Workbook for Risk Assessment and Adaptation Planning
Part 2: Standard Assessment

This document is the second part of the Workbook for the Adapt Northern Heritage tool *Risk Assessment and Adaptation Planning*.

To start the *risk management process* for historic places, please use part 1 on the Workbook to select an *assessment type*.

If you have chosen to assess a **singular historic place**, please complete the document below.

If you have chosen to assess a **group of historic places**, please complete the document below for each historic place in the group, for which an assessment is required.

If you have chosen to assess **place categories**, please complete the document below for each place category, for which an assessment is required.

Introduction

[insert one photograph here, representing well the historic place]

Figure 1 The different tipis of Bartjan, the site close to the forest and mountains. Photo: Sofia Kahl, Riksantikvarieämbetet (CC BY)

Bartjan – climate change and the effects on sámi cultural sites

1. Prelude

Sámi cultural heritage sites are under great threats from climate change and it´s effects. This report points to the traditional sámi perspectives of nature and it´s ongoing changes challenging general views on climate change effects. Preserving sámi cultural heritage sites and fight climate change effects are important but measures should be focused on the importance of the immaterial cultural heritage values that are being channeled through preserving the others.

2. Introduction

Day by day climate change and it´s effects become more evident. Higher temperatures on land and in water, extreme storms and rain, less snow or unexpected growth are signs of changes affecting our environment. Climate change affects us all, mankind, animals but also nature and cultural environments.

From 2017 to 2020 partners and associated partners in Norway, Scotland, Iceland, Ireland, Russia and Sweden are running the project "Adapt Northern Heritage", funded by the Interreg programme for the Northern Periphery and Arctic. The purpose of the project is to find usable tools to handle the effects of climate change on cultural sites and establish long-term action plans.

Since 2018, invited by the Swedish Heritage Board to add a sámi cultural site into the project, the sámi foundation Gaaltije has been involved. To be a defined object to study Gaaltije introduced Bartjan, a cultural site of national interest belonging to the sámi village Tåssåsen. The participation of the members of the village is important to ensure that relevant knowledge about the site and the effects of climate change are being taken into account.

2.1. Background

In general our knowledge about climate change and it´s effects is good. Reports from international organizations such as the UN and national authorities pinpoint the fact that our knowledge has to be combined with action plans in order to avoid changes and its´ effects. Some of these mention the need for knowledge of indigenous peoples to be highlighted, stemming from their close relationship to nature and it´s resources. One example is the climate action plan of the Sámi Parliament in Sweden.

Our knowledge about how cultural environments and sites are being affected by climate change are to some extent limited and need further research. Sámi cultural sites, where sámis believe material and biological cultural heritage combine with immaterial heritage to form a holistic system, have similar but perhaps greater challenges in this regard.

As part of the project, the purpose of the workshop was to examine the effects of climate change on a sámi cultural site and develop knowledge of how to avoid or, at least, handle them in the future. Bartjan, summer site of Tåssåsen sámi village, was chosen as a study object with the ambition to evaluate the model for evaluating climate change presented by the project and to answer the question if the model would be applicable on sámi cultural sites.

2.2. Cultural heritage values in a sámi definition

Samis consider cultural heritage as a holistic system where the different parts interact and are dependant on eachother. ”Culture and history of the sámi people in a geographical context” is the official definition of cultural heritage of the Sámi parliament. In the definition they stress the following aspects of cultural heritage;

- Material cultural heritage; all physical remains and traces in nature such as buildings etc.
- Immaterial cultural heritage; traditional knowledge, stories, myths etc.
- Biological cultural heritage; proof of usage of nature, such as banks for reindeerherding etc

3. Workshop

In august 2018 a workshop took place in Bartjan to examine climate change and it´s effects on a sámi cultural site. The ambition of the workshop was to test the model of analysing risk and vulnerability in relation to the cultural site presented by the project. When planning the workshop the group early on realised that a model to a great extent focusing on visual inspections cannot fully grasp the conditions residing in sámi cultural environments. Hence, the group decided to perform a ”walk and talk”-workshop where we under the guidance and information of members of the sámi village assisted by representatives of the foundation Gaaltije would wander the area discussing our findings upon which we would base our evaluation. Representatives of the following actors participated in the workshop;

- Directorate for Cultural Heritage (Norway, partner)
- National heritage board (Sweden, associated partner)
- County administrative board in Jämtland-Härjedalen (Sweden)
- The municipality of Berg (Sweden)

4. Bartjan

4.1. The place

Bartjan is situated just below the mountains a few kilometres from the village Tossåsen in the southwestern part of Jämtland on the border to Härjedalen. Bartjan is defined as a cultural environment of national interest in Sweden and serve as the summer site of the sámi village Tåssåsen. Close to the site springs and fishing waters are surrounded by mountain birches.

The history of the site is being told by findings of old banks for reindeerherding and milkpits. In the middle of present buildings and traditional tipis old tipiplots tells stories about former inhabitants. Nearby there are several reindeerherding fields, some of them still in use, some deserted long ago.

In notes from as early as 1898 the sámi bailiff (a common description of the man in charge of sámi affaires at the county administrative board) mentioned Bartjan and it´s function as a summer site. The name Bartjan comes from the southsámi word ”barsje” meaning ”edge of the mountain” or a place where you can see both mountains and the forest.

4.2. Cultural heritage values

When discussing the cultural heritage values of Bartjan we use the definition of sámi cultural heritage values of the Sámi parliament mentioned above.

4.2.1. Material cultural heritage values

In Bartjan a variety of constructions from modern huts to traditional turftipis can be found. All of them bear witness of the particular style used at the time when constructed. Most of the turftipis are of a typical construction type called ”bågstångskåta” but there are also a few ”klykstångskåtor”, an old type of tipi that is hard to find nowadays. Most of the tipis are for living, but tipis for storage of goods aswell as for animals such as goats and horses can be found.

4.2.2. Biological cultural heritage values

Adjacent to the site there are fields for grazing and active reindeerherding. There are though no established facts about the history of Bartjan and it´s usage. Ancient remains such as tipiplots and milkpits in the area close to existing buildings tell us about long presence of sámis.

4.2.2.1. The springs

The main reason for the site being established in this very place was the existance of springs. These are conditions for everyday life as they support inhabitants with water to drink, for washing etc. Presently there is one functioning spring and one that is under renovation.

4.2.2.2. The freezer

During parts of the year snowdrifts close to the site can be found. These act as freezers and are fundamental for storing food.

4.2.3. Immaterial cultural heritage values

Med samernas holistiska livssyn är de immateriella kulturvärdena väsentliga att betona när påverkan p.g.a. förändringar i klimatet diskuteras. Fysiska förändringar leder till förändrade beteenden vilka kan påverka t.ex. tillgången till källor för traditionell kunskap eller platsen som förutsättning för viktiga berättelser.

Based on the holistic view of the sámis, discussions about effects of climate change needs to take immaterial cultural heritage values into greatest account. Environmental and physical changes leads to changes in behavior within the community which can affect the supply of sources of traditional knowledge or of the site as a means for keeping and telling important stories.

4.2.3.1. The stories

A site and how people relate to it is fundamental for supporting stories and knowledge that are important to individuals or the group of people. These stories contains important events, memories of people or transfer myths and beliefs between generations of people. To a great extent the stories are the glue that keeps people together.

4.2.3.2. Traditional knowledge

In the sámi society the importance of keeping and transferring traditional knowledge to younger generations is often stressed. In this sense all stories are traditional knowledge through which knowledge of traditional land use, technique, the reindeer and nature as a whole etc. are being transferred to peers and children.

4.2.3.3. The language

Language and the use of it is strongly related to traditional knowledge and the immaterial cultural heritage. In traditional words and sentences there are meanings, interpretations and nuances that face a risk of disappearing unless they are used in traditional settings and in relation to real conditions and events.

4.3. Climate change

Bartjan is a site under constant change. While change is difficult to appreciate while occuring we face a challenge in relating these changes happening now a to climate change and not only to natural degeneration. Current knowledge will alert us to these effects aswell as to help us understand changes that already have occured. These changes mainly involve growth of trees and bushes etc. in new and formerly not suitable environments such as on higher altitudes. Nowadays not only the mountain birch can be found on the slopes of the mountains but also pine and spruce. These effects of climate change have gradually changed how the site has been used.

4.4. Current status

Some twenty years ago Bartjan was in a bad shape. The members of Tåssåsen sámi village and cultural institutions recognised the need for saving and restoring the environment and the structures and decided to start a project for renovation. During the following years the constructions were renovated and the site cleared of bush wood and other growth. Nowadays, the members of the sámi village continually work on keeping the constructions in good shape and the area cleared leading to different cultural findings now being openly visible. Maintenance of the springs along with construction of new buildings are simultaneously being undertaken. Today, the site Bartjan is in good shape. Mainly, it is used during the calfmarking in the summer.

4.4.1. Current status of climate change effects

General signs of climate change can be found also in Bartjan;
Higher temperatures; People related to Bartjan note that temperature is under constant increase. Snowpits previously prevalent in the area are now rare leading to challenges for storage of food aswell as for the reindeer finding cool.
Extreme weather; according to the same testimonies the weather are believed to be changing between extremes.

- Constant variations of temperature from high to low affects snow quality and thus the access of the reindeer to grass and other pasture.
- More often extreme winds are being experienced.

Changing conditions for growth; Observations tell of changing conditions for growth. Nowadays the pine can be found in previously non-auspicious altitudes.

Insects; Changes in climate lead to improved conditions for (new) insects affecting both the growth and the reindeer. Recently Bartjan have been exposed to a worm feeding on the mountain birch leading to the trees to a great extent being deprived of its´ leaves.

4.4.2. The sámi perspective

In sámi culture people show great respect and live for, by and with nature and it´s resources. Sámis have their own view upon and their own relationship to all changes in nature. For sámis it is natural and a tradition that a tipi after decades of usage or areas deemed surplus or unusable are abandoned and left to go back to nature to regain it´s original status. According to sámi tradition descendants must not be limited or disturbed by remnants from previous generations but have the same conditions and possibilities.

Reindeerherding sámis are subject to conditions affecting the reindeer and how it can handle changes in nature and among other animals. The reindeer, as most animals, are dependant on habitual patterns and prefer stable and reliable conditions. It gives birth in the very same are as it was born, it grazes in the same areas, it moves between areas in the same paths etc. If these habitual patterns have to be abandoned it changes the conditions not only for themselves but to a great extent also for the reindeerherders and the sámi village as a unit. This could lead to the sámi village abandoning a site leaving cultural heritage values and the constructions to go back to nature.

From these perspectives sámis need to address climate change and it´s effects in their own way, free from systematisation and schemes. Changes that in western interpretations are vulnerable threats can according to sámi traditions be seen as natural changes and conditions to handle over time. According to this, the risk- and vulnerability analyses must be handled and interpreted differently.

4.5. Vulnerability

Bartjan as a cultural heritage site will be susceptible to climate change and it´s effects on the area´s natural resources, traditional structures and growth in general.

4.5.1. Springs running dry

Access to water is fundamental for a sámi site to work. Bartjan is surrounded by streams, rivers and lakes but the distance to them is long. The springs within the close area have therefore been very important and the reason for choosing this very place for the site. The springs gives water for drinking and washing.

Climate change can lead to changes in conditions such as increasing temperatures or changes in rainfall. There is risk this will lead to drought leading to the springs drying out and disappearing. If the springs were to disappear the conditions for the site would change leading to negative consequences for constructions and the environment.

4.5.2. Constructions degenerating

Traditional constructions are sensitive to extreme weathers aswell as increasing temperatures and moisture. Thus, climate change is a threat. The sensitivity of the constructions are not only about direct physical threats, they can also be indirect whereas less usage due to other factors leads to lack of maintenance and a subsequent degeneration. For example, climate change can change the behavior and movement of the reindeer leading to an area being abandoned which in turn leads to a need for the reindeerherder to change his or her behavior. Subsequently, the usage of a site like Bartjan and it´s traditional buildings would decrease leaving the buildings open for attacks from moisture and mould.

4.5.3. Growth intruding

Increasing temperature and other climate related changes will lead to new conditions for the site Bartjan. The area has been, is and will be subject to intrusive growth in the form of new types of vegetation but also in the form of densification. Hence, biological cultural heritage values are under threat. Formerly used banks for reindeerherding, milkpits and bonehides face a risk of being hidden under increased vegetation. Being hidden, the stories based upon them could be forgotten leading to the risk of younger generations within the sámi village not getting the knowledge or being able to transfer these stories further. In this sense, the sámi village faces a risk of losing the history of the site. Therefore, they are required to make sure the site is being used regularly aswell as establish a plan for regular maintenance.

4.5.4. What is left to tell?

The Sámi parliament defines cultural heritage as holistic; ”Cultural heritage reflects the past but is at the same time the basis for a philosophical system and the living culture of the sámis”. This can be interpreted as the physical cultural heritage being important in itself but that it´s value increases through the philosophy, the knowledge and the stories that it carries and canalises. It is in the light of this meaning that sámi cultural heritage values and the risks that they are subject to must be seen in a bigger perspetive. With deteriorating physical cultural heritage values the stories risk losing its connection to a place and not being remembered and told any more. Knowledge about the lands, the people and important events can disappear. Local, sámi traditions are at risk of disappearing. Transfer of knowledge, so often stressed in sámi needs analysis, must be appreciated being under stress from climate change and therefore be strongly considered when discussing effects on sámi society of climate change.

4.6. Action plan and need of resources

Preservation of sámi cultural sites means preservation of sámi culture and traditions. On the bases of the effects of climate change on Bartjan we discussed what measures were needed to preserve and protect it´s cultural heritage values.

4.6.1. Material and biological cultural heritage values – use, maintain, restore

In our workshop we came to the conclusion that material and biological cultural heritage values such as traditional buildings and other environments risk damages and

degradation under limited usage. Thus, one measure should be to make sure that these cultural heritage values actively are being used so that damaging elements cannot develop in these structures. Using the site, its constructions and the environments practically means living the stories and the myths and transferring the knowledge. This way, history is kept alive.

Secondly, the action plan should plan for measures involving active maintenance of structures and the environment. The sámi village has directed the responsibility of history, traditions and culture to a certain individual. In his responsibilities must be included such actions.

Thirdly, the sámi village can plan for restoring the cultural heritage values. These needs should not arise if previous actions in the plan have been performed accurately.

As mentioned earlier, climate change might lead to the reindeer moving to areas where the conditions for finding pasture or cool or avoiding insects are better. Reindeer moving away means that the natural reasons for using the site disappears. In accordance with this plans for how to avoid damages and degradation through active usage must be made. One could argue that this means additional work for the sámi village for which there are no resources and that the society should make such available.

4.6.2. Immaterial cultural heritage values

Protection of other cultural heritage values leads to protection of immaterial cultural heritage values. Measures taken for the protection of other cultural heritage values are therefore also automatically measures for the protection of immaterial cultural heritage values. Usage of the site stimulates people to tell about the place, the people and the events. In the action plan for the immaterial cultural heritage values the term ”usage” should be stressed.

The action plan should also focus on;
Documenting; a vivid cultural environment carries stories and knowledge. Active measurements are needed and should involve documenting old stories about the environment, the people and the events so that they can be transferred to younger generations. Tåssåsen sámi village has to some extent acknowledged this responsibility through publications made by themselves and the foundation Gaaltije.

Conveying; it is important that the stories and the knowledge is being conveyed to members of the sámi village but also to other people and organisations related to the site. Stories and knowledge preserved by younger generations means that both the material and immaterial cultural heritage values are being protected from extinction. Knowing about the stories creates an interest among younger people to take a future responsibility for the site and for the stories and knowledge to live on in the future.

Making available; in the action plan there should be measures for making the immaterial cultural heritage values available to the public. Making available could be a means for spreading knowledge about the immaterial cultural heritage values to people and organisations outside of the sámi village leading to spreaded and shared interest and responsibility. The idea is controversial though as there are different views within the

sámi society about to what extent sámi stories and knowledge should be spread to the public.

The different measures mentioned above require resources presently not available within the sámi village or the sámi society. Resources made available through the Sámi parliament and other authorities are welcome but need to be complemented.

5. Other sámi cultural heritage sites – what needs to be done?

The situation for Bartjan to a great extent describes the situation for other sámi villages and other sámi cultural heritage sites where climate change affects directly with effects on structures and environments and indirect with a change in usage. In the same way the immaterial cultural heritage values are under risk of being forgotten.

Building on the experience of this workshop we advice owners of other cultural heritage sites to instantly start mapping the effects of climate change and form an action plan for handling them. Without knowing the situation the whole local history is under threat of disappearing. Without knowing history it will be difficult to handle the present and the future aswell as engaging younger generations.

6. Summary

Sámi cultural heritage sites are under great threats from climate change and it´s effects. Based on culture and traditions differences in perspectives on nature and the changes occuring means different assessments of the climate change effects and the measures needed to adapt. According to the sámis preserving culturally important constructions or land are important but cannot be separated from the preservation of all the stories, myths and knowledge that are carried by them. None the less, sámis and sámi organisations need to acknowledge the need for monitoring and strategically plan for the long term maintenance of their cultural heritage sites.

In Staare in October 2019

Jerker Bexelius/The foundation Gaaltije

Additional reading;

Aerpimaahtoe – Sametingets policydokument för traditionell kunskap
https://www.sametinget.se/26119

Jielemen bijre – Sametingets livsmiljöprogram
https://www.sametinget.se/eallinbiras

Det samiska kulturlandskapet
https://www.sametinget.se/30605

Bartjan is defined as a cultural environment of national interest in Sweden and serve as the Summer Site of Tåssåsen Sámi Village, indigenous people working in the reindeer industry as herders and business people. A Sami village is not a village but a geographical area where reindeer husbandry is conducted. The Sami village is organized as an economic and administrative association with its own board. It is a legal person representing the reindeer in the Sami village. For the common good of the members, the Sami village will lead the reindeer herding in the geographical area.

The conditions for carrying out a reindeer industry in Sweden, according to climate and vulnerability investigation, will be seriously affected by climate changes. The wintertime snow conditions can become more difficult. Large reindeer grazing areas can be locked due to frozen snow crusts and ice formation, which can mean an increased need for support fodder, which is expensive. The reindeer industry may need changed regulations in order to manage changed climate conditions that lead to changed reindeer grazing, shifted moving times and new moving routes. This can in turn lead to increased conflicts of interest with other industries and landowners. Reindeer husbandry and the Sami as an indigenous people contribute with cultural and environmental values which are difficult to translate into economic terms. A reindeer industry policy should create conditions for a sustainable and viable reindeer industry in a changed climate, according to Sámediggi, the Swedish Sámi Parliament.

Sámi parliament definition of cultural heritage:

- Material cultural heritage; all physical remains and traces in nature such as buildings etc.
- Immaterial cultural heritage; traditional knowledge, stories, myths etc.
- Biological cultural heritage; proof of usage of nature, such as banks for reindeer herding etc.

Sámi's considering cultural heritage as a holistic system where material-, biological-combined with immaterial heritage interact and are dependent on each other.

Based on the holistic view of the Sámi's, discussions about effects of climate change must take immaterial cultural heritage values into account. Environmental and physical changes leads to changes in behavior within the community which can affect the supply of sources of traditional knowledge or of the site as a means for keeping and telling important stories.

Historic place overview

Name of historic place to be analysed	**Place ID** if applicable
Bartjan	n/a

Description of historic place and its wider surroundings	
Brief description of historic place	Bartjan is situated just below the mountains a few kilometres from the village Tossåsen in the southwestern part of Jämtland on the border to Härjedalen. Bartjan is defined as a cultural environment of national interest in Sweden and serve as the summer site of the Sámi village Tåssåsen, presumably chosen for its freshwater springs and wells and fishing lakes, surrounded by mountain birches. The history of the site is being told by findings of old banks for reindeer-herding and milk pits. In the middle of present buildings and traditional tipis old tipi plots tells stories about former inhabitants. Nearby there are several reindeer-herding meadows, some of them still in use, some deserted long ago. In notes from as early as 1898 the Sámi bailiff (a common description of the man in charge of Sámi affaires at the county administrative board) mentioned Bartjan and its function as a summer site. The name Bartjan comes from the south-Sámi word *barsje* meaning *edge of the mountain* or a place where you can see both mountains and the forest. Bartjan consists of old and new buildings, ancient monuments and the meadows and fencing of the reindeers. The place has no electricity or water supply. Some solar panels have recently been installed.
Brief description of place's immediate surroundings	The site is close to Vålådalen Nature Reserve and one of Swedens most popular hiking and skiing area. The western mountain area of Jämtland has about 140 000 visitors during the summer (2017). The reindeer industry is an important food supplier. The foundation of the site is the fresh water well, the hunting and fishing possibilities.
Brief description of places' wider environs	

Cultural significance: Overview

Conservation policies

ID	Document title	Author(s)	Version	Date
1	none			

Cultural heritage designations

Designation	Title	Reference	Comments
National Interest Cultural Heritage Environment of National Interest	Bartjan	according to Environmental Code, Plan- and Building Act	Please see Decision 1997-11-17 of Riksantikvarie-ämbetet
Ancient Remains	Tipi plots, fences and storages in the ground	Cultural Act	

Key cultural heritage values

Key value	Rating	Comments / reasons
As summer camp site, Bartjan is closely linked to reindeer herding, an important Sámi cultural practice (intangible heritage)	3	
Bartjan is linked to Sámi story-telling, place names and traditional knowledge of resource use, all of which is important for Sámi cultural identity. (immaterial heritage)	4	Many stories bear associations with important events, memories of people or transfer myths, beliefs and traditional knowledge between generations. This includes knowledge of traditional use of land and other natural resources as well as use of traditional words and sentences, the meanings of which have interpretations and nuances that face a risk of disappearing unless used in cultural practices.
Today's landscape still visualises how resources were utilized through centuries. Fields for grazing and active reindeer-herding exist adjacent to the place ('biological heritage'). A well and springs provide freshwater. In winter, snow drifts close can be found nearby, which act as freezers to store food. (biological heritage)	2	There are though no established facts about the history of Bartjan and its usage. Ancient remains such as tipi plots and milk pits in the area close to existing buildings tell us about long presence of the Sámi.

The buildings and other built structures, including subsurface remains, shows how people lived and still live, using local resources. (material heritage)	2	A variety of constructions from modern huts to traditional turf tipis can be found. All of them bear witness of the particular style used at the time when constructed. Most of the turf tipis are of a typical construction type called bågstångskåta. A few are klykstångskåtor tipis, an old, now rare type. Most tipis were in domestic use, with some for storing goods and as stables, for example for goats and horses.

Climate, hazards and impacts

Site observations, hazards and climate drivers (optional)

Observed damages and deterioration			
Damage and deterioration observed at historic place	**Impact type**	**Environmental hazard** associated with observations	**Climate drivers**
Overgrowing of open landscape	☐ damage ☒ deterioration	Vegetation growth	increased temperature, longer growing season Decreased grazing of reindeer (biological driver +climate driver)
The Reindeer´s migratory patterns are changing	☐ damage ☒ deterioration	Insect pests affecting the animals Vegetation growth	Temperature and humidity
Damage from wildfires	☒ damage ☐ deterioration	Dryness	Increased wild fire season. Jämtland county was severe damaged summer 2018.
Loss of meaning, significance and use	☐ damage ☒ deterioration	Impact due to reindeer´s migratory pattern change	Extreme weathers and changed seasons causing the reindeer to change patterns
Damage to and degradation of tipis made from earth and wood (especially if no longer in use or maintained)	☒ damage ☐ deterioration	Impact damage due to extreme rainfall	Extreme rainfall events
	☐ damage ☒ deterioration	Degradation of organic construction materials due to fungal decay	Temperature and humidity
	☐ damage ☒ deterioration	Degradation due to wood-decaying insects	Temperature and humidity
Insect pests adversely affecting plant species	☐ damage ☒ deterioration	Insect pests affecting vegetation	Temperature and humidity

culturally important to the place. For example, Bartjan has recently been exposed to a worm feeding on the Mountain Birch, causing trees to lose their leaves.			
Damage by people (especially hikers and other tourists)	☒ damage ☐ deterioration	Human-induced impact damage	not directly influenced by climate drivers

Hazard register

Hazard Register							
Climate drivers	**Climate trends**		**Environmental hazards**			**Impact on historic place**	
Description of variables	*Observed trends*	*Projected trends*	*Description of observed or potential hazard*	*Change in relevance* observed	*Change in relevance* projected	*Description of observed or potential impacts*	*Impact types*
Prolonged growing season	Observations tell of changing conditions for growth. For example, the pine can nowadays be found in previously non-auspicious altitudes.	Growing season almost certain to get longer.		☒ increase ☐ decrease ☐ no change	☒ increase ☐ decrease ☐ no change	Overgrowth of open landscape	☐ damage ☒ deterioration
Extreme precipitation events	More frequent extreme rainfall events	Extreme rainfall events to continue to increase.	Impact damage due to extreme rainfall	☒ increase ☐ decrease ☐ no change	☒ increase ☐ decrease ☐ no change	Damage to tipis made from earth and wood (especially if no longer in use or maintained) due to physical impact of extreme rainfall	☒ damage ☐ deterioration
Temperature and humidity	Temperature and humidity levels are increasingly within the range suitable for fungal growth / decay	Temperature and humidity levels are likely to be increasingly within the range suitable for fungal growth / decay	Degradation of organic construction materials	☒ increase ☐ decrease ☐ no change	☒ increase ☐ decrease ☐ no change	Deterioration of tipis made from earth and wood (especially if no longer in use or maintained) due to fungal decay	☐ damage ☒ deterioration
	Temperature and humidity levels are increasingly within the range suitable for insect pests, adversely affecting plant species important to the place For example, Bartjan has recently been exposed to a worm feeding on the Mountain Birch, causing trees to lose their leaves.	Temperature and humidity levels are likely to increasingly be within the range suitable for insect pests		☒ increase ☐ decrease ☐ no change	☒ increase ☐ decrease ☐ no change	Deterioration of tipis made from earth and wood (especially if no longer in use or maintained) due to wood-boring insects	☐ damage ☒ deterioration
						Loss of plant species culturally important to the place, for example the Mountain Birch	☐ damage ☒ deterioration
	Insect pests affecting the reindeer			☒ increase ☐ decrease ☐ no change	☒ increase ☐ decrease ☐ no change		☐ damage ☒ deterioration
increased average air temperature	People related to Bartjan note that temperature is under constant increase. For example, snow pits previously prevalent in the area are now rare leading to challenges for storage of food as well as for the reindeer finding cool.			☒ increase ☐ decrease ☐ no change	☒ increase ☐ decrease ☐ no change		☐ damage ☒ deterioration
increased extreme temperature variations	affects snow quality and thus the access of the reindeer to grass and other pasture			☒ increase ☐ decrease ☐ no change	☒ increase ☐ decrease ☐ no change		☐ damage ☒ deterioration

Extreme precipiatation	the weather is believed to be changing between extremes			☒ increase ☐ decrease ☐ no change	☒ increase ☐ decrease ☐ no change		☐ damage ☒ deterioration
Increased wind gusts	More often extreme wind speed is being experienced	Extreme wind speeds likely to increase.	Storm damage	☒ increase ☐ decrease ☐ no change	☒ increase ☐ decrease ☐ no change	Physical damage to place's trees and structures	☒ damage ☐ deterioration
Extreme temperature	Increased spells of unusually high temperature in summertime	Increases of spells of unusually high temperature in summertime are likely to continue.	Ground water depletion due to prolonged heat waves	☒ increase ☐ decrease ☐ no change	☒ increase ☐ decrease ☐ no change	Depletion of ground water source, e.g. freshwater springs or wells	☐ damage ☒ deterioration
			Wildfires in conjunction with prolonged heat waves	☒ increase ☐ decrease ☐ no change	☒ increase ☐ decrease ☐ no change	Fire damage to place's structures	☒ damage ☐ deterioration

Risks register

Risk register for multiple time horizons												
Impact	**Time horizon #1: TODAY**						**Time horizon #1:** 2070					
	Likelihood rating	Severity rating	Inherent risk rating	Inherent risk rating definition	Acceptability of risk	Recommendations for action	Likelihood rating	Severity rating	Inherent risk rating	Inherent risk rating definition	Acceptability of risk	Recommendations for action
Overgrowth of open landscape												
Damage to tipis made from earth and wood (especially if no longer in use or maintained) due to physical impact of extreme rainfall	2	3	6	Minor risk	Acceptable risk level subject to monitoring	Consider active risk monitoring	3	3	9	Major risk	Unacceptable level of risk	Consider timely adaptation action
Deterioration of tipis made from earth and wood (especially if no longer in use or maintained) due to fungal decay												
Deterioration of tipis made from earth and wood (especially if no longer in use or maintained) due to wood-boring insects												
Loss of plant species culturally important to the place, for example the Mountain Birch												
Physical damage to place's trees and structures												
Depletion of ground water source, e.g. freshwater springs or wells												
Fire damage to place's structures												

Risk register debriefing

Risk register debriefing

List of inacceptable risks
ranked by decreasing risk rating

Impact description	Inherent risk rating *from 8 to 16*	
	Time horizon 1	*Time horizon 2*
	Today	2070

Highest-ranked acceptable risks
(state multiple if of the same rating)

Impact description	Inherent risk rating *from 0 to 7*	
	Time horizon 1	*Time horizon 2*
	Today	

Summary of increasing risks

Summary of decreasing risks

Effect of occurrence of impacts on key cultural heritage values

Key values	Current rating	Revised rating	Comments

Conclusions

The Sami definition of Cultural Heritage is a holistic way of life where it is difficult to really distinguish the different parts. A change in the material cultural heritage due to changes in reindeer adaptation to the climate also mean that the intangible cultural heritage risks losing knowledge and dissemination. The fold in turn means that the history of the Sami is not documented. As mentioned, the Sami perspective is holistic, part of a whole with a cycle

perspective. The reindeer is a habit that does not like to change its patterns but may have to be introduced into new reindeer herding areas. If conditions for reindeer change, the reindeer herders follows.
The holistic approach cannot be structured or systematized as other societies or economic factors.

The workshop result can be taken further by collaboration and dialogue about responsibility, resources, skills and knowledge. Trust in all parties is a basis we must work towards. An adaptation plan should be drawn up for the preservation of material cultural heritage. It remains to be seen how the reindeer will react to further changes in the landscape. The historical stories and legends will survive. Traditional technology and knowledge as well.

The Climate, hazard and impacts chapter including hazard register in the workbook is focusing on objects and on environments. It is not developed for a cultural landscape or a heritage so intimately connected to an intangible heritage like reindeer herding and Sami Culture.

Since we did not have the handbook for risk register or time to do it on our workshop it is not complete.

Adaptation Planning

Identifying adaptation measures

Planning adaption measures for all risks listed in the Risk Register might be too resource consuming. Instead, only the more important risks could be considered. These are usually those with a higher risk rating. Planning adaptation for all risks considered unacceptable is recommended.

For each considered impact, the following table must be completed.

Impact to be investigated	
Impact description	Loss of meaning, origin and use of the Site Bartjan
Associated hazard	Biological hazard that the reindeer migrate because of climate drivers.
Risk rating	
Risk register ID	
Longlist of adaptation measures	
PROTECT	
P1	Turn Bartjan into a Culture Reserve
P2	
STRENGTHEN	
S1	Fund for maintenance
S2	Give person in Sami village responsability of planning, documentation and maintenance
S3	Forum for story telling and mediate traditional knowledge
RELOCATE	
R1	The sami village migrate with the reindeer and Bartjan goes back to nature following the Sami tradition.
R2	Construct a a community-owned tipi for common use. A new tipi or rebuild one using traditional knowledge. Can be the Forum or Platform for story-telling etc.
RESPOND TO DAMAGE	
D1	Pro active maintenance of the material and biological heritage – buildings, fences, vegetation etc
D2	Reconstruct material and biological heritage – building, fences, meadows etc
MANAGING LOSS	
L1	Documentation and keep diary of condition of the material heritage – buildings etc

L2	Documentation of the immaterial heritage - season signs, climate stories, site names etc
L3	Establish a forum or platform for story telling to use, mediate and make the immaterial heritage accessible
L4	Action plan of traditional knowledge implementation – building traditional tipis eg.
L3	Continously documentation of biological heritage – fences, vegetation, insects, animals etc
INVESTIGATE	
I1	Investigate the possability, suitability, feasibility and will of turn Bartjan into a Culture reserv
I2	

Appraising adaptation measures

Adaptation measure appraisal	
Long-list ID	
Adaptation measure (short title)	
Details of measure (brief description)	
Adaptation type	
Location where measure would be installed (If working at Advanced Level, use *place elements*.)	
If adaptation type is Protect, Strengthen, Relocate *or* Respond to Damage*, use below table:*	
Adaptation measures appraisal: Adjustment of severity rating	
Effect of measure on risk *The risk would be...* Complete sentence by using answer from **Error! Reference source not found.**	
Associated effect on severity rating *Severity rating would ...*	
If the answer to the first query is left unchanged *or* increased*, stop the appraisal of the measure concerned.*	
If adaptation type is Managing Loss*, use below table:*	

Managing Loss appraisal	
How would the measure support communities?	
Which specific communities would be supported?	
Are the answers to the two questions above considered sufficiently relevant to explore measure further?	☐ Yes, explore this adaptation measure further ☐ No, file this idea of an adaption measure and proceed to next measure on long-list
If the answer to the last question was no, stop the appraisal of the measure concerned.	

If adaptation type is Investigate*, use below table:*	
Investigate appraisal	
How would the considered measure reduce uncertainty?	
How would the considered measure support other relevant measures?	
Are the answers to the two questions above considered sufficiently relevant to explore measure further?	☐ Yes, explore this adaptation measure further ☐ No, file this idea of an adaption measure and proceed to next measure on long-list
If the answer to the last question was no, stop the appraisal of the measure concerned.	
Regardless of adaptation type, continue with the table below:	
Potential effects on cultural significance	
Descriptive rating of effect on cultural significance of the place	☐ unacceptably adverse ☐ acceptably adverse subject to mitigation ☐ acceptably adverse without mitigation ☐ neutral ☐ beneficial
If the response above was "subject to mitigation", name examples for how this might be achieved.	
If the answer to the first query was unacceptably adverse or was acceptably adverse subject to mitigation, with no suitable example identified in the second query, top the appraisal of the measure concerned.	

If an adaptation measure has not been rejected through the process above, please enter its details in the Adaptation Measures register overleaf. Thereafter, assess the next adaptation measures from the long-list.

Once all long-listed adaptation measures have been appraised and accepted measures recorded in the Adaptation Measures Register, proceed to section Adaptation Strategy.

Adaptation Measures Register

Impact investigated			**Risk ID**	
Long-list ID	**Adaptation measure** (short title)	**Adaptation type**	**Location** where measure would be installed	**Potential impact on cultural significance** including mitigation example

Impact investigated			**Risk ID**	
Long-list ID	**Adaptation measure** (short title)	**Adaptation type**	**Location** where measure would be installed	**Potential impact on cultural significance** including mitigation example

This is the end of the second part of the Workbook.

If you would like to develop this Standard Level assessment into Advanced Level, please proceed to part 3.

If you have chosen to assess a singular historic place and would not like to do an Advanced Level assessment, please proceed to part 4A, namely the Executive Summary for Singular Historic Place.

If you have chosen to assess a group of historic places and would not like to do an Advanced Level assessment, please complete another copy of this part 2 for the next required place. Once all places, for which an assessment is required, have been complete, please proceed to part 4B, namely the Executive Summary for Group of Historic Places.

If you have chosen to assess place categories and would not like to do an Advanced Level assessment, please complete another copy of this part 2 for the next required category. Once all categories, for which an assessment is required, have been complete, please proceed to part 4C, namely the Executive Summary for Place Categories.

Assessment type

Please choose one of the three assessment types: Singular place, group of places or place categories. The assessment types are described in more details in chapter 2 of the tool.

☒ Singular historic place

Geographic information (singular historic place)		
Name of place	**Place's address**	**Place's extent**
Bartjan (Swedish: Kroktjärnsvallen)	20 km west of the village Tossåsen, Bergs Municipality, Jämtland County	cultural landscape consisting of old and new buildings, ancient monuments and the meadows and fencing of the reindeers

Once the table above has been completed, please proceed to Part 2 of the Workbook.

☐ Group of historic places

Geographic information (group of historic places)	
Name of group	
Description of group	

Historic places of the group			
Place ID	**Name of place**	**Place's address**	**Place's extent**
1			
2			
3			

Once the two table above have been completed, please choose one of the listed historic places of the group and proceed to Part 2 of the Workbook to assess it. Once completed, another place can be assessed, if required.

☐ Place categories

Geographic information (place categories)	
Name of assessment	
Description of assessment	

Place categories in assessment		
Place ID	**Name of category**	**Description of category**
1		
2		
3		

Note: If using place categories, please read as of now the term *place category* whenever the term *historic place* is stated.

Once the two table above have been completed, please choose one of the listed place categories of the assessment and proceed to Part 2 of the Workbook to assess it. Once completed, another category can be assessed, if required.