



Wilderness and Nature Expeditions from Alaska to Nunavut

Honourable Sheila Copps
Department of Canadian Heritage

Monday, Feb 11, 2002

Dear Ms. Copps,

I am enclosing our latest newsletter with an article concerning the proposed mine development on the border of Nahanni National Park.

Please consider this as a friendly "heads up". The article was circulated to approximately 10,000 Canadian decision makers. The next issue goes to print in 3 weeks and I am hoping you can give me better news to deliver.

I fear that you may not be aware of the role and responsibility your Office holds in the process as the designated "Responsible Minister". As the "Responsible Minister" you have the ability to accept, reject or modify the assessment reports mentioned below.

The issue is as follows:

- The situation is worse than the Cheviot Mine issue outside Jasper. The mine requires an all weather road in order to be viable. This road would run too close to, and parallel the boundary of the Park and World Heritage site, through the Karst lands of the Nahanni Plateau. This region is fragile and is part of the land under consideration for expanded Park boundaries through the Deh Cho process. The site is perched in a narrow valley on Prairie Creek that flows directly into the Nahanni. The toxic tailings pond will lie upstream of the Nahanni on Prairie Creek, poised for millennia to flow/leach into the Park. This is one of the most seismically active areas in North America and has experienced flash flooding in recent years in adjacent valleys (a Park visitor was killed in 1995 in one such flood).
- January 19, 2002, a fuel spill estimated at 24,000 litres occurred at the Tungsten Mine site on a tributary of the Nahanni. If this event had occurred within Prairie Creek, the results would have been catastrophic.
- The current environmental assessment process focuses on individual components of the development in isolation from the over all impact. It does not yield an effective assessment of the overall project.
- In the latest "Assessment by the Mackenzie Valley Environmental Review Board" they state: *"The review Board also suggested that the Federal Minister and the Minister responsible for National Parks decide on the scope and nature of acceptable protection to ensure the ecological integrity of Nahanni National Park, including the possibility of establishing a buffer zone where land use activities are not compatible with the park purpose and management plan."* The door is open and they are inviting you to exercise your prerogative as the Responsible Minister.

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- Until a proper land use plan is finalized, a buffer zone of the complete watershed is the only acceptable management position.
- It is imperative that a moratorium on developments like this be imposed on this watershed until a proper land use plan is finalized.

I thank you for your attention to this matter. Please feel free to contact me with any questions and I look forward to positive news that I can publish in our upcoming newsletter to signal that the integrity of the Park has been re-secured and that Parks Canada is following it's mandate.

Sincerely,

R. Neil Hartling
President

cc:

Mr. Tom Lee
CEO
Parks Canada Agency

The Honourable Mr. Robert Nault
Department of Indian Affairs and North

The Honourable Harbance Singh Dhaliv
Department of Fisheries and Oceans

The Honourable David Anderson
Department of Environment

Mr. Vern Christensen
Executive Director, Mackenzie Valley
Environmental Impact Review Board

Mr. Bob Wooley,
Executive Director,
Mackenzie Valley
Land and Water Board



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ANY QUESTIONS/COMMENTS

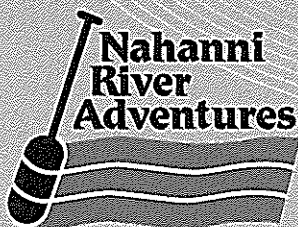
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OUR REGULAR NEWSLETTER

Most of our friends who join us on our northern expeditions, return to the southern climes for the winter. We publish Northern Currents four times a year to keep you in touch with the north. Included will be tidbits of Northern trivia, news about upcoming trips, and tips on northern adventure travel. Please send us your comments.

Note: If you are corresponding with us via the enclosed reply card, please include your name and address.



CONFLUENCE OF ALSEK AND TATSHENSHINI RIVERS

GREETINGS FROM WHITEHORSE!

I hope the New Year is unfolding well for you. Our early winter has yielded great skiing. Here in the office we have finally (after all these years) instituted a "daily ski"! Now you know why we sound happy on the phone.

We are also happy to find that people are rising to the challenges of our time and not letting the international events spoil their plans for a northern holiday. To top it off, we are finding that we are in the "right place at the right time" (for once) and traveling north is perceived as "the" most reliable holiday plan.

Even as northern residents, we are continually learning more about the diversity of

our northern environment. In this issue we are introducing many of these marvels in a glossary of terms. Impress your friends at your next gathering with phrases like cryoturbation, alluvium, and fluvial or even glaciolacustrine!

Best wishes for a good winter season and I hope you can join us in the spectacular north this summer for a grand adventure.

Sincerely,

WILDERNESS WORDS OR HOW TO SOUND LIKE A NORTHERN PHD

The north is full of distinctive and even exotic natural phenomena. In addition we have a delightful array of terms to describe them. Like so many endeavours - knowing the "jargon" is half the battle in understanding what we are observing.

The best source of easily understood and readable explanations of these phenomena is E.C. Pielou's "A Naturalist's Guide to the Arctic". (We carry a copy on every trip.) I have organized this glossary in alphabetical order. This edition will feature A - L, watch for the remainder in our next edition.

GLOSSARY OF TERMS

Definitions taken from American Geological Institute (1962), Fairbridge (1968), Brown and Kupsch (1974), Washburn (1973), and Canada Soil Survey Committee (1996)

Active layer: The layer of ground above the permafrost table that thaws each summer and refreezes each fall.

Aeolian: Materials transported and deposited by wind action. Generally consist of medium to fine sand and coarse silt.

Alluvium: Material of any particle size that has been deposited by moving water.

Aufeis: A sheet - like mass of ice on the ground or on the surface of river ice (we sometimes spot this during the summer on the banks of side streams).

Beaded stream: A drainage pattern of individual streams in which pools or small lakes are connected by short stream reaches. The melting of ground ice causes the pools.

Bog: Peat covered areas or peat-filled depressions with a high water table, strongly acid peat and surface layer of mosses.

Brunisol: A type of soil with weak development; it is often light brown in colour with good drainage and of a loam or coarser texture.

Cat steps (Terracettes): Narrow ledges of earth on steep hill sides. In instances cited, likely due to landslide aided by freeze thaw action.

CIRCLES

Nonsorted Circle: Patterned ground feature occurring in groups, whose interior surface is dominantly circular and lacks a border of stone.

Sorted Circle: Patterned ground feature, occurring in groups, whose interior surface is dominantly circular and which has a sorted appearance commonly due to a border of stones surrounding finer material.

Cirque: A bowl shaped, hollow recess in a mountain resulting from ice erosion

Coluvium: Materials of any particle size that have reached their present position by direct gravity induced movement.

Cryoturbation: A collective term to describe all soil movements due to frost action. Encompasses frost heaving and all differential and mass movement including expansion and contraction due to temperature change.

Deglaciation: Uncovering of the land surface brought about by the melting of glacier ice.

Drumlin: A smooth, streamlined, cigar shaped hill formed beneath moving glacial ice.

Drunken forest: A group of trees leaning in a random orientation usually associated with thermokarst topography.

Ecoregion: An area of land where the vegetation, soils and permafrost reflect the regional climate.

Ericaceous plants: A collective term for members of the Ericacea family; shrubby plants with usually thick leathery leaves.

Felsenmeer: A chaotic assemblage of fractured, often upheaved, rocks resulting from intensive frost shattering of jointed bedrock.

Fen: A peatland with slowly moving water above or below the surface.

Forbs: A general term used to refer to non-woody plants other than graminoids, mosses and lichens.

Frost cracking: Fracturing of the ground by thermal contraction at temperatures below 0°C

Frost table: Any frozen surface within the active layer above the permafrost table or a frozen surface in seasonally frozen ground in a non-permafrost environment.

Glaciofluvial: Materials deposited by moving water either in front of, or in contact with, glacier ice.

Glaciolacustrine: Materials originating from glacier ice and deposited in standing water.

Graminoid vegetation: A collective term for grasses, sedges, cottongrass, bulrushes, reeds, etc

HUMMOCK

Hummock: special nonsorted form of net, characterized by a knob-like shape and vegetation cover.

Earth hummock: Hummocks

having a core of mineral soil.

Turf hummock: Hummocks consisting of vegetation with or without a core of mineral soil or stone.

ICE

Ice contact: Material dropped in holes, ice walled trenches, etc. and remains on the land surface when the glacier melts.

Ground ice: Ice in pores, cavities, voids or other openings in soil or rock, including massive ice.

Segregated ice: Ice formed by the migration of pore water to the freezing plane where it forms into discrete lenses, layers, or seams ranging in thickness from hairline to greater than 10 m.

Ice lens: A dominantly horizontal lens-shaped body of ice of any dimension. Commonly used for layers of segregated ice that are parallel to the ground surface. The lenses may range in thickness from a hairline to as much as about 10 m.

Ice wedge: A massive, generally wedge-shaped body with it's apex pointing downward, composed of layered, vertically oriented, commonly white ice; from less than 10 cm to 3 m or more wide at the top, tapering to a feather edge at the apex at a depth of 1 to 10 m or more. Some ice wedges may extend downward as far as 25 m.

Kame: Mounds of poorly sorted, water laid sand and gravel formed within holes or fissures in the glacier or between the glacier and the land surface.

Lapilli: Coarse ash, volcanic ejecta ranging in size from 4 mm to 32 mm.

Loess: Glacial till, highly ground to a fine dust, deposited by wind in thick beds.

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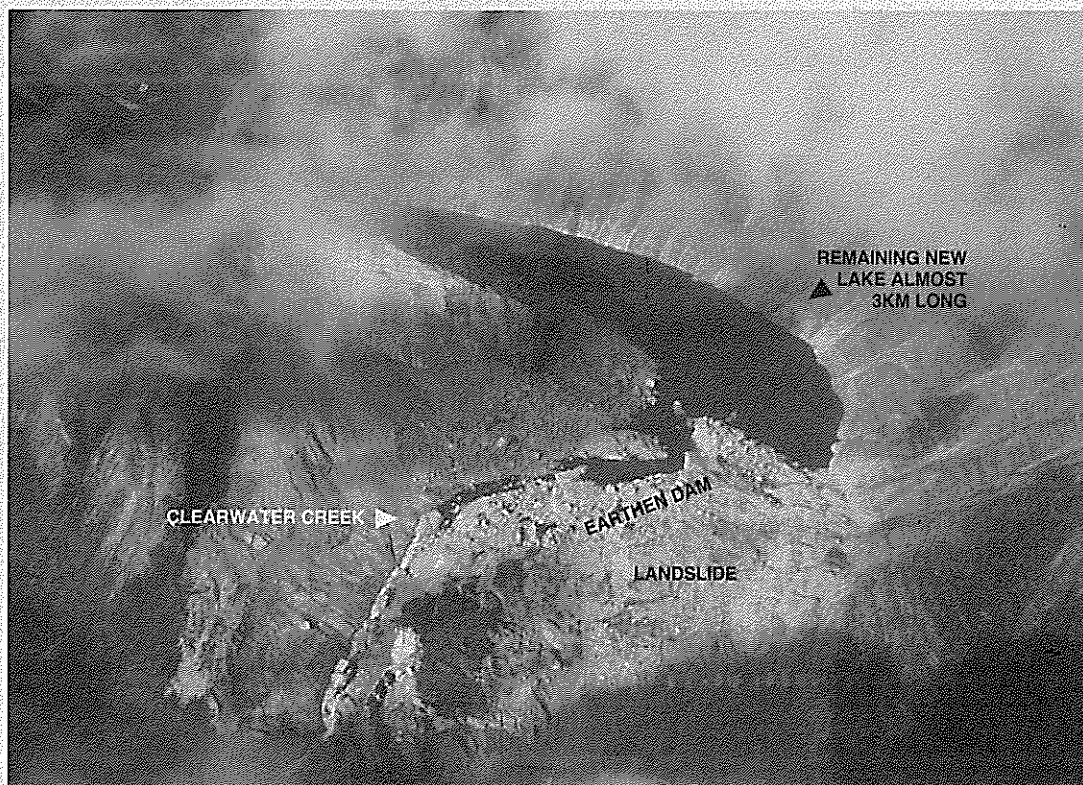
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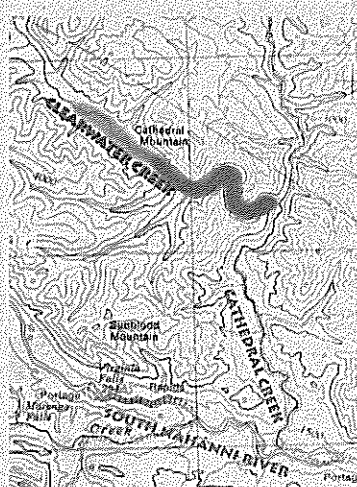
For more information call
 1-800-297-6927

GUIDE-LINES

Our congratulations to river guides: Kathy and Ian Chase on the birth of their son "River Arthur Chase". He is growing quickly and looks like he will be a big boy...an asset on the portage trail!



ARIAL VIEW OF "NEW LAKE" AUGUST 2001. EVIDENCE OF EXTREMELY DYNAMIC GEOMORPHOLOGY AND HYDROLOGY



THE LIGHTER GREY NEAR CATHEDRAL MOUNTAIN INDICATES THE ORIGINAL NEW LAKE; THE DARKER GREY INDICATES THE NEW LAKE FOLLOWING THE BREACH OF THE DAM.

On or around March 1, 1997 the side of an unnamed mountain slid into the Clearwater Creek valley, blocking the drainage and creating an 18 km (11 MI) lake. This new dam was 17km upstream from the confluence

with the Nahanni. Due to the remoteness of the location, the phenomena was not immediately noticed. As the waters accumulated, the earthen dam was breached and a torrential flood ensued. We had two groups on the river downstream of Clearwater Creek. Both reported a rise in river level that would seem to be the highest in recorded history. One of the groups had to pack up camp in the late evening just as their island campsite disappeared under the water. Fortunately both groups weathered the flood and now have dramatic stories that will "buy them drinks for years".

The map above left, shows the initial extent of the lake in the flooded valley and the new level when the waters receded following the bursting of the dam. Subsequent investigation by federal geologists pronounced the remaining dam as permanent (in spite of

this we will not plan to camp in the Clearwater Creek valley).

What was the cause of this calamity? Did global climate change cause enough permafrost melt to allow such a slump? It seems the answer may lie deeper within the earth's crust. Seismic records for the time period in question show a significant event of 3.8 on the Richter scale. Of course the first question is - "did the seismic activity cause the slide or did the land slide cause the seismic reading?" Specialists indicate that the movements of tectonic plates, which result in the seismic tremors, are responsible for shaking the mountainside loose causing the blockage.

The upside of this event is that the Park now has a new lake and visual evidence of dramatic change within our lifetime - a reminder of geological power - and a new place to explore!

REPRINTED FROM NORTHERN CURRENTS, SPRING 1998

PLAN YOUR RIVER HOLIDAY NOW!

INSIDIOUS THREAT TO NAHANNI REQUIRES IMMEDIATE ACTION



TERRY PARKER

A NAHANNI GRIZZLY

I am on record saying: "if it can't be grown, it has to be mined" - but not at any cost! We have a grave situation on the Nahanni that is snowballing into an irreversible tragedy! There are two major problems that are being washed over with bureaucratic process.

a) When Nahanni National Park was established in 1972, an inactive zinc mine site existed on Prairie Creek, just outside the boundary. Historically, the mine was serviced by a winter road (created of snow and ice - no permanent access).

Canadian Zinc Corporation (CZC) purchased the mine and now wishes to open it.

CZC has stated that ultimately, the mine requires an

"CZC has stated that ultimately, the mine requires an all weather road to make the mine viable."

all weather road to make it viable. This would position a road parallel and close to the boarder of a wilderness park, through the Karst Lands of the Nahanni Plateau. This region is fragile and is being considered for addition to Nahanni NP. It is indisputable that this will impact on the values for which the Park was established.

b) The toxic tailings pond will lie UPSTREAM of the Nahanni on Prairie Creek, poised for millennia to flow/leach into the Park. The effluent will be in a very narrow valley in one of the most seismically active regions in North America (you don't hear this on the news because there are no tall buildings within a thousand kms. Recent Nahanni history has shown that these valleys are prone to flash flooding. (See the 1999 Northern Currents article reprinted this issue outlining the landslide and flash flood of 1998). As you read this over 1 million litres of diesel fuel is located in out of date storage tanks just metres from Prairie Creek.

How can this be happening you ask? Incredibly with ease: The Mackenzie Valley Environmental Impact Review Board assesses the project based on separate "phases" of the project - with no measurement of the cumulative and quantitative effect of the total project. As unbelievable as this may be - it is happening as you read this. Already they have recommended three permits. They say in their findings that there are no significant public concerns.

Who is allowing this to happen? Robert Nault, Minister of Indian Affairs and Northern

Development, Sheila Copps, Minister of Canadian Heritage, Harbance Singh Dhaliwal, Minister of Fisheries and Oceans, David Anderson, Minister of Environment and Tom Lee, CEO Parks Canada Agency. As the responsible Ministers they have the power to shut down this threat. Why did the government and in particular Parks Canada insist upon detailed assessment of the Cheviot Coal mine on the boarder of Jasper National Park, which was less of a threat than this project. In this case Parks Canada targeted significant resources and dollars. We need to call upon Parks Canada to dedicate staff and resources as they did for Cheviot.

Action is required immediately. The project has been allowed to "leach along" due to the tunnel vision used for assessment. In fairness to all involved and wise resource management, it must be shut down now.

Alison Woodley's article in this issue spells out the larger threat and provides the background context..

What to do:

Email or write to the following indicating that the cumulative effect of the Prairie Creek Mine is a threat to Nahanni National Park and must be terminated immediately. Encourage them to continue the initiative to expand the borders of Nahanni National Park.

Vern Christensen

Executive Director, Mackenzie Valley Environmental Impact Review Board
FAX (867)920 4761

Bob Wooley

Executive Director Mackenzie Valley Land and Water Board
7th Floor, 4910-50th Ave.
P.O. Box 2130
Yellowknife, NT X1A 2P6
(867)669-0506
Fax (867)873 6610
mvlwbpermit@mvlwb.com

Mr. Tom Lee

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tom_lee@pch.gc.ca
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Honourable Mr. Robert Nault

Indian Affairs and Northern Development
minister@inac.gc.ca
Fax (819)953-4941

Hon Harbance Singh Dhaliwal

Fisheries and Oceans
min@df-o-mpo.gc.ca
Fax (613)990-7292

Hon David Anderson

Dept of Environment
David.Anderson@ec.gc.ca
Fax (819)953-3457

Hon Sheila Copps

Canadian Heritage
min_copps@pch.gc.ca
Fax (819)994-5987

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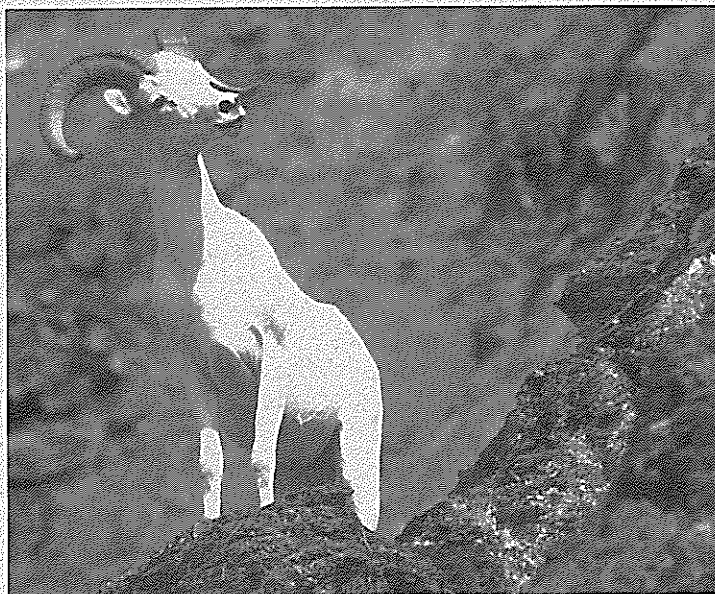
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GREATER ECOSYSTEM PROTECTION KEY TO NAHANNI FUTURE

TERRY PARKER



PRAIRIE CREEK DALL SHEEP

In Canada's Northwest Territories, the South Nahanni and Flat Rivers surge through a vast swath of boreal wilderness, rich in scenery and wildlife.

Recognized as a place of global significance, a corridor along these rivers was protected in 1976 as Nahanni National Park Reserve. Since then, the South Nahanni River has been designated as a Canadian Heritage River, and a World Heritage Site.

The Nahanni region is a landscape of rich diversity and rugged beauty. The South Nahanni River flows through canyons over one kilometer deep, plunges over Virginia Falls - a cataract twice the height of the Niagara, and flows past hot springs and giant tufa mounds. Grizzly and black bears, woodland caribou, and trumpeter swans are just a few of the wildlife species that live in the park.

Plants rare to northern boreal forests cling to mist-bathed cliffs below waterfalls and nestle around hot springs. The spectacle of the landscape and the challenges of the river have made the Nahanni one of Canada's premier wilderness raft and canoeing rivers.

Park Establishment

In the early 1970s, a massive hydroelectric power project was proposed for the South Nahanni River at Virginia Falls. This proposed development galvanized public support for permanently protecting the

"The most immediate threat to the ecological integrity of Nahanni National Park Reserve is the on-going development of a mine on the shores of Prairie Creek"

wilderness character of the river.

Pressure to create a national park in the Nahanni region was generated from the conservation and the recreational canoeing communities. But the final push to protect the river can be traced to a single canoe trip. In the early 1970s, then Prime Minister of Canada and avid wilderness canoeist, Pierre Trudeau, paddled the South Nahanni River and was so moved that he directed his government to protect the area

as a national park. In 1972, a national park was announced, and in 1976, one seventh of the South Nahanni watershed (4766 sq. km) was legally protected as a national park reserve.

In 1978, UNESCO designated Nahanni National Park Reserve as the first natural World Heritage Site, before even the Grand Canyon or the Great Barrier Reef, for its globally significant natural features and wilderness values. Nahanni was designated under two different criteria: as "an outstanding example representing significant ongoing ecological processes or biological evolution" and for its "superlative natural phenomena, formations or features or areas of outstanding natural beauty". Nahanni's World Heritage designation brings with it an international responsibility on the part of the Canadian government to protect this area's ecological and scenic values.

Threats to Nahanni's Ecological Integrity

Twenty-five years later, in spite of its vast size and remoteness from urban centres, Nahanni National Park Reserve is under serious threat. Industrial development is rapidly approaching the borders of the park. Mine sites are being developed upstream from the protected area of the watershed, and oil and gas exploration activities, particularly seismic lines, are being cut through the area south of the park. Parks Canada, in its 1997 State of the Parks Report found that Nahanni had potential significant impacts to its ecological integrity from external stressors. They ranked mining as the most significant threat to the ecological integrity

of the park.

In the early 1970s, when the process of establishing the national park was underway, little was known of the ecological values of the region. As a result the original park boundaries were not based on a systematic evaluation of these values. Parks Canada recognized that the initial boundaries would need to be adjusted as detailed studies of the region became available. However, to date, the boundaries remain the same as they were twenty-five years ago when the park reserve was established. Parks Canada has identified three general areas of interest for expanding the park to improve its representation of the Mackenzie Mountains Natural Region, but they have yet to be protected from industrial development. More work is needed to assess the ecological requirements of wide-ranging wildlife species like grizzly bears and woodland caribou, and how well they are protected within the present park boundaries.

The most immediate threat to the ecological integrity of Nahanni National Park Reserve is the on-going development of a mine on the shores of Prairie Creek, an upstream tributary of the South Nahanni River. This lead-zinc-copper-silver mine site has infrastructure on-site dating back to the early 1980s when a proposed silver mine came close to operating, but was abandoned at the last minute in response to plummeting silver prices. Now owned by a small mining company called Canadian Zinc, the mine has been gearing up for operation and the company has been applying for permits for drilling and other development activities. In spite of concerns about the mine from First

Nations and Parks Canada, and calls for a comprehensive examination of the potential impacts of the mine from conservation groups, no environmental review considering the full cumulative impacts of the mine on the World Heritage Site next door has been commissioned.

In addition to the Prairie Creek mine site, there are several other mining development or exploration projects underway in the watershed. Outside of the park, a number of sites have recently been staked and have begun exploration activities, and several old mine sites exist in the watershed which may become active at any time.

The risk of water contamination as a result of mining development in the South Nahanni Watershed is significant. Environment Canada and Parks Canada released a report in 1991 concluding that "the cumulative impacts of mining activity could be considerable" and that mining activity has "the potential to adversely affect the water quality of the basin and disrupt the life processes that depend on it".

The other serious threat to the ecological integrity of the Nahanni ecosystem is oil and gas exploration. While there has been a moratorium on any oil and gas rights issuances in the Deh Cho Region since 1994, seismic exploration activity has been allowed to proceed. Over 400 km of seismic lines have been permitted inside the South Nahanni Watershed in the past year, and an additional 87 km of seismic lines are currently under review. This presents concerns about fragmentation of the boreal forest ecosystem, and its impact on wildlife populations. And of course, if seismic activity results in oil and gas potential, the pressures to

develop the ecosystem for fossil fuels, with its inevitable roads, drilling pads, fuel spills and supply depots will only increase.

First Nations and Nahanni

Nahanni was one of the first national parks created north of the 60th parallel in Canada. Creating parks in the north led to a shift in thinking and policy direction for new national parks in Canada. It was recognized that northern lands considered wilderness to southern Canadians are homelands to northern aboriginal peoples. Both the federal and territorial governments agreed that proposed parks should not infringe on the traditional use of wildlife by northern aboriginal peoples. In addition, national park creation should not compromise self-government negotiations between Canada and First Nations. As a result, the National Parks Act was amended to respect the process of settling land claims. Lands set aside for national park purposes are given the legal status of national park reserves until all land claims are settled. Then they may become legally known as national parks. Since Nahanni is in a region where First Nation self government negotiations are still underway, it is known as a national park reserve.

Most of the Nahanni Region is in the traditional territory of the Deh Cho First Nation - Dene people who live in small communities along the Mackenzie and Liard River systems - downstream of the Nahanni National Park Reserve. The Deh Cho First Nation is presently negotiating a self-government arrangement with the Government of Canada through the Deh Cho Process. Unlike a typical land claim negotiation where some land would be allocated to the First

Nation in exchange for extinguishing rights over other lands, the Deh Cho are negotiating power sharing arrangements with the federal government over all of their traditional territory. In the spring of 2001, the Deh Cho and the Government of Canada signed an Interim Measures Agreement setting out how lands will be managed in the region during future negotiations. They have also

signed a Framework Agreement identifying topics for future negotiation. From the beginning of their negotiations, the Deh Cho people have expressed a strong desire to protect the entire South Nahanni watershed for the sake of future generations.

Opportunities for Protection

The Deh Cho Process, along with Parks Canada's long-stated interest in expanding Nahanni National Park Reserve, provide powerful common ground to move towards greater protection for the Nahanni region. An additional piece of the protection puzzle exists in the far northwestern reaches of the Nahanni ecosystem, in the traditional territory of the Begaae Shuhtagot'ine (Mountain Dene) people of Tulita, in the Sahtu Settlement region. The Mountain Dene are advancing the northern part of the watershed as an area of



MOUNTAIN CARIBOU - NAHANNI

interest under the Northwest Territories Protected Areas Strategy (NWT PAS). This strategy, in its early phases of implementation, aims to protect representative examples of each of the ecoregions of the NWT. It is a community-based approach to protected area selection, where communities nominate areas they are interested in protecting for ecological and cultural reasons, and then partner with a sponsoring agency to formally protect the area through existing legislation.

Between the Deh Cho First Nation, the Mountain Dene proposal, and Parks Canada, substantial support exists for further protection of the Nahanni region, although the precise areas are not yet defined. The Deh Cho Process offers a powerful opportunity for Parks Canada and the Deh Cho people to work together

towards common goals.

In spite of these opportunities, huge challenges still exist. The lands outside the national park reserve are federally owned and controlled by the Department of Indian and Northern Affairs. Responsible for both environmental protection and advancing industrial development in the north for economic reasons, the mandates of this department can, at times, conflict. It is unclear how the department will address the conflict between protection and development in the Nahanni region.

Typically, self-government negotiations can take years to advance to a final agreement. The Deh Cho Process is moving ahead, but much more slowly than industrial development in the watershed. Even if all parties eventually agree to protect the Greater Nahanni Ecosystem, the damage done by industrial activities in the meantime may be irreparable. Also, compensating industrial interests currently pursuing both mining and oil and gas exploration in the area could result in huge additional costs for long term protection if they continue to proceed.

Conclusions

The threats facing Nahanni National Park Reserve are typical of many national parks in Canada. As parks become islands of wilderness in seas of development, even northern parks need to look outside their boundaries to maintain their ecological health. Most national parks in Canada were created before protecting ecological integrity became their primary objective, and their boundaries reflect this. To protect sites like Nahanni for future generations, Parks Canada will have to work with other agencies and landowners to ensure parks don't suffer a

slow decline in health due to stresses from outside their borders. In some cases, like Nahanni, there is still an opportunity to expand the park to better protect its ecological values. There is also an opportunity to work with First Nations and other government

departments to achieve common goals.

The present precarious state of Nahanni National Park Reserve illustrates a fundamental responsibility that Canadians need to recognize and work towards.

This national park is a global

resource. The responsibility for protecting this special place lies, not just with Parks Canada, but also with the Canadian government as a whole. The opportunity exists. All that is needed to get there is the political will.

ENVIRONMENTAL IMPACTS OF MINING ACTIVITY

The company claims on page 18 of the Fuel Cache Retrieval EA report that developing and operating the Prairie Creek mine "will not have significant adverse environmental effects on the ecological integrity of the South Nahanni River or the Nahanni National Park Reserve" and that operating the mine and protecting the watershed and Park Reserve are compatible land uses. They have provided no supporting evidence to make such a claim. On the contrary, ample evidence exists that mining activity generally, and in the South Nahanni watershed specifically, has the potential to result in significant environmental impacts. Outlined below is evidence from a water quality report, several literature reviews of the effects of roads on ecological integrity, and other reports which identify and document the various adverse environmental impacts which either have or are likely to result from mining activity in the SNW, contradicting the company's assertion.

Water Quality

The potential for mining activity to degrade water quality in the SNW led to the implementation of a water quality monitoring study in the NNPR. The resulting report 'Protecting the Waters of Nahanni National Park Reserve, NWT' by Environment Canada, Conservation and Protection, and Canadian Parks Service, December 1991 states "the cumulative impact of the mining

activities [in the SNW] could be considerable" (pg 9), and that mining activity has "the potential to adversely affect the water quality of the basin and disrupt the life processes which depend on it" (pg19, emphasis added), and recommended that "water quality monitoring be significantly expanded if exploration and development activities in the basin proceed" (pg 51).

We therefore submit that the Board examine and implement the recommendations in the 1991 water quality report prior to any permitting of exploration or development activity, and subject permits to relevant conditions contained in the report in order to maintain the present high level of water quality in the SNW. The best way to maintain that water quality is not to permit activities which are widely acknowledged to put it at risk.

Impact of Roads

Literature reviews of studies assessing the ecological effects of roads have found that roads have multiple, long term cumulative environmental impacts. In 'The Ecological Effects of Roads', conservation biologist Reed Noss states:

Nothing is worse for sensitive wildlife than a road. Over the last few decades, studies in a variety of terrestrial and aquatic ecosystems have demonstrated that many of the most pervasive threats to biological diversity - habitat destruction and fragmentation, edge effects, exotic species invasions, pollution, and over

hunting - are aggravated by roads. Roads have been implicated as mortality sinks for animals ranging from snakes to wolves, as displacement factors affecting animal distribution and movement patterns, as population fragmenting factors, as sources of sediments that clog streams and destroy fisheries, as sources of deleterious edge effects, and as access corridors that encourage development, logging, and poaching of rare plants and animals.

Road-building in National Forests and other public lands threatens the existence of de facto wilderness and species that depend on wilderness (emphasis added) (<http://home.pacbell.net/mjvande/roads1.htm>).

In their article published in the peer reviewed journal Conservation Biology, 'Review of the Ecological Effects of Roads' Stephen Trombulak and Christopher Frissell present several relevant findings:

We reviewed the scientific literature on the ecological effects of roads and found support for the general conclusions that they are associated with negative effects on biotic integrity in both terrestrial and aquatic ecosystems.

Roads exert ecological effects on terrestrial and aquatic ecosystems in seven general ways: (1) direct mortality from road construction, (2) direct mortality from collisions with vehicles (i.e. roadkill), (3) modification of animal behavior, (4) alteration of the physical environment, (5) alteration of the chemical

environment, (6) spread of exotic species, and (7) increased intensity or spatial extent of human use and alteration of habitats.

Recognition of the tremendous diversity of causal mechanisms by which roads can affect aquatic and terrestrial biota should help put in perspective the disproportionately high value of remaining roadless or near-roadless areas for conservation of biodiversity and other values of natural ecosystems.

We caution that it appears highly unlikely that many of the ecological effects of roads can be successfully mitigated, whether through improvements in design, construction, or remediation. This reality points to the central importance of maintaining the few remaining roadless and near-roadless portions of the landscape in the natural state. Watersheds presently encompassing few roads, for example, are ideal candidates for ecological restoration, given that with the obliteration or decommissioning of a few road segments, a large area of natural habitat can be secured for a wide variety of species (emphasis added). (Conservation Biology, Vol. 14, February 2000, <http://www.pacrivers.org/roadless/roadsreview.html>, <http://conbio.net/scb/Publications/ConsBio/Contents/2-00toc.cfm>).

An extensive literature review on the impacts of roads by the Natural Resources Defense Council in the United States, 'End of the Road - The Adverse Ecological Impacts of Roads and Logging: A Compilation of Independently Reviewed Research' contains similar

findings and conclusions (<http://www.nrdc.org/land/forests/roads/eotrxn.asp>).

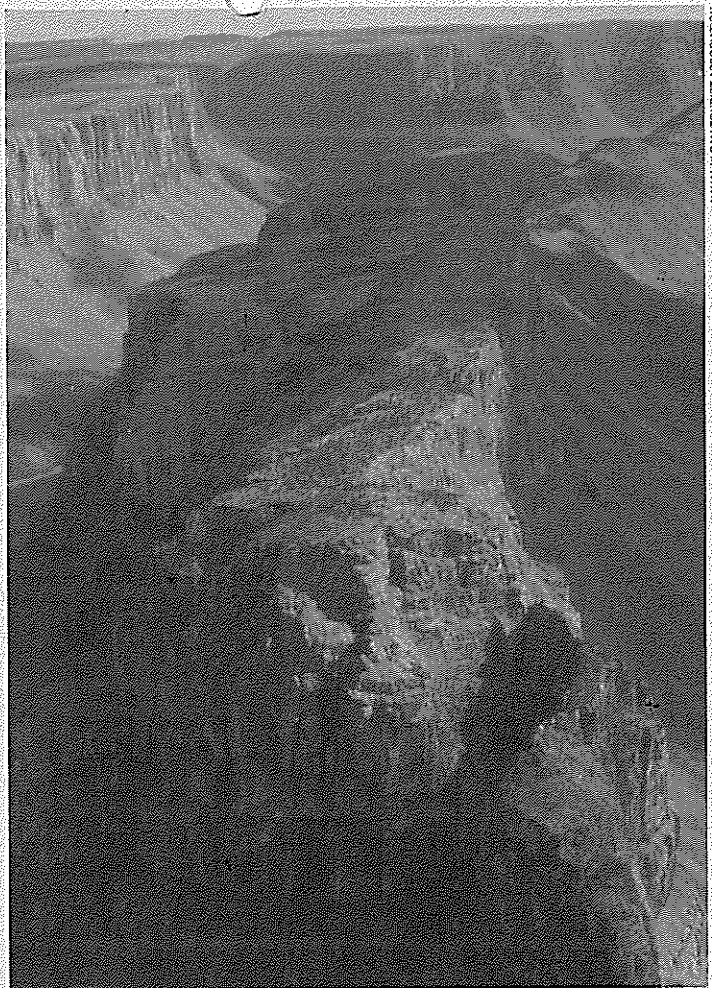
Threats to Ecological Integrity

The July 2000 NNPR Fact Sheet identifies mining activity as the "single greatest threat" to the Park Reserve and watershed (pg 9). The fact sheet lists heavy metals, solid waste and road access as sources of potential direct and indirect impacts. Additionally, the report of the Panel on the Ecological Integrity of Canada's National Parks lists mining and transportation adjacent to National Parks as ecological stresses which significantly affect most parks (pg 1-11).

A more detailed description of the negative impacts of mining is found in the report "Mining in Remote Areas" by the Environmental Mining Council of British Columbia (<http://www.emcbc.miningwatch.org/emcbc/index.htm>). The report describes impacts from exploration activity, including pollution from fluid spills and waste rock drainage, sedimentation from clearing vegetation for right of ways and test drilling sites; multiple impacts from the development and use of roads, and from other activities associated with mining. This report also addresses impacts on communities, health and safety issues, and environmental assessment concerns relating to mining activity. The overall message is that there are many serious environmental concerns associated with mining activity.

The information above illustrates the Canadian Zinc assertion that mining activity and ecological integrity can happily coexist is strongly contradicted by existing evidence. Clearly then a recommendation by the Board to approve this application would be recommending that the Minister knowingly pursue two mutually incompatible courses of action simultaneously within the watershed; industrial development and environmental protection.

By Alison Woodley: Federal/Northern Campaigner - Canadian Parks and Wilderness Society National Office; and Greg Yeoman: Conservation Director - Canadian Parks and Wilderness Society - NWT Chapter



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