



WATERTON LAKES NATIONAL PARK OF CANADA

State of the Park Report

May 2008



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WATERTON LAKES
NATIONAL PARK OF CANADA

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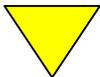
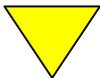
APPROVED

A handwritten signature in black ink, appearing to read 'Rod Blair', with a large, stylized initial 'R'.

Rod Blair
Superintendent

EXECUTIVE SUMMARY

- The Ecological Integrity section shows two indicators in good condition and two indicators in poor condition. Three of the four rated indicators show a declining trend; Climate and Atmosphere cannot be rated because there are no targets or thresholds against which to assess condition and data are available for only 20 – 30 years, which is too short to indicate trends with certainty
- Significantly, two of the park's most distinctive characteristics – the fescue grasslands and the diversity of plant species – show a declining trend; this is the result of a continuing invasion of non-native species, encroachment of aspen into the grasslands and the difficulty of achieving the prescribed fire target because of a very short suitable burning period each year
- Wildlife is in good condition. Because of the park's small size, grizzly bears that use the park are part of a regional population that ranges into Montana, BC and adjacent parts of southern Alberta; the regional population is small and at risk
- Aquatic ecosystems are in good condition but show a declining trend as water quantity is declining and aging culverts restrict connectivity for aquatic species
- Cultural resource condition and management practices are rated as fair; messages are rated as poor. Data are insufficient to indicate trends
- Visitor numbers have shown a steady increase over a long time period, with a noticeable four year peak in the late 1990s; recent data indicate a drop since 2001 to a fluctuating level that is a little higher than prior to the peak
- Camping has remained stable for the last fifteen years
- Approximately 46% of visitors are Albertans. Compared to other mountain parks, Waterton Lakes has a higher proportion of American visitors (37%), reflecting the park's location adjacent to the international boundary and Glacier National Park. Many American visitors combine a visit to Waterton Lakes with a visit to Glacier. 65% of visitors make day trips to the park, from the surrounding region and from Glacier NP. 53% of all visitors are repeat visitors. An important subset is the "regulars" who make frequent visits; they account for 31% of visitors and 45% of all visits
- The growth of resorts, second home communities and provincial parks has broadened the choice of recreational destinations for regional visitors
- Little is known about the effectiveness of public education programs but recorded participation is low. Many visitors are repeat visitors, requiring different methods of contact from those traditionally used – notably the challenge of reaching them at home before they arrive at the park. There is also the challenge of keeping interpretive material fresh and interesting.
- The park has good co-operative working relationships with regional partners for protection of the Crown of the Continent ecosystem. The Nature Conservancy's Waterton Front Project has helped conserve important adjacent lands
- There is very good co-operation with Glacier National Park, which, with Waterton, forms the Waterton-Glacier International Peace Park World Heritage Site

Heritage Resource Protection		
Ecological Integrity (EI)		
Native Biodiversity		Native biodiversity is in good condition, with a stable trend. Ungulate, bird and Bolander's Quillwort populations are in good condition and stable. Wildlife mortality remains within acceptable levels. Sharp-tailed grouse numbers are naturally low and may be declining. Amphibians have declined but are stable. Information is unavailable for other measures
Climate & Atmosphere		Rating is not assigned. There are no targets or thresholds and data are too short-term to indicate trends. It is unknown how and to what extent climate properties affect the ecological integrity of the various park ecosystems
Aquatic Ecosystems		Aquatic ecosystems are in good condition but with a declining trend because of reduced water quantity and aging culverts which restrict movements of aquatic species. Bull trout redds are in good condition. Information is insufficient to report on trumpeter swans
Terrestrial Ecosystems		Terrestrial ecosystems are in poor condition with a declining trend because of invasive plant species and pathogens. Rangeland exclosures indicate stable conditions
Landscapes		Landscapes are in poor condition but with an improving trend. The park's fescue grasslands are shrinking because of aspen and shrub encroachment. The improving trend reflects the re-introduction of fire and the success of the Waterton Front project in protecting surrounding lands from subdivision and development.
Cultural Resource Management (CRM)		
Resource Condition		Mitigative actions have been taken to reduce threats to the integrity of these resources
Effectiveness of Communications		Information not available
Selected Management Practices		Comprehensive inventories exist; some updating is required

Connection to Place		
Visitor Experience (VE)		
Understanding Visitors		Recent visitor numbers average 365,000, slightly above the 1990s average and below a peak in 1998–2001. 46% are Albertans and 37% are Americans. 53% are repeat visitors.
Providing Opportunities		Camping has remained steady for the last 15 years. Driving/sightseeing (49% of visitors) and hiking (44%) are the most popular activities
Quality Service		75% of visitors surveyed in 2005 rated their visit as “extremely enjoyable”. There is generally high satisfaction, except for “value for money” categories
Connecting with Place		Very few visitors take advantage of interpretive programs. The park draws people back – 53% are repeat visitors. The figure is 80% for Albertans.
Public Education (PE)		
Understanding Audiences		31% of visitors are regional repeat visitors and they account for 45% of park visits but they have a lower participation rate in park learning activities than visitors from elsewhere
Extending our Reach		Educational programs reach school children and partnerships with organizations such as the AMA reach many. 65% of regional repeat visitors rely on their own previous experience
Facilitating Understanding		The park provides interpretive information with varying rates of involvement by different market segments (between 53% and 70%) and partners with the Waterton Natural History Association
Influencing Attitudes		No information is available

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1.0 Introduction

Parks Canada Agency is pleased to report to Canadians on the current condition of Waterton Lakes National Park of Canada, based on research and monitoring information. The State of the Park Report (SOPR) provides an assessment of the key areas of Parks Canada's mandate: protection (ecological integrity and cultural resource management), visitor experience, and public education.

State of the park reporting is completed every five years in conjunction with the review of the park management plan, which is a legislated requirement. The Waterton Lakes National Park management plan was approved in 2000 as a fifteen-year plan and was reviewed in 2003. The next review is scheduled for 2008 in order to coordinate the management planning cycles for the mountain national parks (Banff, Kootenay, Mt. Revelstoke, Glacier, Jasper, and Yoho). There is also a national policy requirement for annual reporting on performance to implement the park management plan.

The purposes of the State of the Park Report are to:

- Provide a summary of what is known of the condition of the park's resources and of visitors' enjoyment of the park
- Identify issues of concern that need to be addressed during the next Management Plan review

The process for state of the park reporting is relatively new and evolving. This is the first SOPR for Waterton Lakes NP. Monitoring programs are being developed for each key area of the mandate. Ecological integrity monitoring is the furthest advanced and new programs are being developed to measure the condition of cultural resources, visitor experience and public education. By 2008, the park will have established a long-term suit of indicators and measures. In the interim there are a number of information gaps that exist. These gaps will be filled in subsequent reports as the park's monitoring programs develop.

The selection of the current measures and indicators was based on management plan objectives and the requirements of the national monitoring program. The findings in the report summarize current knowledge about the condition of the park and are important for evaluating the effectiveness of management actions and for identifying deficiencies and adaptive and integrated strategies to be addressed during the review of the management plan.

1.1 Achieving the Vision for Waterton Lakes National Park

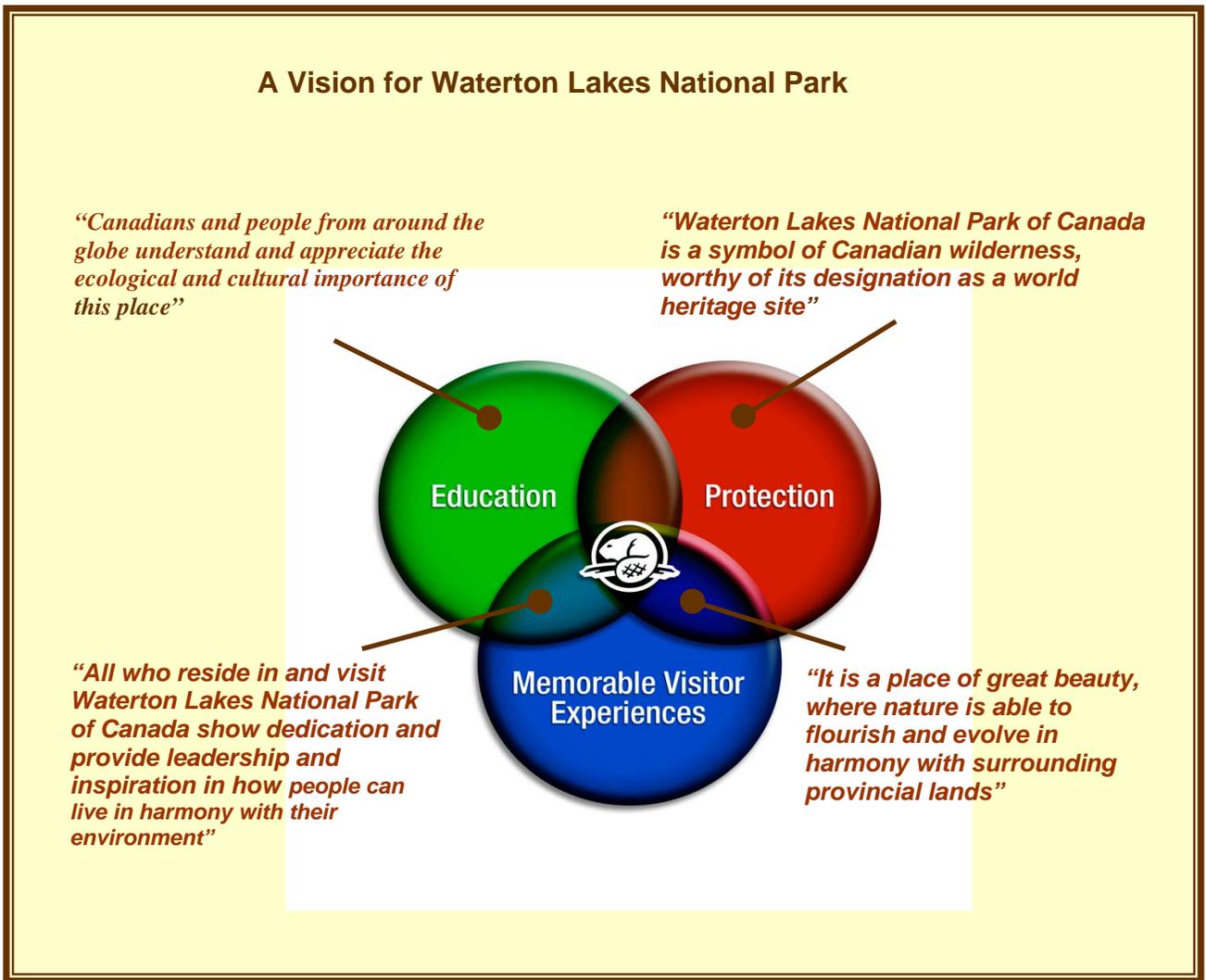
The management plan for Waterton Lakes National Park (2000) establishes a vision that integrates protection, experience and education in ways that are mutually supportive and inter-dependent. Figure 1 illustrates how the vision elements contribute to achieve Parks Canada's integrated mandate. Without public appreciation and understanding of the value of Waterton Lakes National Park's natural and human history, stewardship and protection of the park's ecological and cultural resources will not occur. Protection and presentation of the park's natural beauty, functioning ecosystems and heritage values are essential to providing visitors with a memorable park experience.

The management plan sets out core strategies to achieve the vision by:

- connecting Canadians to Waterton Lakes National Park through first-hand experiences and learning opportunities
- managing visitor use without impairing the park’s ecological and cultural resources
- setting limits to the growth of Waterton Village
- restoring terrestrial and aquatic ecosystem
- protecting and presenting cultural resources
- collaborating with Aboriginal people on the protection and presentation of Aboriginal heritage in the park
- partnering to manage shared wildlife populations and promote regional ecosystem health
- practicing open management through effective public participation

The State of the Park Report provides measures of how well the vision for Waterton Lakes National Park is being achieved.

Figure 1: Park Vision (2000) for achieving Parks Canada’s integrated mandate



1.2 Park Setting

Nestled in the extreme southwest corner of Alberta, Waterton Lakes National Park is where the prairies meet the mountains. The variety of habitats creates remarkable ecological diversity in a park of only 505 km². Located just east of the Continental Divide, the park is near the centre of the Crown of the Continent (COC) ecosystem which stretches as far north as the southern edge of Banff National Park and as far south as the Bob Marshall Wilderness Area in Montana.

Waterton Lakes National Park was designated in 1895 at the urging of local people. In 1932, at the initiative of Rotary Clubs in Alberta and Montana, Waterton Lakes and Glacier National Parks were joined as the world's first Peace Park, to commemorate friendly relations between the two countries. Staff of the two parks work closely together on many common management issues.

The park was designated as a Biosphere Reserve in 1979. In 1995, the two national parks were inscribed as Waterton-Glacier International Peace Park World Heritage Site because of their outstanding scenery, abundant diversity of wildlife and wildflowers and the tri-oceanic divide.

The park is renowned for its scenic vistas of prairie and mountain landscapes, colourful rocks, abundant displays of wildflowers, including distinctive species such as beargrass, and easily viewed wildlife, notably sheep, elk and bears. The scenic highlight of the park is Upper Waterton Lake, which extends across the international boundary into Glacier National Park.

The primary users are residents of southern Alberta. The park also has a high percentage of American visitors, many of whom combine a trip to the two parks. The park is a popular camping and hiking destination. The park contains Waterton Village, with a full range of visitor services and there are roads to destinations such as Red Rock Canyon and Cameron Lake. The park has a quieter atmosphere than the other mountain national parks because it is not bisected by a through highway.

Waterton Lakes National Park is a model of inter-jurisdictional land management. Because it is a small park, Waterton Lakes NP works together and cooperates with ranchers, first nations, private citizens and industry to protect this area of southern Alberta. Park staff are active members of the Crown Managers Forum, a group of land managers at all levels of government in the Crown of the Continent who work co-operatively to manage common issues.

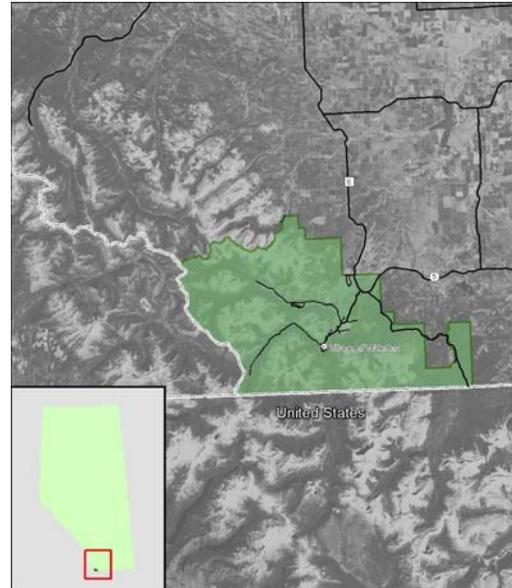


Figure 2

2.0 ASSESSMENT AND EVALUATION METHODS

Parks Canada is developing a comprehensive monitoring program to assess the performance of national parks in protecting ecological and commemorative integrity, undertaking public education and providing memorable visitor experiences. Within each of these three broad areas, several indicators have been identified to provide a broad representation of key factors influencing the national parks. Each indicator is supported by several measures which are based on data gathered through a variety of sources. Where data are insufficient, professional judgment is used to assess conditions. This approach is depicted in the 'iceberg model' shown in Figure 3.

The 'iceberg model' of indicators and measures

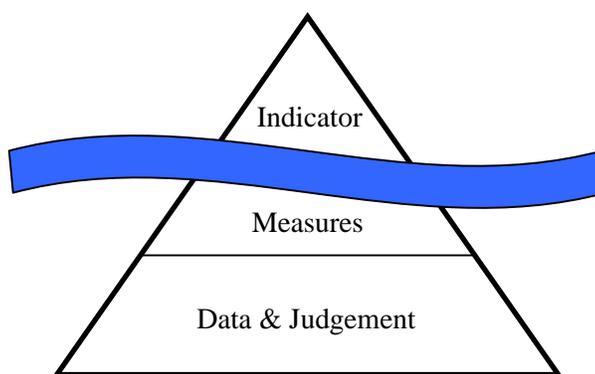


Figure 3

At the time of preparation of this state of the park report, the monitoring program is still in development. Some indicators and measures are based on existing long-term monitoring programs and can be readily assessed and reported. Other indicators and measures are more recently established and monitoring programs provide limited data on which to base evaluations and ratings. In some cases monitoring has not yet begun and information gaps exist.

Data sources include programs undertaken by Parks Canada and external agencies. In some cases where limited data are available, the professional judgment of Parks Canada staff is used to supplement data analysis. As the long-term monitoring program develops, existing gaps will be filled and future state of the park reports will be based on increasingly more comprehensive, rigorous and statistically powerful data.

In addition to providing an assessment of the state of Waterton Lakes National Park, this report will provide a baseline for the new monitoring program against which future state of the park reports can be compared.

The indicators of resource protection, visitor experience and public education are rated for their condition and trend. The condition and trend ratings are *italicized and bolded*. For clarity, symbols and colours are used to represent the condition and trend of the indicators and measures, as shown in Table 1.

Table 1: Symbols used for indicator evaluation

Condition		Trend	
<i>Good</i> : the condition of the indicator/measure is satisfactory		<i>Improving</i> : the condition of the indicator/measure is improving since the last assessment	↑
<i>Fair</i> : there is concern regarding the state of this indicator/measure		<i>Stable</i> : the condition of the indicator/measure is unchanged since the last assessment	↔
<i>Poor</i> : the condition of the indicator/measure is poor or low		<i>Declining</i> : the condition of the indicator/measure is declining since the last assessment	↓
<i>Not rated</i> : there is insufficient information to determine condition		<i>Not rated</i> : there is insufficient information to determine trend	

2.1 Resource Protection Indicators

Measures are rated by comparing the actual state of the measure with its desired state, or target. For some measures, targets are established in existing park management plans (e.g. for prescribed fire). In other cases, targets established by agencies other than Parks Canada can be used (e.g. water quality). Thresholds are also used e.g. where a measure moves from one condition rating to another such as from Fair (yellow) to Poor (red). Where adequate information is not yet available to set a specific target, the professional judgment of Parks Canada staff is used to determine the rating. Some indicators and measures cannot be rated due to lack of information

A similar approach is used to assess and rate indicators related to cultural resource management. Due to data limitations, including lack of recent inventories and evaluation, trends cannot be reported for cultural resource measures and indicators.

Measure ratings are combined to provide indicator ratings by using a simple majority e.g. if three of five measures are rated in good condition (green), the indicator is assigned a rating of “good”. In cases where there is no majority among measure ratings, the indicator is rated as *fair* to reflect uncertainty as well as concern.

A distinction is necessary between the trend rating assigned to an ecological indicator or measure and the characteristics of the measure. For example, a wildlife population may increase or decrease, but the trend rating and associated arrow symbol refer to whether ecological integrity is *improving* or *declining*, not to the size of the population e.g. an increase in the elk population beyond its historic range of variability would be viewed as a decline in ecological integrity.

2.2 Connection to Place Indicators

The indicators used to assess visitor experience and public education are relatively new in the Parks Canada monitoring program. Few specific measures and monitoring programs are in place. As a result, ratings for these indicators are mostly based on an analysis of existing survey data, primarily from a 2003 park-wide visitor survey, supplemented by site specific survey information and the professional opinion of Parks Canada staff. With one exception, targets, or desired states of the indicators, have not been established— Parks Canada does have targets for visitor satisfaction. The visitor experience and public education indicators are rated based on the judgment of Parks Canada staff in Waterton Lakes National Park.

3.0 Assessment of the State of Resource Protection and Connection to Place

3.1 Ecological Integrity

Overview

The Canada National Parks Act [2000] defines ecological integrity as “a condition that is determined to be characteristic of its natural region and likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rates of change and supporting processes.” A national park has ecological integrity if all of the native plants and animals still thrive and if natural processes like fire, flooding and avalanches are allowed to persist. This State of the Park Report assesses the condition of ecological integrity in the park.

Determining whether or not a park is successful in maintaining ecological integrity requires information from a comprehensive set of indicators and measures that reflect trends in a broad array of species, communities, and ecological processes. Changes in the conditions of these indicators are meant to act as early warning bells to stimulate management actions necessary to maintain ecological integrity.

Parks Canada is developing a national Ecological Integrity Monitoring and Reporting Program, based on six geographical regions known as bioregions. The seven mountain parks comprise the Montane Bioregion. Common indicators and measures will be used in each park in the bioregion. The five indicators are Native Biodiversity, Climate and Atmosphere, Aquatic Ecosystems, Terrestrial Ecosystems and Landscapes and Geology. Each indicator is based on a number of measures, some of which are also common to the bioregion (e.g. water quality) and some of which are park specific (e.g. Bolander’s Quillwort). An assessment of condition and trend is assigned to the indicator where possible, based on quantitative and qualitative data analysis, expert opinion and accumulated knowledge of the supporting measures. None of the indicators are wholly separate from others, as biological systems are interconnected and some measures are relevant to more than one indicator, but any one measure is only assessed under one indicator.

Due to the summary nature of this report, not all of the measures will be addressed in detail; only representative measures that illustrate the condition rating of the indicator are referenced. However, information on all measures is available in the State of the Park Report Technical Compendium.

Native Biodiversity is the only indicator which is rated as in good condition with a stable trend. Aquatic ecosystems are presently in good condition but with a declining trend because of aging culverts which restrict movements of aquatic species and declining water quantity. The indicators for Terrestrial Ecosystems and Landscapes and Geology are rated as in poor condition, with a declining trend, reflecting the impacts of invasive species and the reduced area of grassland. The indicator for Climate and Atmosphere cannot be assigned ratings as there are no targets or thresholds against which to assess condition and data are too short-term to indicate trends.

Evaluation



Biodiversity refers to the variety of life that exists in a given place, from genes and species to communities, ecosystems, functions and processes. Native biodiversity in Waterton Lakes National Park refers to the variety of life that was historically present prior to the establishment of the park. It excludes introduced species, ecosystems, functions or processes.

Native biodiversity is a key element of ecological integrity. An ecosystem that has diversity is more resilient to environmental stresses or changes. Several programs are underway to monitor species populations and habitat quality.

The park's rich diversity includes 1001 vascular plant species, 23 species of fish, 4 of reptiles, 6 of amphibians, 62 mammal species and over 250 species of birds. The park protects species at risk such as the northern leopard frog, western toad, Lewis's woodpecker and the long-billed curlew. Westslope cutthroat trout and Bolander's quillwort have been assessed as threatened and half-moon hairstreak butterfly as endangered but all are still awaiting legal listing under the Species at Risk Act (SARA).

Table 2: Native Biodiversity

Bioregional Measure	Condition/Trend	Park Specific Measure	Condition/Trend
1. Ungulates		6. Sharp-tailed Grouse	
2. Grizzly Bears		7. Bolander's Quillwort	
3. Birds		8. Butterflies	
4. Wildlife Mortality		9. Species at Risk	

5. Amphibians			
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Native biodiversity in Waterton Lakes National Park is rated as in good overall condition with a stable trend.

Elk are a focal species because of their high numbers and the grazing influence on grasslands. There are fluctuations in numbers over time, with between 600 and 900 in each of the last ten years. The average has increased slightly from 700 to 800 since 1971. Mountain goats numbers also fluctuate but there has been a slight increase since 2002. The highest count was 93 in 2005. The condition of the ungulate measure is assessed as good, with a stable trend.

Grizzly bears are regularly seen in the park. The park is too small to contain complete home ranges and is, rather, part of a larger range stretching from northern Montana to Crowsnest Pass and beyond. The bears that use the park are part of the larger regional population. Active research is underway in southern Alberta and southwestern BC to determine population estimates. This will link with a recent study in Glacier National Park that is just completing its laboratory work. Results have not yet been published and no condition or trend assessments are available.

Bird populations are regularly monitored through the Terrestrial Bird Monitoring Program by conducting breeding bird point counts. The population is fairly stable and possibly increasing slightly but the number of species is declining. Condition is assessed as good with a stable trend.

Abundance of boreal toad, boreal chorus frog, Columbia spotted frog and long-toed salamander did not change between the two reporting periods, 1997-2000 and 2001-2007, and are considered to be within the range of natural variation and thus stable. Because of the apparent extirpation (no sightings since 1980) of northern leopard frog, amphibians are rated as declining in condition, but if the reintroduction of this species, which started in 2007, is successful, this action will improve the condition rating.

There are a small number of sharp-tailed grouse in the park's grasslands and a lek monitored each April. There has been a decrease in grouse numbers from 16 in 2004 to 9 in 2006. This is consistent with trends elsewhere. The data set is small and statistical significance is in doubt. They are assessed as in fair condition with a decreasing trend.

The park has 112 species of butterfly, including one Species at Risk and one non-native species. There is no monitoring and currently no data to indicate condition or trend.

The park has four Species at Risk (of Special Concern) –northern leopard frog, western toad, Lewis' Woodpecker and long-billed curlew. Three others have been assessed but are not yet listed – Bolander's quillwort, half-moon hairstreak butterfly and Westslope cutthroat trout. No condition or trend assessment is associated with the number of listed species.

Wildlife Mortality

Elk are a focal ungulate species in the Bioregional Monitoring program. They are wide-ranging and often have to cross roads to access habitat and food sources. The condition of elk mortality was

assessed by calculating one and two standard deviations away from the mean population. One standard deviation is used to show the transition from good to fair conditions and two standard deviations are used to show the transition from fair to poor conditions. During the past 25 years, elk counts have oscillated between good and fair condition. Elk are currently found to be within their natural range of variability. The number of elk killed is less than 5% of the annual mean count in any given year and is considered not to be threatening the ecological integrity of the elk population in the park. Elk mortality on through highways accounts for a little over half of all elk deaths. The graph on the right of Figure 4 shows vehicle numbers counted at the park entrance. Vehicle traffic shows an increasing trend but is not influencing elk counts or highway mortality at this time.

Ecological integrity is assessed as in good condition with a stable trend because elk mortality is not adversely affecting the population.

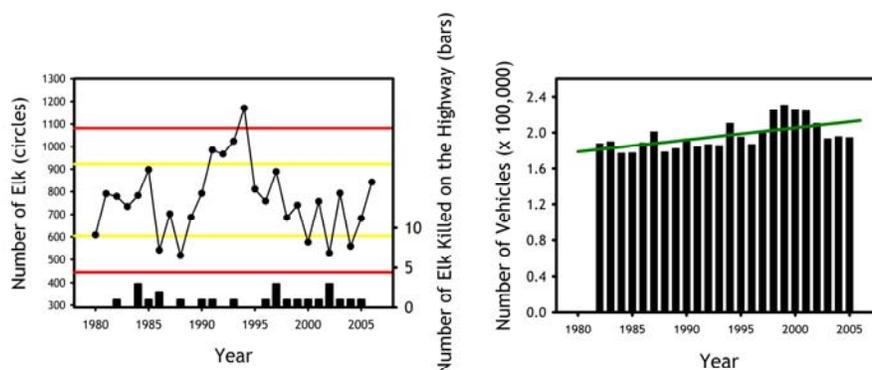


Figure 4

Bolander's Quillwort (*Isoetes bolanderii*) Surveys

Bolander's quillwort is a plant whose only known locations in Canada are in Waterton Lakes National Park. It has been assessed as threatened by COSEWIC. The 2000 Waterton Lakes National Park Management Plan requires the protection and maintenance of species at risk.

Bolander's Quillwort is found in Summit Lake and in a small pond to the east. It appears to have been extirpated from a historical location at Carthew Lakes. The Summit Lake population has been sampled since 2002 and is reported on here. Quadrat sampling was used to calculate total population size. Bolander's quillwort was found in 77% of the quadrats sampled in 2002 and this number increased to 91% of the quadrats when re-sampled in 2006. Quillwort percent cover also increased from 8% in 2002 to 24% in 2006. The black line in the graph below is the median percentage cover with 95% confidence intervals. The yellow and red lines are 1 (yellow) and 2 (red) standard deviations from the mean. The standard deviation is only used on the lower limits of percent cover, as hyper-abundance of this species is not a concern at this time. The area between the mean and the yellow line is considered to be good condition while the area between the yellow and red line is considered to be fair condition.

Bolander's Quillwort is assessed as in good condition with a stable trend.

Percent Cover of Bolander's Quillwort

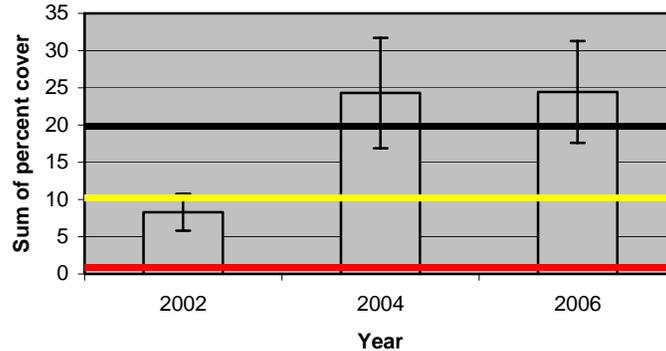


Figure 5

Climate and Atmosphere

Climate plays a fundamental role in shaping ecosystems in the Mountain National Parks. Distributions of plant and animal species, the patterns of river flows and the frequency and magnitude of natural disturbances are all heavily influenced by properties of climate, such as temperature, precipitation and snow depth. There is international consensus that the climate is warming at an unprecedented rate. There will be implications for ecological conditions in the park. Climate changes also have the potential to affect how people use and view the parks. Summer visitation seasons may lengthen and winter recreational activities may be affected by changing snow depth.

The park has a distinctive climate, as mild, warm Pacific-Maritime air masses from the west often meet cool, dry Continental air masses from the east. The meeting of the two weather systems can produce some of the most variable weather in the Rocky Mountains. Temperatures in winter months can rise from -20°C to 10°C in a matter of hours, and in rare cases, minutes, due to strong Chinooks that bring warm west winds over the mountains. Cameron Lake is the wettest area on average in the province of Alberta. The park is one of the windiest parts of the province.

Weather stations are operated at the Park Gate and at Akamina Pass on the Alberta/BC boundary near Cameron Lake. There are notable differences between the two sites, one at a comparatively dry location on the edge of the prairies and the other in the wet belt of the mountains on the Continental Divide.

Table 3: Climate and Atmosphere

Bioregional Measures	Condition/Trend
1. Temperature	◆
2. Precipitation	◆
3. Snowpack	◆

Intermittent records extend back for decades but consistent records are available only for the last 20 – 30 years, a time period that is too short to discern long-term trends. The specific effects of climate on species within the park are unknown. *Consequently, the condition and trend of the Climate and Atmosphere Indicator are not rated.*

Precipitation at the Waterton Park gate has shown a decline since 1945 but annual totals are very variable e.g. ranging from 1075mm in 1995 to 357mm in 2000. Reliable data are available only since 1985 at Akamina Pass and precipitation has increased very slightly in that period. Trends are not statistically significant.

Snowfall has also been variable, with a maximum in 1990 (507cm) and a minimum in 2000 (170cm) at the Park Gate. There is a slight downward trend since 1976 but it is not statistically significant.

Temperature

Mean annual temperature at the Park Gate station has shown a very slight increase since 1976 (Figure 6) but it is not statistically significant. Mean temperature in the winter months (December-February) is increasing more compared to the other seasons. Mean annual temperature at the Akamina Station has shown an increase but it also is not statistically significant. Mean temperatures in all seasons are showing an increase.

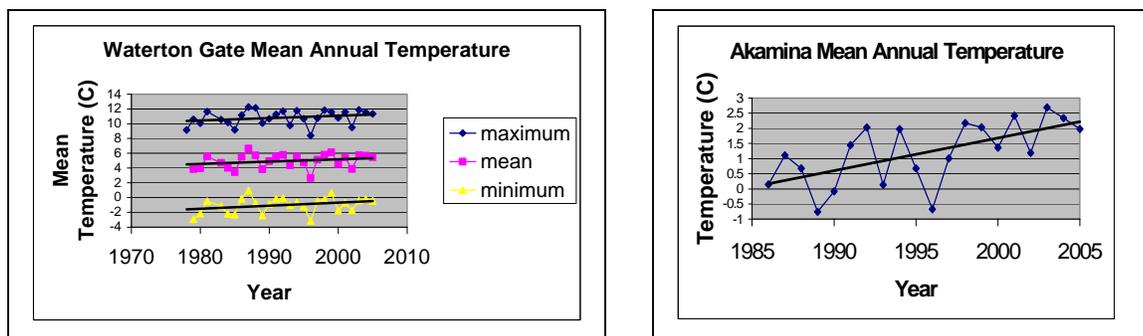


Figure 6

Thawing Degree Days (mean temperature above 0 degrees Celsius between March 1 and October 31) stayed fairly constant at the Park Gate station while the Akamina station has shown an abrupt increase (Figure 7) which is statistically significant. However, there are still fewer thawing degree days at the Akamina station than the Park Gate station. Both situations highlight the steep climate gradient that exists in Waterton. These data suggest that the west end of the park is warming at a much quicker rate when compared to the east boundary. If the trend continues, a shift in plant and animal species may begin to take place.

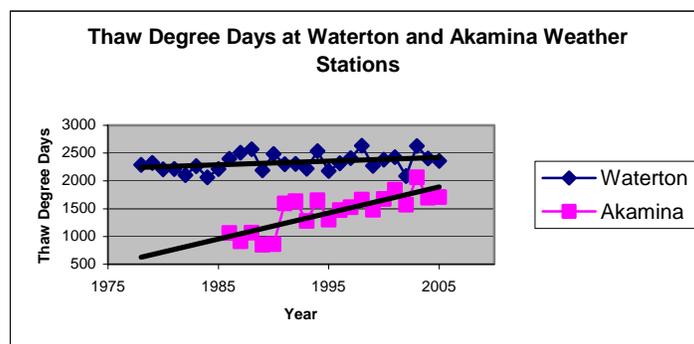


Figure 7

Aquatic Ecosystems

Streams, rivers, lakes, and wetlands comprise the aquatic ecosystems in Waterton Lakes National Park. This indicator reports on the physical environment in which aquatic organisms live and how that environment is changing. It also considers two species whose presence depends on a healthy aquatic environment and which are proxy measures for condition. The park’s mountain waters are cold, high in oxygen and have low nutrient levels and little plant life. The aquatic ecosystems support 23 species of fish (of which 5 are introduced), 4 of reptiles and 6 of amphibians, plus many species of waterfowl. There are 164 recorded species of phytoplankton and other invertebrates.

Table 4: Aquatic Ecosystems

Bioregional Measure	Condition/Trend	Park Specific Measure	Condition/Trend
1. Water Quantity		3. Bull Trout Redd Counts	
2. Aquatic Connectivity		4. Trumpeter Swan	

Aquatic ecosystems are rated as being in good condition with a declining trend.

The aquatic ecosystems are vulnerable to disturbance from activities such as stream bed manipulation to protect roads and facilities, flood plain development and past fish stocking. Often, the most productive habitats are concentrated where land and water meet, a strip of land known as the riparian. These are also places where human activity is largely concentrated, putting pressure on these habitats. Restoration of some aquatic ecosystems has begun. Fish stocking is no longer practiced, and more stringent angling regulations are helping to protect native bull trout.

Aquatic connectivity is rated as fair, based on a survey of 33 fish passage culverts in 2006. 66% create some degree of barrier. Culvert barriers can increase over time because of plugging and scouring and consequently the trend is shown as declining.

Bull trout is a threatened species in Alberta. They are found in small numbers in a few rivers in the park. Surveys of spawning beds indicate good conditions but the lack of comparable surveys prevents an assessment of trend.

Trumpeter swans are dependent on clear, clean water conditions and are a proxy for water quality. A small number are found in the park, part of a small regional population. Only a couple of recent surveys have been conducted and the information base for the park is too small for this measure to be rated at present but it will be assessed in future years as monitoring continues.

Water Quantity

The water quantity measure is based on flow records from 1948 to 2005 for the Waterton River where it flows out of the park. Water volume has varied year to year. This is to be expected as snowfall, precipitation and temperature, which all have effects on hydrology, also experience year-to-year fluctuations. Since the late 1970s, annual discharge has generally been less than in previous decades. This is congruent with precipitation levels, which also are decreasing. For the most part, water quantity is most closely tied to climate, which has the greatest effect on flow. Mean stream flow was calculated and the state of water quantity was assessed by using one (yellow lines) and two (red lines) standard deviations away from the mean. Water quantity is within an acceptable range of variability (Figure 8). The area between the yellow lines indicates good conditions; the area between the yellow and red lines indicates fair conditions while the area beyond the red lines indicates poor condition.

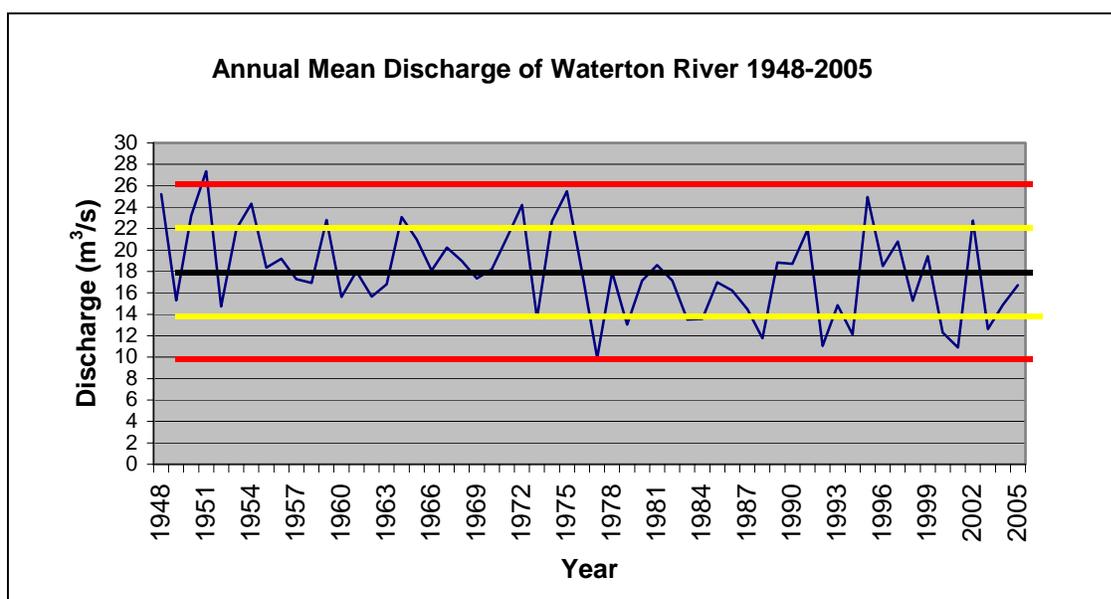
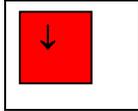


Figure 8



Terrestrial Ecosystems

The terrestrial ecosystems indicator examines impacts to native vegetation from a variety of stressors.

Table 5: Terrestrial Ecosystems

Bioregional Measure	Condition/Trend	Park Specific Measure	Condition/Trend
1. Non-native Plants		3. Rangeland Enclosures	
2. Exotic Pathogens			

Terrestrial ecosystems are assessed to be in poor condition with a declining trend.

In general, the park’s vegetation, and therefore its habitats and ecosystems, is becoming less diverse, largely because of past fire suppression and the invasion of non-native plants and pathogens. Non-native invasive plants have altered some plant communities as they can out-compete and eventually extirpate native plant species.

Almost 10% of the park’s 1001 vascular plant species are non-native. 27 are actively controlled along park roads but there has been an increase in the concentration of plants and in the areas of infestation. The condition of this measure is poor and declining.

An objective of the management plan is to maintain the native fescue grasslands which are a characteristic feature of the park. Five sites are fenced in order to provide a baseline against which to measure the role of grazing in maintaining the fescue elsewhere. The comparison of vegetation on transects inside and outside the enclosures indicates stable conditions. Active restoration of approximately 8 ha of Fescue/Danthonia grassland at the Trade Waste Pit is underway. Ecological integrity is high, with a stable trend.

Exotic Pathogens

White pine blister rust is an introduced pathogen that is severely harming whitebark and limber pine communities throughout western North America. Whitebark pines have no natural immunity to white pine blister rust and few defences to ward off mortality.

An action in the 2000 park management plan is to “Actively manage.....stands of vulnerable species (e.g. whitebark and limber pine) to promote resistance to exotic pathogens...”. (Section 3.10.3.1).

Waterton Lakes National Park and the surrounding area exhibited some of the highest rates of infection and mortality in whitebark pine in a 2003/04 regional study. Between 1996 and 2003/04, infection rose from 43% to 71%, and mortality from 26% to 61% within eight stands in the park that were re-measured.

An average of 53.34% of whitebark pine trees were found dead per plot based on data from 15 study plots. The range was from 10% to 91.67%. The average percentage of whitebark pine trees infected per plot was found to be 71.47%. The range of percent infected trees per plot was from 22.22% to 96.55%. Of further concern was the poor regeneration, as some plots had no seedlings established, and on plots that had seedlings, many of them were already infected with the rust. Limber pine is showing a similar trend.

Limber pine is showing a similar trend, with 37-56% of the trees on 8 plots dead and 48-59% of the remaining live trees showing infection by white pine blister rust.

The condition of this measure is poor, with a declining trend.



The Landscapes indicator considers influences occurring on a landscape level, some of which extend beyond park boundaries.

Table 6: Landscapes

Bioregional Measure	Condition/Trend	Park Specific Measure	Condition/Trend
1. Landscape Composition		4. Regional Ecosystem Change	
2. Regional Road/Trail Density			
3. Area of Disturbance (Fire)			

The condition of this indicator is assessed as poor, with an improving trend.

Because of its small size, Waterton Lakes National Park can be affected by developments on surrounding lands. In particular, many wildlife species move in and out of the park and a growth in the number of roads and structures fragments habitat and creates barriers to

movement. Views from the park can also be affected. Within the park, human and natural influences can alter ecosystems and habitats.

Regional road and trail densities have not been calculated for this State of the Park report but major roads surrounding the park have stayed constant since the 1940s. Smaller roads, associated with industrial and residential development have increased.

The fescue grasslands of the Foothills Parkland Ecoregion are an important part of the park and historically they were maintained by fire, both from natural causes and from aboriginal burning. A century of fire suppression has reduced the size of the grasslands. Forests in the Montane and Subalpine ecoregions have become overgrown and dense. An action in the management plan is to “Use prescribed fire to restore at least 50% of the long term fire cycle” (Section 3.10.3. 1), in order to restore natural processes. The cycle has been determined for each ecoregion in the park and since 1990 1876ha have been burnt by prescribed fire and 1541ha by natural fire, almost all of it in the Foothills Parkland ecoregion. Targets have not been achieved because weather conditions, notably wind, reduce safe burning periods to 3 – 5 days a year. The measure for fire disturbance is assessed as in poor condition but with an improving trend because of the re-introduction of fire.

There has been increased fragmentation of the landscape around the park, especially on the eastern side, where some townships now average about 50 structures compared to 5 per township on the northern side. In recent years the Nature Conservancy of Canada has successfully implemented the Waterton Park Front project to secure 110 sq. km. of important ranchland habitat through purchase and covenants in order to prevent subdivision. This is the largest private conservation initiative in Canada and it has provided a major buffer to the park. The measure for regional ecosystem change is consequently assessed as fair, with an improving trend, though concerns remain about continuing subdivision possibilities to the east.

Landscape Composition

Waterton Lakes is the only national park containing foothills fescue grasslands. The ecosystem was traditionally maintained by fire and ungulate grazing but fire suppression and the elimination of free roaming bison have allowed aspens and conifers to encroach on a once open prairie.

Repeat photography was used to examine the expansion of aspen and conifer cover in the foothills parkland ecoregion. By comparing photographs from 1889, 1939 and 1999 the extent and rate of expansion of deciduous and coniferous trees over an area of 76.3 hectares was calculated. Aspen cover rose from 2.6% in 1889 to 20.1% in 1999. The number of shrub patches increased from 27 in 1889 to 39 in 1999 while grassland patches decreased from 42 to 22. The study showed that, overall, 373ha of grassland have been lost over a period of 110 years. 47% (175 ha) of this grassland was replaced by aspen cover, 38% (140 ha) was replaced by mixed shrubland communities and 7% (26 ha) was replaced by willow shrubland.

Number of patches (approx. >1600m²) encountered along survey lines in 1889, 1939 and 1999
 (Table 4.1 from Levesque, 2005)

Number of Patches				
Landcover Description		1889	1939	1999
Vegetated				
1	Aspen Forest	10	29	40
2	Coniferous Forest	1	2	5
3	Cottonwood Forest	0	6	8
4	Mixed Forest	0	1	1
5	Shrub Complex	27	36	38
5a.	Willow Shrubland	8	9	9
5b.	Mixed Aspen-Willow Shrubland	11	0	0
5c.	Shrubland	8	27	29
6	Wetland	5	4	7
7	Exposed Vegetated Shoreline	0	3	5
8	Grassland	42	29	22
Unvegetated				
9	Anthropogenic	0	4	2
10	Rock/Sand/Gravel	13	8	7
11	Water	18	4	3

Figure 9

Because of the continuing loss of native fescue grassland, this measure is assessed as in poor condition with a declining trend.

3.2 Cultural Resource Management

Overview

Parks Canada defines a cultural resource as a resource that has historic value. It can be a human work, a place that gives evidence of human activity, or an object or place having spiritual or cultural meaning.¹ In national parks, cultural resources often reflect the human interaction with the natural environment.

Cultural resources consist of National Historic Sites (NHS) and other resources which have historic value but are not of national significance. They can include cultural landscapes, archaeological sites, historic objects and federal heritage buildings. There are separate management plans for NHS' and they are not addressed in this State of the Park Report.

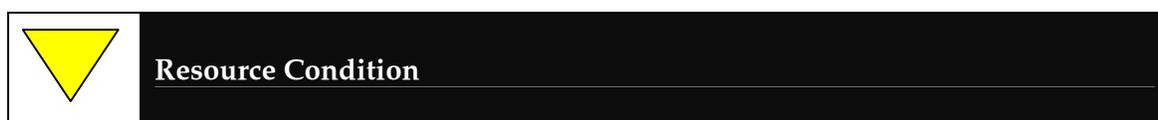
¹ Parks Canada Guiding Principles and Operational Policies; Cultural Resource Management Policy.

The evaluation of cultural resources uses three indicators: Resource Condition, Effectiveness of Communications and Selected Management Practices. Condition is assessed on the basis of quantitative and qualitative data, expert opinion and accumulated knowledge related to a suite of measures. Due to data limitations, trends are not reported.

Comprehensive cultural resource inventories have been developed; however, data gaps exist related to the current condition of some resources due to a need for database updates and enhanced monitoring and evaluation of resources. No information is available about the effectiveness of human history messages.

Resource Condition and Selected Management Practices are rated as in fair condition. Effectiveness of Communication is rated as poor, though data are limited.

Evaluation



Human history in the park dates back at least 10,000 years. The park encompasses close to 300 archaeological sites, 43,000 archaeological artifacts, 62 historic objects and a number of historic buildings, including 19 recognized federal heritage buildings.

Table 7: Resource condition

Measure	Condition
1. Landscapes and Landscape Features	
2. Archaeological Sites	
3. Objects	
4. Buildings and Structures	

Resource Condition is rated as fair.

Landscapes and landscape features are stable and require no mitigative action. The majority of archaeological sites are in good condition and an inventory, with a GIS map layer, has been completed. Most objects are in good condition but a thorough cataloguing is required. Buildings and Structures are in poor condition and there is a backlog of evaluations.



Effectiveness of Communications

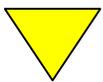
The significance of Waterton Lakes National Park’s history is communicated through personal and non-personal media, including staff and partner presentations, interpretive panels and displays, brochures, special events and the park’s web page. Delivery of cultural messages is made possible through partnerships with groups such as the Waterton Natural History Association, First Nations, surrounding-area museums, and the village of Waterton.

Table 8: Effectiveness of Communications

Measure	Condition
1. Message Identification	
2. Message Delivery	
3. Message Effectiveness	
4. Message Comprehension	

The Effectiveness of Communications is rated as in poor condition.

Messages have not yet been identified.



Selected Management Practices

Strategies and actions are listed in the park’s 2000 Management Plan but there is no Cultural Resource Management Plan.

Table 9: Selected Management Practices

Measure	Condition
1. Inventory and Evaluation	
2. Cultural Resource Management Strategy	

Selected Management Practices are rated as fair.

Existing inventories give a comprehensive indication of cultural resources that exist in the park. Databases require updating and evaluations are needed.

3.3 Heritage Resource Protection - Key Issues and Challenges

1. recovery plans are required for species at risk
2. a long term monitoring program is required, with realistic and achievable targets and methodologies
3. reduced aquatic connectivity requires attention
4. the continued invasion of non-native plants and pathogens requires aggressive action
5. the encroachment of aspen and shrubs into the fescue grassland is a serious concern
6. the inability to achieve prescribed fire targets, especially in the grassland, is a concern
7. the trends and effects of climate require monitoring
8. as part of the Public Education program, monitoring of message effectiveness should include cultural resources

3.4 Visitor Experience

Overview

Waterton Lakes National Park has been involved in supporting memorable visitor experiences for over 100 years, with an ongoing reputation for service excellence. The challenge is to continue to do this in a changing world. Knowing who our visitors are, what their expectations are and how we are meeting their needs is essential to ensuring that visitors continue to enjoy the park.

Parks Canada has established four national indicators to measure the state of Visitor Experience: Understanding Visitors, Providing Opportunities, Quality Service, and Connecting Visitors Personally with the Place. This State of the Park Report represents the first opportunity to apply these indicators to Visitor Experience in Waterton Lakes National Park.

There are trend series data for visitors entering the park and using facilities such as campgrounds, information centres and backcountry trails, though data collection methods have changed at times. Other data rely on occasional surveys, such as the comprehensive Patterns of Visitor Use study in 2005, which are helping to improve knowledge.

The indicator for Understanding Visitors shows good condition, with an improving trend. Providing Opportunities and Quality Service are rated good and stable. Connecting People Personally with the Place is given a rating of fair, with a stable trend.

Evaluation



In order to set the stage for a memorable experience, Parks Canada must first understand its visitors (their characteristics, visitation trends and how and whether these visitors can be segmented to better target opportunities for memorable experiences), as well as potential new markets.

The number of park visitors rose steadily throughout the post-war period and hit a peak in the early 1980s, followed by a drop until a second peak in the late 1990s/early 2000s. The methodology for reporting visitor numbers has changed a couple of times but a very long time series of data is available, back to 1910. During the 1990s, annual numbers averaged 355,000. There was then a four year period, from 1998 to 2001 when numbers exceeded 400,000 (average of 418,000). Since then, numbers have returned to an average of 365,000, about 3% above the 1990s average. For the 10 years since 1997, the average annual number of visitors has been about 390,000

Table 10: Visitor Numbers

	Visitors
1989	338,157
1990	353,908
1991	344,026
1992	345,662
1993	344,453
1994	389,510
1995	360,850
1996	346,573
1997	369,435
1998	415,636
1999	424,948
2000	416,662
2001	414,729
2002	395,390
2003	362,312
2004	367,454
2005	364,866
2006	363,119

In 2005, 46% of visitors were Albertans, 37% were from the United States and 9% were from other parts of Canada. This is noticeably different from the pattern in Banff, where 42% were Albertans and only 24% were Americans. 53% were repeat visitors. 65% of visitors were making day trips to the park. The numbers suggest that the park's market consists of regional residents and Americans making short visits as part of their visits to Glacier National Park.

Visitors can be grouped into four categories based on behaviour characteristics and expectations:

- Flow Through Visitors (20%) – These visitors tend to be less involved with the park experience than other visitor segments. 67% are first time visitors and 58% are Americans. 45% arrived and 33% exited via Glacier NP. Satisfaction with the park visit is high, though scores are lower for satisfaction with hotels, restaurants, museums and galleries. 49% went sightseeing and 36% hiked. Party spending was in the \$350 - \$900 range
- Premium Experience Visitors (8%) – 68% are Americans and 52% are first time visitors. 50% arrived and 42% exited via Glacier NP. Satisfaction is high, with 100% reporting their visit as enjoyable (83% as extremely enjoyable). 69% went sightseeing, 72% hiked and 39% took in the boat tour. 60% spent more than \$900 in the park.
- Habitual/Familiar Visitors (31%) – 94% are repeat visitors and 88% are Albertans. Only 8% arrived and 7% exited via Glacier NP. Satisfaction is generally high except in the “value for money” category. 33% went sightseeing and 38% hiked. Spending is generally lower than \$350.
- Casual Experience Visitors (41%) – these are visitors who do not stand out on any particular aspect. Americans account for 46% and Albertans for 33%. 59% are repeat visitors. 41% entered and 28% exited via Glacier NP. Satisfaction with the park is high except in the “value for money” category. Most parties spent more than \$350. 58% went sightseeing, 47% hiked and 14% took in the boat tour.

Because of the geographical distribution of national heritage places, not all Canadians can easily visit them. Consequently, Parks Canada also wants to reach out to Canadians where they live and has identified three priority markets: new Canadians, those living in urban areas and youth. Approximately 18 % of Canadians were not born in Canada (expected to rise to 30% by 2026) and almost 80 % of Canadians live in urban centres. These segments of the population represent important opportunities for Parks Canada to build awareness and appreciation for our national heritage. In the case of Waterton Lakes, Calgary is only three hours away.



Providing Opportunities

Waterton Lakes National Park provides a wide variety of opportunities for people to enjoy and appreciate the outstanding natural and cultural features. The Vision for Waterton Lakes National Park is *“A place where people celebrate the natural world, Waterton’s character is welcoming and reminiscent of its early beginnings. Visitors find relaxation, renewal and pride in our country’s foresight for the park’s creation and in our continuing care of this special part of Canada and the world”*.

Besides the many commercial facilities provided in Waterton Village, there are also a golf course, riding stable, boat tours on Waterton Lake, canoe rentals at Cameron Lake and guided hiking on park trails. The park has three campgrounds, with 391 campsites, 200km of trails and numerous picnic sites and viewpoints. Scenic roads provide access to Blakiston Valley, Red Rock Canyon, Cameron Lake and the Belly River. All parts of the park can be reached by day hiking.

Camping has been very constant for the last 35 years, with an average of 30,371 parties each year. There was a peak between 1998 and 2001, coinciding with the peak in total visitors. Figures for the last 15 years are:

Table 11: Camping Parties

	Camping parties
1992	27,380
1993	29,888
1994	33,021
1995	30,377
1996	31,517
1997	27,968
1998	32,487
1999	34,830
2000	33,112
2001	34,484
2002	30,863
2003	25,563
2004	28,122
2005	28,226
2006	30,305

Visitors tend to participate in “soft” recreational activities, with driving and sightseeing being the most popular. The top ten activities are:

Table 12: Activity Participation in Waterton Lakes National Park

Activity in Waterton Lakes National Park	Proportion Who Participated
Driving and sightseeing	49%
Hiking	44%
Strolling	34%
Driving	33%
Eating in a restaurant	32%
Sightseeing at landmarks	22%
Viewing wildlife	20%
Leaving the park	17%
Eating (outside a restaurant)	13%
Boat tour	11%



Quality Service

Parks Canada’s goal is to deliver consistently high quality services that meet or exceed visitors’ needs and expectations. The measure of success is that at least 85% of visitors should be satisfied with their visit and at least 50% should be very satisfied.

The most comprehensive assessment was conducted as part of the Patterns of Visitor Use survey in 2005. 75% of visitors rated their visit as “extremely enjoyable”, indicating that Parks Canada clearly exceeds its target. “Hiking trails” and “Friendliness of Parks Canada staff” achieved the highest scores, 4.7 out of 5.

The highest satisfaction scores (out of 5) are:

Table 13: Satisfaction with Visit Elements

Visit Element	Total
Hiking trails	4.7
Friendliness of Parks Canada staff	4.7
Service in official language of	4.6

choice	
My visit as a recreational experience	4.6
This visit as a memorable experience	4.6
Park staff courteousness	4.6
Friendliness of business staff in park	4.5
Overall satisfaction with visit	4.5
This visit meeting your expectations	4.4
Park staff knowledge	4.4

The lowest scores (out of 5) are:

Table 14: Satisfaction with Visit Elements

Availability of education/interpretive programs	3.8
Value for money at attractions in park	3.8
Value for camping fee	3.5
Value for money at restaurants in park	3.4
Value for money at hotel in park	3.3

The figure below (Fig. 10) shows both the importance visitors attach to ten different attributes and visitors' satisfaction with these attributes. Of the attributes that are important, four have satisfaction levels that are high (a score greater than 4 out of 5). Two attributes that are important to visitors but for which satisfaction was lower are "high quality service" and "value for money".

Comparison of Satisfaction with Opportunities and Importance of Opportunities in Waterton Lakes National Park

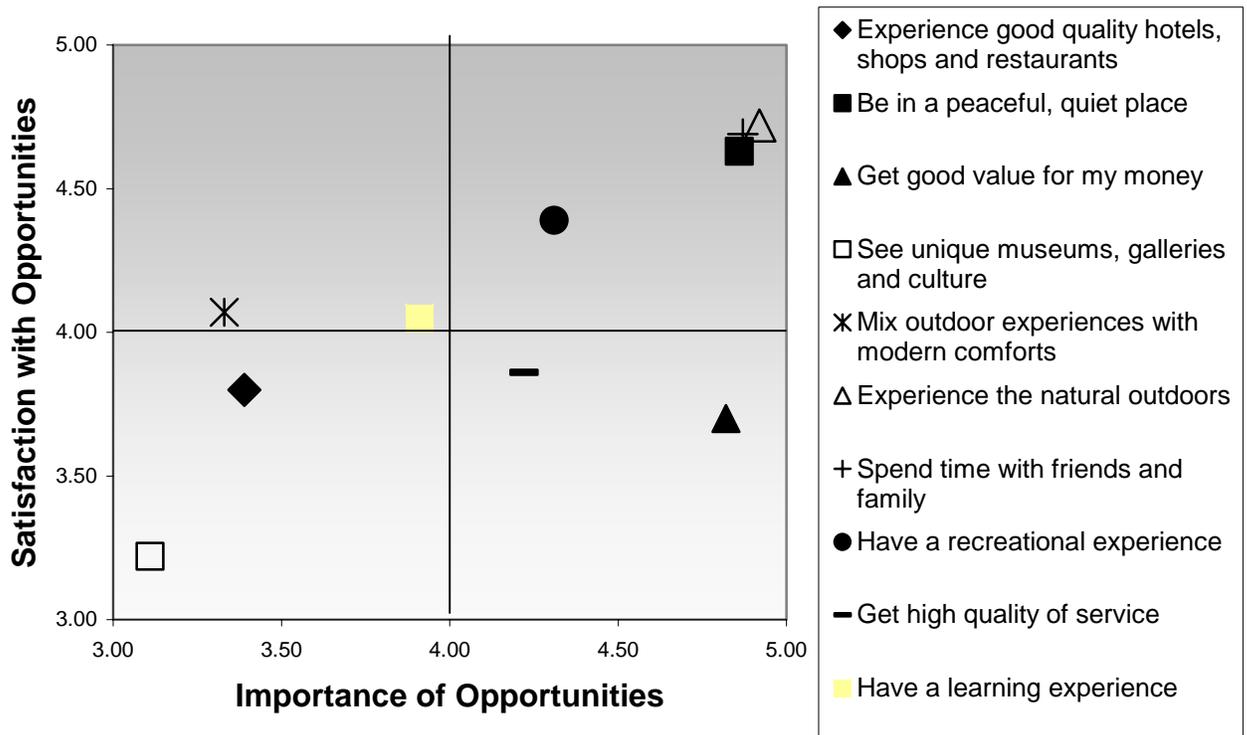


Figure 10

Connecting Visitors Personally with the Place

Parks Canada’s objective is not only to provide opportunities that are reflective of and appropriate to national parks and national historic sites, but also to facilitate meaningful, personal connections with these heritage places. The result of personal connections will be that the national parks and historic sites will continue to be relevant to and supported by Canadians.

Personal contact with knowledgeable individuals in the park setting helps to create lasting connections. Experiences that involve personal accomplishment or growth, such as climbing a mountain or learning to appreciate something new, also contribute to a memorable experience. Linkages between place and the visitor’s own culture facilitate understanding and connection.

Information is available to visitors in many formats before, during and after their visits. A variety of educational opportunities are provided in Waterton Lakes National Park, via interpretive programs, displays and roving staff. Only 6% currently take in interpretive programs.

Another measure of connection is the level of understanding of the importance and value of heritage places. While relatively little information is available to fully understand this element of personal connection, more will be done in the future. As a first step in exploring visitors' understanding, Parks Canada examined visitors' recognition of heritage themes. On average, visitors answered 2.4 of seven true/false questions correctly, with little variation between Albertans and other visitors.

Another means of gauging personal connection is the likelihood of a repeat visit. 53% of all visits were repeat visits. The figure is 80% for Albertans, 47% for visitors from BC, 43% from other parts of Canada and 28% for Americans.

3.5 PUBLIC EDUCATION

Overview

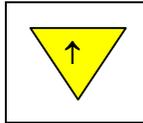
For most visitors, a visit to a national park is a departure from their daily routine and an opportunity for new learning. Parks Canada and its partners provide information, opportunities and facilities so that people can have safe, enjoyable and rewarding experiences. The high percentages for satisfaction levels and repeat visits indicate success.

One of the three "pillars" of the Parks Canada mandate is Public Education. With interesting, useful and accurate information, people can not only enjoy their visits more but also appreciate the importance of heritage places and contribute to their integrity and sustainability.

Parks Canada is developing four national indicators to measure the state of Public Education: Understanding Audiences, Extending our Reach, Facilitating Understanding, and Influencing Attitudes. They are still in development. New methods of data collection will be required to accurately report on these indicators in the future. Past intermittent surveys which were used for other purposes are of limited value. As with Visitor Experience, this State of the Park Report represents the first opportunity to view Public Education in Waterton Lakes National Park in terms of these indicators. A limited amount of information is presented in this section. No data are available about the total number of people who are reached by the various programs, the understanding that is imparted and the long-term influence on attitudes, understanding and behaviour.

Based on the limited information that is available, *three of the indicators are rated as in fair condition, with an improving trend* to reflect ongoing work. They provide a baseline for comparison in future State of the Park Reports. *The "Influencing Attitudes" indicator cannot be rated* because of a lack of suitable data.

Evaluation

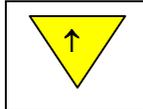


Understanding Audiences

Traditional methods of public education need revisiting, as today's visitors are more comfortable directing their own experiences and learning through hands-on opportunities. The market segments identified in the Visitor Education section provide an insight into the use patterns, needs and expectations of the park's visitors.

One very important segment is the Habitual Users, the repeat regional audience that comprises 31% of park visitors and makes about 45 % of park visits. 88% are Albertans. Surveys indicate a low participation by this group in current learning programs e.g. only 53% of Albertans read interpretive panels, compared 70% of BC visitors and 61% of American visitors.

58% of visitors report that they read interpretive panels and 14% were approached by roving park staff. Other educational activities had participation rates below 5% of total visitation.

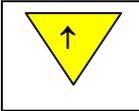


Extending our Reach

Parks Canada alone cannot reach more than a limited percentage of visitors. For the majority, their primary contact is often with hotel and retail store clerks, from whom they obtain information. Many of these people are, themselves, new and temporary residents with limited knowledge of the park. The high number of repeat visitors from nearby parts of Alberta mostly rely on their own past experience for information – 65% reported this as their primary form of knowledge. Other visitors relied more on guidebooks, maps and the Parks Canada website.

Some examples of the ways in which Waterton Lakes National Park has extended its reach by working with partners are the Wildflower Festival with the Trail of the Great Bear and the Land Care program with the Piikani First Nation. A partnership with the Alberta Motor Association resulted in Parks Canada information inserts in 450,000 copies of Westworld magazine.

On a national level, Parks Canada is extending its Public Education reach into the nation's school systems through an online *Teachers Corner* resource and through the coordinating efforts of nine regional Education Specialists. In Alberta, examples of participation in the classroom include development of a Science-in-a-Crate Biodiversity Kit produced in partnership with the Province of Alberta and a partnership between Parks Canada's Alberta Education Network and Alberta Parks, Tourism, Recreation & Culture to develop online materials on protected areas in Alberta for the 2007 Grade Four Social Studies curriculum.



Facilitating Understanding

Waterton Lakes National Park facilitates public understanding of the park's heritage through its own educational and interpretive programming and through partnerships with the Waterton Natural History Association, the Crown of the Continent Ecosystem Education Consortium and others. Because of the park's close association with Glacier National Park as the Waterton-Glacier International Peace Park World Heritage Site, many programs have a broader regional ecosystem focus e.g. the Year of the Great Bear, the International Year of Mountains and the Wonder of Water.

New interpretive exhibits have been developed throughout the park and there has been an emphasis on providing information about safe viewing of bears. This includes a roving "Living with Wildlife" exhibit and crew who provide on-the-spot interpretation at "bear jams" and who improve resource protection by keeping bears and people safe from each other.

A park specific course has been developed with the Mountain Park Heritage Interpretation Association, to provide training for guides operating in the park.

Influencing Attitudes

No information is available for this indicator.

3.6 Connection to Place - Key Issues and Challenges

- The highest percentage of park visitors consists of Albertans (46%), followed by a high percentage of Americans (37%) compared to other mountain parks
- Many visitors are repeat visitors from the surrounding region who participate in activities such as sightseeing and hiking; to continue providing a memorable experience for them requires an upgrading of facilities such as roads and picnic sites which are deteriorating because of reduced maintenance; hiking trails may require more active management to avoid crowding at peak periods e.g. control of trailhead parking, restrictions on group sizes
- As the regional population continues to grow, the number of visitors is likely to continue the steady growth of the recent decades; some new viewpoints and interpretive stops would help absorb the increase; weekend crowding can be expected, especially in periods of good weather
- the increasing cultural heterogeneity of Calgary provides an opportunity to introduce new and first generation Canadians to the national parks; some alterations to facilities may be required e.g. picnic facilities designed for larger family groups
- National targets, thresholds and measurement tools are required for developing the Public Education program

4.0 COMMON MOUNTAIN PARK ISSUES

Although each park has some specific characteristics that are not shared with the others, there are enough similarities that a number of common issues have been identified in the SOPRs.

- Each park has species at risk; grizzly bears have been the focus of management action for the last 10 – 15 years and continue to require attention. The precarious situation of caribou populations has become critical in recent years in Banff, Jasper, Mt. Revelstoke and Glacier National Parks and throughout their range in Alberta and BC
- Aquatic ecosystems remain at risk from impacts from roads, railways, community waste water treatment plants, water diversions and impoundments; past fish stocking with non-native species has altered the natural characteristics of many waterbodies
- Terrestrial ecosystems have been modified by a legacy of fire suppression; currently, non-native invasive plant species account for up to 10% of all plant species in a park and are threatening native biodiversity
- Climate change is affecting all parks and is most noticeable in glacier recession; long term monitoring will help identify impacts on EI and influence decisions about what is “natural evolution” and what can or should be done to mitigate impacts

- Cultural heritage has frequently been secondary in national park management but the rich legacies of past associations with the mountains, such as thousands of years of aboriginal history preserved in archaeological sites, provides opportunities for broadening the stories that are told
- Although there are fluctuations, visitor use of all parks is stable or slowly increasing; much of this is attributable to the growth of the regional population rather than to international visitors. Coupled with other domestic demographic characteristics – an aging population, a more urban population, a wider diversity of cultural backgrounds, an increasing proportion of first generation Canadians and a prediction of an absolute decline in the Canadian population – the trends require more social science research to guide park management responses
- Comparatively little is known about the effectiveness of public education programs. The combination of changing visitor characteristics and rapidly evolving technology presents both challenges and exciting new opportunities for sharing the parks’ natural and cultural heritage with more visitors, both on site and in their homes. Many are repeat visitors and many visit several parks; programs will have to respond to these circumstances
- Changing land uses surrounding the parks require continued multi-jurisdictional approaches to issues such as the protection of species at risk and the control of mountain pine beetles. The rapid and substantial increases in the provincial park systems in Alberta and BC have provided a much larger area of complementary park management. The new parks have absorbed some use pressures from the national parks (e.g. in Kananaskis Country) and may also have deflected some visitor use by providing more choice. Similarly, the growth of second home communities and resorts has spread recreational use across a wider spectrum of destinations other than the national parks

5.0 EVALUATION OF MANAGEMENT ACTIONS

The park Management Plan was approved in 2000 and reviewed in 2003. The following table highlights some actions and results related to key strategic goals in the plan. Annual implementation reports provide additional detail about these and other park management actions and results.

Table 15: Management Actions

Strategic Goals	Management Actions	Results
Restore natural vegetation ecosystem processes	<ul style="list-style-type: none"> • eradication of exotic plant species ongoing • prescribed fire proceeding but constrained by short 	<ul style="list-style-type: none"> • spread of invasive plants partly controlled but not eliminated • inability to meet fire target

	<p>burn windows</p> <ul style="list-style-type: none"> • trade waste pit and materials storage compound removed and rehabilitation ongoing 	<ul style="list-style-type: none"> • restoration of grassland and river fan communities underway
Maintain wildlife populations; protect species at risk	<ul style="list-style-type: none"> • wintering ungulate range protected by seasonal closure of Red Rock Parkway • participation in SW Alberta Grizzly Strategy • bison re-introduction being researched • park operational facilities' footprint reduced 	<ul style="list-style-type: none"> • ungulate populations in good condition • wildlife habitat improved • improved knowledge of grizzly range • recovery plans for species at risk not yet prepared
Maintain and, where feasible, restore aquatic ecosystems	<ul style="list-style-type: none"> • benchmark waterbodies established to protect native fish species • DNA testing of bull trout undertaken 	<ul style="list-style-type: none"> • Angling eliminated from Blakiston and Bauerman Creeks and Maskinonge wetland • Restoration plans still required for aquatic ecosystems
Provide opportunities and facilities to support memorable visitor experiences	<ul style="list-style-type: none"> • Continued operation of Parks Canada facilities • Upgraded picnic and washroom facilities • Campground reservation system introduced • Crypt Lake area converted to day use to reduce conflicts with grizzly bears 	<ul style="list-style-type: none"> • Visitor numbers stable after 4 year peak in late 1990s • Continued high satisfaction ratings • Reduced wildlife/human conflicts • Improved knowledge of visitors

	<ul style="list-style-type: none"> • Comprehensive visitor survey in 2005 	
<p>Improve public education opportunities and relate them to heritage tourism</p>	<ul style="list-style-type: none"> • Annual training programs (“Discover Waterton”) for park and commercial sector seasonal staff • New interpretive exhibits in Waterton Village • Delivered programs for Year of Great Bear, International Year of Mountains and Wonder of Water 	<ul style="list-style-type: none"> • Increased provision of authentic experiences • More consistent messages provided by trained staff • Improved co-ordination with regional partners
<p>Enhance co-ordination with regional partners</p>	<ul style="list-style-type: none"> • Continued strong bond with Glacier NP, including frequent staff meetings, restoration of native vegetation and joint production of Periodic Report for World Heritage Site • Implementation of Crown of Continent Managers Partnership • Participation with Nature Conservancy in Waterton Front Project, to conserve ranchland adjacent to the park • Continued implementation of the Biosphere Reserve 	<ul style="list-style-type: none"> • Ongoing interagency regional approach to ecological issues • Maintained the globally significant values of the Waterton-Glacier International Peace Park WHS • NCC successfully conserved large area of adjacent land which is valuable for wildlife habitat and connectivity and for landscape views

<p>Introduce a comprehensive monitoring program</p>	<ul style="list-style-type: none"> • National system for Ecological Integrity monitoring in preparation, based on bioregional measures and indicators • National indicators and measures under development for Visitor Experience and Public Education • Comprehensive visitor survey in 2005 	<ul style="list-style-type: none"> • Improved data for problem identification and management decisions • Production of 2007 SOPR
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6.0 SUMMARY ASSESSMENT

- The Ecological Integrity section shows two indicators in good condition and two indicators in poor condition. Three of the four rated indicators show a declining trend; Climate and Atmosphere cannot be rated because data are available for only 20 – 30 years, which is too short to indicate trends and there are no targets or thresholds against which to assess condition
- Significantly, two of the park’s most distinctive characteristics – the fescue grasslands and the diversity of plant species – show a declining trend; this is the result of a continuing invasion of non-native species, encroachment of aspen and shrubs into the grasslands and the difficulty of achieving the prescribed fire target because of a very short suitable burning period each year.
- Historically, the grasslands were maintained by burning (both natural and aboriginal) and by grazing by bison. Research continues into the feasibility of re-introducing free ranging bison into the park and the prescribed fire program will continue. The fires which have been set and the natural Sofa Mountain fire of 2004 have been successful but a larger area requires burning to achieve ecosystem restoration to what is recorded in historical photographs and indicated by fire history research
- The park is at the juncture of several weather systems and has a large and distinctive variety of plant species, with over 1000 recorded; 10% are non-native and a number are aggressive invaders. There is active control and removal of 27 species and the program must continue indefinitely in order to prevent further proliferation, with a corresponding impact on native species

- Wildlife is in good condition, especially elk. Wildlife mortality on the park's roads is low and within acceptable limits. Because of the park's small size, grizzly bears that use the park are part of a regional population that ranges into Montana, BC and adjacent parts of southern Alberta; the regional population is small and at risk
- Aquatic ecosystems are in good condition but show a declining trend as water quantity is declining and aging culverts restrict movements for aquatic species. Park staff are actively researching the population health of bull trout and trumpeter swans. Baseline data suggest good conditions
- Short term data suggest that climate is changing, with higher temperatures and lower precipitation being recorded; the long term specific impact on ecological integrity is unknown, although the lengthening of the growing season could have implications for continued invasion by non-native plants to higher elevations
- Visitor numbers have shown a steady increase over a long time period, with a noticeable four year peak in the late 1990s; recent data indicate a drop since 2001 to a fluctuating level that is a little higher than prior to the peak. As a significant proportion of visitors are from Southern Alberta, the increase is likely related to the growth of the regional population
- Camping has remained stable for the last fifteen years
- Approximately 46% of visitors are Albertans. Compared to other mountain parks, Waterton Lakes has a higher proportion of American visitors (37%), reflecting the park's location adjacent to the international boundary and Glacier National Park. Many American visitors combine a visit to Waterton Lakes with a visit to Glacier. 65% of visitors make day trips to the park, from the surrounding region and from Glacier NP. 53% of all visitors are repeat visitors. An important subset is the "regulars" who make frequent visits; they account for 31% of visitors and 45% of all visits
- Little is known about the effectiveness of public education programs but recorded participation is low. Better knowledge of markets and the use of new technology are opportunities. Many visitors are repeat visitors, requiring different methods of contact from those traditionally used – notably the challenge of reaching them at home before they arrive at the park. 65% of these visitors rely on their own previous experience for information. There is also the challenge of keeping interpretive material fresh and interesting for this segment. The growth of resorts, second home communities and provincial parks has broadened the choice of recreational destinations for regional visitors and may have diverted some of the use which might otherwise have been seen in the park
- The park has good co-operative working relationships with regional partners for protection of the Crown of the Continent ecosystem. The Nature Conservancy's Waterton Front Project has helped conserve important adjacent lands to the north and east of the park and thereby preserved wildlife habitat and movement corridors, as well as viewsapes. Some subdivision of lands to the east of the park has occurred, resulting in some fragmentation. The Biosphere Reserve Association continues to provide a co-operative focus on the regional ecosystem

- Close working relationships exist with Glacier National Park and the jointly prepared Periodic Report for the Waterton-Glacier International Peace Park World Heritage Site indicate that the globally significant values for which the Site was inscribed are being maintained, though there is a concern about the impacts of climate change

Issues for consideration in the management plan review include:

- Enhanced strategies for protecting and restoring the fescue grasslands and the native diversity of plant species
- Strategies and recovery plans for species at risk
- Improved integration of the mandate so that Ecological Integrity, Visitor Experience and Public Education are more mutually supportive; this is notably the case for regional repeat visitors who are responsible for almost half of the park visits; the focal area will likely be the Blakiston Valley
- Increased emphasis on public education, as a means to strengthen visitor experiences and to enlist cooperation in protecting ecological integrity
- Climate adaptation and mitigation strategies
- Development of measures, targets and thresholds for Visitor Experience and Public Education indicators
- Confirmation of measures, target and thresholds for the Ecological Integrity indicator
- Enhanced recognition of the World Heritage Site and regional co-operative partnerships

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