



NAHANNI

NATIONAL PARK RESERVE OF CANADA

Nah ?a Dehé

Management Plan



Cover page photos: Parks Canada

Known as *Gahn̄thah* to the local Aboriginal people, Rabbitkettle Hotsprings is one of the Zone I Special Preservation Areas within Nahanni National Park Reserve. The tufa mounds at Rabbitkettle Hotsprings are formed as calcium carbonate precipitates out of the hot spring water and hardens, forming a soft, porous rock. In an effort to prevent inadvertent damage to the structure of the 'North' mound, visitor access is only permitted while on a guided hike. Due to the spiritual and cultural importance of the 'South' mound, no visitor access is permitted.

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Management Plan

April, 2004

Foreword



Canada's national parks, national historic sites and national marine conservation areas represent the soul of Canada. They are a central part of who we are and what we are. They are places of magic and wonder and heritage. Each tells its own story. Together, they connect Canadians to our roots, to our future and to each other.

What we cherish as part of our national identity, we also recognize as part of our national responsibility. All Canadians share the obligation to preserve and protect Canada's unique cultural and natural heritage. Together, we hold our national parks, national historic sites and national marine conservation areas in trust for the benefit of this and future generations. To achieve this, practical action grounded in long-term thinking is needed.

These principles form the foundation of the new management plan for Nahanni National Park of Canada. May I offer my deep appreciation to the vast range of thoughtful Canadians who helped forge this plan. I am especially grateful to our very dedicated team from Parks Canada and to all those local organizations and individuals who have demonstrated such good will, hard work, spirit of co-operation and extraordinary sense of stewardship.

In that same spirit of partnership and responsibility, I am pleased to approve the Nahanni National Park of Canada Management Plan.

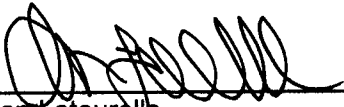
A handwritten signature in black ink that reads "David Anderson". The signature is fluid and cursive, with a long horizontal stroke at the end.

David Anderson
Minister of the Environment

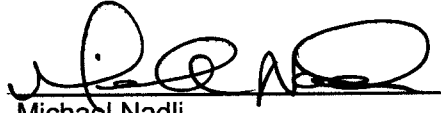
Recommendation Statement

Nahanni National Park Reserve of Canada Management Plan

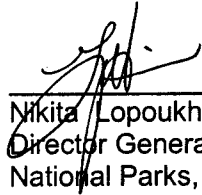
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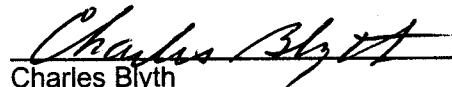
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1.0 Introduction

Canada's national parks are places where we protect, study, learn about and enjoy the living diversity of nature and culture, and strive to ensure the integrity of ecosystems. They are part of the inheritance of all Canadians. They are special places recognized under the *Canada National Parks Act* as being of national importance.

Under the *Act*, Parks Canada has mandated responsibility for ensuring the ecological integrity of national parks. This *Act* also requires that national parks prepare a management plan, and these plans are to be reviewed every five years. A management plan is a strategic guide to future management, directing the long-term protection, presentation and operations of a national park, and is prepared in consultation with Canadians. It is approved by the Minister responsible for Parks Canada, and tabled in Parliament.

Nahanni National Park Reserve Management Plan and Amendments

The first management plan for Nahanni National Park Reserve was approved in 1987, and was intended to serve for a fifteen year period. A plan review was initiated in 1992, in keeping with Parks Canada's five year review requirement. The 1992 review determined that amendments were needed to update the plan, in response to national policy changes and local needs.

Highlights of these amendments included:

- the maintenance of ecological integrity as a priority in the protection of park resources;
- refinements to cultural resource management objectives;
- incorporation of traditional ecological knowledge in decision making;
- improvements to the presentation of the park's natural and cultural resources;
- strategies for management of wilderness carrying capacities; and
- recognition of pending settlements on lands, resources and self-government through the Deh Cho Process.

The product of the 1992 review was an official amendment to the plan, approved by the Minister of Canadian Heritage in 1994. Therefore both the 1987 plan and the 1994 plan amendment have served as the park's management strategy since 1994. Much of the direction from these previous plans has been carried forward to this management plan, which replaces both documents.

Cooperative Management of Nahanni National Park Reserve

Nahanni National Park Reserve exists within the Deh Cho, a traditional homeland of the Dene for centuries. The tradition of Aboriginal use continues to this day in the park reserve and is provided for under the *Canada National Parks Act*, Section 40. The lands that are now Nahanni National Park Reserve have benefitted from the past, and ongoing stewardship of the local First

Nations. Successful future management of the park will depend on further developing the cooperative management approach between Parks Canada and the Deh Cho First Nations.

Through the Deh Cho Process, Parks Canada and the Deh Cho First Nations have established a consensus planning team comprised of representatives from both organizations. The *Nahʔa Dehé* Consensus Team members have worked together to cooperatively prepare this management plan, and have developed guidelines for future cooperative management, as per Section 59 of the “Deh Cho First Nations Interim Measures Agreement” (2001). On August 20, 2003, the Honourable Sheila Copps, Minister of Canadian Heritage, and Herb Norwegian, Grand Chief of the Deh Cho First Nations, announced the signing of an Interim Park Management Arrangement that will guide park management until the park is established in legislation, and will see the First Nations play a greater role in its management.

Public Consultation

Public involvement in the development of management plans helps to ensure sound decision making, builds understanding, and provides opportunities for Canadians locally and nationally to contribute their knowledge, expertise and suggestions.

At the initiation of the plan review process, Parks Canada held three public open houses in the communities of Fort Simpson, Fort Laird and Nahanni Butte in the fall of 1999. The purpose of these consultations was to introduce the plan review and to ensure public involvement. Comments received were considered in the development of the plan.

To facilitate public review of the draft plan, Parks Canada held a second consultation round during the spring of 2001. Public open houses were held, and the draft plan was also made available at several locations at these same three communities. For the final, broad public review, a newsletter summarizing the plan was distributed to a broad mailing list of national stakeholders and previous park visitors in the winter of 2001-2002, and the opportunity to comment on the draft plan was advertised on the park website.

2.0 Role of Nahanni National Park Reserve in the National Parks System

Canadian National Park Reserve

The Park Purpose statement, as written in the 1987 management plan, is the following:

Nahanni National Park Reserve is an outstanding example of northern wilderness rivers, canyons, gorges, and alpine tundra. Its designation as a national park reserve gives protection for all time to a natural area of Canadian significance representative of the Mackenzie Mountains Natural Region and enables present and future generations to continue to appreciate and experience the park's wilderness environment.

Canada's systems of national parks and national historic sites seek to protect a representative sample of each of the country's 39 natural regions, and commemorate nationally significant places, persons and events. Nahanni National Park Reserve was recognized as an outstanding natural area long before the lands were withdrawn for a park reserve in 1972. Four years later, in 1976, the area was officially designated a national park reserve under the *National Parks Act*.

As part of the national parks system, Nahanni National Park Reserve continues to protect a representative portion of the Mackenzie Mountains Natural Region, as identified in the National Parks System Plan (1997). A small portion of the northwest end also extends into the Interior Mountains and Plateaux Natural Region. Among the significant features of Nahanni National Park Reserve are antecedent river canyons, spectacular waterfalls, limestone karst and pseudokarst topography with associated caves and sinkhole formations, and numerous thermal springs. The park reserve also includes Canada's largest tufa mounds, and the only known locations of a rare plant species, the Nahanni Aster.

The formal establishment of Nahanni National Park Reserve as a national park is pending settlement of outstanding Aboriginal title in the region. Its status as a national park reserve provides for the continuation of traditional use by local Aboriginal people in the park. Parks Canada is a participant in the Deh Cho Process negotiations. More detail on these negotiations and implications for Nahanni National Park Reserve is found in Chapter 10, Partnership and Public Involvement.

UNESCO World Heritage Site

Canada is a signatory to the United Nations Education, Science and Cultural Organization's (UNESCO) World Heritage Convention. This convention recognizes parts of the world's natural and cultural heritage that are so outstanding or scientifically significant that their protection and preservation are considered to be of concern to the world community.

Nahanni National Park Reserve was among the first seven sites in the world, and Canada's first site given World Heritage Site status. This status, conferred in 1978, gives international recognition to Nahanni National Park Reserve as a place exhibiting:

- outstanding examples of major stages in the earth's evolutionary history;
- significant ongoing geological processes; and
- superlative natural phenomena, formations, and features of exceptional natural beauty.

Parks Canada's mandate and conservation practices reflect the responsibility of this designation in both the protection and presentation of park values. Similarly, the park's management plan reflects this responsibility. To ensure maximum visitor exposure to the park's world heritage status, Parks Canada maintains a World Heritage plaque for Nahanni National Park Reserve at Virginia Falls (*Náìlìcho*). This plaque provides visitors with the opportunity to become aware of both the park's global significance and the World Heritage Convention.

Canadian Heritage Rivers System

In 1987, the portion of the South Nahanni River within the park reserve was designated as a Canadian Heritage River. The Canadian Heritage Rivers System (CHRS) has been established by federal, provincial and territorial governments to recognize Canada's outstanding rivers and to ensure their long-term protection and continued enjoyment by Canadians. As of 2002, the CHRS includes 39 rivers nation-wide, and the South Nahanni is recognized as an exceptional example of several natural history themes and provides outstanding recreational opportunities in a wilderness area of great scenic beauty.

Broader Role of the Park Reserve

Nahanni National Park Reserve is internationally renowned as a premier wilderness river park, and the spectacular Virginia Falls (*Náìlìcho* in the Slavey language) is one of the most recognizable icons of Canada's north. Nahanni National Park Reserve receives more visitation than any other park in the Northwest Territories, and is central to the tourism industry in the region.

As a national park reserve, Nahanni also fits into a much broader network of protected areas. In the recently developed Northwest Territories Protected Areas Strategy, Nahanni National Park Reserve plays a prominent role by protecting significant representative portions of the Taiga Shield and Taiga Cordillera ecozones.

Canada is committed to achieving a system of protected areas, on both national and worldwide scales. In 1991, the House of Commons passed a unanimous motion in support of developing a protected areas system, and in 1992 all of Canada's Ministers of Environment, Wildlife and Parks committed to completing a network of protected areas representative of Canada's natural

regions. They also agreed to continue to cooperate in the protection of ecosystems, landscapes and wildlife habitat, and to ensure that protected areas are integral components of all sustainable development strategies. The *Canadian Biodiversity Strategy*, endorsed by a multi-stakeholder group including industry representatives, also calls for completion of a protected areas network, and conservation of lands adjacent to protected areas.

The goal of international agreements such as the *Convention on Biological Diversity* is a global network of protected areas that will maintain and represent the planet's biodiversity. Through the strength of its own merits, and as a part of Canada's National Park System, Nahanni National Park Reserve plays a significant role in these global protection efforts.

3.0 Planning Context

Canyons, hot springs, waterfalls, traditional Dene use, legends and myths, and stories of early explorers and prospectors have contributed to our appreciation of the exceptional and unique river landscape in what is now Nahanni National Park Reserve. In addition to the area's status as a National Park Reserve, it is also designated as a World Heritage Site. This special status highlights Parks Canada's international and national obligations for the stewardship of natural and cultural heritage, as a protected area representative of the Mackenzie Mountains Natural Region, and the values inherent to the South Nahanni River.

Regional Context

Nahanni National Park Reserve occupies a 4766 km² area in the heart of the Mackenzie Mountains. It is located in the southwest corner of the Northwest Territories in the region known as the Deh Cho, which is part of the traditional lands of the Dene. The park reserve is renowned as a premier wilderness canoeing area centered along the course of the South Nahanni and Flat Rivers.

The immediate area around Nahanni National Park Reserve is sparsely populated (approximately 2000 - 2500 people in 5 communities within ~160 km). The closest community to the park reserve is Nahanni Butte (pop. <100), ~ 30 km downstream of the southeast border at the confluence of the South Nahanni and Liard Rivers. Another 30 km downstream on the Liard River is Blackstone Territorial Park which is accessible by road from Fort Simpson. There are no roads into Nahanni National Park Reserve.

Park administration and operations are based out of Fort Simpson (pop ~1300), approximately 120 km northeast of the east boundary and 320 km from the west boundary by air.

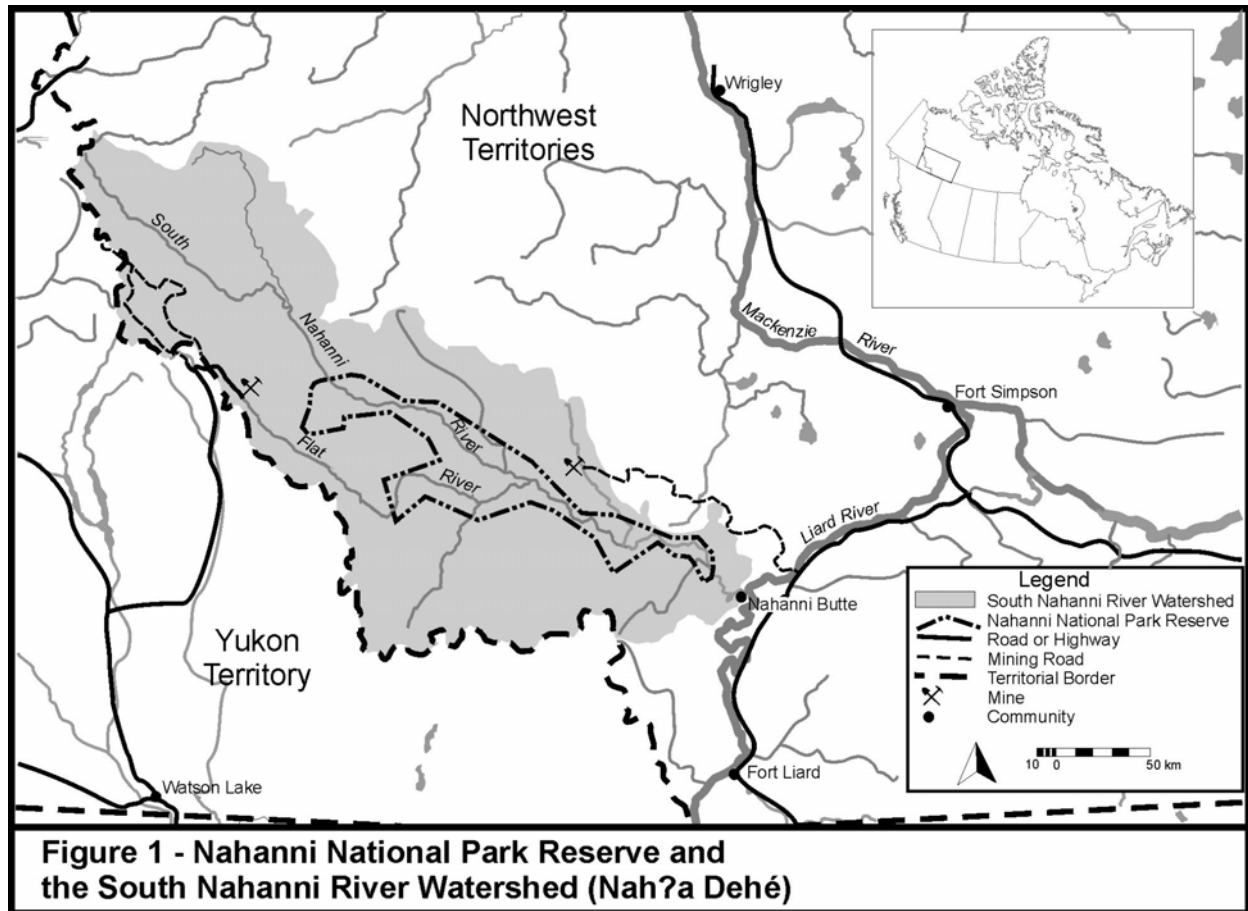
The Ecological Role of Nahanni National Park Reserve within the Broader Ecosystem

Nahanni National Park Reserve encompasses one-seventh of the South Nahanni watershed, which drains an area of ~35,000 km² into the Mackenzie River drainage basin via the Liard River (Figure 1). In its current configuration, the park reserve protects only a narrow corridor along the rivers, and includes only one complete sub-watershed (catchment basin > 100 km²).

To date, the relative isolation and wilderness of the watershed have served to protect the park reserve. However, existing and possible future adjacent land uses such as mining, big game hunting, tourism development and uncontrolled access have the potential to affect the park's wilderness essence and ecological integrity. Efforts to manage for ecological integrity must focus on the watershed as the area which has the greatest impact on the ecosystem of the park

River watershed is the area which has the greatest effect on the ecological integrity of Nahanni National Park Reserve.

The following sections provide a brief overview of the ecology of Nahanni National Park Reserve. More detail is available in the park reserve's *Ecological Integrity Statement*.



The Lands and Waters - Geology / Hydrology

Much of the park reserve bisects mountain ranges of sedimentary sandstone, shale and limestone, while intrusions of igneous rock along the western perimeter form the highest peaks. The entrenchment of the South Nahanni River, which has resulted in sheer canyon walls up to 1000 m high, indicates an antecedent river - one which preceded the uplift of the mountains, maintaining its course by cutting through the rising mountains rather than being diverted around. Due to the rapid runoff encountered in mountainous terrain, the South Nahanni River and its tributaries are subject to relatively rapid flooding. Virginia Falls (*Náíłicho*), with a vertical drop

of 90 m, is one of North America's great waterfalls, and is one of the most recognizable icons of the Canadian north.

The region is highly mineralized and as a result, the river waters, sediments and fish tissues have a naturally high content of some metals, including cadmium. Other significant geological features include areas of high geothermal activity, as evidenced by numerous hot springs, and limestone karst and pseudokarst topography with the associated caves, sinkholes and other formations. Much of the park reserve remained a glacial refugium during the most recent Wisconsin Ice Age.

Climate, Plant Communities and Vegetation Succession

The climate of the park reserve is continental. Wide monthly variations in temperature and precipitation occur within and between years, and weather varies from the eastern to western ends of the park reserve - the eastern end being generally warmer and drier.

The area of the park reserve is richer in terms of vegetation diversity than any other area of comparable size in the continental Northwest Territories. Approximately 230 genera and 700 species of vascular plants have been recorded, including several first occurrences for the NWT, and the only known locations of the Nahanni Aster. Likewise, the bryophyte and lichen floras are extensive when compared to other northern areas. Only a small number of the park reserve's plant species are introduced or escaped from cultivation, and these are localized in distribution (*e.g.* Kraus' hot springs).

The complex mosaic of vegetation is maintained primarily by the range of elevation and through naturally occurring fire activity in the park and in the surrounding South Nahanni watershed. The plant communities are predominantly boreal with transitions from lowland wet areas to alpine tundra. Several noteworthy plant communities are represented around specialized habitats, including hot and cold mineral springs, wet calcareous substrates, mist zones of waterfalls, alluvial fans and in the karst plateaux.

Wildlife Populations and Movements

The wildlife of the park reserve is also diverse for the relatively high latitude (61-62°N). The park reserve hosts a complete mammalian fauna characteristic of its Natural Region, in other words, all mammal species known to inhabit the area in historical times still occur. Wood Bison were reintroduced in the Nahanni Butte area in the 1980s, and are occasionally seen in the park reserve along the lower South Nahanni River. A wide range of ungulates (hoofed mammals) occurs in the park reserve; of these, moose are the most common and widely distributed. Dall's sheep are often observed, and mountain goats occur in small numbers in a few alpine areas; although the majority of important habitat for both species is found outside the borders of the

park reserve, in areas such as the Tlogotsho Plateau and Ragged Range, respectively. Woodland caribou can be seen year round, however, the park reserve provides primarily winter habitat. Most of the calving, summer, and fall rut habitats are northwest of the park reserve, although still largely within the watershed.

Both black and grizzly bears are found in the park reserve, and the Rabbitkettle Lake area has been identified as important high-use bear habitat. Wolves are common along the river valleys, and field observations suggest moose and caribou are staple prey items. All of these large carnivore species are thought to range widely in and out of park reserve borders.

An interesting diversity of birds are found in the park reserve, including species of mountain, boreal and great plains community types; over 180 species have been recorded in the park reserve. The South Nahanni River corridor functions as a migration flyway, most notably for waterfowl and Sandhill Cranes. Yohin Lake is a particularly important location for breeding waterfowl (*e.g.* Trumpeter Swans) and passerine birds, and bird associations at some of the hot spring areas resemble more southern communities, and may represent important disjunct (isolated) populations.

Land Use

The first human occupation of the area is estimated to have occurred 9,000-10,000 years ago. Evidence of precontact human use has been found at Yohin Lake and a few other sites within the park. The local oral history contains many references to the Naha tribe, a fierce mountain-dwelling people who used to raid settlements in the adjacent lowlands. These people are said to have rather quickly and mysteriously disappeared.

First contact with Europeans occurred in 1789 during Alexander Mackenzie's exploration of the Mackenzie River (Deh Cho). Contact increased with expansion of the fur trade in the region, and the building of trading posts at Fort Simpson (Fort of the Forks) and Fort Liard. By the 1950s, most Dene families left their nomadic lifestyles and settled into more permanent communities, often close to the trading posts. Some explorers attempted to use the South Nahanni River as a path to the gold fields of the Yukon, or make their fortune prospecting on the Flat and South Nahanni River tributaries.

The popularity of the South Nahanni River as a recreational destination increased throughout the mid-1900s. Potential hydro-electric power development provided much of the impetus for the park establishment process in the 1960s and 1970s, and led to the establishment of the park reserve to protect the South Nahanni River corridor as a free-flowing wilderness river.

Traditional hunting, trapping and fishing activities continue to occur in the park reserve, primarily in the eastern third. Primary traditional users (harvesters) are from the community of

Nahanni Butte, although some use originates from other communities. Motorized access in the park is only permitted for Aboriginal persons pursuing traditional activities.

Sport hunting by big-game outfitters occurs adjacent to the boundaries of the park reserve, with three outfitter zones overlapping the watershed area. Dall's sheep are the most sought-after game mammal by sport hunters in the area, with woodland caribou the second most popular trophy.

The lands in the vicinity of the park reserve are largely undeveloped. However, there are two base metal mining operations located in the watershed, upstream of the park. The CanTung (tungsten) mine on Flat River headwaters (~45 km west of NNPR) resumed production in December 2001. The Prairie Creek minesite (lead-zinc; ~15 km north of NNPR) is currently in advanced exploration stages, and is proposing to be operational within two years. Exploration of oil and gas reserves and associated development is rapidly expanding south of the park area, and logging operations are ongoing to the southeast.

The park reserve receives the highest visitation of any national park in the Northwest Territories. Wilderness river trips are the primary experience visitors expect from the park reserve. These account for between 450-800 visitors annually, with an average length of stay in the park of 11 days, for a total of 5,000-9,000 person-days. Fly-in day trips originate from various points in the Northwest Territories, Yukon or northern British Columbia, and account for an estimated 300 or more additional visitors (~300 person-days). Both overnight and day use are heavily concentrated in the summer, with over 80% of visits in July and August.

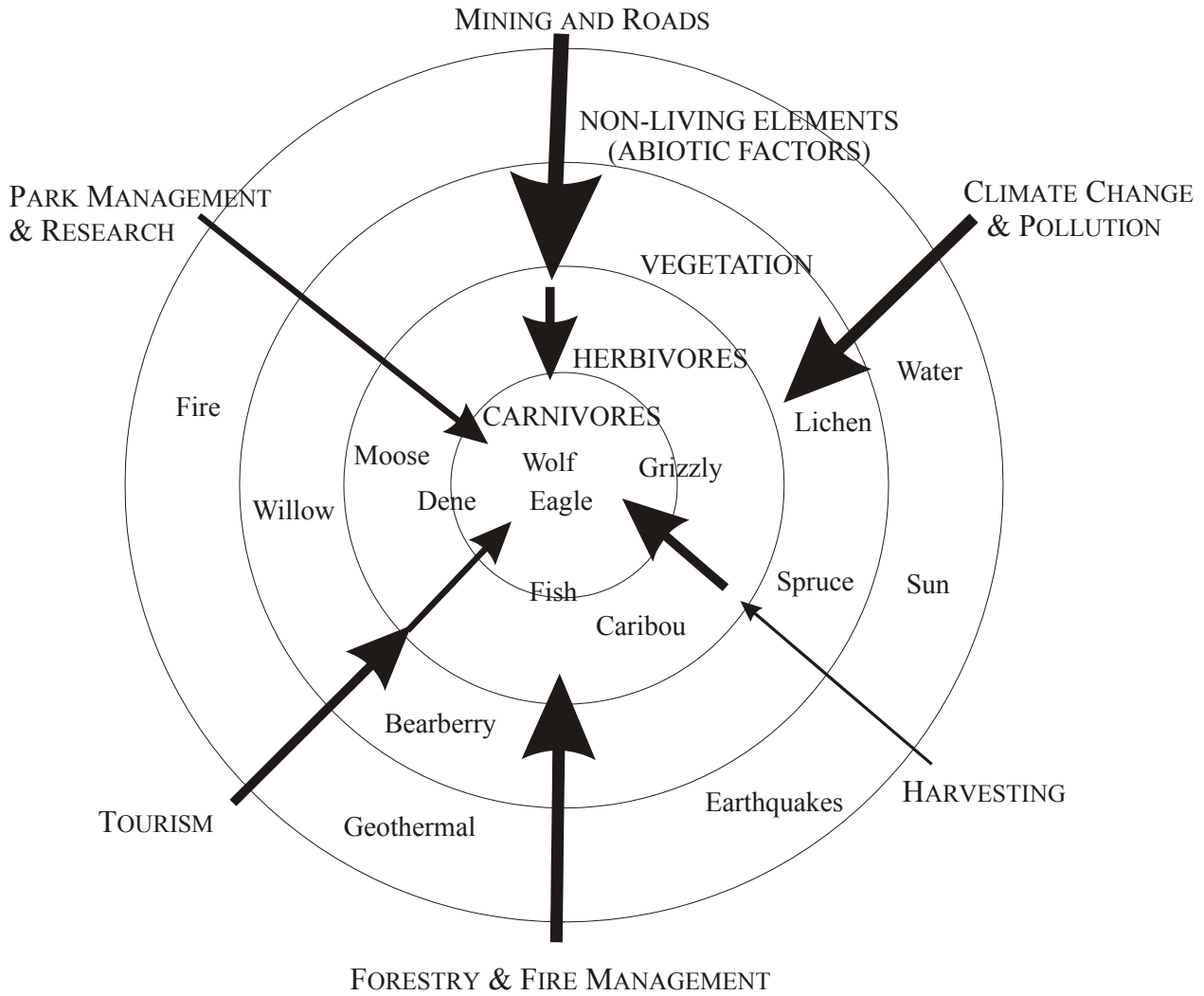


Diagram 1 - A simple ecological model of *Nahʔq Dehé*. The relative thickness of lines indicates potential impacts of stressor categories on ecosystem components. This model incorporates both hierarchical design of scientific models and traditional First Nation representation of the land (*ndéh*).

4.0 Vision

The following vision statement for *Nahʔą Dehé* (the Dene name includes Nahanni National Park Reserve and the South Nahanni watershed as a whole) is based on the participants' input at the Ecological Integrity Statement Workshop held in Fort Simpson, January 29 and 30, 2000. This workshop included elders, community leaders, government agencies, research scientists and other interested groups. Workshop results and a draft vision were subsequently circulated to participants for comment, and the final vision wording was reviewed and agreed upon by the *Nahʔą Dehé* Consensus Team.

This vision, although deeply rooted in the ecology of the land, has a much broader scope. It includes local traditional use and culture as well as science, management and visitor experience. Strategic goals, objectives and actions to achieve this vision are set out in the relevant management plan sections which follow.

An Ecological Vision for Nahʔą Dehé

Nahʔą Dehé will protect a wilderness watershed in the Mackenzie Mountains where natural processes such as fires and floods will remain the dominant forces shaping the park's ecosystem. Special features of the park, including waterfalls, hot springs, glaciers, plateaux, canyons, karst landscapes and cultural/spiritual sites will be preserved. Naturally-occurring plant communities will thrive and native animal species, including woodland caribou and grizzly bears, will be sustained at viable population levels.

Dene are inseparable from the land. Traditional subsistence harvesting will continue to be an integral and sustainable part of the ecosystem and will occur in accordance with Dene law and principles. Nahʔą Dehé will continue to be revered as a place of mystery, spirituality and healing.

Nahʔą Dehé will be a model of cooperative management with First Nations of the Deh Cho where ecological and cultural integrity is protected, visitor access and enjoyment is encouraged within the limits of ecological integrity and wilderness experience, and messages of natural and cultural heritage are communicated with excellence. Nahʔą Dehé will also serve as a national long-term ecological research and monitoring site, and will promote excellence in the conduct of science and cooperative resource protection.

As part of Canada's system of National Parks, and as an important piece of the regional and national mosaic, Nahanni National Park Reserve will:

- contribute to a healthy regional, territorial and national economy, based on the values of the park;
- further the understanding and awareness of the connections between people and the land;
- further the appreciation and enjoyment of Canadians and other visitors of the value of national parks, ethics of stewardship, and environmental responsibilities as citizens; and
- operate in a climate of open management, and co-operate with regional land-use authorities in ecosystem-based management of the greater ecosystem.

5.0 Managing for Ecological Integrity

5.1 Ecosystem-based Approach to Park Management

An ecosystem-based approach to management is fundamental to meeting the challenge of protecting the ecological integrity of Nahanni National Park Reserve. This approach will integrate the management of natural landscapes, ecological processes, wildlife species, cultural resources, and human activities both within and adjacent to the park reserve. As noted in Section 3.0, the South Nahanni watershed (*Nahʔa Dehé*) is the extent of the park reserve's immediate concern. In the context of ecosystem-based management, efforts to maintain ecological integrity must focus on the watershed as the area which has the greatest impact on the ecosystem of Nahanni National Park Reserve.

Many of the directions in this section are based on Nahanni's *Ecological Integrity Statement* (September, 2001), which describes the key ecological integrity values which guide park management (see 3.0 - Vision). Appendix 1 provides a table relating the strategic ecological integrity goals of this management plan with the targets of the *Ecological Integrity Statement*.

On August 20, 2003, the Honourable Sheila Copps, Minister of Canadian Heritage, and Herb Norwegian, Grand Chief of the Deh Cho First Nations, announced the signing of a Memorandum of Understanding concerning expansion of Nahanni National Park Reserve. The MOU states that "Canada and Deh Cho First Nations have agreed to withdraw lands... and, within those lands and within the Greater Nahanni Ecosystem, Parks Canada and Deh Cho First Nations will identify potential lands for addition to Nahanni National Park Reserve of Canada."

Adaptive Management

Parks Canada is committed to integrated resource management that embraces an adaptive management approach. Adaptive management is a method of using and generating information in order to make sound ecosystem management decisions. It is quite simply learning by doing. A key feature of adaptive management is the recognition that ecosystems are complex and that their response to management is difficult to predict.

As cornerstones of this approach, Parks Canada will apply the following management principles:

- set goals and objectives that are clear about what is important to the park and why;
- make sure that all heritage values are respected and considered by a multi-disciplinary team when management decisions are made;
- involve key stakeholders in valuing resources and in contributing to important management decisions;
- exercise vigilance in the quality of scientific research, traditional knowledge, and historical study that support our work; and

- monitor, document, evaluate, and communicate the results of management actions and adjust management accordingly.

At its simplest, adaptive management involves using available information to generate several management alternatives. The best alternative (often the least risky) is selected, applied, and the results monitored. If the management action cannot be reversed once undertaken (e.g. expensive infrastructure), new knowledge can be applied to new situations.

When management can be adjusted rapidly, a more elaborate ecosystem management decision-making process can be applied. In these cases, management would use a planning cycle that includes these elements of a research experiment:

- hypotheses are formulated using best available information;
- the likely ecosystem response is predicted;
- a sampling design is developed, the management action is applied systematically;
- ecosystem response is monitored and evaluated; and
- if the response is unsatisfactory, the information gained is used to reformulate hypotheses, management is adapted, and the process is repeated.

5.1.1 Strategic Goal

Protect the ecological integrity of Nahʔa Dehé.

5.1.1.1 Objectives

- To establish an ecologically-based park area, and/or establish alternative adjacent protected areas to protect ecological integrity through participation in regional land and resource management initiatives, including the Deh Cho Process.

5.1.1.2 Key Actions

- Utilize existing feasibility studies and ecological assessments to refine boundary requirements.
- Through the Deh Cho Process, support boundary modifications and/or alternative adjacent protected areas capable of maintaining the ecological integrity of the entire South Nahanni Watershed. Notwithstanding these alternative adjacent protected areas that may be established in the watershed, the park boundary should be expanded to include complete sub-watersheds, animal movement corridors, and critical habitat.
- Work cooperatively with others to manage and protect the entire watershed.

5.1.2 Strategic Goal

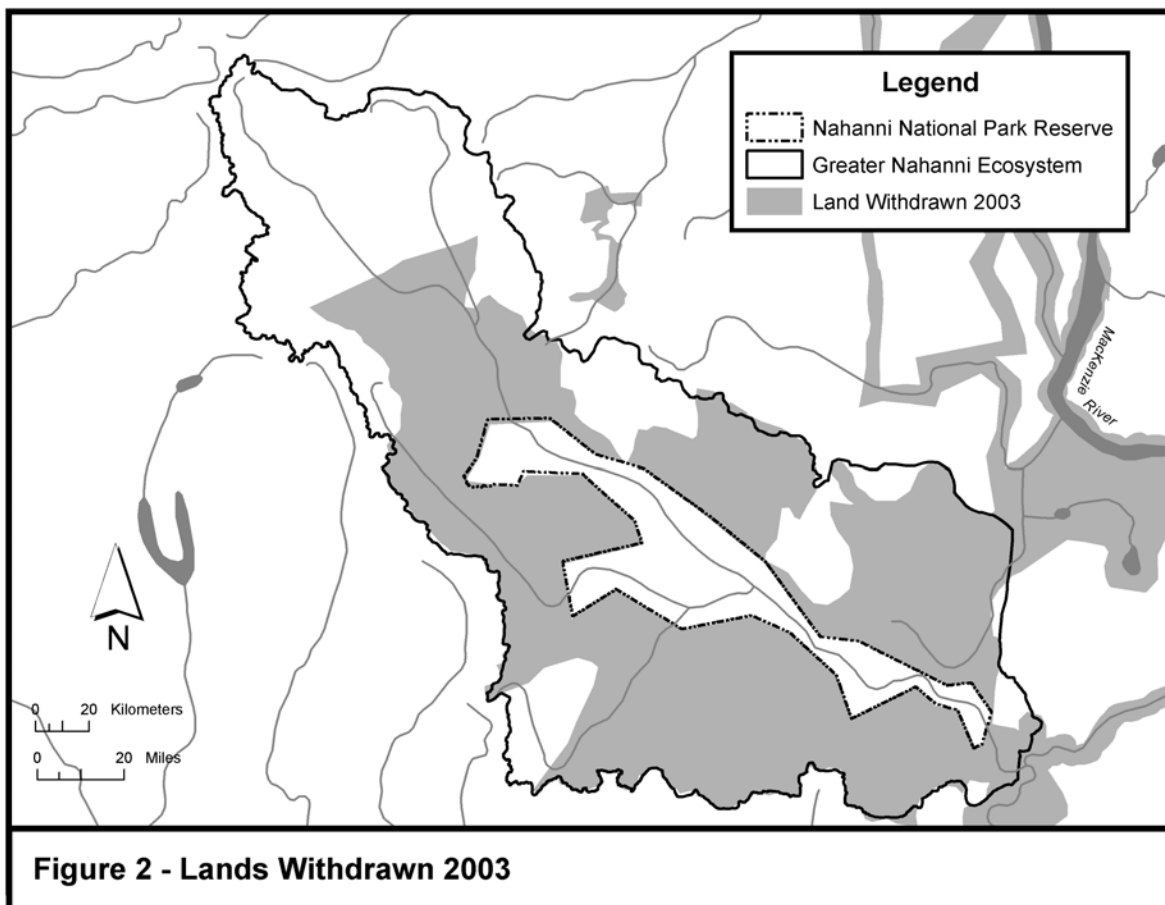
Improve the park reserve's representation of the natural region and ecoregions.

5.1.2.1 Objectives

- In accordance with the Parks Canada - Deh Cho First Nations MOU, establish boundaries that will include additional representative features of Mackenzie Mountains Natural Region.
- To support the Northwest Territories Protected Areas Strategy, by cooperating with other agencies and First Nations to improve Ecoregion representation and protection.

5.1.2.2 Key Actions

- Through the Deh Cho Process, seek boundary modifications to include additional representative features of the Mackenzie Mountains Natural Region, including the Nahanni Karst, Tlogotsho Plateau and Ragged Range areas of interest, as identified in the 1987 Park Management Plan (Figure 2).
- Through the Deh Cho Process, support boundary modifications to include representative areas of the five ecoregions in the watershed - the Selwyn Mountains, Peel River Plateau, Nahanni Plateau, Sibbeston Lake Plain and Hyland Highland.



5.2 Natural Ecological Processes

Wildfire Management

Fire is one of the major agents of natural change in the boreal forest, and fire management in Nahanni will recognize the role that natural fires render in perpetuating the ecosystems of the park. Recent models of climate change have predicted that forest fire frequency and intensity may be one of the major changes noted in forested boreal regions. Within this context and in consideration of regional concerns and interests, Parks Canada will continue its program of cooperative, responsible wildfire management and research.

Water Quality

Both the history and ecology of Nahanni National Park Reserve are inextricably tied to water. The water quality of the South Nahanni River watershed has long been considered a key measure of the park reserve's ecological integrity and health. The park reserve has maintained a comprehensive water quality monitoring initiative for over ten years, and this program remains central to the monitoring program. Consequently, Parks Canada will strive to remain aware of, and be involved in, regional planning, water use licensing, and general management of the South Nahanni River watershed.

5.2.1 Strategic Goal

Natural ecological processes such as fire and flooding remain the primary forces shaping the ecosystem.

5.2.1.1 Objectives

- To maintain natural fire regime in majority of park reserve.
- To ensure the South Nahanni and Flat Rivers remain wild, free-flowing watercourses.

5.2.1.2 Key Actions

- Maintain collaborative fire management agreements with the Government of the Northwest Territories that recognize the role of natural fires in perpetuating the ecosystems of the park.
- Maintain a fire suppression zone in the east end of the park (east of Yohin Ridge) to afford maximum protection to the village of Nahanni Butte, forestry resources outside the park, and areas used for traditional wildlife harvesting pursuits.
- Maintain an observation zone in the park, outside the fire suppression zone, in which fires of natural origin are permitted to burn, except in special circumstances where intervention is required for public safety, to avoid serious adverse effects on adjacent lands, or for the protection of park and adjacent values at risk.
- Determine the natural fire cycle and develop methods for a fire monitoring program.

- Negotiate agreements with other resource management authorities in the watershed to ensure that no water-control or diversion structures are put in place.

5.2.2 Strategic Goal

The highest possible standards of quality are maintained in the air, lands, waters and wildlife of Nahʔa Dehé.

5.2.2.1 Objectives

- To maintain high water quality and air quality.
- To monitor climate change and its effects on park ecology.
- To monitor impact of long-range contaminants in the watershed.

5.2.2.2 Key Actions

- Develop and maintain environmental monitoring programs, in collaboration with other agencies where possible, including Environment Canada (Meteorological Service and Water Survey), Health Canada, Fisheries and Oceans Canada, and Indian & Northern Affairs Canada. Specifically:
 - Maintain water quality monitoring programs, including:
 - a network of stations to detect changes or trends over time in water quality;
 - an adequate hydrological database of baseline water quality conditions in the park;
 - integration of activities and concerns of local resource and land use governing bodies with those of the park, in a manner compatible with park objectives; and
 - monitoring of toxins in lake sediments.
 - Assess air quality issues and determine actions (*e.g.* monitoring programs).
 - Maintain a network of climate stations to adequately monitor climate change (*e.g.* Rabbitkettle Lake, Deadmen Valley, Yohin Lake).
 - Continue to monitor the pattern of ice-out and snowmelt at Rabbitkettle Lake.
 - Continue to monitor the patterns of flowering plant phenology and bird migration.
 - Continue to monitor for potential loss of species due to climate change.
 - Develop methods for sampling of country foods (*e.g.* caribou, fish) and testing for contaminants.
 - Continue to contribute information to the Ecological Monitoring and Assessment Network (EMAN).
- Continue to actively protect ecosystems from potential development impacts through participation in the environmental assessment processes of the *Mackenzie Valley Resource Management Act* (Part 5), for mining and other development projects that occur in the watershed.

5.3 Biological Diversity

Biological diversity, the variety of life, exists at a number of scales, such as genetic, species, community and landscape diversity. Nahanni National Park Reserve is fortunate to enjoy a high level of native biodiversity, with the introduction of relatively few exotic species. Biodiversity, as well as the non-living components of an ecosystem and the natural processes of change, is one of the main aspects of ecological integrity. Therefore, a measure of biodiversity is a fundamental indicator of ecological integrity.

5.3.1 Strategic Goal

Nahʔą Dehé retains its current high levels of native biodiversity, i.e. naturally-occurring plant and animal communities.

5.3.1.1 Objectives

- To maintain biological diversity and distribution of populations such that they remain representative of the Mackenzie Mountains Natural Region.
- To undertake research on indicator/umbrella species such as woodland caribou.
- To maintain naturally-occurring plant communities.
- To protect sensitive and endangered habitats and terrain characteristics.

5.3.1.2 Key Actions

- Determine viable population size and develop strategies for maintaining populations of woodland caribou, grizzly bears, Dall's sheep, and mountain goats.
- Continue to monitor to maintain species diversity of breeding bird communities.
- Continue to monitor rare and edge-of-range species and implement further research and adaptive management if populations decline (e.g. Trumpeter Swan, Black Tern, Upland Sandpiper).
- Monitor sport fishing activities within the park reserve to ensure that the natural dynamics of fish populations is not jeopardized.
- Determine and sustain natural vegetation succession patterns (especially fire-dependent and alpine communities).
- Continue to monitor natural growth and decomposition rates.
- Continue to inventory bryophyte communities and monitor to ensure no loss of species.
- Determine Nahanni Aster (*Aster nahanniensis*) population and species status.

5.4 Traditional Use

Hunting, trapping, and fishing are recognized traditional uses by local Aboriginal people, and these occur primarily in the east end of Nahanni National Park Reserve. This traditional harvest has long been a part of the ecology of *Nahʔą Dehé*, and the collective traditional knowledge of local harvesters is a valuable source of information for resource management decisions.

Conservation of natural resources will be the foremost goal of the park reserve in working with the traditional harvesters of *Nahʔa Dehé*.

5.4.1 Strategic Goal

Recognize and respect traditional human use as an integral part of the ecosystem.

5.4.1.1 Objectives

- To retain knowledge of the traditional way of life.
- To integrate traditional knowledge with science in resource management decisions.

5.4.1.2 Key Actions

- Through cooperation with First Nations, provide opportunities to learn traditional ways through cultural camps, within (e.g. Yohin Lake) or outside of the park reserve as appropriate.
- Work with traditional users to sustain resources, by seeking their assistance in resource-monitoring programs.
- Gather the traditional knowledge derived from past and current use of the region through the course of park research.
- Use traditional knowledge with scientific information in the development of a comprehensive database to be used for the protection and management of the park's ecosystems.



Woodland caribou winter in the park reserve, but their calving and rutting grounds are outside the boundaries, farther northwest in the South Nahanni watershed. (D. Tate, NNPR)

5.4.2 Strategic Goal

Traditional harvest occurs in a respectful and sustainable manner.

5.4.2.1 Objectives

- To ensure traditional use continues in accordance with Dene law and principles.
- To sustain wildlife populations in balance with traditional harvest.



Traditional subsistence harvest continues in the park reserve and surrounding areas. (T. Marcellais, NNPR)

5.4.2.2 Key Actions

- Through cooperation with First Nations, increase understanding and appreciation of Dene Law and the *Statement of the Deh Cho People on Protecting our Lands*.
- Through cooperation with First Nations, ensure traditional harvesters from other communities respect Dene protocol when entering the park and inform Nahanni Butte Dene Band of their activities.
- Through the Deh Cho Process, seek clarity with respect to traditional use in the park.
- Through cooperation with First Nations, monitor harvested game, fish, and furbearing animal populations to ensure they are maintained at viable population levels.

5.5 Scientific Research and Understanding

One of the overriding findings of the *Panel on Ecological Integrity of Canada's National Parks* was that Parks Canada is lacking in its capacity to carry out scientific research. Proper science is

required to provide rationale and support for resource management decisions, and the incorporation of traditional knowledge with science (as referred to in Section 5.4.1.1) greatly improves such decision-making. The value and scale of research can best be increased through partnerships with First Nations, universities and other government agencies. Such partnerships will improve the park reserve's ability to achieve the research and monitoring goals set out in Sections 5.1 to 5.4.

5.5.1 Strategic Goal

Establish Nahanni National Park Reserve as a site for scientific research which will act as a benchmark for ecological change, as well as contribute to the long-term protection and better public understanding of its ecosystems.

5.5.1.1 Key Actions

- Enhance resource management links with Aboriginal peoples and academic, government, and other interest groups to promote co-operative research projects.
- Promote the establishment of benchmark research projects / areas in the park reserve.
- Promote results of research activities in the park in order to further the stewardship of the park and natural environments in general. Methods may include publications, journals, and the park reserve's interpretation and communication programs.
- Collaborate with adjacent land management agencies in research projects, and in the development and maintenance of a comprehensive integrated database, for the park reserve and the South Nahanni watershed.

6.0 Protection of Cultural Resources

Parks Canada defines a cultural resource as “a human work, or place, that gives evidence of human activity or has spiritual or cultural meaning, and that has been determined to be of historical value”. It applies this definition to a wide range of resources, sites, structures, engineering works, artifacts and associated records. Parks Canada is committed to identify, protect and present the wide range of cultural resources in its care. The *Parks Canada Cultural Resource Management Policy* (1994) governs the administration of cultural resources in national parks and establishes the following principles by which they will be managed: value, public benefit, understanding, respect and integrity.

Parks Canada cooperates with First Nations, other agencies, organizations, businesses, and individuals to manage cultural resources in Nahanni National Park Reserve. These parties play a role in protecting and presenting the park’s unique cultural environment.

Cultural resources in the park include pre-contact Aboriginal sites, as well as the remnants of cabins and trails from the era of trapping, prospecting and exploration. Little is currently known of the origins and significance of most of these resources. These cultural resources are part of an irreplaceable heritage. They are important in and of themselves, and also for their combined contribution to the significance of a site and sense of place.

Despite the completion of limited inventories during the 70s and 80s, many challenges remain. Better inventories, monitoring of known sites, and research will improve cultural resource protection. It will also allow Parks Canada to offer presentation programs that accurately reflect the park’s history and that contribute to heritage tourism.

6.1 Strategic Goal

Cultural resources are inventoried, evaluated and protected.

6.1.1 Objective

- To document and protect significant built heritage, archaeological resources, oral history information, historic objects and documentary records in recognition of their value as irreplaceable cultural resources.

6.1.2 Key Actions

- Prepare, in partnership, a *Cultural Resource Management (CRM) Plan* for the Field Unit. This CRM plan, which includes Nahanni National Park Reserve, will include prioritization and operational details of:
 - continuation of cultural resource inventory within the park;
 - monitoring of documented sites in the park; and
 - evaluation of known sites in terms of their heritage value(s).

- Have First Nations, Métis and other groups, assist in the discovery of new cultural resources and also assist in determining the significance of cultural resources already known.
- Update the park's *Cultural Resource Inventory*. This update will include new research and analysis, and provide information in a revised, secure, user-friendly format.

6.2 Strategic Goal

Parks Canada and Aboriginal people collaborate on the documentation, protection and presentation of Aboriginal heritage, including oral histories, in Nahanni National Park Reserve.

6.2.1 Objective

- To highlight Aboriginal cultural heritage in collaboration with First Nations and Métis in ways that respect their traditional values.

6.2.2 Key Actions

- Where possible, support projects that enhance our knowledge of the park's cultural resources, including:
 - linking oral history information to cultural resource locations, such as identifying the builders of the various cabin sites within the park;
 - linking documented sites to human history themes;
 - developing interpretation at specific sites representative of human history themes;
 - implementing a Traditional Place Names study that would incorporate oral histories, traditional knowledge, landscape features and natural resources along with presently known sites, that could potentially lead to predictive models for locating other sites; and
 - development of a CRM layer for the park GIS which would assist with the management of cultural resources.
- Develop an interpretive exhibit of the park reserve's Aboriginal history and culture for the community of Fort Simpson.
- Ensure the management of cultural resources in the park reflects and respects the views and wishes of those who traditionally use and have interest in the area, as well as complies with Parks Canada's CRM Policy and Directives.
- Recommend recognition of traditional South Slavey place names to the Canadian Geographic Place Names Committee.

7.0 Heritage Presentation

Parks Canada has a mandate to provide all visitors the opportunity to learn about, understand and appreciate the ecology, history and culture of Canada's National Parks. The more Canadians know about parks, the more they will support and be involved in management and protection of park resources. In addition, it is important for community residents and regional land managers to understand national park conservation issues, especially as they relate to ecological integrity. Raising public awareness, understanding and appreciation of the role of protected areas is critical to their long-term survival.

Communication is therefore an essential tool for sustaining the ecological and heritage values of Nahanni National Park Reserve. Interpretation and outreach play a key role in connecting Canadians to our country's heritage and promoting stewardship of natural and cultural resources, both inside and outside national parks. People who are unable to visit the park must have opportunities to connect to its landscape, history and purpose through outreach programs.

Messages of Significance

Ecological integrity: People will understand the concept of ecological integrity, the role of the park reserve as a protected area within a larger regional ecosystem, and the threats and challenges to maintaining the ecological integrity of the park reserve. The concept of the Greater Nahanni Ecosystem and its boundary defined as the South Nahanni Watershed (Nahʔa Dehé) will be communicated as the area of interest for maintaining ecological integrity. People will understand that success can only be achieved through cooperation and shared stewardship with visitors, communities, businesses and other organizations.

A system of protected areas: People will learn that Nahanni is part of a system of national parks and that its role within the system is to protect a representative portion of the Mackenzie Mountains natural region.

National and international recognition: People will learn of the park's designation as the first Canadian World Heritage Site and of the South Nahanni River's declaration as a Canadian Heritage River.

A sense of place: People will appreciate the special character and unique features of Nahanni's environment such as the processes that created and continue to shape the landscape and the influence of the landscape and its climate on flora, fauna, human history and present-day activities. Canadians will appreciate that Nahanni's wilderness landscape is an enduring legacy that strengthens us as Canadians.

The delivery of heritage presentation at Nahanni National Park Reserve will comprise a variety of personal and non-personal interpretation as suited to the message and audience. Third party delivery of messages will be encouraged. The park needs to reach many key audiences including visitors to the park, virtual visitors, adults and youth in local communities, non-government organizations, local businesses, regional land managers, media contacts, and youth outreach audiences in cities.

7.1 Strategic Goal

Heritage presentation programs will help maintain the ecological integrity and heritage values of Nahanni National Park Reserve (Nahʔa Dehé) by building awareness and understanding.

7.1.1 Objectives

- To provide opportunities for visitors and non-visitors to learn about the park's natural and cultural resources so that they become knowledgeable stewards who support Parks Canada's mandate of ecological integrity.
- To ensure that education and awareness programs build on the idea of shared stewardship, and that they involve local Aboriginal people and third parties.
- To provide timely and consistent communications.

7.1.2 Key Actions

- Participate in national and regional outreach strategies.
- Continue to develop content for the park website.
- Maintain partnerships with the following organizations for the purposes of collaboration in the development of interpretive programs, exhibits and orientation: Deh Cho First Nations, Deh Cho Divisional School Board, Fort Simpson Historical Society, Government of the Northwest Territories, Fort Simpson Chamber of Commerce, Regional Tourism Associations, Deh Cho Friendship Centre, Nahanni River Outfitters Association, and the Canadian Parks and Wilderness Society (CPAWS).
- Offer orientation sessions and newsletters to local air charter companies, river guides and other government agency staff.
- Achieve a regular presence in local media, including radio and newspaper.
- Re-capitalize the interpretive exhibit at the Fort Simpson Visitor Centre.
- Develop a strategy to reach youth in six local communities (Fort Liard, Fort Simpson, Jean Marie River, Nahanni Butte, Trout Lake, Wrigley). Participate in school river trips and local cultural camps (Fort Simpson and Nahanni Butte).
- Offer guided walks at Rabbitkettle and Virginia Falls (*Náįłıcho*), to provide orientation to the park, manage access to Zone I area, and communicate park messages.
- Keep park interpretive signs to a minimum. To respect the wilderness character of the park, interpretive signs will be located at only two sites in the park - Virginia Falls (*Náįłıcho*) and Rabbitkettle Lake.

- Incorporate traditional South Slavey place names into park literature and heritage presentation programs.
- Measure the success of awareness and educational activities.



Interpretive programs at Virginia Falls (*Náílǰho*) highlight the traditions of Dene culture in the area. (A. Laramée, NNPR)

7.2 Strategic Goal

The natural, cultural, and recreational values that led to the designation of the South Nahanni River as a National Park Reserve, as a UNESCO World Heritage Site and as a Canadian Heritage River are safeguarded.

7.2.1 Objective

- To increase the public's appreciation, understanding and respect for cultural heritage through involvement in the management, protection and presentation of cultural resources.

7.2.2 Key Actions

- Ensure that appropriate sites are selected for interpretation within the context of the overall park story.
- Increase the interpretation of human history themes in both personal and non-personal interpretation.

Interpretive Themes of Nahanni National Park Reserve

- *Formation and Geomorphology of the South Nahanni River Corridor*
- *Ecology of the Mackenzie Mountains*
- *People in the Nahanni Wilderness*
- *The Meaning and Management of Wilderness*

8.0 Visitor Use and Services

An ecosystem-based approach to management in *Nahʔą Dehé* gives recognition to the fact that people and ecosystems are inseparable. Success in maintaining the park's ecological and wilderness integrity will be the result of management decisions which consider both its protection and use. Maintenance of ecological integrity will remain the primary mandate.

8.1 Visitor Activities

Nahanni offers adventure, solitude and magnificent scenery for those Canadian and international visitors who are willing to accept the wilderness conditions of the park. The park provides a wilderness fly-in and river running experience for a wide range of river trippers. Visitors can choose to descend the river in kayaks, canoes or rafts on their own recognizance, or to be outfitted and guided by experienced tourism operators.

Before visitors come to the park they require comprehensive and reliable information to plan a safe, low-impact trip. Since visitors can access the park from various locations, a considerable challenge of communications is the difficulty in contacting all visitors prior to their actual arrival in the park, particularly those visitors who do not pass through Fort Simpson. In order to prevent or reduce the likelihood of accidents and negative wildlife interactions, and to encourage low impact camping practices, detailed pre-trip planning and public safety information must get to potential visitors *before* they decide to travel the river. Due to the level of wilderness skills required to travel in the park, the presence of bears in the park and the potential for conflict with wildlife along such a narrow river travel corridor, the majority of messages to the public, including pre-trip information to prospective park visitors, are public-safety oriented.

Park interpretive programs include guided hikes to the Rabbitkettle Hotsprings, a Zone 1 Area, during the period between July 01 and August 31. The primary messages shared with visitors focus on the sensitivity of the tufa mounds, as well as bear safety. Approximately 90% of river users starting at, or upstream of, Rabbitkettle Lake (65% of total river trips) participate in this guided hike. In most national parks, only a small proportion of people entering the park participate in guided events.

The vast majority of visitation to the park occurs during July and August. The shoulder seasons of June and September provide opportunities for visitors who are willing to risk cool weather in exchange for an increased likelihood of solitude. Day-use visitors to Virginia Falls (*Náʔl̄icho*), who account for up to 40% of the total annual park visitation, have been a challenge to contact due to a lack of staff presence at this location. The majority of these day-use visitors have, in past, received no pre-trip information, and have had no contact with Park staff.

There has been little winter use of Nahanni National Park Reserve. The severe climate, short daylight hours, total lack of facilities and services, and an extremely sparse population in the

region, act to discourage winter use of the park. In addition, while the park presents superb wilderness river touring in the summer, the winter season presents no exceptional recreational opportunities that cannot be more easily obtained in other, more accessible, Canadian localities. Parks Canada does not envision the development of winter use in Nahanni National Park Reserve for the foreseeable future.

8.1.1 Strategic Goals

Provide information to help people make informed choices about travel in the park, prior to their visit.

Provide services that are appropriate and complement the park's wilderness qualities in order to allow visitors with varying interests to enjoy the park.

Enable present and future generations to continue to appreciate, understand, enjoy, and experience the significance and character of Nahanni's natural and cultural resources.

8.1.1.1 Objectives

- To foster realistic expectations by providing information that helps all visitors understand what a national park can offer and what types of use are appropriate.
- To ensure that all information is accurate and includes national and safety messages.
- To provide appropriate interpretive and visitor services at locations of greatest visitor concentrations.
- To educate and inform people about the validity and appropriateness of traditional subsistence harvest within many national parks.
- To establish, through the decision-making process for park management, that the primary experience to be offered in Nahanni is superb wilderness river touring.
- To maintain visitor management strategies that support the long term protection of the park's ecosystem and wilderness integrity.
- To recognize that visitor opportunities and facilities will be limited, and that self-reliance on the part of the visitor is essential if the wilderness character of the park is to remain unimpaired.
- To acknowledge and manage Virginia Falls (*Nájljcho*) as the primary destination of both overnight and day-use visitors to the park.

8.1.1.2 Key Actions

- Maintain staff presence at Virginia Falls (*Nájljcho*) and Rabbitkettle Lake to provide interpretive and visitor services.
- Provide a variety of materials for different use and audiences such as pre-trip planning information, river orientation via a river guide and an interpretive handbook to the river.
- Encourage factual marketing by others. Support local tourism associations with expertise and information.

- Maintain partnerships with the following organizations for the purposes of providing accurate information to the public: Deh Cho First Nations, Fort Simpson Historical Society, Fort Simpson Chamber of Commerce, Government of the Northwest Territories' Department of Resources, Wildlife and Economic Development, Nahanni River Outfitters Association, and regional tourism associations.
- Measure visitor satisfaction with interpretive and visitor services.
- Continue interpretive hikes to the Rabbitkettle Hotsprings Tufa Mounds only if monitoring indicates that visitor access to the mounds is not having a detrimental impact to the structure of the mound.

8.2 Recreational Use

The most dominant feature of the park is the South Nahanni River. Recreational use of the park follows this narrow, linear corridor and is primarily water-based. Associated with this use of the river are numerous off-river camping and hiking opportunities. In this light, the portion of the park that is used by visitors is not an extensive area and it is obvious that there is a limited capability to sustain recreational activities if the park's wilderness management objectives are to be met. Day-use and overnight river-use have been slowly increasing since the park was established. The growth in annual visitation, the short operating season, and the visitation pattern have combined to result in crowding, especially at Virginia Falls (*Nááłı̄cho*).

8.2.1 Strategic Goal

Maintain the wilderness character of the park.

8.2.1.1 Objectives

- To protect and manage the wilderness qualities of the park.
- To sustain park ecosystems within the concept of Limits of Acceptable Change (LAC).

8.2.1.2 Key Actions

- Monitor visitor attitudes with regards to quality of wilderness experience.
- Assess the capacity and physical limitations of sites with concentrated use (ie. campsites, portages, and trails, etc.) and recommend solutions to impacts detected.
- Consult with park users, regional air charter operators, and the outfitters licensed to operate in the park, regarding the fine balance between the need to maintain the essential wilderness character of the park and the need to provide basic, appropriate services.

8.3 Access and Circulation

One of the principal ingredients of wilderness is the feeling of solitude. Numerous visitors to the park have reported that the presence of aircraft overflights has the tendency to disrupt that sense

of solitude, and thus to diminish the wilderness essence of the park. Nevertheless, aircraft are the only practical mode of transportation which will allow visitor access to the park.

Non-motorized watercraft are accepted as the only means of river travel for visitors within the park. Access is provided where the South Nahanni River enters the park upstream of Rabbitkettle Lake, at Rabbitkettle Lake, at Virginia Falls (*Náíl̃icho*), and where the Flat River enters the park downstream from Seaplane Lake. Whenever possible, park operations schedule the use of motorized watercraft, needed for park operations, outside the primary park visitation season. Traditional harvesting activities of local Aboriginal people are not bound by the provision on non-motorized travel in the park.

Off-river hiking is a compatible wilderness activity associated with the opportunities for wild river touring. Other than the designated portage trails, and the access route to Rabbitkettle Hotsprings, no trails are maintained within the park. While not formally designated or maintained, numerous popular hiking routes exist, and basic written descriptions of these routes are provided to visitors upon request.

Several areas in the park require special measures to protect their ecological integrity, and limitations will be put on public access and use to ensure long term protection. Zone 1 - Special Preservation areas include Rabbitkettle Hotsprings, Grotte Valerie, Wildmint Hotsprings, Old Pot Hotsprings, Deadmen Valley Sheep Licks, Sand Blowouts, and Yohin Lake.

Virginia Falls (*Náíl̃icho*) is the only location in the park where day-use visitor access will be allowed. Access points for overnight visitors will occur only at Virginia Falls (*Náíl̃icho*), Rabbitkettle Lake, the South Nahanni River at the northern park boundary, and at the park boundary on the Flat River. A visitor reservation system supports management prescriptions for river-use entry to the park.

8.3.1 Strategic Goal

Access to the park will be managed to ensure that the park's ecological integrity and wilderness experience are complemented and respected.

8.3.1.1 Objective

- Maintain the wilderness quality of the park while allowing air access.

8.3.1.2 Key Actions

- Limit aircraft access to float plane landings at Rabbitkettle Lake and Virginia Falls (*Náíl̃icho*). Day-use visitors will only be able to land at Virginia Falls (*Náíl̃icho*).
- Retain primary access to the Flat River outside the park at Seaplane Lake.
- Encourage regional air charter operators to reduce the disruption of visitors' wilderness experience caused by low level flights by decreasing the frequency and intensity of aircraft overflights along the river corridor.

- Monitor the effects of motorized access to ensure they don't result in detrimental impacts to either the ecological integrity of the park, or to the wilderness experience of a visitor.

8.4 Guiding and Outfitting

While approximately 40 % of visitors to Nahanni are self-supported, 60% use the services of outfitters. In support of these services, Parks Canada will collaborate with regional air charter services and with outfitters and their association, the Nahanni River Outfitters Association, to manage commonly desired activities compatible with the park's purpose and objectives.

The number of park outfitter licences issued to commercial operators will reflect the management prescriptions for visitor entry to the park over an operating season. For the time being, the number issued will not exceed the four currently issued, plus one additional licence which may be issued to a qualified local Aboriginal outfitting operation. To qualify for an outfitter licence in Nahanni, the commercial operator must first be licensed by the Government of the Northwest Territories. Guides in Nahanni must be tested and licensed by the park, be employees of licensed park outfitters, and guide only those trips in the park that are operated by the licensed outfitters.

8.4.1 Strategic Goal

Commercial activities will be consistent with the maintenance and protection of the ecological integrity of the park.

8.4.1.1 Objectives

- To seek ways to improve the ability for Aboriginal commercial operations to benefit from, and contribute to, the park, while respecting the commitment and investment of current commercial operators.
- To monitor the activities of commercial operators to ensure the ecological integrity of the park is not impacted.

8.4.1.2 Key Actions

- Continue to collaborate with air charter operators, and river outfitters to ensure appropriate delivery of commercial services to visitors.
- Initiate a review of the distribution and allocation of commercial business licences.
- In collaboration with commercial operations, prepare Codes of Good Practice to reduce the potential of impact to the ecological integrity of the park.

8.5 Visitor & Operational Facilities

Campgrounds

Four designated campgrounds are located within the park. These are:

- 1) Rabbitkettle Lake Campground;
- 2) South Nahanni River Island Campground, opposite the Rabbitkettle portage landing;
- 3) Virginia Falls (*Náíl̄icho*) Campground; and
- 4) Kraus Hotsprings Campground.

These sites have been designated as campgrounds to protect their surrounding environments from the effects of concentrated and repeated use. The following guidelines are designed to keep these campgrounds compatible with the park's wilderness qualities:

- use capacity will be maintained at their existing levels;
- campgrounds will be primitive in nature and limited to cleared tenting areas, elevated food caches, fire rings, and outdoor privies;
- the Rabbitkettle Lake and Virginia Falls (*Náíl̄icho*) campgrounds will be managed as staging areas to receive park visitors and as points of interest where visitors wish to spend more on-site time;
- the South Nahanni River Island Campground will be managed as an addition to the campground on Rabbitkettle Lake, and will accommodate visitors who reach the park via the upper South Nahanni River; and
- the Kraus Hotsprings Campground includes outhouses and a food cache, and will be managed to accommodate visitors who are attracted to the values of this site.

In keeping with its wilderness character, visitor facilities in the park are minimal. Other than designated campgrounds or sites identified as areas that require controlled access, park visitors are encouraged to camp at random locations of their choosing. These areas will be monitored to ensure that the impacts of use do not exceed acceptable limits.

Portages/Trails

Four trails are maintained as designated portages. These are located along the South Nahanni River at Rabbitkettle Lake, Virginia Falls (*Náíl̄icho*), Figure Eight Rapids, and along the Flat River at the Cascade-of-the-Thirteen-Steps.

Virginia Falls (*Náíl̄icho*) is the only location in the park where day-use access is permitted. This location is the principle bottle-neck for overnight visitors traveling the river, and in past, river travelers have expressed dissatisfaction with encountering day-use visitors mid-way through their wilderness trip. While most of the facilities situated at Virginia Falls (*Náíl̄icho*) are shared between the two groups, some minor additional facilities have been provided to reduce the day-users' need to enter the campground. These include a short section of boardwalk from the

aircraft docks to the main boardwalk trail (bypassing the campground), and an outhouse situated near the promontory overlooks. It is not anticipated that any additional facilities for day use visitors are required.

Signs

Signs are required at various locations throughout the park to provide identity, interpretive, and public safety messages to visitors. Signage will be kept to a minimum and will conform with an approved sign plan.

Operational Facilities

Facilities to accommodate park operations in the park will be limited to visitor service, public safety and enforcement needs, and include five patrol cabins. These are located at Rabbitkettle Lake, on the Flat River near the mouth, and three on the South Nahanni River: one 10 km upstream from Virginia Falls (*Náíłı̄cho*) near Sunblood Mountain, one at Virginia Falls (*Náíłı̄cho*) and one in Deadmen Valley. In addition to providing accommodation for staff while on patrol, the cabins are used as staging areas during public safety, fire management and research & monitoring activities. A helicopter landing area exists at each cabin, and quantities of fuel are stored onsite. Each cabin can be accessed in an emergency by park visitors, and emergency first aid supplies, food, and radio equipment are stored inside.

To permit VHF radio communications within the park, and between the park and the administrative office in Fort Simpson, four mountaintop radio repeaters are situated at strategic locations. As a back-up to the radio system during periods of poor, or failed radio communications, a satellite phone is located in the patrol cabin at Rabbitkettle Lake, and emergency Personal Locator Beacons are located at the other cabins in the park.

8.5.1 Strategic Goal

Management of facilities and services for both visitors and park operations will ensure that the wilderness and ecological integrity of the park are complemented and respected.

8.5.1.1 Objectives

- To provide efficient and cost-effective facilities within the park that are consistent with the park's wilderness and ecological management objectives.
- To limit development of current designated campgrounds to existing capacities and ensure that all facilities are unobtrusive, low key and primitive in nature.
- To ensure appropriate standards of environmental assessment are applied to all visitor and operational facility development and maintenance.

- To provide visitors with environmental etiquette information regarding disposal of human waste, use of open fires, and disposal of grey water.

8.5.1.2 Key Actions

- Undertake a re-capitalization of the built facilities at Virginia Falls (*Náìlìcho*) to ensure public safety and provide an appropriate level of service to a diverse group of visitors using this site.
- Use appropriate indigenous, natural materials whenever possible for facility development and maintenance.
- Ensure signs conform to the standards of Parks Canada and the Federal Identity Program.
- Evaluate frequently used or popular random camping areas to determine need for additional primitive campground designations.
- Monitor concerns regarding inappropriate disposal of human waste and, if monitoring shows unacceptable impacts, develop strategies to implement a mandatory pack-out policy for human waste.
- Maintain policy of mandatory containment of fires within a firebox or firepan; monitor impacts and visitor response.
- Evaluate options regarding the proposed removal of the Sunblood Warden Cabin.

9.0 Administration and Operations

Overview

Nahanni National Park Reserve is part of the Southwest Northwest Territories Field Unit, along with Wood Buffalo National Park and four National Historic Sites in the vicinity of Great Bear Lake, Sahtu Settlement Region. The administration office for Nahanni National Park Reserve is located in Fort Simpson. The Field Unit office, from which the park reserve receives human resource management and financial planning support, is located in Fort Smith, 750 km east of Fort Simpson by road.

In Fort Simpson, office space is provided in a retrofitted log building constructed in the 1960s. A small shop with one heated storage bay and a cold storage shed with four bays were built in the mid 1990s to provide basic maintenance facilities and storage for park equipment. Visitor information and registration is provided in the main office building; the park reserve does not have a Visitor Reception Center. A small interpretive display is housed at the Village of Fort Simpson Visitor Information Center.

Due to the extremely limited housing market in Fort Simpson, Nahanni National Park Reserve owns and maintains one staff house with an attached two-bedroom temporary accommodation for visiting staff or researchers, and five housing units are leased from the Department of Public Works. All remaining staff rent or own their own homes.

Facilities in the park for on site operation and management are minimal. These are described in Section 8.5 - Visitor and Operational Facilities. Four of the park cabins were built more than 20 years ago, and may require a review under the federal government's environmental management and stewardship commitments. The operational context of the park is provided in Section 3 - Planning Context.

Resource Allocation

In recent years, Nahanni National Park Reserve has been allocated an annual budget of approximately \$1 - 1.5 M. The park reserve employs seven full-time staff, plus seasonals, and maintains \$6.22 M in contemporary assets and \$0.3 M in equipment.

Parks Canada uses its business planning process, on an annual basis, to consider the delivery and improvement of park operations. The management plan for Nahanni National Park Reserve will provide the strategic direction upon which the park's business plans, for the next five years, will be based. The park's annual business plan will describe the strategies for the implementation of the management plan, and will consequently provide the mechanism to ensure management plan priorities are met and the implementation of the plan is evaluated on an annual basis.

Socio-economic Context for Management

The Deh Cho region is currently poised to experience significant development from petroleum exploration, pipeline construction, roads, mining, the Deh Cho process, tourism and other land and resource management issues. The economic changes that will result, while not being predictable in terms of specific developments, can be reasonably assumed to result in changes that will require Parks Canada to assess its operations and administration.

9.1 Strategic Goal

Maintain a year-round Parks Canada presence in the region.

9.1.1 Key Actions

- Retain Fort Simpson as the primary operational and administrative center for the park.
- Assess the housing requirements of present and future staff.
- Undertake a needs analysis of operational/administrative office and maintenance requirements to provide a pro-active approach to future needs.

9.2 Strategic Goal

Nahanni National Park Reserve serves as a regional model for environmental management and stewardship

9.2.1 Key Actions

- Store all fuel in environmentally acceptable fuel caches.
- Increase solar power capacity and use at park operations cabins.
- Respect clearly established limits on development of all in-park functions and contain the facility footprint within these limits.
- Comply with environmental assessment obligations including considerations of cumulative effects and environmental management systems to achieve no net negative environmental impact.

9.3 Strategic Goal

Park management will be based on the Parks Canada Agency values and principles of openness, efficiency and collaboration, and will take into consideration the maintenance of ecological integrity through consideration of the Greater Nahanni Ecosystem (Nahʔa Dehé).

9.3.1 Objectives

- To take management actions that will take into consideration that the park is currently defined as a linear corridor which requires the coordination with, and involvement of, adjacent land and resource management agencies.

- To undertake close collaboration with local Aboriginal people in terms of their traditional use of the park, as well as employment, training, career opportunities, and park management.
- To administer and operate the park using the most cost effective and efficient means possible.
- To manage the park in a manner consistent with the Parks Canada Action Plan in response to the Report of the Panel on Ecological Integrity of Canada's National Parks (Parks Canada 2000). In particular, Nahanni National Park Reserve will implement a science and ecosystem monitoring program.
- To represent the interests of Parks Canada in the regional regulatory processes in order to maintain the ecological integrity of the park.

9.4 Strategic Goal

Nahanni National Park Reserve achieves National Park Status.

9.4.1 Objective

- To participate in the Deh Cho Process negotiations in a manner that facilitates the change in status of the park from reserve to national park with a final boundary that will be capable of maintaining ecological integrity.

9.4.2 Key Actions

- Implement the *Deh Cho First Nations Interim Measures Agreement* as it applies to Nahanni National Park Reserve.
- Conduct a study of future resource requirements associated with achievement of park status and boundary modifications.
- Participate in the Deh Cho Process; this may include hosting sessions within the park if required.
- Seek boundary modifications through Parks Canada's participation in the Deh Cho Process (see Section 5).
- Increase awareness and public support for Nahanni National Park Reserve.

10.0 Partnership and Public Involvement

Building Partnerships with Deh Cho First Nations

Nahanni National Park Reserve exists as an integral part of the character of the southwestern Northwest Territories and is recognized as the premier tourist destination in the region. As a protected area it is affected by regional developments and has the potential to affect other interests in the region. The ecosystem-based approach to park management will integrate regional and park activities and concerns in a manner compatible with park objectives.

This integration will be accomplished in partnership with Deh Cho First Nations and through ongoing public involvement in the management of the park. Deh Cho First Nations partnership and public involvement will provide key opportunities to build an understanding of the park, its mandate, and create opportunities for the Deh Cho First Nations and the public to contribute their knowledge and expertise to the management of the park.

Parks Canada will work to involve a broad range of regional interests in the management of the park. This includes co-operation with federal, territorial and local governing bodies responsible for planning and managing the adjacent areas in order to resolve social, economic, and environmental issues and impacts in a mutually beneficial manner.

10.1 Strategic Goal

Ecological, social and economic interests in the park and greater ecosystem benefit from integrated management.

10.1.1 Objectives

- To promote public participation in park planning and management.
- To reflect the cultural and historical diversity of the region in park interpretation and information programs.
- To collaborate with regional tourism initiatives that are compatible with the park's purpose and objectives.
- To work with gateway communities (primarily Ft Simpson, Ft Liard, Nahanni Butte) to share expertise in heritage presentation and tourism and to increase understanding of park goals.
- To work with regional communities and agencies in the areas of public safety and emergency services.
- To contribute to an integrated network of protected areas.
- To encourage local people to choose a career in national parks.
- To collaborate with traditional users of the park in the protection, presentation and management of its resources.

10.2 Strategic Goal

Develop a partnership with the Deh Cho First Nations in the management of the park.

10.2.1 Objectives

- To develop and update ecological integrity statements and park management planning documents in partnership with Deh Cho First Nations.
- To develop local park policies for the management of the park in partnership with Deh Cho First Nations.
- To develop regional initiatives for the maintenance of ecological and cultural integrity in partnership with Deh Cho First Nations.
- To ensure traditional knowledge is used in park management.
- To ensure that heritage programs present Aboriginal history and culture in an appropriate manner.
- To ensure a harmony between Aboriginal traditional use and park visitation.
- To ensure employment, training and career opportunities for members of the Deh Cho First Nations.

10.2.2 Key Actions

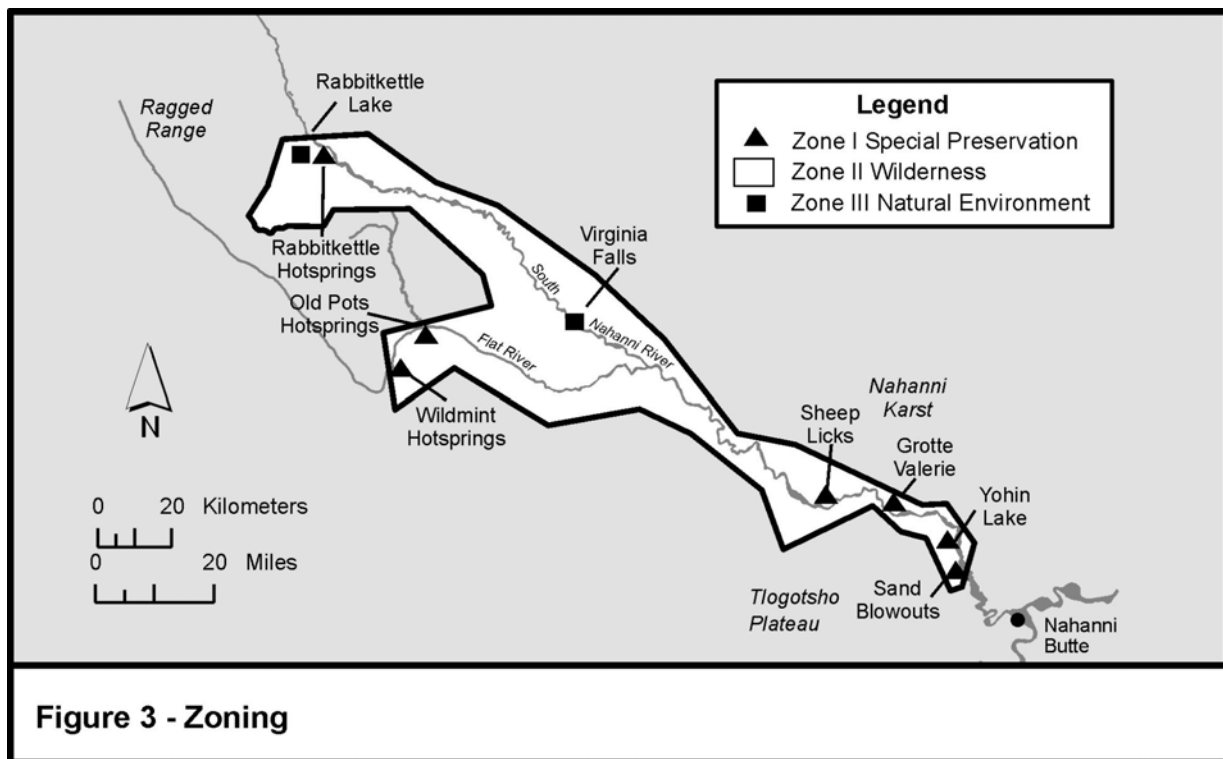
- Implement the *Deh Cho First Nations Interim Measures Agreement* to develop an interim management arrangement with Deh Cho First Nations based on other management models between Parks Canada and First Nations.
- Through the Deh Cho Process, achieve a permanent management regime with Deh Cho First Nations.

11.0 Park Zoning and Wilderness Area Declaration

11.1 Park Zoning

Land and water areas of national parks are classified through the management planning process according to their natural and cultural resource protection requirements and the capability and suitability of these areas to provide opportunities for visitors to experience the park. The zoning plan for Nahanni National Park Reserve as presented in the 1987 Park Management Plan remains valid (Figure 3).

The national park zoning system includes five different kinds of zones, including special preservation, wilderness, natural environment, outdoor recreation and park services. The latter two zones (Zone IV and V) are not used in Nahanni National Park Reserve because they accommodate land and water uses considered inappropriate for the park. Local Aboriginal people may require access to all areas of the park for spiritual reasons or for traditional subsistence harvesting activities, and as such they are not bound by the restrictions on use prescribed by the zoning plan for the park.



11.2 Zone I - Special Preservation Areas

Special Preservation Areas are:

“specific areas or features which deserve special preservation because they contain or support unique, threatened or endangered natural or cultural features, or are among the best examples of the features that represent a natural region. Preservation is the key consideration. Motorized access and circulation will not be permitted. In cases where fragility of the area precludes any public access, every effort will be made to provide park visitors with appropriate off-site programs and exhibits interpreting the special characteristics of the zone” (Parks Canada, Guiding Principles and Operational Policies, 1994).

Seven areas are designated Zone I status in Nahanni National Park Reserve:

Rabbitkettle Hotsprings

The two travertine mounds found at this site are the largest such structures known in Canada and possibly the largest in any sub-Arctic locality. The tops of these mounds display characteristic calcite micro-dams or “gours”. Calcite is a relatively weak material susceptible to shattering from frost action. A more immediate danger to the structures would be the impact of uncontrolled foot traffic on the mounds. Access to Rabbitkettle Hotsprings will therefore be strictly controlled, using guided access conducted by park staff from Rabbitkettle Lake. Due to the cultural and spiritual significance of the ‘South’ mound, no visitor access will be permitted.

Parks Canada will continue to monitor visitor access to the ‘North’ mound in an effort to detect any change in the structure resulting from the permitted access to the site. Should this program detect levels of unacceptable change, alternative methods of interpretation which preclude immediate access to the mounds will be implemented.

Grotte Valerie

Grotte Valerie is a 2 km aggregate of limestone karst passages formed by water percolating from the plateau above First Canyon. Various passageways and caverns are decorated with hundreds of small but actively growing stalagmites and stalactites. Studies have shown the cave system to be older than 350,000 years. The caves therefore are a landscape feature of great antiquity. One of Grotte Valerie’s unique features is the presence of dozens of Dall’s sheep skeletons, some embedded in ice. These are the remains of animals that wandered into the cave system and were unable to return past an icefall. Access to the cave is strictly controlled for reasons of public

safety and protection of the fragile cave features, and is limited to park-approved scientific research.

Wildmint Hotsprings

These hotsprings are located approximately 100 kilometres upstream of the South Nahanni River near the Flat River. The tufa walls are brittle and crumble easily. While there are no extensive mound formations such as those at Rabbitkettle, concentrations of wildlife and unusual vegetation species require protection. Access to this site is controlled to protect the fragile tufa walls and the unique vegetation found at this site, and is limited to park-approved scientific research.

Old Pots Hotsprings

Old Pots Hotsprings on the Flat River is a well-developed tufa dome with several large pools or “pots” overflowing with ground water. The tufa formations are extremely susceptible to damage. Access to this site is controlled to protect the fragile tufa domes, and is limited to park-approved scientific research.

Deadmen Valley Sheep Licks

These mineral outcrops or “licks” are located along the South Nahanni River in the eastern part of Deadman Valley. They are frequented by Dall’s sheep as well as wolves and bears in search of prey. The sensitivity of mammals to disturbance at licks is unknown; consequently, access to these sites is controlled and is limited to park-approved scientific research.

Sand Blowouts

Located just inside the southeast boundary of the park, the Sand Blowouts are made of finely-textured sandstone which have been eroded by the wind into unusual shapes. Curved arches, rounded pillars, and perfect sandstone spheres are found in a small area of three to five hectares. The sandstone features are easily eroded and susceptible to trampling; consequently, access to this site is controlled and is limited to park-approved scientific research.

Yohin Lake

This lake near the eastern park boundary is the largest lake in the park and is an important nesting area for various bird species including the rare Trumpeter Swan. It is also noted for its diversity of aquatic vegetation and the abundance of nesting waterfowl and passerine birds. The

sensitivity of this site requires that public access be strictly controlled and limited to park-approved scientific research.

The Yohin Lake area is frequently used by residents of Nahanni Butte for subsistence harvest and cultural / educational purposes. This traditional use is not restricted by park zoning.

11.3 Zone II - Wilderness Area

Wilderness areas are:

“extensive areas which are good representations of a natural region which will be conserved in a wilderness state. The perpetuation of ecosystems with minimal human interference is the key consideration.... Zone II areas offer opportunities for visitors to experience, first hand, a park’s natural and cultural heritage values through outdoor recreation activities which are dependent upon and within the capacity of the park’s ecosystems, and which require few if any, rudimentary services and facilities. Where the area is large enough, visitors will have the opportunity to experience remoteness and solitude. Opportunities for outdoor recreation activities will be encouraged only when they do not conflict with maintaining the wilderness itself. For this reason motorized access and circulation will not be permitted, with the possible exception of strictly controlled air access in remote northern parks... Parks Canada will use a variety of strategies for managing public use, and will evaluate the effectiveness of these strategies on a regular basis” (Parks Canada, Guiding Principles and Operational Policies, 1994).

Nahanni National Park Reserve’s wilderness and ecological integrity will be strengthened by managing the vast majority of the park as wilderness. Current zoning of the park, as per 1987 management plan and 1994 amendments, will be retained. All areas other than the seven current Zone I Areas and two Zone III areas [Rabbitkettle Lake and Virginia Falls (*Náìlìcho*)] will remain Zone II Wilderness areas.

11.4 Designated Wilderness Areas

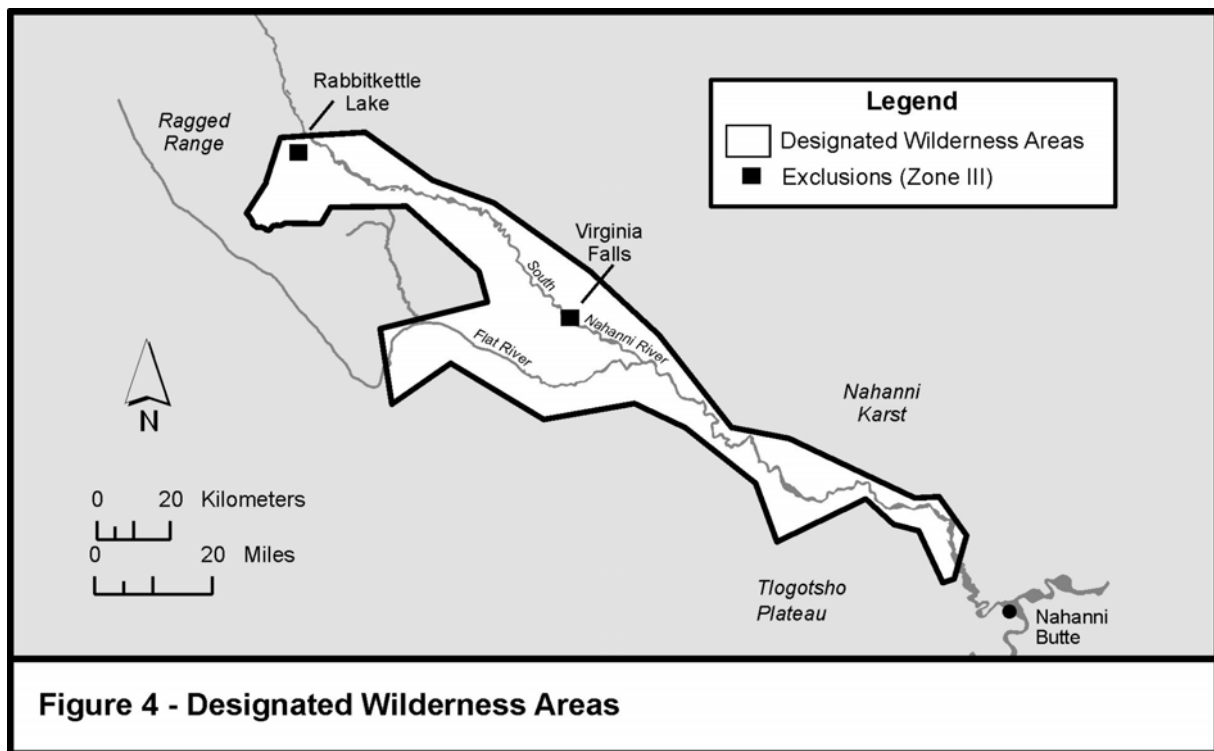
All of Nahanni National Park Reserve, with the exception of Rabbitkettle Lake and Virginia Falls (*Náìlìcho*) areas (Zone III), will be designated as a wilderness area under the *Canada National Parks Act*, Section 14 (Figure 4). This proposed designation of a wilderness area advocates wilderness as the character and values for which the park will be protected. It also recognizes wilderness as a part of the park’s ecological integrity.

11.5 Zone III - Natural Environment

Natural Environment Areas are:

“managed as natural environments, and which provide opportunities for visitors to experience a park’s natural and cultural heritage values through outdoor recreation activities requiring minimal services and facilities of a rustic nature. While motorized access may be allowed, it will be controlled. Public transit that facilitates heritage appreciation will be preferred. Park management plans may define provisions for terminating or limiting private motorized access”. (Parks Canada, Guiding Principles and Operational Policies, 1994).

Both Rabbitkettle Lake and Virginia Falls (*Náílìcho*) areas are designated Zone III. This designation recognizes the controls placed on use and on facility development at these sites.



12.0 Summary of the Environmental Assessment

The *Nahanni National Park Reserve of Canada (Nah?á Dehé) Management Plan* (Parks Canada 2001) was subject to an environmental assessment pursuant to the Cabinet Directive, "The 1999 Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals" (CEAA 1999). In 1998, the *Mackenzie Valley Resource Management Act (MVRMA)* was proclaimed in the Northwest Territories, superceding the Canadian Environmental Assessment Act within the Mackenzie Valley. The definition of 'Mackenzie Valley' in the Act includes all of the Northwest Territories south of the Inuvialuit Settlement Region, but excluding Wood Buffalo National Park. Nahanni National Park Reserve is therefore the only national park or park reserve under the *MVRMA*.

Although management plans do not require screening under the *MVRMA*, this management plan was assessed as per federal government policy (above). The environmental screening was conducted on the first draft of the management plan, to ensure that the environmental effects of the initiatives contained in the plan were fully considered before any irrevocable decisions had been taken. The evaluation of environmental effects included a consideration of natural, cultural and socio-economic effects.

The environmental assessment focussed on seven major initiatives that could result in environmental effects. These initiatives are described in the *Nahanni National Park Reserve of Canada (Nah?á Dehé) Management Plan* and have been briefly described in the environmental assessment. The following conclusions were drawn from the assessment. Cooperation with partners around the park will help to ensure the natural process of fire continues to shape the ecosystems and traditional use of the park is sustainable. The effects of scientific research, monitoring, and visitors can be minimized by following best practices. Some of the initiatives are conceptual in nature (*i.e.* visitor facilities and services) and will require further assessment or screening when the specific proposals have been developed. The required mitigation, surveillance and follow-up will have to be developed when the proposals progress from the conceptual phase to the design and implementation phase.

The *Nahanni National Park Reserve of Canada (Nah?á Dehé) Management Plan* was also evaluated for cumulative effects to the environment. Many of the stressors contributing to cumulative impacts are outside the park. Cooperation with neighbouring First Nations and management agencies will be important to minimize the cumulative impacts on the park. Insufficient information was available to determine if the stressors were cumulatively impacting visitor experience, wildlife, birds and vegetation communities. The monitoring programs outlined in the management plan should alert managers to changes resulting from cumulative impacts. Establishing limits of acceptable change for stressors within the jurisdiction of the park, such as hiking trails and campsites, would help managers decide when action is needed.

The environmental screening has determined that the potentially adverse environmental effects

from the proposals in Nahanni National Park Reserve of Canada (*Nahʔa Dehé*) Management Plan can be mitigated. Proposals which could result in adverse effects or raise public concern will be subject to project-specific assessments conducted under *MVRMA* or Parks Canada policy as the project develops from conceptual stage to design and implementation.

Appendix 1 - Indicators and Targets

This table of objectives, indicators and targets is summarized and paraphrased from the *Nahanni National Park Reserve Ecological Integrity Statement* (2001), and related to the goals set in this management plan.

Management Plan Strategic Goal 5.1.1 <i>Protect the ecological integrity of Nahʔa Dehé.</i> Management Plan Strategic Goal 5.1.2 <i>Improve the park reserve's representation of the natural region and ecoregions.</i>		
Objectives	Indicators	Targets
<p>To establish an ecologically-based park area, and/or establish alternative adjacent protected areas to protect ecological integrity through participation in regional land and resource management initiatives, including the Deh Cho Process.</p>	<p>Number of complete sub-watersheds or basins protected.</p>	<p>The target for watersheds to be included in the park will be determined in the park expansion study 2003-06.</p>
	<p>Animal movement corridors are identified and protected (woodland caribou, grizzly bear).</p>	<p>Woodland caribou movement corridor included in Deh Cho Interim land withdrawal 2003 and proposed park expansion area 2006.</p> <p>Grizzly Movement Study developed to determine movement corridors by 2005.</p>
	<p>Critical habitat is identified and protected (Dall's sheep range in Tlogotsho, caribou calving areas, mountain goat & hoary marmot habitat in Ragged Range).</p>	<p>Critical habitat studies completed and reported in the State of the Park Report (SOPR) prior to next Park Management Plan (PMP) Review. (2007).</p>
	<p>Minimum viable population (MVP) levels are defined and maintained.</p>	<p>Definition of MVP levels by 2010.</p>
<p>Establish boundaries that will include additional representative features of Mackenzie Mountains Natural Region.</p>	<p>Areas of interest, as identified in park boundary expansion study (2003-06).</p>	<p>Areas of interest from study such as Nahanni Karst, Tlogotsho Plateau and Ragged Range areas are included in the park.</p>

Management Plan Strategic Goal 5.1.1 *Protect the ecological integrity of Nahʔą Dehé.*
Management Plan Strategic Goal 5.1.2 *Improve the park reserve’s representation of the natural region and ecoregions. (Continued)*

Objectives	Indicators	Targets
Support the Northwest Territories Protected Areas Strategy by working with other agencies to improve Ecozone representation.	Areas of interest, as identified in park boundary expansion study (2003-06).	Representative areas of the five ecoregions in the watershed - the Selwyn Mountains, Peel River Plateau, Nahanni Plateau, Sibbeston Lake Plain and Hyland Highland – are represented and protected as per the boundary study.

Management Plan Strategic Goal 5.2.1 *Natural ecological processes such as fire and flooding remain the primary forces shaping the ecosystem.*

Objectives	Indicators	Targets
Maintain natural fire regime in majority of park reserve.	Fire cycle (hectares burned per year). Vegetation and wildlife response to fire.	Current fire cycle does not deviate significantly from the natural fire cycle. Natural fire cycle is determined and reported in SOPR. Lightning-caused fires in the watershed are not suppressed west of Yohin Ridge. Study conducted to determine vegetation and wildlife response to fire in order to set future targets for ecological indicators (2003-2007), reported in SOPR.

Management Plan Strategic Goal 5.2.1 *Natural ecological processes such as fire and flooding remain the primary forces shaping the ecosystem. (Continued)*

Objectives	Indicators	Targets
Ensure the South Nahanni and Flat remain wild, free-flowing rivers.	<p>Number of water control structures.</p> <hr/> <p>River levels and flow rates as per established DOE norms.</p>	<p>No water-control or diversion structures are put in place within the watershed.</p> <hr/> <p>Hydrometric station baseline flow trends and patterns of variability are compiled yearly and reported in SOPR.</p> <p>Water use quantities from upstream water licences reported yearly.</p>

Management Plan Strategic Goal 5.2.2 *The highest possible standards of quality are maintained in the air, lands, waters and wildlife of Nah ?ą Dehé.*

Objectives	Indicators	Targets
Maintain high air and water quality.	<p>Air quality monitoring parameters to be established.</p> <hr/> <p>Water quality objectives as per the Environment Canada / Parks Canada report (1998).</p>	<p>Air quality monitoring stations installed and baseline parameters calculated prior to SOPR.</p> <p>No detectable change in air quality.</p> <hr/> <p>No detectable change in water quality from baseline established (1998).</p> <p>Water quality objectives maintained at sampling locations.</p> <p>Water quality monitoring conducted downstream from Prairie Creek and Tungsten at operational monitoring frequency (2003) with Hydrocarbon sampling added.</p>

Management Plan Strategic Goal 5.2.2 *The highest possible standards of quality are maintained in the air, lands, waters and wildlife of Nahʔą Dehé. (Continued)*

Objectives	Indicators	Targets
<p>To monitor climate change and its effects on park ecology.</p>	<p>Climate data (AES standard for climatic normals).</p> <hr/> <p>Pattern of ice-out and snowmelt at Rabbitkettle Lake.</p> <hr/> <p>Patterns of flowering plant phenology and bird migration.</p>	<p>Reliable climate data is obtained from Rabbitkettle station over the next 5 years and reported in next SOPR.</p> <p>Two additional weather stations are established at Deadmen Valley and Yohin Lake. Data obtained over next 5 years and reported in next SOPR.</p> <hr/> <p>The pattern is established from yearly monitoring at Rabbitkettle and remains within this natural variation. Reported in next SOPR.</p> <hr/> <p>Patterns of flowering plant phenology and bird migration are identified through yearly monitoring, and do not deviate from natural variation. Reported in next SOPR.</p>
<p>Monitor impact of long-range contaminants in the watershed.</p>	<p>Country foods baseline parameters as per Northern Contaminants Program.</p> <hr/> <p>Lake sediment contaminants (CCME standards).</p>	<p>Caribou & fish are suitable for human consumption. Study results reported by 2010.</p> <hr/> <p>Toxins in lake sediments remain below levels of concern.</p> <p>Study conducted (2010).</p>

Management Plan Strategic Goal 5.3.1 *Nahʔą Dehé retains its current high levels of native biodiversity, i.e. naturally-occurring plant and animal communities.*

Objectives	Indicators	Targets
<p>Monitor and maintain viable populations of native wildlife.</p>	<p>Viable population size of umbrella species such as woodland caribou, grizzly bears, Dall's sheep and mountain goats.</p> <hr/> <p>Number of species of breeding birds.</p> <hr/> <p>Rare & edge-of-range species (e.g. Trumpeter Swan, Black Tern, Upland Sandpiper).</p>	<p>VP estimated from Nov 2000 Caribou study, 2001 population census and further surveys. Reported in next SOPR.</p> <p>Grizzly bear study continued for entire watershed (Ragged Range area started 2002) until all areas completed 2010. Then viable population estimated.</p> <p>Dall's sheep and Mountain goat population census developed and first census conducted prior to next PMP and reported in SOPR.</p> <hr/> <p>Species diversity of breeding bird communities methods developed and tested prior to next PMP and reported in SOPR.</p> <hr/> <p>Rare species monitoring methods and targets developed, tested and reported in SOPR.</p> <p>Research implemented if populations decline and reported on.</p>

Management Plan Strategic Goal 5.3.1 *Nah ʔa Dehé retains its current high levels of native biodiversity, i.e. naturally-occurring plant and animal communities. (Continued)*

Objectives	Indicators	Targets
Maintain naturally occurring Plant Communities.	<p>Natural succession patterns.</p> <hr/> <p>Growth and decomposition rates.</p> <hr/> <p>Nahanni Aster (<i>Aster nahanniensis</i>) population.</p> <hr/> <p>Bryophyte Communities.</p>	<p>Natural succession patterns are sustained.</p> <p>Natural succession patterns determined by 2010.</p> <hr/> <p>Growth rate study to determine target (2005). Repeat decomposition study in 5 years and report.</p> <hr/> <p>Status of Nahanni Aster (species validity) determined by 2004. COSEWIC status report completed by 2005 if required.</p> <p>Known populations continue to thrive.</p> <hr/> <p>Inventory update required by 2010.</p> <p>No loss of species.</p>

Management Plan Strategic Goal 5.4.1 *Recognize and respect traditional human use as an integral part of the ecosystem.*
Management Plan Strategic Goal 5.4.2 *Traditional harvest occurs in a respectful and sustainable manner.*

Objectives	Indicators	Targets
To ensure wildlife populations are sustained in balance with traditional harvest.	Population and harvest data for harvested game, fish and furbearing species.	<p>Harvested game, fish and furbearing populations are monitored and maintained at viable population levels.</p> <p>Harvest data is recorded in cooperation with local users and reported yearly. Methods to be developed through consensus team and operational by 2005.</p>

Management Plan Strategic Goal 8.2.1 *Maintain the wilderness character of the park.*
Management Plan Strategic Goal 8.3.1 *Access to the park will be managed to ensure that the park's ecological integrity and wilderness experience are complemented and respected.*

Management Plan Strategic Goal 8.4.1 *Commercial activities will be consistent with the maintenance and protection of the ecological integrity of the park.*

Management Plan Strategic Goal 8.5.1 *Management of facilities and services for both visitors and park operations will ensure that the wilderness and ecological integrity of the park are complemented and respected.*

Objectives	Indicators	Targets
Impacts from human use within limits of acceptable change.	Campground impact monitoring protocols.	Impacts on monitored sites do not increase (Reported annually).
	Human waste management.	Study conducted and recommendations implemented for human waste mgt by 2004.
To maintain opportunities for wilderness and spiritual experience.	Results from visitor experience surveys.	Visitor surveys indicate at least 85% of visitors satisfied with their experience.
Maintain roadless wilderness	Road km per km ²	No road development
Preserve the special features of <i>Nah 7a Dehé</i> .	Status of special features: Yohin Lake waterfowl, Rabbitkettle tufa mounds, Wildmint Hotsprings plant communities, Grotte Valerie ice caverns and sheep skeletons.	No degradation of special features in Special Preservation Areas (zone 1).

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