IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 07 November 2014

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

Canadian Rocky Mountain Parks

SITE INFORMATION

Country:
Canada
Inscribed in: 1984
Criteria:
(vii) (viii)

Site description:
The contiguous national parks of Banff, Jasper, Kootenay and Yoho, as well as the Mount Robson, Mount Assiniboine and Hamber provincial parks, studded with mountain peaks, glaciers, lakes, waterfalls, canyons and limestone caves, form a striking mountain landscape. The Burgess Shale fossil site, well known for its fossil remains of soft-bodied marine animals, is also found there. © UNESCO

SUMMARY

2014 Conservation Outlook

Good with some concerns

Management of the World Heritage values have consistently been a focus of management plans in each of the mountain parks. Programs to monitor and manage threats have been identified, but implementation may be hampered by current funding conditions in the BC and federal parks. Park managers have been creative in finding alternative approaches, including collaborative partnerships and stewardship initiatives. These may have the added benefit of raising awareness of environmental issues and levels of risk to conserved values in these parks.
Geological values have benefited from protective measures designed to control access, including the use of virtual, web-based tours of the Burgess Shale site. Pressure for commercial development in the front-country is a threat to both viewscapes and biodiversity. The emphasis on increasing visitation in federal parks as a management goal and approval of two new commercial recreation projects in the front-country in recent years raise concerns regarding the ability to balance visitation and ecological integrity in the current fiscal climate. Management direction can be rebalanced in the short-term, assuming political will exists.

Current state and trend of VALUES

Good
Trend: Stable

Viewscapes and geological resources have remained relatively stable or in the case of the Burgess Shale site, improved with management attention to protect the resource. Large areas of the site remain relatively undisturbed and provide examples of natural beauty.

Overall THREATS

Low Threat

Current threats have been largely identified in current management plans. Regional development concerns may prove more challenging to address, but engagement with adjacent communities offers promise of coordinated approach to concerns.
Predicted effects of climate change have levels of uncertainty that make management planning difficult, but the need for monitoring has been identified by the mountain parks. Climate change has the potential to have significant negative effects on site's biodiversity values. However, site's geological values and its outstanding natural beauty will be less affected by the changes.

Overall PROTECTION and MANAGEMENT

Mostly Effective

Funding challenges and pressure to supplement revenues through visitor use fees will be an on-going pressure for park managers, affecting operational, research and monitoring and resource management programs. Nonetheless all Field Units continue to have a well-supported science and resource management program and base sciences and resource management capacity and financial resources exist to support conservation related monitoring and management programs. These, along with creative and innovative approaches to reducing impacts of funding challenges, as well as potential to raise awareness through involvement of a broader community in park management can help ensure the ongoing protection of the site's values.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Area of exceptional natural beauty and aesthetic importance**
  Criterion:(vii)

  The seven parks of the Canadian Rockies form a striking mountain landscape. These parks include Banff National Park (BNP), Jasper National Park (JNP), Kooteney National Park (KNP), Yoho National Park (YNP), Mount Robson Provincial Park, Hamber Provincial Park, and Mount Assiniboine Provincial Park. With rugged mountain peaks, icefields and glaciers, alpine meadows, lakes, waterfalls, extensive karst cave systems and deeply incised canyons, the Canadian Rocky Mountain Parks possess exceptional natural beauty, attracting millions of visitors annually. (R35)

- **One of the most significant fossil areas and a classic representation of on-going glacial processes**
  Criterion:(viii)

  The Burgess Shale is one of the most significant fossil areas in the world. Exquisitely preserved fossils record a diverse, abundant marine community dominated by soft-bodied organisms. Originating soon after the rapid unfolding of animal life about 540 million years ago, the Burgess Shale fossils provide key evidence of the history and early evolution of most animal groups known today, and yield a more complete view of life in the sea than any other site for that time period. The seven parks of the Canadian Rockies are a classic representation of significant and on-going glacial processes along the continental divide on highly faulted, folded and uplifted

sedimentary rocks. (R35)

Other important biodiversity values

► **Biodiversity**

The Rocky Mountain Parks encompass three life zones or ecoregions: montane, subalpine and alpine. Montane zones lie within major river valleys and support deciduous and coniferous forests, wetlands and meadow habitat, and the highest biodiversity of the three ecoregions. Forests extend through the subalpine zone, the most extensive ecoregion in the Rockies. Alpine zones are above treeline and support hardy, low-growing vegetation. A total of 56 mammals have been reported in these parks as well over 300 avian species, five amphibian and 2 snake species (R35, R54). This list includes several iconic or IUCN Red-listed species such as American pipit, golden eagle, wolf, wolverine, Montague Island hoary marmot, Clark’s nutcracker, American pika, elk, puma and caribou (reindeer) (R35).
The mountain parks support a number of species that have lost historic range due to fragmentation effects of early settlement and post-settlement development in the adjacent boreal, foothill and prairie landscapes (R45). This is particularly true for large mammals (carnivores and elk), whose range contracted considerably after settlement of the adjacent prairie landscapes. The mountain parks currently support a number of species with federal protected status under the Species at Risk Act (2012), including the Banff Springs snail, grizzly bear, whitebark pine, and west slope cutthroat trout.

Assessment information

Threats

Current Threats

Low Threat

Current threats have been largely identified and addressed in current

management plans. Management plans are relatively recent (most 2010 or later, except for Hamber PP where a management planning process will be initiated in 2014) and action plans have been identified to address concerns identified in management plans. Annual reports, where provided, suggest that implementation of action identified in management plans has been proceeded in many areas with steady progress being achieved for all areas of PCA's mandate. Regional development concerns may prove more challenging to address, but engagement with adjacent communities offers promise of coordinated approach to concerns.

► Housing/ Urban Areas

Low Threat
Inside site
Outside site

Growth within and adjacent parks is driven in part by attraction to quality of life and recreational opportunities offered by the mountain parks. Urban growth of communities within national parks is managed through growth limits set by laws and regulations. The Town of Banff is the exception; it is now managed by the Banff Town Council within limits established by laws and regulations. All Mountain national parks have a legislative and policy framework that sets specific limits for growth and commercial development in communities, for outlying commercial accommodation areas and for ski areas that effectively manage potential negative impacts to ecological integrity. To mitigate potential conflict in management objectives, most of the mountain parks have identified the need for stewardship programs to ensure that the commercial operators consider environmental impacts in managing their activities (R37, R7 R8, R39, R19, R11, R42). Public programs are similarly focused on stewardship and park management messages (R37, R5).
Parks Canada and BC Parks participate in a broader interagency coordination group (Central Rockies Ecosystem Interagency Liaison Group) with other land management agencies (R37, R7 R19, R11, R42, 24). JNP, KNP, Mt. Robson PP and Mt. Assiniboine PP also sit on various regional land use groups (R37, R7, R19, R11, R57) and so have input into regional land use decision-making.

► Commercial/ Industrial Areas

Low Threat

Inside site
Outside site

Commercial and industrial growth is closely managed within federal and provincial mountain parks and recent developments have proceeded with considerable attention to ecological integrity (R37, R7, R19). Parks Canada manages and limits development through the National Parks Act and regulations, Parks Management Plans, Outlying Commercial Accommodation Guidelines and the environmental review process. All of these identify specific growth limits designed to ensure ecological integrity is preserved. JNP and BNP are most attractive to commercial recreation. They have confirmed the intent to manage such growth in their 2010 management plans (R37, R5). However, controversial expansions of commercial recreational operations have been approved in the past few years in JNP (e.g., Brewster Glacier Discovery Walk, JNP, R31), and BNP (expansion of summer use at Mt Norquay, R26), suggesting significant pressure by development interests. YNP has allowed for front-country development around Field, BC in its 2010 plan (R57).
BC Parks has consistently held conservation and recreation goals for its mountain parks (R19, R11, R17, R18), which has historically limited commercial development. Current management plans limit commercial development and improvements to proposals consistent with those goals (R19, R11, R17, R18).
JNP and BNP participate in collaborations and partnership research initiatives, the results of which are used by governments and resource based industries adjacent to the park to better manage potential impacts of commercial and industrial operations adjacent the park (R37, R39),

► Tourism/ visitors/ recreation

Low Threat
Inside site
Outside site

Attracting visitors and providing tourism opportunities within the context of protecting ecological integrity, have been consistent management objectives in all of the federal mountain parks (R37, R7 R42, R57). BC provincial parks emphasize provision of outdoor recreation experiences with less emphasis on visitation, but highway access in Mt. Robson PP has facilitated high visitation to some sites (R19, R11, R17). The bulk of visitor activity in these parks

occurs within montane valleys, where much of the mountain biodiversity also resides (R19). Promotion of activities and tourism developments within key habitat could displace or disturb critical species (e.g., carnivores, special status species, R37, R7 R19, R42). All federal mountain parks have introduced various and effective strategies to manage trail visitor use and to improve the habitat and the effectiveness of wildlife movement corridors, as well as education programs to encourage sensitive use and reduce impacts to sensitive wildlife species. (R37, R7 R19, R42). Significant terrestrial and aquatic restoration work to repair damage to habitat continues in several parks (R19, R11, R17, R42).

► Roads/ Railroads

Low Threat
Inside site
Outside site

Major highways and rail lines travel through the montane valleys of several mountain parks, creating a risk of wildlife mortality, blockage of movement (including aquatic species) or introduction of non-native species (R37, R7 R19, R42, R24). These parks have implemented various significant mitigation measures to reduce wildlife mortality and improve aquatic connectivity. Significant financial resources have been invested in wildlife crossing structures.
Road mitigation has been more successful than rail, but research on rail-related mortality is ongoing with railway operators including CP In Banff and CN in Jasper (C2). Mt Assiniboine and Hamber PPs are isolated from such major access corridors, but they and the other parks note that access into backcountry areas via resource roads may affect wildlife and introduce non-native species (R37, R7 R19, R11, R17, R42, R57). This issue is being managed through coordination with other agencies. Access to the Burgess Shale and other fossil beds is closely managed by the respective park managers, through electronic surveillance, enforcement personnel and access restrictions (R19, R57).

► Flight Paths

Very Low Threat

Inside site
Outside site

Several parks noted the increasing use of planes and helicopters to access or view the backcountry, potentially disturbing wildlife or alienating wildlife from habitat (R37, R19, R11, R17). Regulatory tools and flight guidelines are in place to manage take off and landing in the parks.

► Mining/ Quarrying, Logging/ Wood Harvesting, Oil/ Gas exploration/development

Low Threat
Outside site

Most of the mountain parks abut active resource extraction areas (forest harvest, oil and gas, and mining areas) and park managers have identified potential impacts to wildlife movement and species at risk (e.g., grizzly bear, woodland caribou) posed by such activities (R37, R7 R19, R11, R42, R57). Considerable research has been done to confirm mining and other industry impacts predicted for wildlife in the park after approval of the Cheviot Mine, including the 5 year Model Forest Grizzly Bear Study, work on mountain sheep, harlequin duck, fish and water quality (R3, R40). Analysis of monitoring data has shown that reclaimed mining areas are providing better habitat than originally predicted for grizzly bear (R40). The Foothills Research Institute has conducted other work in conjunction with the University of Alberta and other institutions to investigate cumulative effects of development along the eastern boundaries of JNP (http://foothillsresearchinstitute.ca/pages/Programs/default.aspx).
The Cheviot site and Coal Valley sites remain active. Two mines in this area (Luscar and Gregg River Mines) are being closed and reclamation planning will incorporate these findings and aim to maximize biodiversity (R40). Forestry and oil and gas development remain important activities on the east and west sides of the mountain parks.
Participation in the Yellowhead Ecosystem Group and the Foothills Research Institute allows JNP to collaborate with regional industrial interests (R36, R37, R39). Mt Robson PP participates in regional land use groups for similar purpose (R19). All of the mountain parks belong to the Central Rockies Ecosystem Interagency Liaison Group, which allows coordination with other government agencies involved in regulating resource management beyond

the parks, although in recent years, this group has not been very active (C3).

► Tourism/ visitors/ recreation

Low Threat
Inside site
Outside site

All of the mountain parks identify management of recreational impacts and have identified strategies to limit, monitor and regulate recreational use as appropriate to the level of risk (e.g., through management zones, R37, R7 R19, R11, R17, R42, R57). The parks with good highway access (BNP, JNP, KNP, YNP and Mt. Robson PP) have identified sites of higher use that require specific management (R37, R7 R19, R42, R57).
The multiple management objectives of increasing visitation, promoting environmental stewardship and maintaining ecological integrity has shifted to favor visitation in the management plans of each federal park (R37, R7 R42, R57). The goal to increase winter visitation and improve front-country accommodations in YNP is the most explicit example, but recent ministerial approval of a new commercial operation in JNP (R31) and all season use of a ski hill in BNP (R26) suggests a favorable political environment for such developments. Special events, designed to draw new visitors into the parks, are unlikely to significantly increase new environmental impacts as most of these activities are located in highly developed locations within the parks (e.g., Banff town site or nearby popular tourist areas). However, congestion and displacement impacts are experienced (slightly) by local residents and traditional recreationists, because of these events (R65). Anecdotal reports of human use affecting sensitive wildlife species or causing human-wildlife conflicts have been raised (C5). BNP and JNP have implemented management strategies designed to minimize human wildlife conflicts and have increased use of closures in sensitive wildlife areas to minimize disturbance (R6, R37). BNP reported reduced bear human conflicts in 2010-11 (R8). JNP did report some wildlife incidents near townsites in 2011 but did not indicate whether such incidents had changed from past years (R39).

► Housing/ Urban Areas

Low Threat
Outside site

The communities adjacent to those parks accessible by highway have had a

growing market for recreational properties in recent years (R37, R19, R42). These parks participate in regional land use and community groups where their concerns can be tabled and incorporated into land use decision-making in these communities. Mt Assiniboine PP has identified the need to raise awareness of the value of the park to local communities in its updated management plan (R11).
In 2000 the government of Canada introduced regulations defining both the community boundary and limits to commercial space and growth within the National Park communities. Changes to these limits would require amendments to the Canada National Parks Act. In 2010 the Banff, Kootenay, Yoho and Waterton Lakes National Park management plans, the Government of Canada affirmed limits to growth in these national parks.

► Fire/ Fire Suppression

Low Threat
Inside site
Outside site

All the mountain parks have recognized the impact of past fire suppression in limiting natural ecological cycles, creating insect and disease concerns and increasing wildfire risk to property (R37, R7 R19, R11, R42, R57, R18). As part of a broader Parks Canada program these parks have established prescribed fire programs designed to maintain diversity by restoring 50% of the natural fire cycles. They have also initiated Fire Smart programs with communities and commercial operations in the park to help manage wildfire risk.

► Invasive Non-Native/ Alien Species

Low Threat
Inside site
Outside site

All parks have identified issues related to invasive and non-native species (R37, R7 R19, R11, R17, R42, R57). Programs to limit the spread of such species and control known populations are ongoing and have been implemented and in some cases through coordination with other land agencies (JNP, R37). Complete eradication may not be possible and efforts currently focus on areas of higher impact (R37, R7 R19, R11, R17, R42, R57,

C2).

► Solid Waste

Very Low Threat
Inside site
Outside site

Waste management is identified as either a stewardship concern (R42, R57) or a direct management program (R37, R5). JNP in partnership with Municipality has initiated community recycling programs to help raise awareness and divert materials from waste facilities within the park (R37).

► Dams/ Water Management or Use

High Threat
Inside site
Outside site

Smaller dams and highway culverts within many parks have been modified or identified for modification to help restore aquatic connectivity with modifications having already been made in BNP, JNP, YNP, and KNP (R37, R7 R19, R42, R57). Larger dams in BNP have dewatered significant portions of Bow Watershed (3-5 km of Cascade River dewatered completely, C2). Water use in the provincial parks where existing licenses allow water withdrawal for commercial or industrial operations are carefully monitored (R19, R11).

► Erosion and Siltation/ Deposition

Very Low Threat
Inside site
Outside site

Areas in which erosion and siltation have been acerbated by human disturbances have been identified for restoration by park managers (e.g., BNP, R5). High use hiking and mountain biking areas may sustain more erosion impact and some of these areas have been highlighted by parks for restoration work. Anecdotal reports of very high use on some trails (e.g., the Valley of 5 Lakes Trail in JNP) resulting in soil disturbance and damage to vegetation (C5).

► Air Pollution

Very Low Threat

Inside site
Outside site

Air quality within park communities is generally very good, but both Banff and Jasper townsites Municipal governments have enacted vehicle idling by-laws to minimize potential impact and greenhouse gases (R52, R53).

► Avalanches/ Landslides

Very Low Threat
Inside site
Outside site

Avalanches are part of the natural mountain ecological cycle and create early successional habitats important to key management species such as grizzly bears. Avalanche slopes that pose a risk to human infrastructure are periodically released under controlled situations to protect transportation links and property. The disturbance mimics natural processes, but may not be as large a scale as those in the backcountry. Mudslides may also periodically occur during spring run-off, and may sometimes be triggered by road runoff. Parks staff manage road drainage to try to minimize such occurrences, but all other occurrences are treated as natural disturbance patterns and are not managed.

► Temperature changes

High Threat
Inside site
Outside site

Glacial recession has already been noted in the mountain parks and other impacts of warming climate, such as loss of subalpine and alpine habitat due to upslope forest expansion are predicted (R37, R7 R19, R11, R20). Adaptive management plans, including monitoring and inventory projects have been identified in several parks (R7 R19, R11, R21). Lack of a reference baseline condition and uncertainty in predictive models for temperature change make determination of threat level difficult. However, significant changes in the WH sites’ values are anticipated, hence a high threat rating.

► Commercial hunting

Very Low Threat

Outside site

Commercial guiding and hunting is allowed in Mt. Assiniboine PP, but is controlled through a permit system (R11). There are currently only 9 permits with low numbers of trips. Hunting is allowed in Hamber Park, but there are no guide outfitter operations present.
Hunting is allowed outside of the parks, and includes hunting for black bear in AB and BC. A limited hunt for grizzly is allowed in BC, but not in AB at this time. Any of these species may be hunted through commercial outfitters. This may pose a source of mortality for some species currently managed within the parks (e.g., bears).

► Fishing / Harvesting Aquatic Resources

Very Low Threat
Inside site

Recreational sport fishing is strictly managed to ensure ecological integrity and the protection of threatened species.
Past stocking programs for recreational fisheries introduced non-native fish species into a number of aquatic systems in various parks (R37, R7 R19). Active restoration of native species and the removal of non native species are underway in the national parks.

Potential Threats

Data Deficient

Climate change impacts are only just beginning to be addressed in management planning of most parks. BC Parks have prepared predictive scenarios that highlight future potential impacts (R11, R21, R20, R22). A reference point against which to measure change has yet to be determined for each park and this may affect ability to detect and react to change (R6, R36, R41, R60). BC Parks identified the need for inventory in their parks to address this issue (R19, R11). Some parks have already begun monitoring studies. BNP has initiated studies to collect baseline inventories for species most vulnerable to climate change (e.g., alpine species like pika, R5), and each of the parks track rates of glacial recession (R37, R7, R19, R11, R42, R57). The threats are uncertain in terms of management, mainly because most parks are at early

stages of planning for response to anticipated changes.

▶ Habitat Shifting/ Alteration

Data Deficient
Inside site
Outside site

Habitat Shifting/ Alteration
As noted above, a warming trend is predicted within the mountain parks, but the rate of change is uncertain. Range expansion to higher elevations of forest species is anticipated to impact subalpine and alpine habitat but the extent of habitat reduction is unknown (R19, R11, R21, R20).

▶ Droughts

Data Deficient
Inside site
Outside site

Warmer annual temperatures and lower annual precipitation raise the possibility of more frequent droughts, but the timeframe for this shift and the increase in frequency are uncertain (R21, R20).

▶ Storms/Flooding

Data Deficient
Inside site
Outside site

Warmer spring temperatures may increase spring run-off, with risk of more frequent or extreme flooding (R21, R20). As above, the uncertainty in the variables affecting this prediction (for example the rate of rise in annual temperature over time, relative reduction in snowpack) makes prediction of timeframe and severity difficult.

Protection and management

Assessing Protection and Management

▶ Integration into regional and national planning systems

Highly Effective

Regional integration varies across the parks. JNP, KNP, Mt. Robson PP, and Mt Assiniboine are involved in a variety of regional land use and industrial collaborations (R37, R39, R19, R42). JNP participates in two regional development groups, including the Yellowhead Ecosystem Group and the Foothills Research Institute (R39). BNP, YNP and Hamber PP have less connection to regional planning initiatives (R7 R57, R17). All of the mountain parks participate in the Central Rockies Ecosystem Interagency Liaison Group, which allows coordination with provincial and federal land managers along the Canadian Rockies (R37, R7 R19, R11, R17, R42, R57).

► Management system

Mostly Effective

Federal and BC parks are managed by designated government departments (Parks Canada and BC Parks), both of which have suffered from recent funding cutbacks as governments work to address the recession economy (R53, R56, R15). In most parks, this has resulted in reduced staff and program funding. Parks Canada was particularly hard hit by the 2012 federal budget (R53, R56). Annual reports for the period after these cuts have not yet been prepared, but anecdotal reports indicate strained management systems (R53, R56, R15).

► Boundaries

Highly Effective

Mt Robson PP and Mt Assiniboine PP both had proposed expansions to extend protection to adjacent lands with conservation value (R19, R11). The expansion was completed for Mt. Robson only (R19). The Assiniboine and Aurora Creek drainages subsequently experienced forest harvest that compromised the original values (R11). Use conflicts are anticipated to be resolvable through regional land use groups for Mt Assiniboine (R11), a mechanism available to the other parks as well. No other changes to park boundaries have been proposed recently.

► Staff training and development

Some Concern

The current federal corporate plan has frozen hiring as well as implementing

operational cost controls through the 5 year planning cycle (R52). BC Parks has implemented 60% reductions in park ranger positions and has cut $10 M in operating funds since 2001 (R15). This may result in a seasonal/temporary workforce that has less experience; this may not be the case in the 3 provincial parks comprising the WH site as no full time positions were reported lost in that time period (C3). BC park rangers undergo annual training in park management activities. In response to the Office of the Auditor General report on ecological integrity, BC Parks committed to training staff in the Conservation Risk Assessment tool, which assists in park management (R10).

► Sustainable use

Mostly Effective

Several federal and provincial parks have identified stewardship initiatives demonstrating sustainable environmental management as a priority (R37, R7 R19, R42). These include improvements to waste water treatment, recycling programs and energy and water conservation initiatives. Although water quality has improved in BNP and JNP as a result of these programs (R37, R7 R8, R39), the other programs are still in early stages of implementation and their effectiveness has not yet been evaluated.

► Sustainable finance

Some Concern

As noted above, both federal and BC parks have been under fiscal restraint, with consistently reduced budgets since the recession of 2008 (R53, R56, R15, R26). This trend will continue federally over the next 5 year planning cycle (R52). Nonetheless, all Parks Canada Field Units continue to have a well-supported science and resource management program that enables long-term monitoring programs, targeted research concerning species of interest or at-risk.

BC Parks rely in part on revenues generated from park camping use, which increased in 2010-2011 in the regions in which Mount Assiniboine and Hamber parks are situated and by 15.1% in Omineca Region where Mount Robson Provincial Park is situated (R24).

► Education and interpretation programs

Mostly Effective

Educational and interpretive programs have been effectively integrated into ecological integrity initiatives such as the Bow Valley Parkway management plan which successfully implemented a mandatory overnight travel restriction along with improved visitor education programs and visitor experience opportunities. A variety of other educational programs and projects have been implemented in the 2010-2011 reporting period to raise awareness of resource values and appropriate recreational use of park lands (R8 R39, R58, R43).
Mt Robson PP has identified educational programs mainly related to public safety and recreational environmental ethics, including bear safety and no trace camping (R19). The Management Plan for Mt Assiniboine has identified educational and interpretive programming highlighting how appropriate backcountry use could be implemented (R11).

► Tourism and interpretation

Highly Effective

Although Visitation in the federal parks has consistently grown over the past decade (by about 2% in most parks), management has recognized the challenge of remaining relevant to Canadians and international visitors in the face of changing demographics (R37, R7 C2). They have been quite innovative in programs supporting tourism and interpretation, with projects including developing and promoting special events and new recreational activities (R37, R7 R42, R57All new activities, events and development in national parks are subject to environmental assessment, and undertaken within the context of protecting ecological integrity.
The BC parks attract visitors interested in a wilderness experience, and visitor services are maintained in a manner consistent with environmental goals (R19, R11, R17).
The mountain parks are featured prominently in tourism promotion material in Alberta and British Columbia. As noted above, park user fees provide partial funding for park operations for the federal and provincial parks.

► Monitoring

Mostly Effective

A nationally coordinated monitoring program monitoring ecological integrity indicators is in place and being implemented in all the national parks. This data is used to assess the ecological integrity of the national park ecosystems and as the basis for restoration action if required. Performance measures have also been established to ensure ecological integrity objectives continue to be met. Monitoring for specific issues has also been established in many of the parks, increasingly with citizen science aspects designed to educate and facilitate broader sampling (R37, R7 R19). Baseline inventory data is missing for BC Parks, an acknowledged gap (R19, R11) and action to address ecological integrity objectives has not been consistently undertaken (R10). Monitoring activities have begun for the baseline inventory data requirements identified in the Mt Robson Management Plan performance measures (C3

► Relationships with local people

Highly Effective

Most of the parks have identified the need for liaison with local communities. The national parks and Mt Robson PP have emphasized more collaborative decision-making and have made good strides toward inclusive processes involving citizens (e.g. Youth Summit on Sustainability, citizen science projects) and annual public forums and aboriginal peoples (e.g., Jasper Aboriginal Forum and the Upper Athabasca Valley Elders Council, R39, R19). Mt Assiniboine`s management plan identified the need to establish better relationships with local communities to reinforce the contribution of the park to the socio-economic system (R11). BNP, KNP YNP and Jasper work with the councils of communities within and adjacent their parks as well as ENGO’s, tourism organizations and other stakeholders (R7 R42, R57).

► Legal framework and enforcement

Mostly Effective

The national parks wardens enforce Canada National Parks Act and Regulations R33). A policy shift in 2009 created a dedicated force of up to 100 law enforcement specialists focused on resource protection (R47), with

positions that are distributed across the country`s 44 parks.
BC park rangers and BC conservation officers are responsible for enforcement of park and wildlife conservation law, such as the Park Act, Ecological Reserve Act and Wildlife Act (R32). As in federal parks, BC Parks face similar shortages for enforcement staff. In 2001, 27 full-time positions served the 1000 parks and protected areas in the province. By 2011, these positions were cut by 60% (R15). However, no full time positions have been reported lost in the 3 provincial parks that are part of the WH site (C3). Other positions, such as area supervisors, also perform park ranger functions and have not experienced the same level of cuts.

► Management effectiveness

Mostly Effective

Parks Canada has dedicated resource management specialist, scientists and technicians in every one of the national parks. They are supported by a decentralized team of senior scientists with specialized expertise in species at risk, monitoring, restoration, environmental assessment, wildlife diseases, etc. Parks Canada continues to achieve its ecological integrity objectives successfully maintaining and enhancing ecological integrity; investing millions of dollars into monitoring, habitat protection, restoration, the recovery of threatened and endangered species and environmental assessment.
However, for Parks Canada, its corporate plan for 2008/09 to 2012/13 had dedicated almost half its total operating budget to visitor experience and public appreciation and understanding (46% and 4% respectively) and 35% to resource conservation (R50). The emphasis on visitor experience and public appreciation and understanding has continued in the current 2012-13 to 2016-17 corporate plan. Funding in all categories is to be reduced over the 5 year planning horizon, but the plan has a 10% immediate reduction in heritage conservation programs nationally, comparing the two operations plans. Nonetheless all Parks Canada Field Units continue to have a well-supported science and resource management program that enables long-term monitoring programs, targeted research concerning species of interest or at-risk.
BC Parks have faced similar funding restrictions and declines since 2001 (R15, R26). The provincial auditor assessed the departmental goals of ecological integrity in 2010 and found that goals had not been met (R10).

Specifically, program plans were incomplete and lacking performance measures, conservation objectives were not consistently met, management plans were not up to date or incomplete and little action had been taken to ensure conservation of ecological integrity (R10). Mt Robson and Mt Assiniboine now have updated plans. The Hamber PP management plan has not been updated since 1986, but a management planning will be initiated in 2014.

► Implementation of Committee decisions and recommendations

Highly Effective

The Committee has identified three concerns since 1995: development within the Bow Valley Corridor, development of the Cheviot Mine east of JNP and the mountain pine beetle infestation affecting the mountain parks and adjacent forests. The recommendations of the Banff-Bow Valley Task Force Report submitted to the Committee in 1996 were commended and benefits of their implementation were anticipated. The Task Force recommendations have generally resulted in improved management of development and development effects, including construction of wildlife overpasses to maintain connectivity, improvements to waste water treatment in BNP and monitoring of carnivore habitat connectivity (R8, R46). New development approvals in BNP and JNP, coupled with significant funding cuts to National and BC Parks have renewed concerns regarding ecological integrity in the parks (R31, R53, R56, R15, R26, R10).
Forest health and beetle control remain priorities for Mt Robson PP and JNP (R37, R19, R5, R4) through monitoring and controlled burns to help reduce infestations (R39, R19, R46).
Mining impacts were assessed for all Canadian national parks by the Canadian Nature Federation in 2002 and the effects identified for ecological integrity of JNP included the then proposed Cheviot mine (R3). Impacts to JNP were rated at a medium level, with key concerns including wildlife impacts due to habitat fragmentation, particularly for bears. The report recommended habitat and human conflict management mitigation and regional cooperation between government and industry to address cumulative effects of all land uses t beyond park boundaries, including mining. JNP and BNP have included objectives for grizzly bear habitat improvement in their management plans and reported reduced human-bear conflict in 2011 (R37, R05, R07, R39). Other habitat management plans

included trail closures, seasonal use restrictions, and research on habitat requirements and use (R46).
Mt Robson and JNP have established regional collaborations with the BC and AB governments and industry (mining, forestry) to better coordinate management of mining and beetle impacts (R37, R39)

► Research

Mostly Effective

The mountain national parks continue to support active research programs both internally and through partnerships with other agencies and institutions (R5). The extensive Parks Canada – CP rail research effort into reducing grizzly bear railway related mortality is an example of one of these programs. Federal funding cuts have affected research funding at external agencies as well as within the federal and provincial parks. For example, capacity to conduct social science research (in house) was largely eliminated in the federal mountain parks with the recent round of budgetary cuts. A majority of the 24 positions cut in Calgary, the regional support office for these parks, affected historians, social scientists and archeologists (R61). While Parks Canada’s internal social science program was reduced; Parks Canada continues to have a strong natural science program delivered by both PC and external partners. Research initiatives do still remain in the provincial parks, but will be reduced (e.g., in Mt Robson PP, C3). Current fiscal conditions and a need to raise public awareness about environmental issues have inspired increased use of citizen science approaches that expand the partnerships to the public (R37). Collaborative research initiatives with industry, other government agencies and First Nations have been taking place in the mountain national parks for many years. The Foothills Model Forest and now Foothills Research Institute in JNP as well as research with the University of Alberta, University of Calgary and University of Montana in BNP and Mt Robson PP (R7 R19) are examples. In YNP and KNP, Parks Canada supports ongoing scientific research into the Burgess Shale, which has led to the discovery of a significant new fossil deposit, several species new to science and an increased understanding of middle Cambrian ecosystems.

Overall assessment of protection and management

Mostly Effective

Funding challenges and pressure to supplement revenues through visitor use fees will be an on-going pressure for park managers, affecting operational, research and monitoring and resource management programs. Nonetheless all Field Units continue to have a well-supported science and resource management program and base sciences and resource management capacity and financial resources exist to support conservation related monitoring and management programs. These, along with creative and innovative approaches to reducing impacts of funding challenges, as well as potential to raise awareness through involvement of a broader community in park management can help ensure the ongoing protection of the site's values.

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

Mostly Effective

Regional collaborations and community partnerships involve many of the mountain parks. Such participation allows opportunity to influence regional decision-making and direct attention to management concerns (R37, R7 R19, R11, R42, R57). Although this may not eliminate all external threats, it may help minimize them.

▶ Best practice examples

Citizen science monitoring projects in BNP (R7 R8). Enlisting public help in monitoring alpine species helps provide management information and raise awareness amongst the public of potential impacts of climate change and habitat alternation.
Collaborative partnerships for regional management, research and relationship building with diverse communities, including industry, First Nations and local municipalities in JNP (R37, R39). JNP has established meaningful partnerships with 20 First Nation groups that have longstanding links to the Jasper landscape through the Jasper Aboriginal Forum, established in 2006, and, with the Council of Elders of the Descendants of Jasper, established in 2004. These groups are invited to contribute to

educational and ecological management programs as part of an open management approach by the park. Its work with the Foothills Research Institute has established links with a broader research network of government and academic scientists. Lastly, the Yellowhead Ecosystem Group provides a forum for discussion of regional environmental issues with industrial operators active beyond the park's boundaries.

BNP is implementing an MOU with the Stoney Nakodata design to enhance their presence and connection to BNP. In addition BNP has a long standing and ongoing relation with the Siksika first nation which includes annual summer encampments and working with the nation to re-establish their connection to the park.
Education programs that target youth across Canada in JNP (R39). The Jasper Youth Summit on Sustainability involves a cross-section of young Canadians in park management and decision-making. The summit, now in its fourth year, brings together students from Alberta and BC in sessions that discuss the role of sustainability in park management, ecological restoration and traditional knowledge about JNP.
BNP has an established educational partnership with the Bow Valley school district to offer students increased opportunities to learn about and connect with the national park. BNP is also leading an educational/interpretive program at the Calgary Zoo reaching thousands of youth each year.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► **Area of exceptional natural beauty and aesthetic importance**
Good
Trend:Stable

Although some development has been approved in the front-country of BNP and JNP, disturbances has been focused in areas of past development (R37, R7). Each park has identified land use zoning guidelines that protect a significant proportion of the park as wilderness landscape and has imposed

development guidelines and limits for front-country zones (R37, R7 R19, R11, R17, R42, R57, R18). Large areas of the park remain relatively undisturbed and provide examples of natural beauty.

► One of the most significant fossil areas and a classic representation of on-going glacial processes

Good
Trend:Stable

Burgess Shale, other fossil deposits and significant caves have been identified in management plans in applicable parks and public access, conservation and protection have been addressed through various means (R19, R57). For example, YNP has an on-going partnership with the Royal Ontario Museum to identify and preserve fossil material from the Burgess Shale, and to promote the site through development of a virtual visitor website (R57). Progress was made on the website through 2011 (R58, R43). Limiting access to the Burgess deposit only to guided hikes will help to reduce potential vandalism and disturbance (R57).

Other important biodiversity values

► Biodiversity

The Rocky Mountain Parks encompass three life zones or ecoregions: montane, subalpine and alpine. Montane zones lie within major river valleys and support deciduous and coniferous forests, wetlands and meadow habitat, and the highest biodiversity of the three ecoregions. Forests extend through the subalpine zone, the most extensive ecoregion in the Rockies. Alpine zones are above treeline and support hardy, low-growing vegetation. A total of 56 mammals have been reported in these parks as well over 300 avian species, five amphibian and 2 snake species (R35, R54). This list includes several iconic or IUCN Red-listed species such as American pipit, golden eagle, wolf, wolverine, Montague Island hoary marmot, Clark’s nutcracker, American pika, elk, puma and caribou (reindeer) (R35).
The mountain parks support a number of species that have lost historic range due to fragmentation effects of early settlement and post-settlement development in the adjacent boreal, foothill and prairie landscapes (R45). This is particularly true for large mammals (carnivores and elk), whose range contracted considerably after settlement of the adjacent prairie landscapes.

The mountain parks currently support a number of species with federal protected status under the Species at Risk Act (2012), including the Banff Springs snail, grizzly bear, whitebark pine, and west slope cutthroat trout.

Summary of the Values

► Assessment of the current state and trend of World Heritage values

Good

Trend: Stable

Viewscapes and geological resources have remained relatively stable or in the case of the Burgess Shale site, improved with management attention to protect the resource. Large areas of the site remain relatively undisturbed and provide examples of natural beauty.

► Assessment of the current state and trend of other important biodiversity values

Low Concern

Trend: Stable

Mountain caribou (Rangifer tarandus), grizzly bear (Ursus arctos) and wolves (Canis lupus) are special status species identified in the management plans of most mountain parks due to declining populations. Because of their mobility and large territory sizes, management must involve several jurisdictions and coordinated action regarding mortality risk has been identified as a priority (R6, R36, R37, R7 R39, R19, R11, R42, R57). JNP has monitoring programs to track caribou population change (R39) and BNP has a reintroduction program underway (R8). Grizzly bear and wolf (Canis lupus) loss due to human induced mortality is an ongoing challenge for the parks (R8). Management is focused on reducing highway and railway collisions (R37, R7 R19, R11, R42, R57).
Alpine species such as pika that may be at risk due to habitat loss due to climate change have begun being monitored through a citizen science project by BNP, as an example (R37, R8). Mt Robson PP also noted the potential impact on alpine and subalpine habitat and park management has identified a need for inventory and monitoring programs (R19). Several management initiatives are underway in Mt Robson PP, including three post-

graduate studies (C3). Funding to support such programs remains elusive, however, in the current fiscal climate (R10).
Prescribed fire and a return to natural disturbance regimes have been implemented to control disease and insect outbreaks resulting from past fire suppression programs (R37, R7 R19, R11, R42, R57).
Overall, biodiversity values face some challenges in terms of declines in species with large territory size, a trend that all parks are working toward reversing. Climatic effects on alpine habitats and associated species may be more difficult to manage and monitoring programs have only begun to be planned and implemented in most parks.

Additional information

Key conservation issues

▶ Establishing management plans for climate change

Regional

Several of the mountain parks identified data gaps in base inventory data and all federal parks have not yet identified a reference point against which to assess change. Objectives for conserving the World Heritage Values for which the mountain parks have been recognized have not been explicitly identified by the parks as yet, in part due to the above data gaps.
Maintaining connectivity with other natural areas and perhaps expanding natural area networks would facilitate shifts in species distributions in response to climate change. Expansion of parks has been considered in BC in the past, but has not always been successful (e.g., in Mt Assiniboine PP, R11). Such measures have not yet been considered by federal parks, but past additions of protected areas (e.g., in Alberta) show the potential for cooperative action (R37, R5).

▶ Carnivore and caribou management plans

Regional

Each park has identified the need to reduce human-related mortality to these special status species, and many are making progress toward this goal.

Collaboration with industries such as Canadian Pacific Railway to reduce rail-related bear mortalities offers promise of stewardship through improved operating practices. Sustained and coordinated effort in this regard may help stabilize populations.

► Visitation

National

In BNP visitation numbers are increasing by about 2% per year and have slowly declined over the past 20 years to a current growth rate of 1.0% by 2010 (R05) in JNP (R37). Visitation grew more in KNP and YNP over the past decade (peaking at about 8% and 4% respectively, R42, R57). Growth rates were not available for the BC mountain parks. It’s important to understand who the visitors are, and how to facilitate their connection to parks (in part through visitation) to achieve important objectives such as raising awareness of environmental stewardship and sustainable management. Efforts to increase visitation can be linked with education and interpretive programs and sustainable forms of recreation to generate revenues for parks and develop environmental awareness and connections with nature (R65).

Benefits

Understanding Benefits

► Outdoor recreation and tourism

All of the mountain parks provide opportunities for recreation and commercial operations within many of these parks provide employment and support tourism.

► Importance for research

Research into the ecological, historical and social systems (particularly recreation and tourism and parks management) in all parks contribute to a broader knowledge base and aid in management planning within each park and in the surrounding regions.

► Contribution to education

Both the provincial and national parks offer environmental education programming that can raise awareness of environmental issues and management approaches and of natural systems more generally. The national parks, in particular, have emphasized quality visitor experiences and stewardship training for commercial sector employees, but have not quantified the impact of their activities (Banff National Park, 2008, 2011). Research studies within the parks has contributed to training of post-secondary students from academic institutions in nearby communities (Calgary, Edmonton, Prince George)

► Collection of genetic material

Wildlife and plant research in the mountain parks contribute to knowledge of movement connectivity and regional population dynamics (e.g., wolverine study in BNP, Banff National Park, 2011). Many of these programs are in initial stages and broader use of the information has not yet been fully explored.

► Carbon sequestration

Carbon sequestration within boreal forest, however climate change is increasing melting rate of glaciers within the park (a negative impact)

► Flood prevention

The mountain parks contain headwaters for major water systems flowing east and west from the continental divide. Snow and glacier melting can contribute to flooding in downstream locations and could be acerbated by clearing and vegetation disturbance within the park boundaries. Warming climate could also increase risk of flood in downstream locations. Efforts to restore connectivity in tributary streams (e.g., Bow River tributaries in BNP, Banff National Park, 2011) will prevent flooding within the parks.

► Water provision (importance for water quantity and quality)

Similarly, disturbance to the mountain park watersheds can affect water quality and quantity for downstream users. Banff National Park in particular

has worked steadily to monitor and reduce pollutants contributed by communities along the Bow River system (Banff National Park, 2011)

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Banff National Park		BNP has a number of projects currently on-going in habitat restoration, fire and vegetation management, aquatic system health and wildlife resource management.
2	Jasper National Park		A wide a range on projects, including stewardship education programming for youth, programs for school groups; sensitive wildlife species programs; non-native plant management; FireSmart program; Jasper Youth Summit on Sustainability and many more.
3	Jasper Aboriginal Forum and the Upper Athabasca Valley Elders Council		Multilateral collaborative partnerships with over 20 different Aboriginal communities and organizations that assist in parks management decisions, development of historical interpretive information and incorporation of traditional culture into parks exhibits and events (R39). Some groups participate in the Aboriginal Pass program, which allows community members with historic ties to the park to enter without charge and reconnect with the park, through personal and cultural uses (e.g., vision quests, sacred fire ceremonies).
4	Jasper Environmental Stewardship Program		A program co-funded by Parks Canada and the Municipality of Jasper to promote stewardship programs and public awareness of sustainability practices (R39). The program also funds recycling collection sites in the three largest campgrounds in JNP. Collection is handled through a partnership with a local recycling firm. Other partnerships include work with the Jasper Local Society to help coordinate community activities including community and school gardens.

№	Organization/ individuals	Project duration	Brief description of Active Projects
5	Kootenay National Park		- Wildlife mortality mitigation project – planning, research and preparation for physical work for mitigation sites to reduce effects of Highway 93 South on native biodiversity (R43). - Aquatic restoration interpretation programs – interpretive rove program begun at Marble Canyon campground (2010), aquatic restoration fact sheets and improved website (R43). - Aquatic restoration projects – improving / replacing culverts under Highway 93 South to restore connectivity (R43). - Prescribed burn restoration – prescribed burns of select locations pursued each year in suitable conditions (R43). - Badger habitat model – Parks Canada biologists have been developing this model, part of their work on the BC Badger Recovery Team (R43). - Redstreak restoration (Sinclair Canyon – Radium) – removal of remaining infrastructure in wildlife movement corridor and monitoring of wildlife response to restoration treatment on-going (R43).
6	Yoho National Park		- Aquatics restoration- reconnecting aquatic habitat – restoration of the key culvert sites to re-establish aquatic connection (R58) - Caribou recovery – conducted in cooperation with BNP - Restoration of fire disturbance – prescribed fire is used to restore natural processes to YNP (and other mountain parks). Planned prescribed fires for Mount King and the Ottertail valley provide an opportunity to incorporate learning experiences (website, factsheets, stakeholder updates (R58). - Wildlife – reducing wildlife-vehicle collisions – program implemented in cooperation with KNP. Work with Canadian Pacific Railway to create a 5 year action plan to address rail induced mortality in BNP will be applied in Yoho (R58). - Burgess Shale Virtual Museum of Canada. Developed with the Royal Ontario Museum and accessible through website, the virtual museum allows visitors to ‘tour’ the site and learn about its values (R58).
7	Mount Robson Provincial Park		-Forest Health Strategy for Mt Robson PP (R5) – identifies key sites for prescribed fire to restore forest health by reducing insect infestation and disease potential. A burn at Moose Mountain has been done, but further work is pending. - Ecosystem Management Plan (R4) – outlines management programs that could be implemented to manage non-native plant species, wildlife-vehicle collision mortalities and forest insect infestations. Prescribed fire management has been implemented, others are pending. - Reducing non-native brook trout distribution in Yellowhead Lake and tributaries – ongoing management activities. - Backcountry Recreation Impact and Use Monitoring on Berg Lake Trail – ongoing monitoring of use and impacts on natural environment and visitor experiences.
8	Mt. Assiniboine PP		- Alpine vegetation monitoring – ongoing project. - Rocky Mountain Big Horn Sheep Inventory – periodic aerial survey. - Wolverine study – supporting Banff Park researchers in portion of study in BC.

№	Organization/ individuals	Project duration	Brief description of Active Projects
9	Mountain Parks		- Canadian Rocky Mountain Collaborative Network – a Y2Y initiative to build a collaborative network of government agencies, scientists, conservation organizations, land trusts and community organizations that can coordinate efforts in the Rocky Mountain Parks Area. - Improve Aquatic Integrity of the Upper Bow River Watershed – a study commissioned by the Y2Y Initiative with Parks Canada and Alberta Environment and Sustainable Resource Development to assess health of native bull trout and westslope cutthroat trout in the upper Bow valley. - Upper Bow Basin Cumulative Effects Study – this study commissioned by a partnership involving the Y2Y Initiative uses the ALCES© computer modeling software to project the condition of the Bow watershed from BNP downstream past Calgary to the Carseland Dam. Phases 1 and 2 are now complete and Phase 3 is anticipated to be complete in 2012. - Alberta Grizzly Bear Campaign – Y2Y Initiative and other ENGO partners are actively involved in a campaign lobbying government decision-makers to manage road density and reduce motorized vehicle use in core grizzly bear habitat.

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