resource use by Evenki inhabitants of site is well-managed and sustainable (State Party of the Russian Federation, 2010).

Sustainable finance

The total annual budget at the time of inscription was considered adequate for basic conservation functions of the site. However, need for increased budget for tourism management and infrastructure noted, particularly if tourism numbers continue to increase (IUCN, 2012). It is unclear what implications the re-designation of the nature park as a federal national park (Government of the Russian Federation, 2018) would have on the budget levels.

Staff capacity, training, and development

In 2012, ca. 40 staff were considered adequate, but need for more expert staff (i.e. at least one geologist and at least one geomorphologist) to be engaged in protection and management of geological
values of the site was noted (IUCN, 2012). The most recent figures (2015) note 33 staff members in the Nature Park, including the director, 2 deputy directors, 5 specialists, 11 members of the inspection team and 13 technical service staff (State Party of the Russian Federation, 2015). It is unclear if the expert staff include any experts with geological background.

Education and interpretation programs

Mostly Effective

There is both a visitor centre on the territory of the site and cooperation with local schools aimed at education and interpretation activities (IUCN, 2012). While the 2012-2016 management plan for the site foresees a number of environmental education programmes, it is still lacking a strong programme for awareness raising, focused on the geomorphological and geological features of the site (UNESCO, 2015).

Tourism and visitation management

Mostly Effective

Tourism management and interpretation facilities are currently sufficient as tourism numbers are still considerably below carrying capacity (Totonova, 2018). However, the need for a more systematic sustainable and equitable tourism development strategy and the corresponding investments in the site's infrastructure and capacity was noted by IUCN (2012). A 2018 study found that among the main types of tourist services offered by the Natural Park, development of new tourist routes and a coordinated system of tariffs and tourist fees that can be applied in the conservation activities in the park were two focal areas for tourism development in the site (Totonova, 2018). The impacts on tourism levels and management of the 2020 COVID-pandemic will need to be evaluated. The park has been closed for visitors as of June 2020 (Yakutia-Daily, 2020).

Monitoring

Some Concern

Lack of geological monitoring in line with inscription under World Heritage criterion (viii) as part of overall monitoring programme of Nature Park was noted in 2012 (IUCN, 2012). There is no information to suggest that this issue has been adequately addressed, and therefore remains of some concern.

Research

Highly Effective

Lena Pillars Nature Park has been visited by a wide range of geological expeditions in the past, such as by the Siberian Research Studies Institute for Geology, Geo-physics and Mineral Resources (SNIIGGiMS, Novosibirsk) and the Moscow Paleontological Institute RAS. The nomination file includes a list of more than 100 relevant references of articles based on research at or around the site (State Party of the Russian Federation, 2010). It is planned to create a Science and Engineering Board under the supervision of the Nature Park directorate (State Party of the Russian Federation, 2015). Recent published research further characterizes corallite crusts as the specific form of karst morpholithogenesis in the site (Trofimova, 2017).

Overall assessment of protection and management

Mostly Effective

The management and protection system of the World Heritage site appears to be sufficient to address the limited current threats to its integrity, but may need to be upgraded in several ways to deal with projected and possible future threats. The 2015 extension of the site to include the Sinsky plot area has further strengthened the integrity of the site and has addressed previous requests of the World Heritage Committee with regards to the site's boundaries. However, a number of other requests remain to be addressed, including inclusion of geologists among the specialist staff members and developing focused educational and awareness raising programme around the site's geological values. In 2018, the Nature Park was re-designated as a National Park with the total area of 1,217,941 ha. The Buotamsky plot became a National Park (Lena Pillars National Park), while the Sinsky plot remained in the status of Nature Park (Lena Pillars Nature Park). While the designation of part of the area as a national park represents a positive step, potentially resulting in a strengthened legal protection regime, it makes the management process more complicated. It also remains to be confirmed that the re-designation of the nature park as a federal national park would have a positive
Assessing the current state and trend of values

World Heritage values

- **Spectacular rock pillars**
  
  The rock pillars that form the core of this World Heritage site are in a good conservation status and are relatively robust against anthropogenic impacts (State Party of the Russian Federation, 2010). The melting of permafrost due to climate change, which underpins the thermo-karst processes that enhance the pillar karst phenomena is poorly understood, and should be monitored further.

- **Cambrian fossil remains**
  
  The cambrian fossil remains that contribute to the OUV of the World Heritage site are in a good conservation status and are relatively robust against anthropogenic impacts (State Party of the Russian Federation, 2010).

- **Other evidence of thermokarst processes**
  
  Other karst forms at the site are also in a good conservation status and are relatively robust against anthropogenic impacts (State Party of the Russian Federation, 2010).

Summary of the Values

- **Assessment of the current state and trend of World Heritage values**
  
  The current state of the World Heritage values of the site is good overall, and its trend stable, as the geological values are generally quite robust against potential anthropogenic threats. The melting of permafrost due to climate change, which underpins the thermo-karst processes that enhance the pillar karst phenomena is poorly understood, and should be monitored further.

- **Assessment of the current state and trend of other important biodiversity values**
  
  Due to the remoteness of the site, the current state of its other important biodiversity values is good and stable (State Party of the Russian Federation, 2010).
Additional information

Benefits

Understanding Benefits

► Direct employment

The site offers ca. 40 jobs. In addition, tens to hundreds of jobs (predominantly in tourism) depend on the natural values, resources and intactness of the World Heritage site (IUCN, 2012).

► Collection of wild plants and mushrooms, Fishing areas and conservation of fish stocks

The natural resources derived from the site by the indigenous Evenki people are an important contribution to the livelihoods and culture of this group (State Party of the Russian Federation, 2010).

Factors negatively affecting provision of this benefit:
- Overexploitation: Impact level - Low, Trend - Continuining

► Wilderness and iconic features

The vast eastern Siberian landscapes at and around the site are one of the last great wildernesses on Earth, and capture the imagination of people worldwide and inspires appreciation of natural values and beauty.

► Importance for research

In addition to the rich local and traditional knowledge and the hundreds of scientific articles, the site offers unique insights into the interplay of karstic and river-driven erosion processes in landscape formation, and into the Cambrian explosion of faunal taxa (State Party of the Russian Federation, 2010).

► Contribution to education

The site also plays an important role in education of local youth, as evidenced by the cooperation between the Nature Park administration and a number of local schools (State Party of the Russian Federation, 2010).

Summary of benefits

While there are no people who live on the site permanently, it offers considerable benefits (in terms of nature conservation, jobs, natural resources, education and knowledge) to the citizens of Yakutia and particularly the local Evenki inhabitants. In addition, the site provides limited but significant benefits to all those interested in wilderness, geology and the history of life.

Projects

Compilation of active conservation projects

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<th>Organization</th>
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# REFERENCES

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