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# State of the Park Report 2011

## Tuktut Nogait National Park of Canada



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# Cover

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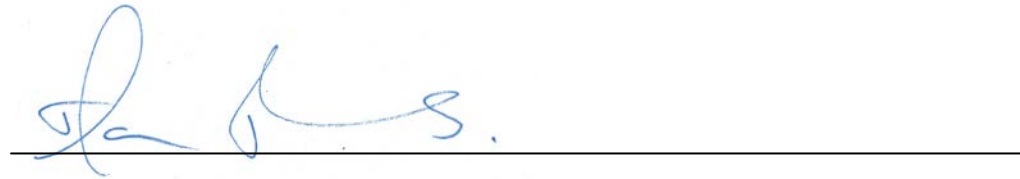
# State of the Park Report

## Tuktut Nogait National Park of Canada

2011

# STATE OF THE PARK REPORT

## TUKTUT NOGAI NATIONAL PARK OF CANADA



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## EXECUTIVE SUMMARY

The state of the park report for Tuktut Nogait National Park of Canada (hereafter Tuktut Nogait) is an overview of the condition of natural and cultural resources, visitor experience elements, public outreach education activities and partner and stakeholder initiatives as of 2011.

Tuktut Nogait was established in 1998 to protect for future generations a representative portion of the Tundra Hills Natural Region. The park is comprised of core habitat for the Bluenose -West caribou herd. The herd is an important subsistence resource for Inuvialuit, one of the parties with whom Parks Canada co-operatively manages Tuktut Nogait. The other parties to the co-operative management include the Sahtú Dene and Métis, and the Government of the Northwest Territories. Together, partners to the co-operative management agreement work to encourage public understanding, appreciation and enjoyment of this nationally significant place.

The state of the park report incorporates information from park research and monitoring initiatives undertaken in or adjacent to the park to evaluate the condition of ecological integrity and cultural resources. Co-operative management partners have assisted Parks Canada in developing and advancing many of the monitoring initiatives.

The overall state of the park is summarized in Table ES1. Tuktut Nogait's contribution to meeting the Parks Canada Agency's corporate goals is summarized in Figure ES2.

Key challenges facing Tuktut Nogait as identified in the report include:

Research to date shows a significant population decline of the Bluenose-West caribou herd over the last fifteen years;










Community expectations of significant tourism-related economic benefits associated with Tuktut Nogait not being realized;



A very small number of visitors each year due largely to the logistical challenges and costs of accessing this remote northern park;

Logistical challenges and costs of ecological integrity, cultural resource and human use monitoring in a remote and difficult to access northern park; and

Tuktut Nogait, like many northern parks, is not known to many Canadians. In the last five years, Parks Canada has made increased effort to engage local and regional audiences of the park. Future opportunities and challenges for improvement in external relations relate to building Parks Canada's reach to and connection with distant southern, urban audiences.

Table ES1. State of the park summary for Tuktut Nogait National Park of Canada.

Indicator	State	Rationale
<b>Ecological Integrity</b>		
Tundra		This assessment is based on: Good and stable assessments for the peregrine falcon breeding pairs, plant productivity, timing of green up and permafrost measures; and a Fair and declining assessment for the Bluenose-West caribou population measure.
Freshwater		Both the condition and trend of the freshwater indicator are “Not Rated” due to insufficient biological information. Four measures are or will be used to assess the freshwater ecosystem: water quality; benthic invertebrates; river flow; and lake properties.
<b>Cultural Resources</b>		
Condition of Resources		Cultural resources in the park include 409 known archaeological sites. None are threatened by human or natural processes. Objects are secure and stable.
Management Practices		Some archaeological sites are being monitored for threats. A cultural resource management strategy is in development.
<b>Visitor Experiences</b>		
Visits	Not applicable 	Park visitation is extremely small. Visitor numbers from 2008 to 2011 show a decline. Variable factors and the short visitor season affect the year to year number of visits. Factors include costs and availability of transportation into the park, and unpredictable Arctic weather.
Learning		All visitors felt that they learned something about the natural and cultural heritage of Tuktut Nogait. Every visitor goes through a park orientation before going into the park.
Enjoyment		All visitors enjoyed their visit as based on post-trip census.
Satisfaction		All visitors were very satisfied after visiting Tuktut Nogait as based on post-trip census.
Meaning		All visitors considered the park meaningful to them as based on post-trip census.

<i>External Relations</i>		
Appreciation and Understanding		Education programs are well established in western Arctic and Déline schools. Engaging the public in the region has been a focus of external relations, but the park is not well known to many Canadians.
Support		The External Relations and Visitor Experience realignment in Parks Canada has provided new capacity and direction in the western Arctic for stakeholder and public engagement. Collaboration in park management is achieved through co-operative management and involvement of local community.








Condition				Trend			
							NR
Good	Fair	Poor	Not Rated	Improving	Stable	Declining	Not Rated

Figure ES1. Condition and trend rating legend for reporting on the state of the park.

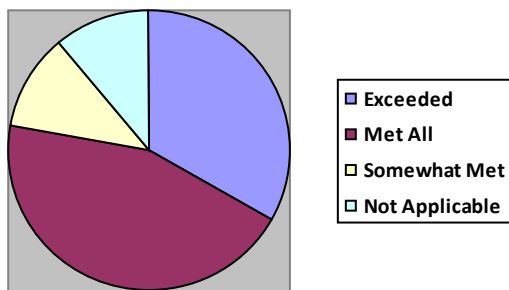


Figure ES2. Rating for Tuktut Nogait in achieving Parks Canada Agency goals in the 2007/08 Parks Canada Corporate Plan.



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# 1.0 INTRODUCTION

## 1.1 State of the Park Report

This state of the park report provides:

a snapshot assessment, as of 2011, of the state of Tuktut Nogait National Park of Canada (hereafter Tuktut Nogait) in terms of its ecological integrity, its cultural resources, and people's connection to the park;

a results summary of Parks Canada's management to maintain or improve the state of the park since implementation of the park's 2007 management plan; and

the key challenges facing Tuktut Nogait for consideration in future planning and management.

The state of the park report is prepared for a national park every five years. It is submitted to and approved by Parks Canada's Chief Executive Officer, and shared with partners, stakeholders and the public. It is used to inform decision makers regarding the management of the park.

## 1.2 Tuktut Nogait National Park of Canada

Tuktut Nogait is situated in the northeast corner of the mainland of the Northwest Territories (Figure 1). Within the National Parks System of Canada, Tuktut Nogait protects, for present and future generations, a representative portion of the Tundra Hills Natural Region, which forms core habitat for the Bluenose-West caribou herd, an important subsistence resource for Inuvialuit and many other communities in the North. In Inuvialuktun, Tuktut Nogait refers to young caribou at the very early stage of their life between when they were born until they are roughly one year of age.

Tuktut Nogait is in two land claim settlement regions - the Inuvialuit Settlement Region and the Sahtú Dene and Métis Settlement Area. The park is 18,181 km<sup>2</sup> in size; 16,340 km<sup>2</sup> is located within the Inuvialuit Settlement Region and 1,841 km<sup>2</sup> within the Sahtú Settlement Area. The nearest Inuvialuit community to Tuktut Nogait is the hamlet of Paulatuk, a community of approximately 300 people, about 40 km west of Tuktut Nogait. Inuvik is approximately 460 kilometres to the west. It was in Paulatuk that the concept of a national park to protect for all time the Bluenose-West caribou herd and its calving and post-calving habitat was born and the vision of Tuktut Nogait took shape. Negotiations to expand the park into the Sahtú Settlement Area were initiated in 2000. The expansion is to further help protect the Hornaday River Plateau, the headwaters of the river and the calving grounds of the Bluenose caribou herd. These lands lie within the traditional use area of the communities of Délı̄ne, population of 600, which lies 300 km to the south of Tuktut Nogait on the shores of Great Bear Lake, and Colville Lake, population of 150, located 200 km to the southwest of Tuktut Nogait.



Brock River (S. Goeson/Parks Canada [PCA])

The park is above the tree line. Its landscape consists largely of tundra, broadly rolling uplands and lowlands, deep canyons, waterfalls and rivers. Sparsely vegetated or barren areas are extensive throughout the park as well.

A wide variety of mammals are found in the park, including caribou, muskoxen, grizzly bears, wolves, red foxes, wolverines, arctic ground squirrels and collared lemmings. Tuktut Nogait encompasses most of the core calving, and post-calving grounds of the Bluenose-West caribou herd. It is also, in some years, part of the post-calving habitat of the Bluenose-East caribou herd. Tuktut Nogait is a major breeding and nesting ground for a wide variety of migratory birds. Raptors such as peregrine falcons, rough legged hawks, gyrfalcons and golden eagles nest along the steep walls of the river canyons.

Evidence of Tuktut Nogait's cultural history is widespread. More than 409 archaeological sites have been identified in the park. People have occupied Tuktut Nogait since 1200 AD. The oldest known archaeological sites are from Thule occupations, while the more recent sites are Innunnait (Copper Inuit) and Inuvialuit and possibly trappers, traders and Dene. Visitors have a good chance of encountering some of these sites, especially when travelling along the river corridors. These sites include tent rings, caches, rock alignments, meat drying areas and hunting blinds.

Tuktut Nogait offers unprecedented opportunities for backcountry enthusiasts to experience the Arctic. The expansive, open landscape is ideal for hiking and wildlife viewing. Other recreational possibilities include paddling trips for both novice and expert paddlers, camping along sheer canyons, and fishing for arctic char and lake trout.

This is a wilderness park. There are no visitor facilities, hiking trails or campgrounds. Visitors must be completely self-sufficient. In recent years, less than ten visitors have come to the park each year. Visitor counts do not include park staff, researchers, co-operative management board members, or Inuvialuit carrying out traditional harvesting.



Willow by the Hornaday River (C.Hunter/PCA)

Tuktut Nogait was formally established in June 1998, pursuant to The *Tuktut Nogait Agreement*, signed in June 1996 by the Federal and Northwest Territories governments and representatives of the Inuvialuit. *The Tuktut Nogait Agreement* creates a unique co-operative management regime for Tuktut Nogait. It is one of Canada's first co-operatively managed national parks. With the signing in 2005 of the *Impact and Benefit Plan for Completion of Tuktut Nogait National Park of Canada in the Sahtú Settlement Area in Accordance with the Sahtú Dene and Métis Comprehensive land Claim*

*Agreement* (hereafter *The Sahtú Impact and Benefit Plan*), the park boundaries were expanded southward to include lands in the Sahtú Settlement Area. These Agreements recognize Aboriginal subsistence harvesting rights in Tuktut Nogait.



**Figure 1. Tuktut Nogait National Park.**



## 2.0 INUVIALUIT, SAHTÚ DENE AND MÉTIS CONNECTIONS TO TUKTUT NOGAIT

### 2.1 Co-operative Management

Tuktut Nogait is co-operatively managed. The Parties to *The Tuktut Nogait Agreement* are the Inuvialuit Game Council, the Inuvialuit Regional Corporation, the Paulatuk Community Corporation, the Paulatuk Hunters and Trappers Committee, the Government of Canada and the Government of the Northwest Territories. The Parties to *The Sahtú Impact and Benefit Plan* are the Government of Canada and the Déline Land Corporation. All of these Parties appoint members to the park's co-operative management board – the Tuktut Nogait National Park Management Board. The Board meets regularly, and works on a consensus decision-making basis. The Board's mandate is to advise the Minister, and other ministers as appropriate, on all aspects of park planning, operation and management, and on the means of accomplishing the negotiated purposes of the park (see Appendix A).



Tuktut Nogait Management Board Meeting in the park  
(E. Baron/PCA)

Policy-level park management decisions are made by consensus through the Tuktut Nogait Management Board. The Superintendent, as well as other Parks Canada staff, participate in the Board meetings, and are fully involved in the consensus decision making process. The consensus decision-making process ensures that all Parties' interests, concerns, advice and knowledge are fully reflected in park management decisions.

### 2.2 State of the Land and Aboriginal Relationship with the Land

The Paulatuk Community Conservation Plan, a community driven plan for the conservation and management of renewable resources and lands, ranks the Bluenose-West caribou herd calving grounds and the Hornaday River amongst the most significant and sensitive in the area and recommends the greatest degree of conservation for them.

The health of the Bluenose-West caribou herd is vital to the cultural and social well-being of thirteen communities across the Northwest Territories, including Paulatuk, the community closest to and most dependent on the Bluenose-West caribou herd.

The lower Hornaday River below La Roncière Falls supports an important arctic char subsistence fishery for the community of Paulatuk. Arctic char have been harvested by residents on the Hornaday River as early as the 1940s, and for local residents it ranks amongst the most important of species dependent on the freshwater ecosystem.

The Tuktut Nogait Interpretation Centre in Paulatuk serves as a link between the community, visitors and the national park. The exhibits, photo displays and maps encourage story-telling and remembrances by

elders. Community members use the centre for meetings and activities, such as Elders Teas and Youth Drop-in sessions. The community and the Board led the development of the exhibits in the centre.

Parks Canada facilitates park visits for community members through camps, participation in research and monitoring efforts, and paid or volunteer opportunities in the management and operations of Tuktut Nogait. In 2011, the Tuktut Nogait Management Board met in Tuktut Nogait for one of its regular meetings. Two local youth members were also selected to join the board to introduce them to the park and to the co-operative management process. Also in 2011, a pilot freshwater monitoring program commenced in Tuktut Nogait, in part to assess the diversity and age of the fish population in Uyarsivik Lake, the second largest lake in Tuktut Nogait. As part of this pilot program, a team of local participants joined the monitoring team to process and dry the fish netted for sampling for eventual distribution to community elders.

## **2.3 Community Economic Development Opportunities**

The Government of Canada, via the Inuvialuit and Sahtú Dene and Métis Comprehensive land claim agreements, committed to working with these respective Aboriginal peoples to attain specific economic goals. Parks Canada, via the park establishment agreements for Tuktut Nogait, provides economic opportunities for the residents of Paulatuk and Déljine, as well as to the broader group of participants to these agreements. Since the establishment of Tuktut Nogait, Parks Canada has annually employed two to five staff based in Paulatuk, and another 25 to 35 staff in three other communities across the Inuvialuit Settlement Regional and Sahtú Settlement Area. Parks Canada is one of the largest federal employers in the Western Arctic region. The Agency purchases millions of dollars in goods and services annually from businesses owned by beneficiaries of both land claims. Visitors and researchers are encouraged to use the expertise of local businesses and service providers in Paulatuk and Déljine.

Due in large part to the remote nature and high cost of travel, Tuktut Nogait experiences low numbers of visitors each year. Low visitation limits the potential for tourism as a strong economic activity in Paulatuk and Déljine. Overall, community expectations for significant tourism related economic benefits associated with the Tuktut Nogait have yet to be realized.

Under the terms of the respective establishment agreement, Parks Canada is to encourage the use of Inuvialuit, and Sahtú Dene and Métis guides licensed to operate within the park. However, in the history of the park, no Inuvialuit or Sahtú Dene and Métis guide or company has requested a licence to operate guided trips in Tuktut Nogait.

## **3.0 STATE OF THE PARK**

This chapter is divided into sections that represent the four areas of reporting on national parks management and program delivery. They are:

Maintaining or restoring ecological integrity;

Protecting and managing cultural resources;

Facilitating visitor experiences; and

Fostering public appreciation, understanding and support (i.e., external relations).

Each of these performance areas has one or more indicators, each with measures, used to infer the overall condition and trend in the health of the park (Table 1). Condition is assessed in terms of “Good”, “Fair”, “Poor” or “Not Rated”. Performance areas are also assessed in terms of trend - “Improving”, “Stable”, “Declining”, or “Not Rated” since the last time the indicator and measure were assessed. The overall state of the park is summarized in Table 2. The basis for the ratings is provided in sections 3.1 through 3.4.

Table 1 Condition and trend ratings for the state of the park report



















Condition (EI – ecological integrity, CR = cultural resources, VE = Visitor Experiences , ER = external relations)		
Good		EI - The ecosystem is presently secure, and contains a healthy composition and abundance of native species and biological communities, rates of change and supporting processes. No major active management actions are required.
		CR, VE & ER - Good, effective, or not currently impaired.
Fair		EI - The ecosystem is presently vulnerable and does not contain a completely healthy composition and abundance of native species and biological communities, rates of change and supporting processes. Active management actions may be required.
		CR, VE & ER - Fair, or minor to moderate impairment. Requires improvement.
Poor		EI - The ecosystem is impaired and does not contain a healthy composition and abundance of native species and biological communities, rates of change and supporting processes. Significant and ongoing management actions are required.
		CR, VE & ER - Poor, ineffective, seriously impaired or a significant attribute missing.
Not Rated		There is presently not enough information available to provide a condition for the indicator.
Trend		
Improving		The state of the indicator/measure has improved since last assessment.
Stable		The state of the indicator/measure has not changed since last assessment.
Declining		The state of the indicator/measure has declined since last assessment.
Not Rated	NR	There is presently not enough information available to assess a trend for the indicator/measure.

Table 2 Tukut Nogait State of the Park Summary

Indicator	State	Rationale
<i>Ecological Integrity</i>		
Tundra		This assessment is based on: Good and stable assessments for the peregrine falcon breeding pair, plant productivity, timing of green up and permafrost measures; and a Fair and declining assessment for the Bluenose-West caribou population measure.
Freshwater		Both the condition and trend of the freshwater indicator are “Not Rated” due to insufficient biological information. Four measures are or will be used to assess the freshwater ecosystem: water quality; benthic invertebrates; river flow; and lake properties.
<i>Cultural Resources</i>		
Condition of Resources		Cultural resources in the park include 409 known archaeological sites. None are threatened by human or natural processes. Objects are secure and stable.
Management Practices		Some archaeological sites are being monitored for threats. A cultural resource management strategy is in development.
<i>Visitor Experiences</i>		
Visits	Not applicable 	Park visitation is extremely small. Visitor numbers from 2008 to 2011 show a decline. Variable factors and the short visitor season affect the year to year number of visits. Factors include costs and availability of transportation into the park, and unpredictable Arctic weather.
Learning		All visitors felt that they learned something about the natural and cultural heritage of Tukut Nogait. Every visitor goes through a park orientation before going into the park.
Enjoyment		All visitors enjoyed their visit as based on post-trip census.
Satisfaction		All visitors were very satisfied after visiting Tukut Nogait as based on post-trip census.
Meaning		All visitors considered the park meaningful to them as based on post-trip census.



External Relations		
Appreciation and Understanding		Education programs are well established in western Arctic and Déline schools. Engaging the public in the region has been a focus of external relations, but The park is not well known to many Canadians.
Support		The External Relations and Visitor Experience realignment in Parks Canada has provided new capacity and direction in the western Arctic for stakeholder and public engagement.  Collaboration in park management is achieved through co-operative management and involvement of local community.

### 3.1 Ecological Integrity



Ecological integrity is a term used to describe ecosystems that are self-sustaining and self-regulating. For example, ecosystems which have complete food webs and a full complement of native species that can maintain their populations with naturally functioning ecological processes (energy flow, nutrient and water cycles, etc.) are identified by Parks Canada as having ecological integrity.

The ecological integrity of Tuktut Nogait is assessed according to its two ecosystems or indicators - tundra and freshwater. Each ecosystem indicator is rated using data from the measures representative of the ecosystem obtained directly through park monitoring programs and indirectly from remote sensing and literature sources.










Caribou crossing the Homaday River (PCA)

Climate change may potentially affect both the tundra and freshwater ecosystems. Weather records from Paulatuk (1994 to present) indicate the coldest winter temperatures are not as cold as they have been in the past. The ecological impact of these changing patterns remains relatively unknown and continued research and monitoring is required to determine their effects on measures and indicators.

Ecological Integrity Indicators	State
Tundra	
Freshwater	

### 3.1.1 Tundra Ecosystem

The tundra ecosystem in Tuktut Nogait is comprised of several types of tundra: tussock, mesic, shrub and dry tundra. Dry tundra and sparsely vegetated ground make up 75 percent of the park area. The condition and trend of the tundra indicator are “Good” and “Stable”. This assessment is based on monitoring information for four measures: Bluenose-West caribou population; peregrine falcon breeding pairs; plant productivity and timing of green up; and permafrost. Three other measures for ecological integrity – lemming population cycle, vegetation, and soil properties are still in development, or are being piloted with as little as one year of data.

Tundra Ecosystem Measures	State
Bluenose-West Caribou Herd Population	
Peregrine Falcon Breeding Pairs	
Timing of Green Up	
Permafrost	
Lemming Population Cycle	
Vegetation	
Soil Properties	

#### Bluenose-West Caribou Herd Population

**Measure:** The Bluenose-West barren-ground caribou are key herbivores in the tundra ecosystem. They are prey for wolves, bears, and eagles. They are also a food source for Inuvialuit, Sahtú Dene and Métis, and others. The Government of the Northwest Territories uses satellite collars and aerial survey photographs to estimate caribou populations.

**Threshold:** Thresholds are adapted from the (draft) Cape Bathurst, Bluenose-West, And Bluenose-East Barren Ground Caribou Herds Management Plan (2011).

Good = Caribou population estimate is greater than 60,000 animals; Fair = Population estimate is between 15,000 and 60,000; Poor = Population estimate is less than 15,000 (Figure 2).

**Condition: Fair.** The 2009 aerial survey estimated the population at 17,897 caribou.

**Trend: Declining.** Research to date indicates that the Bluenose-West caribou herd declined between at least 1992 and 2005. The population level may have begun to stabilize at a low level in recent years (beyond 2005).

**Note:** It is uncertain if the caribou population has stabilized at a low level (2009 population estimate), or if the population will continue to decline or recover in subsequent years. Consequently, condition and trend for the population may change in the next state of the park report.

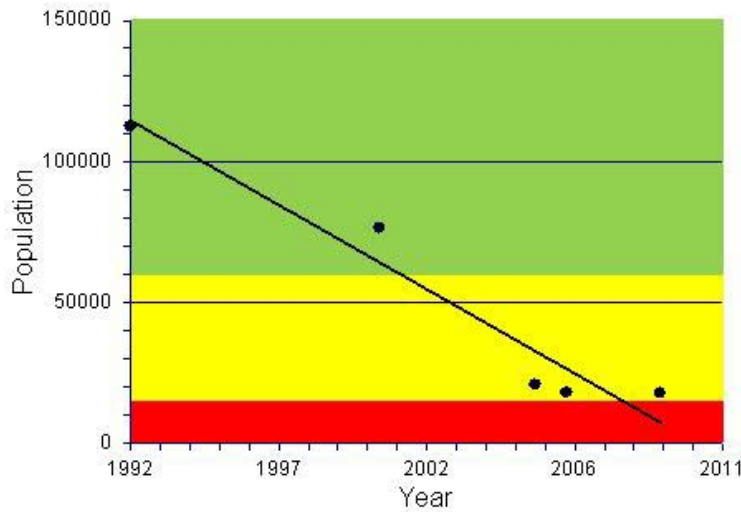


Figure 2 Population estimates of Bluenose-West caribou between 1992 and 2009

**Measure:** As a top predator, the high-density peregrine falcon population in the park provides an excellent measure for tundra ecological integrity. Peregrine falcon population stability, as measured by breeding pairs, is sensitive to severe weather and changes to prey availability.

Peregrine falcon surveys have been completed along the Hornaday River since 1988 as part of the Canadian National Peregrine Falcon Survey.

**Threshold:** The thresholds for breeding pairs are based on historical information, scientific literature and expert opinion.

Good = Breeding pair estimates are equal to or greater than 17; Fair = Estimates are from 13 to 16; Poor = Estimates are less than 13 (Figure 3).

**Condition:** **Good** Research results from elsewhere in the Arctic also indicate that peregrine falcons have recovered from their mid-century collapse.

**Trend:** **Stable.** There are some minor, insignificant changes in breeding pair numbers from year to year.



Peregrine falcon at nest (Joachim Obst/PCA)

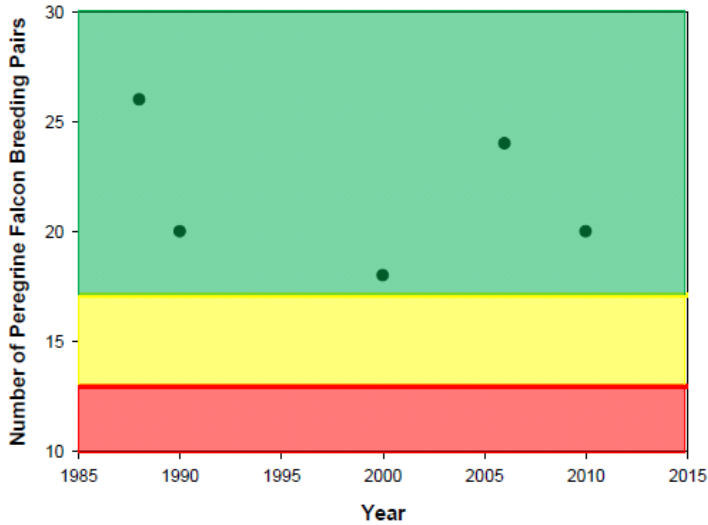


Figure 3 Peregrine falcon breeding pair counts and thresholds

**Measure:** Plant productivity indicates the photosynthesis capacity or greenness of the land, a major factor influencing the development and functioning of most ecosystems. The Normalized Difference Vegetation Index (NDVI) is a measure of vegetation density and greenness. In large, remote areas, such as Tuktut Nogait, satellite imagery is often used to monitor this measure. Since 2000, historic satellite images of the park have been used to monitor plant productivity.

**Threshold:** Statistical analyses were used to establish thresholds based on 2000 baseline data.

Good = NDVI values between 557 and 1523; Fair = NDVI values between 315 and 557, or 1523 and 1765; Poor = NDVI values less than 315 or greater than 1765. (Figure 4, which shows the lower set of thresholds only).

**Condition: Good.** Plant productivity has remained within the established thresholds.

**Trend: Stable.** Plant productivity on average has remained consistent.

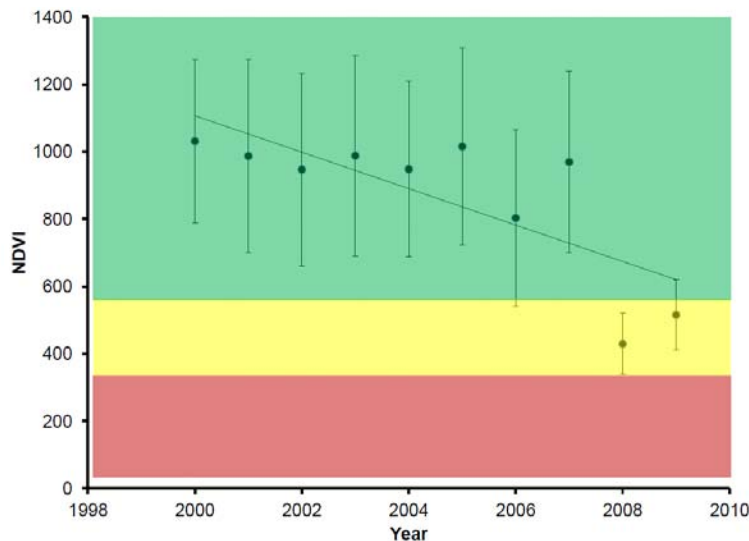


Figure 4 Plant productivity (NDVI) values and thresholds



Elm Hill Lupine (C.Hunter/PAC)

## Timing of Green Up

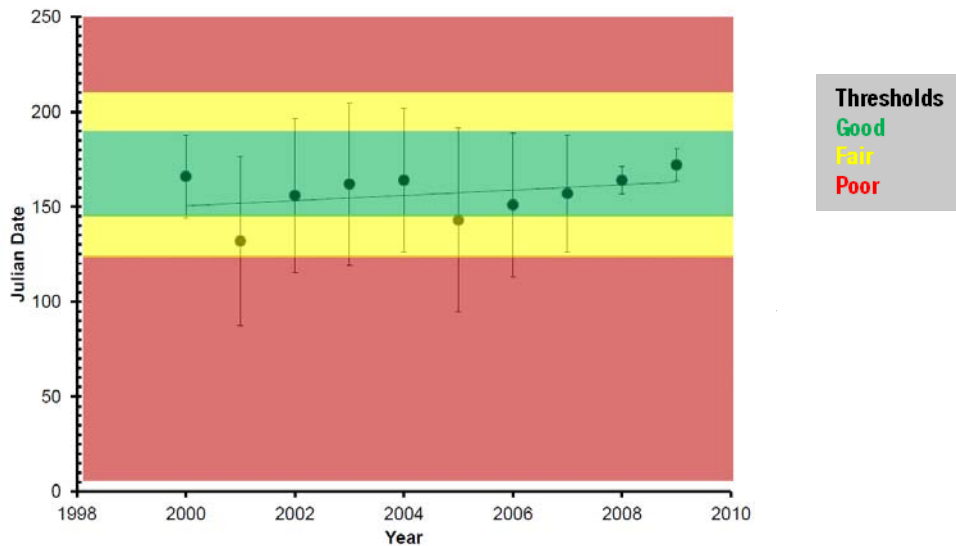
**Measure:** Timing of green up refers to the period when the land is snow-free and plants are growing. Like plant productivity, timing of green up relates to the photosynthesis capacity of the ecosystem. Timing of green up is also measured using the Normalized Difference Vegetation Index (NDVI) and satellite imagery.

**Threshold:** Statistical analyses were used to establish thresholds based on the 2000 baseline data.

**Good=** period of green up ranges from 144 to 188 days; **Fair=** period ranges between 122 and 144 days, or 188 and 210 days; **Poor =** period is less than 122 days, or greater than 210 days (Figure 5).

**Condition: Good.** Timing of green up has remained within the established thresholds.

**Trend: Stable.** Timing of green up on average has remained consistent.



## Permafrost

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**Measure:** Permafrost forms when the ground (soil or rock) cools sufficiently below 0°C to produce a frozen layer that persists throughout the year. Permafrost is an important characteristic of the tundra ecosystem because it shapes biological and physiographic developments on and below the ground surface. Thus, any changes in the permafrost are predicted to have profound ecological and physiographic effects on the tundra ecosystem.

Since 2004, permafrost temperature at different depths has been monitored in Paulatuk using a ground cable equipped with temperature sensors.

**Threshold:** Statistical analyses were used to establish interim thresholds using percentiles of the mean permafrost temperature (2004-2010) at different depths.

Good = permafrost temperature range between -4.08 and -6.79°C (less than 25% change); Fair = temperature range between -6.79 and -8.15°C, or -2.72 and -4.08°C (25 to 50% change); Poor = temperature less than -8.15°C, or greater than -2.72°C (greater than 50% change).

**Condition: Good.** Since 2004, annual ground temperatures have remained within the “good” thresholds for the mean baseline temperatures (2004-2010).

**Trend: Stable.** Since 2004, annual ground temperatures, on average, have remained consistent.

**Note:** Permafrost data, which are meant to be representative of the park, are collected at Paulatuk only due to costs and logistical challenges of ecological monitoring in this remote and difficult to access park.

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## Lemming Population Cycle

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**Measure:** Lemming populations often fluctuate dramatically, typically growing and declining every three to four years. Lemmings are an important herbivore and source of food for predators. The phase of their population cycle often affects short-term biodiversity of the tundra. The state and consistency of this cycle over the long term can be a good measure of the state of the tundra.

Since 2011, survey of lemming winter nests has begun as a means to estimate lemming population abundance.

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## Vegetation

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**Measure:** Vegetation influences the surrounding microclimate, biodiversity, habitat and food web structures and therefore is an important component of the tundra ecosystem. Changes in the local dominant vegetation could affect the suitability of the tundra ecosystem for its native species and affect other changes to ecological processes.

This measure is in development.

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## Soil Properties

**Measure:** Soil plays a critical role as a source of and storage for resources for the function of the tundra ecosystem. Ecosystem function is expressed as productivity, biodiversity, biomass accumulation and decomposition.

This measure is in development.



La Ronciere Falls (S. Goeson/PCA)

### 3.1.2 Freshwater Ecosystem

The freshwater ecosystem of rivers, streams and lakes represents about ten percent of Tuktut Nogait. The Hornaday River is the largest river system in Tuktut Nogait and is also home to arctic char and lake trout.

Both the condition and trend of the freshwater indicator are “Not Rated” due to insufficient biological information. Four measures are or will be used to assess the freshwater ecosystem: water quality; benthic invertebrates; river flow; and lake properties.

Freshwater Ecosystem Measures	State
Water Quality	
River Flow (Hornaday River)	
Benthic Invertebrates	
Lake Properties (Uyarsivik Lake)	



## Water Quality

**Measure:** Water quality, which is evaluated in terms of specific chemical and physical properties of the water, is often used as a measure to assess the health of a freshwater ecosystem. Water quality is not only important for aquatic organisms (fish, benthic invertebrates, etc.), but also for the wildlife and plants dependent on freshwater.

A water quality index has been adapted from the Canadian Council of Ministers of the Environment for use at Tuktut Nogait. The index incorporates information on pH, major ions and nutrients, total suspended solids, dissolved organic carbon and metal content.

Water quality monitoring is done for the Hornaday River.

**Threshold:** Thresholds were statistically developed for individual properties and summarized in a water quality index (Figure 6).

**Condition: Good.** The water quality index value for the Hornaday River consistently scored within the Good threshold range.

**Trend: Stable.** There was little variation in the water quality index value from year to year.

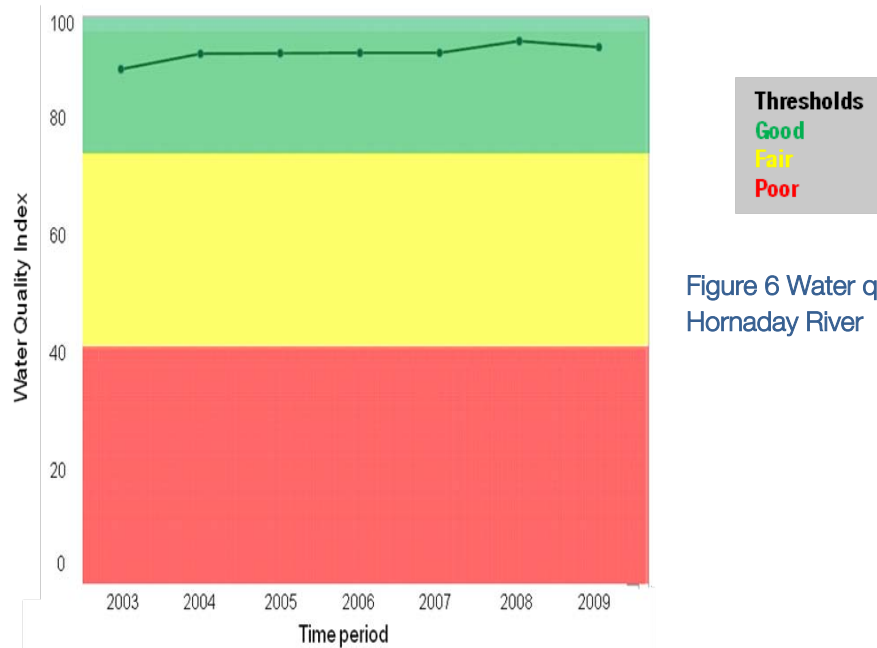


Figure 6 Water quality index values for the Hornaday River

## River Flow

**Measure:** The hydrologic regime of a stream plays a critical role in determining the biodiversity and ecological processes of aquatic, wetland and riparian ecosystems along the river. Changes in the natural flow regime, measured through river flow, can have both direct and indirect effects on water quality, nutrient transport, physical habitat and biotic interactions.

River flow monitoring is done on the Hornaday River.

**Threshold:** Thresholds could not be developed for the Hornaday River with only ten years of data



available. Data from the nearby Anderson River were used to develop an interim threshold based on statistical variability in historical data from 1970 to 2000, assuming that both rivers would have a similar condition assessment.

Good = 105 to 443 cubic metres/second (m<sup>3</sup>/s); Fair = 63 to 106 m<sup>3</sup>/s; Poor = below 105 m<sup>3</sup>/s and above 443 m<sup>3</sup>/s

**Condition: Good.** Based on the assessment of the condition of the Anderson River. The Anderson River is used as a proxy for the condition of the Hornaday River in the absence of sufficient data. The Anderson River was found to have a mean summer flow of 326 m<sup>3</sup>/s for the period between 1998 and 2008.

**Trend: Stable.** The trend of the Hornaday river flow was rated as stable, with no significant changes shown in the data between 1998 and 2008 (Figure 7).

**Note:** When enough data are available, thresholds and a river flow index (including five flow parameters) will be developed for the Hornaday River.

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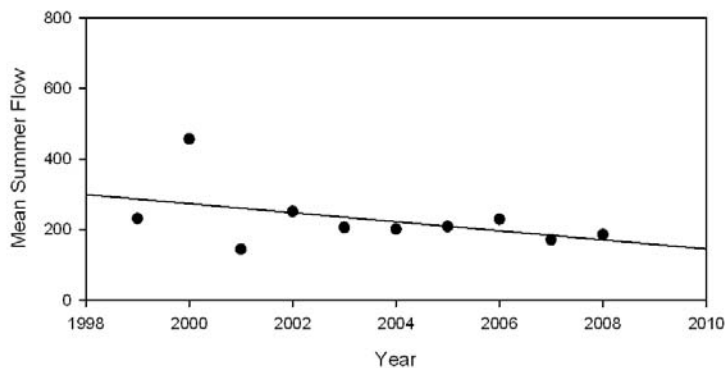


Figure 7 Summer flow measurements from the Hornaday River. The black line denotes the average trend of flow from 1998 to 2008

## Benthic Invertebrates

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**Measure:** Benthic invertebrates are organisms that live in sediments or on the bottom of rivers, streams, and lakes. Relatively long-lived (1-3 years), benthic invertebrates are very sensitive to pollution and reflect cumulative effects from environmental stressors. Benthic invertebrates are also an important food source for several fish species.

The objectives of monitoring benthic invertebrates are to quantify their diversity and abundance as baseline data and to monitor changes over time in the benthic communities.

The protocol being used by Parks Canada was adapted from the national protocol of the Canadian Biomonitoring Network.

This measure is in development.

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Calm at Uyarsivik Lake (S. Goeson/PCA)

## Lake Properties

**Measure:** High-latitude Arctic lakes, such as Uyarsivik Lake, tend to be highly sensitive to environmental change. Rising temperatures and changes to the timing of ice break-up may change the thermal stratification of the lakes, which can have dramatic consequences for lake biota.

Monitoring of biological and biophysical properties such as the thermocline and water chemical properties, as well as abundance and composition of fish stocks of Uyarsivik Lake were piloted by Parks Canada in 2011.

This measure is in development.



## 3.2 Cultural Resources

Cultural resources are human works or places that show evidence of human activity, or have spiritual or cultural meaning, and have heritage value. Cultural resource management applies to all activities that contribute to their effective care and presentation. Cultural resources in Tuktut Nogait include tent rings, remains of large winter houses, hearths, caches, graves, kayak rests, stone pavements, stone windbreaks, inuksuit (stone markers), caribou drive lanes of small stone cairns, surface scatters of artefacts, chipped stone, animal bone and worked wood. The inventory of archaeological sites for Tuktut Nogait currently numbers 409, just under half of which have not been affiliated with a specific cultural group. Most archaeological sites that have been identified are Inuinnait (Copper Inuit) or Inuvialuit (Mackenzie Inuit), with a smaller number dating to the Thule period. Only one site so far is potentially of Dene origin. Archaeological objects are collected from archaeological sites and include stone tools and flakes, animal bone, and worked wood.





Recording a hunting blind (L. Cary/PCA)

The state of cultural resources in Tuktut Nogait is assessed in terms of their physical condition and cultural resource management practices.

Cultural Resources Indicators	State
Resource Condition	
Management Practices	

### 3.2.1 Cultural Resource Condition

Cultural Resource Condition Measures	State
Archaeological Sites	
Archaeological Objects	

#### Archaeological Sites

**Measure:** Condition of a site can be affected by human and/or natural impacts. The condition of archaeological sites in Tuktut Nogait is assessed by visual inspection of what are mostly surface sites. Not all sites are inspected. A small number of sites are photograph-recorded over time to evaluate whether there is change.

**Threshold:** Good= 85 % or more of archaeological sites are stable with no appreciable damage or deterioration; Fair= less than 85% are in good condition and fewer than 15% in poor condition; Poor = 15% or more have major damage or deterioration.

**Condition: Good.** All known sites are intact and not threatened by human or natural events.

**Trend: Stable.** No change has been observed in sites that are regularly monitored.

Archaeological site overlooking the Hornaday River (PCA)



### Archaeological Objects

**Measure:** Condition of an object can be affected by human and/or natural impacts. Parks Canada has in place policy and guidelines for care and handling of objects.

**Threshold:** Good = 85 % or more of objects are stable with no appreciable damage or deterioration; Fair = less than 85% are in good condition and fewer than 15% in poor condition; Poor = 15% or more have major damage or deterioration and require urgent conservation measures to stabilize.

**Condition: Good.** All objects are catalogued and housed in secure, climate controlled Parks Canada facility. Objects are held in trust by Parks Canada according to a memorandum of understanding with the Inuvialuit Regional Corporation until such time that it can provide a similarly high standard of care for these objects. Objects collected from before the establishment of Tukturnogait as a national park are housed at the Prince of Wales Northern Heritage Centre and not managed by Parks Canada.

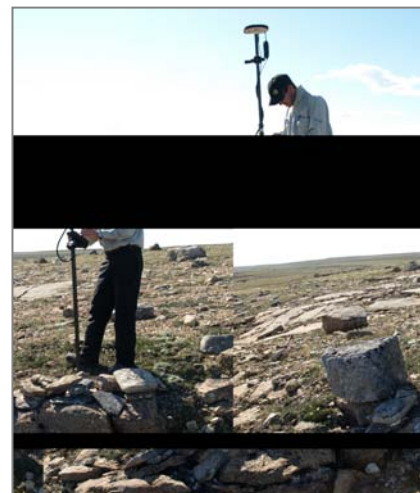
**Trend: Stable.** Objects continue to be stored in a secure and stable environment.



**Note:** A comprehensive analysis of the entire collection for research and presentation purposes has not been undertaken.

### 3.2.2 Cultural Resource Management Practices

The Parks Canada Cultural Resource Management Policy defines principles and practices to guide the effective management of cultural resources in Canada's national historic sites and national parks. Inventory, evaluation, the consideration of heritage values in management and decision-making, and monitoring, are the measures used to assess the state of cultural resource management practices for Tukturnogait.

Cultural resource monitoring at Uyarsivik Lake (E. Baron/PCA)



Cultural Resource Management Practices Measures	State
Inventory and Evaluation	
Management and Monitoring	

**Inventory and Evaluation**

**Measure:** Inventory and evaluation is measured in terms of the extent to which known sites in Tuktut Nogait are documented and their heritage value is understood.

Parks Canada conducted archaeological surveys in 1995, 1999, 2000, 2001, 2005, 2006, 2009, and 2011. Excavations were carried out at two campsites near the centre of the park in 2005-2006.

**Threshold:** Good = Planned inventories of cultural resources and identification of heritage value are complete and up-to-date; Fair = Inventories are underway or in need of updating; Poor = Planned inventories have not been undertaken.

**Condition: Fair.** All known sites are recorded and a database is maintained. Only half of recorded sites have been affiliated with a cultural group. Excavations at two sites (one at Uyarsivik Lake and the other along the Hornaday River) have revealed information to help interpret them and other sites. The excavations and the cultural affiliations are helping build an understanding of the cultural heritage of the park.

**Trend: Improving.** Surveys are continuing and further excavations and a cultural history of the Uyarsivik area have been recommended. The Tuktut Nogait Management Board and community of Paulatuk strongly support this work.

**Note:** Much of the park has not been archaeologically surveyed. The focus of surveys has been along major rivers and lakes. The remoteness of the park and short season for survey work makes inventory work challenging. Evaluating heritage values and determining cultural origin for isolated surface features is often difficult if diagnostic artefacts are not found. To date, there has been little to no third party research interest in Tuktut Nogait. The Tuktut Nogait Management Board strongly supports third party archaeological research.

**Management and Monitoring**

**Measure:** Management and monitoring is measured in terms of the extent to which heritage values of cultural resources in Tuktut Nogait are integrated into park conservation activities and monitoring, and in opportunities for visitor experience and learning.

**Threshold:** Good: Cultural Resource Management (CRM) strategy, including monitoring program, is in place and up-to-date; Fair: CRM strategy is being developed or updated; Poor: CRM strategy is not in place.

**Condition: Fair.** A CRM strategy is in development. A monitoring protocol is in place for four sites at Uyarsivik Lake (two were revisited in 2011). Twelve archaeological reports have been written detailing the work in Tuktut Nogait.

Despite the inaccessibility of the park and its vast area, Parks Canada staff have been able to carry out CRM work in the park on a near annual basis.

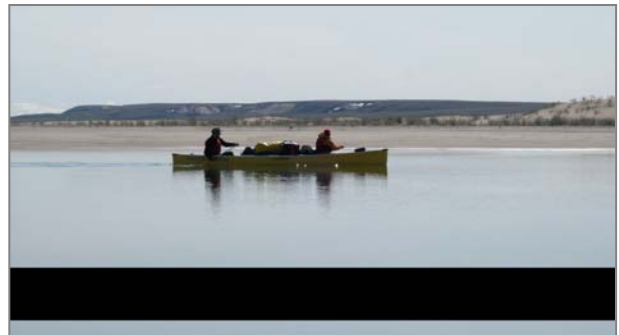
A small exhibit in the Visitor Reception Centre at Paulatuk tells the human history of Tuktut Nogait, while the Parks Canada website and field unit publications, a Cultural Resource Guide to the western Arctic national parks, and education programs also play a role in bringing the park's historic themes to the Canadian public. Messaging tied to known cultural resources has yet to be developed.

**Trend: Improving.** A CRM strategy is under development. Parks Canada will work with the Tuktut Nogait Management Board, the community of Paulatuk and adventure outfitters to determine which sites may be at risk by natural or human impact and develop monitoring programs, mitigate eroding or damaged sites, and communicate the findings to the Canadian public.

### 3.3 Visitor Experiences



Visitor experience is defined as the sum total of a visitor's personal interaction with the park, an interaction that awakens the senses, affects the emotions, stimulates the mind, and helps the visitor create a sense of personal connection to the park.

Visitors are invited to complete a post-trip census that is sent to them electronically or by mail. Since 2009, the data collected from these censuses include measures of performance expectations for visitor experience. Through information gathered from these censuses, the quality or state of visitor experiences is measured by the number of visits to the park as well as in terms of the visitors' learning, enjoyment, satisfaction and connection to the park from having visited. Visitor numbers to Tuktut Nogait are very small. The response of even one individual can significantly shift how the trend and condition of a visitor experience measure is reported.



Paddling the Hornaday River (PCA)

Visitor Experiences Indicators	State
Visits	Not applicable* ↓
Learning	↔
Enjoyment	↔

Satisfaction	
Meaning	

\* Visits, as measured by number of people who visit the park annually, is by Trend only, not Condition.

### 3.3.1 Visits

Planning a visit to Tukturn Nogait is complicated. There are no roads to the park, and air access is by float plane only. Flying into the park is dependent on favourable weather conditions and availability of aircraft. Visitors must be self-reliant and experienced in wilderness travel. No services or facilities are available in the park.

Although visitor numbers are small, the average length of visit is long at 13.5 nights/visit. Of the nineteen visitors over the last five years, 88% were male. The two prevalent age groups are 25 to 35 and 55 and over, each representing 40% of the total visitation. All visitors were from North America with 25% from the Northwest Territories, 25% from the United States and the remaining 50% from other areas of Canada.

Visits Measure	State (Trend only)
Attendance	Not applicable ↓

#### Attendance

**Measure:** Attendance is based on the number of visitors entering the park. Visitor numbers are captured through the Western Arctic Field Unit registration system.

Youth camps, board meetings, Inuvialuit entering Tukturn Nogait for traditional purposes and park researchers are not considered visitors.

**Trend: Declining.** Variable factors and the short visitor season affect the year to year number of visits. Factors include costs and availability of transportation into the park, and unpredictable Arctic weather. Favourable conditions can make for a small increase in visitation of one or two visitors, easily reversing the attendance trend to improving (Table 3).

**Note:** Attendance is a measure of the number of visitors entering a park or site. It does not measure the nature of a visit of 13 days – the average stay in Tukturn Nogait.



Year	2007	2008	2009	2010	2011	Total
Number of Visitors	6	6	4	2	1	19

Table 3 Annual attendance numbers for Tuktut Nogait

### 3.3.2 Learning

Learning Measure	State
Agreement with having learned about the natural heritage of the park	

#### Agreement – Having Learned About Natural Heritage of Park

**Measure:** The post-trip census includes the question “Thanks to my visit, I have learned something about the natural heritage of the park”. In 2011, the question “Thanks to my visit, I have learned something about the cultural heritage of the park” was added.

**Threshold:** The Parks Canada performance expectation that “On average, 60% of visitors at surveyed locations consider that they learned about the natural heritage of the place”, is used as the bottom threshold for “Good”.

**Condition: Good.** With 100% of the respondents feeling they had learned something about the natural heritage between 2009-and 2011, and the cultural heritage in 2011, Tuktut Nogait has consistently exceeded the Agency target expectation of 60 % for learning (Table 4).

**Trend: Stable.**

**Note:** Though the number of respondents is small, six of the seven visitors from 2009 to 2011 (86%) participated in the census.

Target	2009	2010	2011
Percentage of visitors who learned something about the natural heritage of the place	100%	100%	100%
	N=3	N=2	N=1

Table 4 Results: "Thanks to my visit, I have learned something about the natural heritage of the park."





### 3.3.3 Enjoyment

Enjoyment Measure	State
Enjoyment of Visit	

#### Enjoyment - Having Enjoyed Their Visit

**Measure:** All visitors participating in the census are asked “How much did you enjoy your visit to the park”, with 5 being “A lot” and 1 being “not at all”.

**Threshold:** The Parks Canada performance expectation that “On average, 90% of visitors at surveyed locations enjoyed their visit”, is used as the bottom threshold for “Good”.

**Condition: Good.** With 100% of the respondents confirming they enjoyed their visit, Tuktut Nogait has consistently exceeded the target expectation of 90% for enjoyment (Table 5).

**Trend: Stable.**

**Note:** Though the number of respondents is small, six of the seven visitors from 2009 to 2011 participated in the census (86%).


Target	2009	2010	2011
Percentage of visitors that enjoyed their visit	100%	100%	100%
	N=3	N=2	N=1

Table 5 Results: "How much did you enjoy your visit to the park?"

#### One Visitor's Experience

“I had previously hiked in Ivavik and Aulavik [national parks] and so wanted to go to Tuktut Nogait; backpacking in the Arctic is a unique and indescribable experience and the parks make it accessible, safe and hence more enjoyable”.

### 3.3.4 Satisfaction

Satisfaction Measure	State
Satisfaction Overall with Visit	

#### Satisfaction - Overall with Visit

**Measure:** The post trip census includes a question for visitors to rank their satisfaction after visiting the park: “How satisfied were you with your visit to Tuktut Nogait National Park?”, with 5 being “A lot” and 1 being “not at all”.

**Threshold:** The Parks Canada performance expectation that 85% of visitors being satisfied (4/5+5/5) and 50% being very satisfied (5/5) with their visit, is used as the bottom threshold for “Good”.

**Condition: Good.** Tuktut Nogait has exceeded the expectation for visitors being very satisfied with their visit (target 50% - actual 80%) and being satisfied (target 85% - actual 90%) with their visit (Table 6).

**Trend: Stable.** In 2008, one visitor rated their satisfaction as 4/5 and the other as 3/5. All other visitors have rated their visit as 5/5. The consistency of the 5/5 scores since 2008 indicates this measure is stable.

Level of Satisfaction	2007	2008	2009	2010	2011	Total	Target %	Actual %
Very Satisfied (5/5)	2	0	3	2	1	8	50	80
Satisfied (4/5 & 5/5)	2	1	3	2	1	9	85	90
Neutral or less than satisfied (3/5)		1						
	N=2	N=2	N=3	N=2	N=1	10		

Table 6 Results: "How satisfied were you with your visit to Tuktut Nogait National Park?"



Taking in the view (S.Goeson/PCA)

### 3.3.5 Meaning

Meaning Measure	State
Meaningfulness of Place to the Visitor	

With an average length of stay of 13.5 nights in Tuktut Nogait, each visitor has invested significant time in the park which leads to a meaningful connection.

#### Meaningfulness - Of Place to the Visitor

**Measure:** The post trip census asks the visitor to rank their response to the statement, “This Western Arctic national park is meaningful to me”.

**Threshold:** The Parks Canada performance expectation that “On average, 85 % of visitors at surveyed locations consider the place meaningful to them”, is used as the bottom threshold for “Good”.

**Condition: Good.** 100% of the respondents strongly agree with the statement (Table 7).



**Trend: Stable.**

Target	2009	2010	2011
Percentage of visitors that consider the place meaningful to them	100%	100%	100%
	N=3	N=2	N=1



Table 7 Results: "Tuktut Nogait National Park is meaningful to me."

### 3.4 External Relations

The role of external relations is to increase Canadians’ understanding, appreciation, support and engagement with respect to the natural and cultural heritage of Tuktut Nogait. Appreciation and understanding, and partner and stakeholder support are the two indicators for assessing Tuktut Nogait’s external relations.

External Relations Indicators	State
Appreciation and Understanding	
Support	

#### 3.4.1 Appreciation and Understanding

Appreciation and Understanding Measures	State
Public Outreach Education	
External Communications	

#### Public Outreach Education

**Measure:** Public outreach education is a measure of programs developed and delivered for schools and other educational institutions, and educational programs targeting individuals at home, work or play. Factors considered include:

- The audiences targeted and the rationale for targeting these audiences;
- The activities undertaken and the focus of the learning opportunity for the audience; and
- The exposure and reach of education initiatives.

**Condition: Fair.** The Parks Canada in Schools program reaches every student in the Western Arctic at least once during their primary or secondary school career. Parks Canada delivers the Environmental Stewardship program to ten classes each year. Over ten years, 1100 grade 4 students in communities in the Western Arctic have participated in this program. Online resources provide teachers across Canada with material on Tuktut Nogait.

The Tuktut Nogait website continues to be refined to reflect current work and events in the park, allowing interested people to learn about Tuktut Nogait regardless of their geographic location. Tuktut Nogait website traffic at 30,000 hits in 2009 is comparable to other northern national parks.

**Trend: Improving.** Parks Canada has in place an effective program of outreach education in the Western Arctic. Greater capacity in External Relations is enabling growth in outreach education programming, with an increasing emphasis on audiences in large Canadian urban areas. Improvements to the Parks Canada website will significantly advance this objective.

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Environmental stewardship program in the classroom  
(PCA)



## External Communications

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**Measure:** External communications is a measure of the media products developed and delivered to build Canadians awareness and understanding of Tuktut Nogait. Factors considered include:

- The audiences targeted and the rationale for targeting these audiences;
- The focus of communications and activities undertaken; and
- The exposure and reach of communication activities.

**Condition: Fair.** Local and regional audiences are targeted because of the close working relationship between Parks Canada, Inuvialuit and the Sahtú Dene.

Though Tuktut Nogait benefited from Canada-wide attention paid to Parks Canada 2011 centennial, there are typically only a few media requests each year for information on Tuktut Nogait.

During the centennial both *Up Here* (13,000 circulation) and *Explore* (26,000 circulation) magazines ran “best of” features that included Tuktut Nogait as an undiscovered gem worth visiting.

An episode of the TV documentary “*A Park for All Seasons*” was filmed in Tuktut Nogait in August 2011. The episode provides insight into co-operative management and the unique cultural resources of the park. The documentary will be shown at theatres across Canada in November 2011, followed by broadcast on Oasis HD television in 2012. *A Park for All Seasons* will provide more than 10,000 Canadians with a first look at the natural and cultural wonders of Tuktut Nogait.

**Trend: Improving.** Increasing external relations capacity at Parks Canada is resulting in more proactive media coverage and greater reach.

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Filming "A Park for All Seasons" (E. Baron/PCA)

### 3.4.2 Support

Support Measures	State
Partner and Stakeholder Involvement	

#### Partner and Stakeholder Involvement

**Measure:** Partner and stakeholder involvement is a measure of the park's relationship building. Factors considered include:

- How the park has broadened the base of stakeholder support for Parks Canada;
- How the park has involved and collaborated with the local community to support and enhance park activities and grow the base of support; and
- How the park, through strategic partnering, has developed new and expanded opportunities for Canadians to discover and connect to Tuktut Nogait.

**Condition: Fair.** Partner and stakeholder involvement is fundamentally strong because the park is cooperatively managed (see 2.1, Co-operative Management). All policy-level park management decisions are made by consensus through the Tuktut Nogait Management Board. The Fair rating reflects room for improvement in engaging Canadians beyond the Western Arctic region.

Parks Canada reinforces community connections to the park by celebrating special occasions with local residents. Parks Canada hosts an annual Parks Day celebration in Paulatuk. The Visitor Centre regularly hosts community events for elders, youth, or the whole community.

In northern national parks and historic sites, like Tuktut Nogait, partnering is critical to accomplishing goals for the park. Without the Government of the Northwest Territories, Department of Fisheries and Oceans, and the Paulatuk Hunters and Trappers Committee, key elements of the park's ecological integrity monitoring program, such as Bluenose-West caribou monitoring and the recently initiated fish survey at Uyarsivik Lake, would not have taken place.

Partners have assisted in developing opportunities to enhance the visitor offer through participation in

the recently completed Visitor Experience Assessment for the park. Parks Canada partnered with the Inuvialuit Communications Society to produce a video showcasing the people and places connected with the national parks of the Inuvialuit Settlement Region, including Tuktut Nogait. This video has been broadcast across western Canada and will be posted on the Parks Canada website in 2011.

**Trend: Improving.** With increasing capacity in external relations, Parks Canada will be able to build on the strong existing framework of partners and stakeholders, increasing engagement with priority target audiences in southern urban areas. Growth in volunteer opportunities will come with improved access, programs and facilities in the park.

## 4.0 PERFORMANCE RATING

*Parks Canada's strategic outcome is that Canadians have a strong sense of connection, through meaningful experiences, to their national parks, national historic sites and national marine conservation areas and these protected places are enjoyed in ways that leave them unimpaired for present and future generations.*

In order to achieve its strategic outcome, Parks Canada identifies Agency-wide expected results and performance expectations, for each program, that are outlined in the Parks Canada Corporate Plan. This chapter reports the extent to which the park has achieved its park-level performance expectations, which contribute to the Agency's strategic outcome. These results will help improve or maintain the state of the park in areas that the Agency has the ability to influence. Below are the specific performance expectations that were set in the 2007/08 – 2011/12 Corporate Plan (Parks Canada 2011) along with the corresponding results from Tuktut Nogait. The ratings criteria are provided by the Treasury Board Secretariat.

Performance Expectation	Rating	Results / Rationale
<i>Conserve Heritage Resources</i>		
National park and NMCA management plans will be on schedule and consistent with management plan guidelines by March 2010.	Met all	The first management plan for Tuktut Nogait was tabled in Parliament in October 2007. The plan was completed following Parks Canada legislation and policy and the park establishment agreements.
Develop fully functioning ecological integrity monitoring and reporting systems for all national parks by March 2008.	Somewhat met	Some measures are in development for both tundra and freshwater ecosystems. Northern national parks were given a deferral for completing these monitoring and reporting systems.
Improve aspects of the state of ecological integrity in each of Canada's 42 national parks by March 2014.	Met All	Tuktut Nogait has had minimal impact from human activity. It remains in its natural state and has a high level of ecological integrity. The tundra ecosystem, which represents 75% of the park area, is rated in "Good" condition.

Meet targets for five measures of environmental impacts of Parks Canada's operations: greenhouse gas emissions, petroleum storage tanks, contaminated sites, halocarbons and polychlorinated biphenyls (PCBs).	Exceeded	Suspected contaminated sites were assessed in 2003; none exceed guidelines and criteria for contaminated sites. Petroleum storage tanks and equipment containing halocarbons are managed and operated as per regulatory requirements. None contain PCBs. Greenhouse gas emissions are well below the 2020-21 target.
Improve the state of other cultural resources managed by Parks Canada by March 2014.	Met all	See section 3.2.1
<b>Enhance Visitor Experience</b>		
50% of visitors to national parks and NMCAs will participate in learning experiences at all surveyed sites.	Exceeded	See section 3.3.2
85% of visitors are satisfied, and 50% are very satisfied, with their experience at all surveyed sites.	Met all	See section 3.3.4
Optimize the number of visitors who report a personal connection to the park or site visited (target to be established by October 2007)	Exceeded	See section 3.3.5
<b>Promote Public Appreciation and Understanding</b>		
Develop indicators, expectations and protocols for measuring public appreciation and understanding of Canadians and stakeholders by May 2007.	Not applicable	This performance expectation is to be undertaken at the Parks Canada Agency level.

<b>Legend – Performance Rating (Treasury Board Secretariat)</b>	
Exceeded	More than 100% of the expected level of the performance was achieved.
Met all	100% of the expected level of the performance was achieved.
Mostly met	80-99% of the expected level of the performance was achieved.
Somewhat met	60-79% of the expected level of the performance was achieved.
Not met	Less than 60% of the expected level of the performance was achieved.



## 5.0 MANAGEMENT PLAN RESULTS

### 5.1 A Success Story – Co-operative Management: The Tuktut Nogait National Park Management Board

The Tuktut Nogait Management Board (see Co-operative Management, 2.1) advises the Minister responsible for Parks Canada, and other Ministers as appropriate, on the management of Tuktut Nogait and on the means of accomplishing the park's negotiated purposes (see Appendix A).

The Management Board operates on a consensus decision-making basis. Board meetings are regularly held three to four times a year. Meetings are open to members of the public, and the public is encouraged to fully participate in board discussions and deliberations.

There are numerous instances that point to the success of the co-operative management model used for Tuktut Nogait. In recent years, in accordance with *The Tuktut Nogait Agreement*, the Board has served as the mechanism through which the Parties to the Agreement have developed a consensus on policy-level decisions affecting Tuktut Nogait. Specific instances of consensus building follow. Through the consensus decision-making process, the Parties and the Board have:

effectively managed community concerns with the potential effects of air access on caribou populations in the park in June and July while also ensuring opportunities for visitors and Parks Canada staff to access the park;

worked together to draw other government agencies to support important freshwater monitoring work on the Hornaday River; and

developed an approach to study fish populations in Uyarsivik Lake in a fashion that is fully respectful of community expectations related to the treatment of fish populations, which are an important subsistence resource for Inuvialuit.

These are just three recent examples of the success of the co-operative management model used to manage Tuktut Nogait. There are many others. They serve as a prime example of the effectiveness of this management approach both for Tuktut Nogait, and potentially for the management of other national parks and national historic sites throughout the country.

### 5.2 Management Plan Results

The Tuktut Nogait management plan was prepared cooperatively between 2001 and 2005. Tabled in Parliament in October 2007, the Tuktut Nogait management plan has served to guide management and decision-making with respect to the protection, presentation, use and operation of this national treasure.



Paulatuk Elder cleaning fish at Uyarsivik Lake  
(S. Sandstrom/PCA)

The following table provides an evaluation of Parks Canada's (and the Board's) performance in achieving the objectives and targets set out in the main strategic goals of the 2007 management plan.

<b>Strategic Goals</b> - Cooperate with other agencies and co-operative management bodies to maintain ecological integrity in Tuktut Nogait within the context of the <i>Inuvialuit Final Agreement</i> , the park establishment agreement and the <i>Canada National Parks Act</i> . - Maintain the cultural resources and values of Tuktut Nogait.	
Objectives and Targets	Results
Ecosystem-based management of Tuktut Nogait is guided by using the management plans developed by co-operative management and Inuvialuit organizations.	The 2007 management plan guides ecosystem-based management decisions. In preparing the management plan, the Tuktut Nogait Management Board and Parks Canada were guided by documents such as the Paulatuk Community Conservation Plan.
Specifically identified wildlife populations are maintained and opportunities for their subsistence harvesting are maintained.	The ecological integrity monitoring program, with both tundra and freshwater indicators, is being developed and implemented. The Bluenose-West caribou herd harvest management plan is being developed.
A healthy aquatic ecosystem is maintained.	The freshwater ecological measures are being developed and implemented.
Representative vegetation communities are protected.	Monitoring the state of vegetation in the park is integral to the ecological integrity assessment of the tundra ecosystem and is being developed.
The capability to correlate variations in ecological processes and changes in the park's ecological integrity indicators with the climatological variations at the sites is developed.	Two automated weather stations are in place (Qavvik Lake and Melville Hills) and gathering weather data. A permafrost probe in Paulatuk is recording ground temperature on a regular basis. Satellite monitoring is measuring for changes in green-up and is being developed.
An effective long-term monitoring program is developed and maintained.	An ecological integrity monitoring program is being developed and implemented.
A comprehensive natural, cultural and social science data and information base is developed and maintained for Tuktut Nogait.	A cultural resource management strategy is in development. A monitoring protocol is in place for four sites at Uyarsivik Lake. Visitors are invited to complete a post-trip census that is sent to them electronically or by mail. Since 2009, the data collected from these censuses include measures of performance expectations for visitor experience. Through information gathered from these censuses, the quality or state of visitor experiences is measured.

Cultural resources and values are maintained.	The Paulatuk Oral History is being finalised. Reproductions of artifacts from Tuktut Nogait have been used in developing a teachers' resource kit.
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**Strategic Goals** - Provide opportunities for people to learn about, understand and appreciate the natural, cultural and economic value of Tuktut Nogait; and  
 - Encourage individuals to participate in the protection and presentation of our heritage.

Objectives and Targets	Results
Key ecological and cultural heritage messages reach a broader audience. Partners/public are informed of park activities.	Initiatives include the Environmental Stewardship school program; artifact edu-kit; "This is who we are" television broadcast; <i>A Park for All Seasons</i> broadcast; Western Arctic cultural resource guide; <i>Tusayaksut</i> – a quarterly newsletter to co-operative management partners, stakeholders and interested Canadians; regular park management board meetings that are open to the public. .

**Strategic Goal** - Provide opportunities for visitors to Tuktut Nogait to enjoy high quality wilderness experiences that foster understanding and appreciation of the park's natural and cultural resources, and their long-term protection.

Objectives and Targets	Results
High quality visitor experiences are provided that promote increased visitation without impairing ecological integrity, cultural resources, or the exercising of Inuvialuit harvesting rights.	The visitor service offer includes: detailed, in-person trip planning advice; mandatory pre-trip orientation; where practical, connecting visitors to local people for trip support or services; pursuing opportunities to expand visitor offer to include guided trips; and provision of search and rescue and other public safety services.
Inuvialuit participation in tourism, management & operations is facilitated.	To date, no beneficiary guide licensed to operate in the park.

**Strategic Goals** - Parks Canada demonstrates sound environmental practices in all its activities, services and products; and  
 - Visitors contribute to the principles of environmental stewardship and sustainability.

Objectives and Targets	Results
Parks Canada's environmental performance in its operation of Tuktut Nogait is enhanced.	The main environmental management consideration for the park, a Fuel caching protocol, was implemented in 2008.

## 6.0 KEY PARK CHALLENGES

This chapter identifies key site management challenges based on assessments in Chapters 3 to 5. These challenges may range from those that Parks Canada has an ability to influence, either through mitigation or adaptation, to those that may be more global in nature and are outside the scope of the park specifically to influence. These challenges should be considered in future park planning and management.

Key challenges facing Tuktut Nogait as identified in the report include:

- Research to date shows a significant population decline of the Bluenose-West caribou herd over the last fifteen years (see 3.1.1 - Bluenose-West Caribou Herd Population);
- Community expectations of significant tourism-related economic benefits associated with Tuktut Nogait not being realized (see 2.3 - Community Economic Development Opportunities);
- A very small number of visitors each year, due largely to the logistical challenges and costs of accessing this remote northern park (see 3.3.1 - Visits);
- Logistical challenges and costs of ecological integrity, cultural resource and human use monitoring in a remote and difficult to access northern park (see, for example, 3.1.1 – Permafrost, and 3.2.2 – Cultural Resource Inventory and Evaluation). These challenges and costs factor into the use of remote sensing for some measures (see 3.1.1 – Plant Productivity and Timing of Green-Up) and in the design of monitoring programs to be implemented (see, for example, 3.1.1 – Lemming Population Cycle); and
- Tuktut Nogait, like many northern parks, is not known to many Canadians. In the last five years, Parks Canada has made increased effort to engage local and regional audiences of the park. Future opportunities and challenges for improvement in external relations relate to building Parks Canada's reach to and connection with distant southern, urban audiences (see 3.4.1 – Appreciation and Understanding).

## 7.0 REFERENCES

Bluenose Caribou Management Plan Working Group

2011 *The Cape Bathurst, Bluenose-West, and Bluenose-East Barren Ground Caribou Herds Management Plan. Submitted by The Bluenose Caribou Management Plan Working Group in partnership with Terriplan Consultants to Advisory Committee for the Cooperation on Wildlife Management (draft May 9, 2011).*

Parks Canada

2011 *Parks Canada Agency Corporate Plan 2011-2012 / 2015-16.*

## APPENDIX A. Park Purposes From the Two Park Establishment Agreements for Tuktut Nogait

Park Area in Inuvialuit Settlement Region	Park Area in Sahtú Settlement Area
<ul style="list-style-type: none"> <li>• Protect the Bluenose-West and Bluenose-East caribou herds and the calving and post-calving habitat of the Bluenose-West caribou herd.</li> </ul>	<ul style="list-style-type: none"> <li>• Protect the Bluenose caribou herd and its calving and post-calving habitat.</li> </ul>
<ul style="list-style-type: none"> <li>• Protect for all time a representative natural area of Canadian significance in the Tundra Hills Natural Region, and to encourage public understanding, appreciation and enjoyment of the area so as to leave it unimpaired for future generations.</li> </ul>	<ul style="list-style-type: none"> <li>• Preserve for future generations a representative natural area in the Tundra Hills Natural Region of Canada's national park system, and to encourage public understanding, appreciation and enjoyment of this area.</li> </ul>
<ul style="list-style-type: none"> <li>• Enhance co-operation between the Inuvialuit and the Government of Canada and the Government of the Northwest Territories in planning, operating and managing the park.</li> </ul>	<ul style="list-style-type: none"> <li>• Enhance cooperation between the Sahtú Dene and Métis and Parks Canada in planning, operating and managing the addition.</li> </ul>
<ul style="list-style-type: none"> <li>• Enhance and support local employment and business, and to strengthen the local and regional economies, while making provisions for subsistence usage within the park.</li> </ul>	<ul style="list-style-type: none"> <li>• Enhance and support local employment and businesses, and to strengthen local and regional economies.</li> </ul>
<ul style="list-style-type: none"> <li>• Encourage greater understanding of and respect for the cultural heritage of the Inuvialuit and the natural environment in which it has evolved.</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage greater understanding of and respect for Sahtú heritage resources and the natural environment in which they evolved.</li> </ul>
<ul style="list-style-type: none"> <li>• Provide a setting in which long-term ecological and cultural heritage research may be undertaken.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide for the rights of participants under the Sahtú Final Agreement to use this area for harvesting wildlife and plants.</li> </ul>
<ul style="list-style-type: none"> <li>• Maintain the ecological integrity of the park and thereby contribute to the maintenance of the ecological integrity of the Inuvialuit Settlement Region as a whole.</li> </ul>	