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THE NATIONAL AND
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ASSOCIATION OF CANADA

SPECIAL NORTHERN EDITION

The National and Provincial Parks Association of Canada is a private, educational, non-profit organization incorporated under Federal Charter in 1963 for the purpose of promoting the benefits and ensuring the protection of our great National and Provincial Parks, so that Canadians, as well as visitors to this country, may enjoy them unimpaired for all time.

Specifically, its aims and objects are:

★ TO PROMOTE THE USE AND MANAGEMENT OF NATIONAL AND PROVINCIAL PARKS IN A MANNER THAT WILL CONTRIBUTE TO THE EDUCATION, INSPIRATION AND WELL-BEING OF THE GENERAL PUBLIC;

★ TO UPHOLD THE HIGHEST STANDARDS OF THESE SAMPLES OF OUR HERITAGE AND PROMOTE BY ALL APPROPRIATE MEANS THE WIDEST UNDERSTANDING OF THEIR PURPOSES;

★ TO ENCOURSE THE EXPANSION OF BOTH THE NATIONAL AND PROVINCIAL PARKS SYSTEMS AND THE PRESERVATION OF PLACES HAVING OUTSTANDING NATURAL OR HISTORIC SIGNIFICANCE;

★ TO COOPERATE WITH GOVERNMENTAL AGENCIES AND WITH PRIVATE, NON-PROFIT CHARITABLE, EDUCATIONAL AND SCIENTIFIC ORGANIZATIONS IN PROTECTING THE INTEGRITY OF NATIONAL AND PROVINCIAL PARKS, HISTORIC SITES AND NATURE RESERVES, AND TO SEEK THE SUPPORT OF SUCH ORGANIZATIONS AND OF ALL OTHER INTERESTED PERSONS IN FURTHERING THESE OBJECTIVES;

★ TO INSTITUTE AND ENCOURAGE RESEARCH INTO ALL MATTERS PERTAINING TO THE FULFILLMENT OF THE FOREGOING AIMS.

The Association depends for support upon its members and upon grants from private and corporate donors. Membership classes are: Student — 1 year $17, 2 years $30; Active/Institutional — 1 year $23, 2 years $40; Husband/Wife — 1 year $28, 2 years $50; Life — $500. Other contributions and bequests are also needed. Donations to the Association in excess of the basic $23 Active/Institutional membership fee, which covers the cost of *Park News*, are an allowable deduction for income tax purposes.

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NATIONAL AND PROVINCIAL PARKS ASSOCIATION OF CANADA

47 Colborne Street, Suite 308, Toronto, Ontario M5E 1E3
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Area Code 416, 366-3494

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Park News *would like to thank* ***Parks Canada*** *and the* ***Department of Indian Affairs and Northern Development*** *for their generous assistance in producing this special edition on the north. We also thank the* ***Lands Directorate of the Department of Environment*** *for permission to use, and for reprinting, the colour map enclosed, especially for this issue of* ***Park News.*** *We also gratefully acknowledge the assistance of the* ***Director General of Northern Environment, Department of Indian Affairs and Northern Development. Federal Lands Services Division, Lands Directorate, Department of the Environment. National Parks Branch, Parks Canada, Department of the Environment.***

GUEST EDITOR
John Theberge

ASSISTANT EDITOR
Fred Helleiner

MANAGING EDITOR
Caroline Tennent

The guest editor, and author of articles that are not otherwise credited, is John Theberge, Vice-President of NPPAC.

Summer 1983.

The Canadian North

This special issue of Park News is dedicated to northerners who love the land, to southerners who view the north as a priceless heritage, and most of all to people anywhere who will join the National and Provincial Parks Association in its efforts to persuade those who hold responsible offices in institutions of power over the future of the north that there is a national imperative to act boldly and immediately to protect northern wilderness.

Pingos of Tuktoyaktuk.

PART I
THE LAND

Vistas

JOHN B. THEBERGE

Ten years ago, on a flight from Toronto to Vancouver, I made a discovery that has influenced my perception of Canada ever since. I ignored the in-house movies and bar service, and spent the entire five-hour flight looking out the window. From 30,000 feet, I watched a transect across southern Canada unroll in slow motion. The airplane flew over the Bruce Peninsula, Manitoulin Island, Isle Royale, Kenora. We passed just north of Winnipeg and then followed the Qu'Appelle and Saskatchewan valleys. After leaving the prairies north of Calgary, we crossed the Rockies and then the Selkirks. The Rocky Mountain Trench looked like a dry watering trough, a tempting prospect for a hydrologic engineer. We came in north of Vancouver, circled out over Howe Sound and the Gulf Islands, and landed.

The vista had been perfect all the way. Consequently, as I walked into the Vancouver International Airport, I had answered a question that had occurred to me while waiting in Toronto for the flight to be called. The answer was disturbing.

After leaving Toronto, I saw farmers' fields checkerboarding the land. Across Georgian Bay and Lake Superior, the few times we were out of sight of land, the water was etched with the long silver wakes of ships. Near Kenora, the forested scene below was cut by roads and transmission corridors. Only once when the forest seemed continuous, a smoke plume from a pulp mill streaked the scene.

On the prairies, the patterned farmland appeared again, all the way to the mountains. There the checkerboard changed to a mosaic of clear-cut logging. Patterned ranchland typified the dry interior of British Columbia with a long smoke plume stretching downwind from Kamloops. More clear-cuts diced up the Coast Range. We emerged over the lower mainland farms. A heavy haze increasingly obscured details below as we began our descent into Vancouver. Out over the Gulf Islands, logging cuts again were visible.

My question in Toronto: "Is there any place in a flight across southern Canada where, from 30,000 feet up, the impact of man is not visible?" My astounding answer was, "No!"

As we taxied into the airport, the man sitting next to me spoke for the first time beyond a brief hello when we sat down. "What did you see out there?"

I remember replying without thinking, "Not much." As I consider it now, the answer was appropriate. Indeed I had not seen much, in fact none of the extensive tall or short grass prairie that once covered about 1000 miles of our transect. I had not seen any scenes of boreal or montane forests that were free from scratch lines or rectangular patterns. Making my discovery even more significant was a realization that, from such an altitude, I had been capable of seeing only extensive visible impacts. I could not hope to see the mercury-contaminated fish in the English and Wabigoon Rivers, or the potholes that had been drained and cultivated on the prairies. It was not just height that prevented me from seeing passenger pigeons, eastern cougars, black-footed ferrets, black-tailed prairie dogs, kit foxes. Even from satellite photographs taken a few hundred miles out in space, the effect of man's mechanized hand is clearly evident. In red spectrum exposures, cities look like apple scabs blotching a skin patterned by agriculture, clear-cut logging, multi-lane highways, and smoke plumes.

There is no escaping a conclusion that, in the southern half of Canada, the natural environment has been subdued, tamed and transformed, cultivated, asphalted, bulldozed, decked out even in "remote" areas with roads, railroads, pipelines, transmission lines — logged, mined, trapped, hunted, not just used but abused. Almost an insignificant amount of land has been designated to be left "natural, wild and free." In 1915, the Commissioner of Dominion Parks, J. K. Harkness, wrote, "Ultimately, as civilization encroaches more and more upon the wilderness, the parks will probably be the only places where the native fauna and flora will be found in a natural state." For southern Canada, Harkness was right. I wonder if Harkness would have been upset had he known that 55 years later, in a flight across much of southern Canada, a person would have a difficult time noticing that there are any national parks. A portion amounting to less than one per cent of the 10 provinces is not all that visible! If we had New Zealand's 18 per cent, I might have noticed it.

I have flown north from Edmonton to Whitehorse many times in the last decade, too. On that flight, which lands at Grande Prairie, Fort St. John, and Fort Nelson, you do see "unaltered" land. You have to get beyond the farmland of the Peace, and the seismic lines of petrochemical exploration that crisscross the land near Fort Nelson. Then, over the northern Rockies and the Cassiar Mountains, you can see seemingly completely natural landscapes. But even on that flight you are struck by the seismic lines cut with unerring straightness mile after mile, in some places radiating from hubs, in other places just patterning the wilderness in seeming randomness. What you cannot see, even there, is that every acre you fly over, except for the very mountain tops, is designated for some human use. It is leased for forestry or mining. There are trapping permits or commercial guiding permits or grazing permits, or the land is in private ownership. Designs for a dam or a water diversion are filed on it, or a townsite is planned, with all the

North Coast, Yukon.

connecting facilities.

I have flown wildlife surveys in the southern Yukon, and driven the Dempster Highway to Inuvik. The network of roads for mining exploration is amazing and, of course, the seismic lines are, too. Thousands of miles of seismic lines have been cut on the Eagle and Peel Plateaus. Nothing was found.

Yet, in the Yukon, the natural scene is invaded only in a few places by these scars. In the Northwest Territories, there are even fewer visible scars. The farther north the satellite photograph is taken, the fewer the apple scabs and smoke plumes.

Not that northern land is untouched. Landsat photos show the new man-made islands and drilling platforms in the Beaufort Sea. You have to get on the ground to see the cat tracks and litter of fuel barrels lying all over the tundra for miles around both the abandoned and manned DEW line sites. Disastrous declines have occurred in populations of some northern species. But, relative to southern Canada, the north is much less impacted.

Vistas are what you see. Visions are what you think. The one leads to the other. Two northern visions were captured succinctly by Justice T. Berger, who titled the volumes of his Mackenzie Valley pipeline enquiry "Northern Frontier, Northern Homeland." As a frontier, for many southern Canadians, a northern vision is of a wilderness and wildlife heritage that is ours, that is part of Canadianism, whether it is ever experienced directly, or simply read about, enjoyed on television or even just contemplated. It exists. It is precious. It is infinitely more than frontier resources to feed the apple scabs.

To northerners, especially native people, it is a homeland providing sustenance and life. For some northerners, the vision is greater. Saltatha was one such person, a "Yellow-Knife" Indian who lived northeast of Great Slave Lake and accompanied the explorer Warburton Pike in 1889 across "The Barren Ground of Northern Canada." After having the beauties of Heaven explained to him by a priest, Saltatha replied: "My father, you have spoken well; you have told me that Heaven is very beautiful; tell me now one thing more. Is it more beautiful than the country of the muskox in summer, when sometimes the mist flows over the lakes, and sometimes the water is blue, and the loons cry very often? That is beautiful; and if Heaven is still more beautiful, my heart will be glad, and I shall be content to rest there till I am very old."

Possibly we have a chance in the north to do things differently, so that satellite photographs in the next few decades do not simply document the spread of the disease that has infected man-land relationships in so much of Canada. It takes no especial clairvoyance to extrapolate the impact of incremental and increasing exploration and development and increasing human populations. If we do not do something different in the north, and fast, we will lose even the best of that frontier and homeland. We will shell it out, bit by bit!

The NPPAC is convinced that one way in which things must be done differently in the north is to protect large areas as conservation lands, where ecosystems are left to function naturally, and where wilderness is secure. This issue of *Park News* puts forward the case. The issue is divided into three sections: The Land, The Threat, The Hope, which will pose answers to three questions, respectively: What is in the north to care about? Isn't the north safe now? What can be done?

Through the Eyes of Others

The history of exploration in the Canadian north is rich enough to fill school rooms with tales of adventure, to spawn true national heroes, and to generate a sense of national identity: the Franklin expedition, which was as significant in the mid-1800's as moon landings are today, completely disappeared, a mystery for almost a decade; the bitter Cook-Peary controversy over who was the first man to reach the north pole, the mutiny of Henry Hudson, and poisoning of Charles Frances Hall; the sinking of the Karluk and Jeanette; the year-long drift of the abandoned ship, Resolute; the discoveries of new lands by Stefansson, the rescue of Greely, the voyage of Amundsen — first man through the northwest passage.

Arctic explorations are often recounted in a non-descriptive, factual way, reflecting the immediacy of dangers and efforts to succeed. Most explorers seldom experienced sufficiently comfortable circumstances to allow them to think in appreciative terms about the lands around them. Their chronicles are unemotional.

There are exceptions, times when the beauty was too great, the emotion too strong. The scenes and the feelings they evoked have been passed down.

Dr. Frederick A. Cook reached the north pole on April 21, 1902. He wrote, "As my eye sought the silver and purple desert about me for some stable object upon which to fasten itself, I experienced an abject abandon, an intolerable loneliness. With my two companions I could not converse; in my thoughts and emotions they could not share. I was alone. I was victorious. But how desolate, how dreadful was this victory. About us was no life, no spot to relieve the monotony of frost."

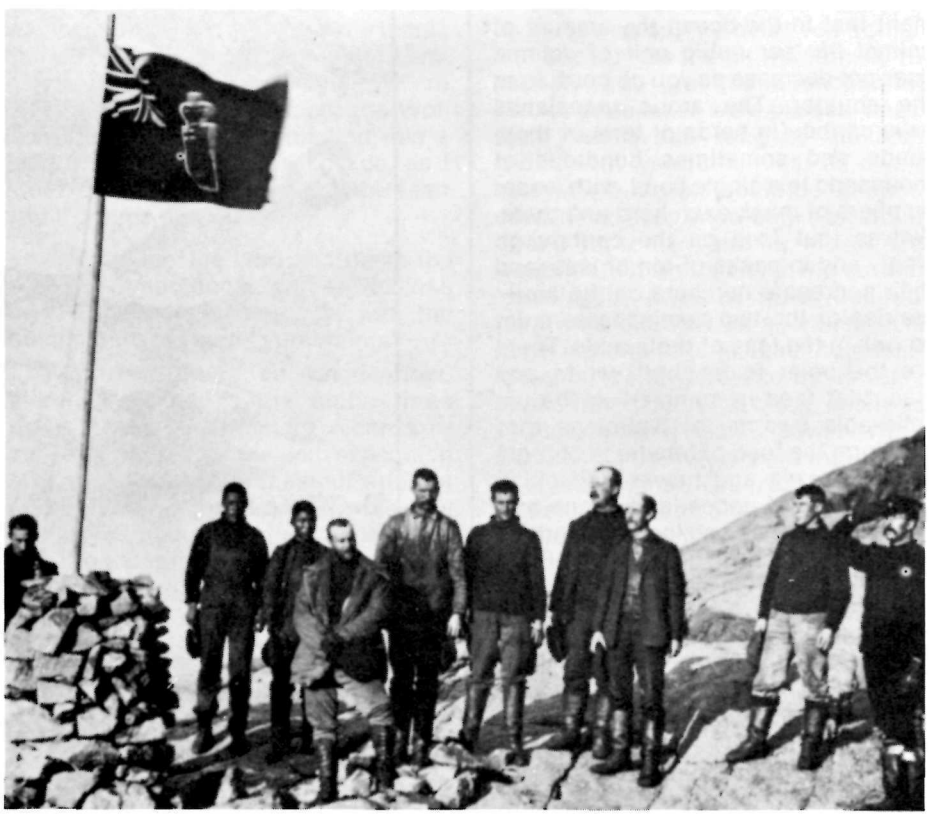
Yet, a month and a half earlier, on March 3, near the north end of Axel Heiberg Island, under temporarily comfortable camping conditions, he wrote:

"It is a fortunate provision of nature that these icy days of the ascending sun are usually accompanied by a breathless stillness. A quiet charm comes with this eye-opening period. The spirits rise with indescribable gladness, and, although the mercury is frozen, the body, when properly dressed, is perfectly comfortable. The soft light of purple and gold, or of lilac and rose, on the snowy slopes, dispels the chronic gloom of the long night, while the tonic of a brightening air of frost returns the flush to the pale cheeks. The stillness adds a charm, with which the imagination plays. It is not the music of silence, nor the gold solitude of summer, nor the deathlike stillness of winter blackness. It is the stillness of zero's lowest, which has a beauty of its own.

"The ice pinnacles are lined with hoar frost, on which there is a play of rainbow colors. The tread of one's feet is muffled by feathery beds of snow. The mountains, raised by the new glow of light or outlined by colored shadows, stand against the brightened heavens in sculptured magnificence.

"The bear admires his shadow, the fox peeps from behind his bushy tail, devising a new cult, for his art of night will soon be a thing of the past. The hare sits, with forelegs bent reverently, as if offering prayers of gratitude. The musk-ox stands in the brightest sun, with his beautiful coat of black and blue, and absorbs the first heaven-given sun bath, and man soars in dreams of happiness."

By late June, Cook and his com-



Raising the flag, Cape Herchelle, Ellesmere Island. A.P. Low, 1905. Geological Survey of Canada

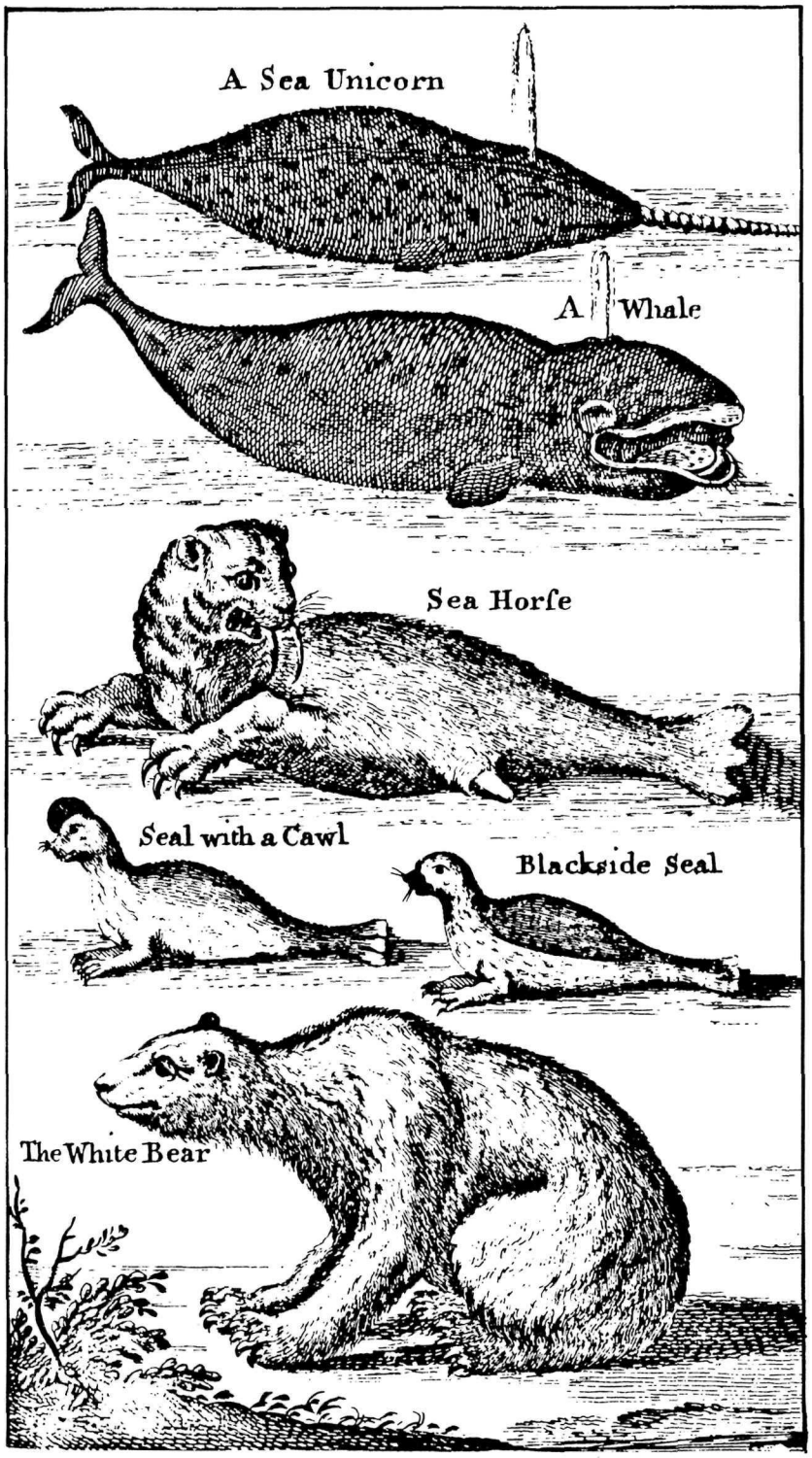
panions, returning from the pole, were travelling south along the north-east coast of Devon Island. He wrote: "Between snowdrifts, purple and violet flowers rose over warm beds of newly invigorated mosses — the first flowers that we had seen for a long and weary time, and the sight of them, with their blossoms and color, deeply thrilled me. From misty heights came the howl of the white wolf. Everywhere were seen the traces of the fox and the lemming. The eider-duck and the ivory gull had entered our horizon. All nature smiled with the cheer of mid-summer....The land was an oasis of hardy verdure. The sea was a shifting scene of frost and blue glitter."

Vilhjálmur Stefánsson dedicated his professional life to the promotion of a realistic and sympathetic view of the north. His arctic explorations resulted in discoveries of new land and the accumulation of much scientific information.

In *The Friendly Arctic*, he overviews some of his thoughts gleaned from his experiences in the north: "Barren Ground is a libelous name by which the open land of the north is commonly described. This name is better adapted for creating the impression that those who travel in the north are intrepid adventurers than it is for conveying to the reader a true picture of the country ....We now come to the remarkable adjective "lifeless," so frequently applied to the North. Look in any work of oceanography, and you will find the statement that in the ocean the amount of animal life per cubic unit of volume does not decrease as you go north from the equator....The arctic grasslands have caribou in herds of tens of thousands and sometimes hundreds of thousands to a single band, with lesser numbers of musk-oxen here and there. Wolves that feed on the caribou go singly and in packs of ten or less, and their aggregate numbers on the arctic prairies of the two hemispheres must be well in the tens of thousands. There are the polar foxes, both white and blue, that feed in summer on the unbelievable swarms of lemmings that also form the food of hundreds of thousands of owls and hawks and gulls. There are the goose and brant and swans and cranes and loon and various species of ducks. The ground at the moulting season in some islands such as Banks Island, three or four hundred miles north of the arctic circle, is literally white with millions of wavy geese and equally white with their moulted feathers a little later in the season when the birds are gone. When you add to this picture the bumblebees, bluebottle flies and abundant insect life of which the clouds of mosquitoes form the most impressive and least tolerable part, you get a picture of a country that in summer certainly is not without life."

Ernest Thompson Seton, famous naturalist, travelled 2,000 miles to the arctic by canoe, with a companion, naturalist Edward Preble, in search of the caribou, and in search of the romance of untamed wilderness. On August 20, 1907, they reached the north end of Aylmer Lake, only the fourth party of white men to record doing so, and the next day set off northward on foot. About noon, when 6 or 7 miles north of Aylmer Lake, they halted just east of the Great Fish (now called Back) River. There they "had a most complete and spectacular view of the immense open country that we had come so far to see. It was spread before us like a huge, minute, and wonderful chart, and plainly marked with the processes of its shaping-time."

Seton uses up six pages of his book, *The Arctic Prairies*, describing and interpreting the scene. The last part of his description is particularly



From: A Voyage to Hudson's Bay, by Dobbs Galley and California, 1746-47. By Henry Ellis, London 1748.

From: Narrative of the Arctic Land Expedition to the mouth of the Great Fish River, by Captain Back, London, 1836. Can. Gov't.

vivid: "As I stood on that hill, the foreground was a broad stretch of old gold — the shining sandy yellow of drying grass — but it was patched with large scarlet mats of arctous that would put red maple to its reddest blush. There was no Highland heather here, but there were whole hillsides of purple red vaccinium, whose leaves were but a shade less red than its luscious grape-hued fruit.

"Here were white Ledums in roads and acre beds; purple mairanias by the hundred acres, and, framed in lilac rocks, were rich, rank meadows of golden-green by the mile.

"There were leagues and leagues of caribou moss, pale green or lilac, and a hundred others in clumps, that, seeing here the glory of the painted mosses, were simulating their ways.

"I never before saw such a realm of exquisite flowers so exquisitely displayed, and the effect at every turn throughout the land was colour, colour, colour....What nature can do only in October, elsewhere, she does here all season through, as though when she set out to paint the world she began on the Barrens with a full palette and when she reached the Tropics had nothing left but green.

"And the colour is an index of its higher living forms, for this is the chosen home of the Swans and Wild Geese; many of the Ducks, the Ptarmigan, the Laplongspur [*sic*] and Snow-bunting. The blue lakes echo with the wailing of the Gulls and the eerie magic calling of the Loons. Colonies of Lemmings, Voles, or Ground-squirrels are found on every sunny slope; the Wolverine and the White Wolf find this a land of plenty, for on every side, as I stood on that high hill, were to be seen small groups of caribou.

"This was the land and these the creatures I had come to see. This was my Farthest North and this was the culmination of years of dreaming."

Charles F. Hall, an American explorer, travelled to the arctic three times, twice in search of records or survivors of the lost Franklin expedition and once in an unsuccessful attempt to reach the north pole. Hall wrote only one book, about his first expedition. Although Captain S. F. M'Clintock already had found evidence of the Franklin disaster on King William's Land, hope still existed for as many as 105 survivors somewhere on the northern mainland. Hall set out in 1860 to attempt to find them.

Hall travelled by ship from New York to Greenland, then landed on southeastern Baffin Island. Here, Hall went on shore:

"The day was bright and lovely when I ascended the mountain. Beautiful *crimson* snow lay about by the side of large patches of the purer white, and as I traveled on, my heart felt as light and buoyant as the air I breathed. The scenery was grand and enchanting. Two or three lakes were passed, one of them half a mile long by the same width, with waters as clear as crystal so that the bottom could be distinctly seen. It had deep snow-banks all around it, and yet to my surprise, mosquitoes were floating on and over the surface, breeding by myriads. Some beautiful falls were situated here, walled in by huge mountains and their fragments. Many of these were enormous rocks, apparently capable of being easily set in motion by a man's power with a crowbar, so delicately were they poised upon each other. The frozen waters of winter have been doing wondrous work in throwing down these mountains."

Later, from shipboard, Hall records a northern aurora borealis: "The captain hailed me with the words, 'Come above, Hall, at once. The World is on Fire!'

"In another moment I reached the deck, and as the cabin door swung open, a dazzling overpowering light, as if the world was really ablaze under the agency of some gorgeously-coloured fires, burst upon my startled senses!...

Piles of golden light and rainbow light, scattered along the azure vault, extended from behind the western horizon to the zenith; thence down to the eastern, within a belt of space 20° in width, were the fountains of beams, like fire-thread, that shot with the rapidity of lightning hither and thither, upward and athwart the great pathway indicated. No sun, no moon, yet the heavens were a glorious sight, flooded with light. Flooded with rivers of light. Yes, flooded with light, and such light. Light all but inconceivable. The golden hues predominated, but in rapid succession, prismatic colors leaped forth...."

Eleven years later, on his third expedition, Hall died. Almost a century after that, in 1968, Hall's body, in its grave in Greenland, was exhumed. Samples of his hair, nails, and bones were found to contain arsenic in amounts indicating that he had been poisoned.

Captain Thierry Mallet, president of the fur trading company Revillon Frères, spent much of his time inspecting the company's trading stations in northern Canada. In *Glimpses of the Barren Lands*, published in 1930, he describes being windbound on Yathkyed Lake, when the caribou came: "We were sitting round a little fire which we constantly fed with small dry twigs picked up here and there on the beach, when we saw across the river, on the horizon, a small yellow streak which seemed to be moving toward us. It looked exactly like a huge caterpillar creeping on the ground. We watched it intently. The yellow streak, little by little, grew in length and width until suddenly, in a second, it spread into a large spot, which, widening and widening on either side, still kept moving in our direction. It reminded me then of a swarm of locusts, such as one sees in South America, spreading over the fields after dropping to earth in a cloud from the sky.

"In a few minutes the yellow patch had grown to such a size that we realized, far as we were from it, that it covered many acres. After that we began to see in the mass of yellow hundreds and thousands of tiny dots which moved individually. Then we knew what it was. It was a great herd of reindeer, the Barren Land caribou, migrating south.

"Spellbound, we remained beside our camp fire, watching probably the most stupendous sight of wild game in North America since the bygone days of the buffalo.

"On and on the horde came, straight for the narrows of the river where we were camped. While the flanks of the herd stretched irregularly a mile or so on each side of the head, the latter remained plainly pointed in the same direction. One felt instinctively the unswerving leadership which governed that immense multitude. For two hours we sat there, looking and looking, until the caribou were only a few yards from the water's edge, right across the river from where we were.

"An old doe, nearly white, led by twenty lengths; then came three or four full-grown bucks, walking side by side. After them started a column of animals of all sizes and descriptions. That column widened like a fan until it lost itself on either side of a swarm of caribou, so closely packed together that acres and acres of gray moss were completely hidden by their moving bodies. And the noise of their hoofs and the breathing of their lungs sounded like far-away thunder.

"When the old doe reached the water, she stopped. The bucks joined

Barren Ground Caribou, Carey Lake, N.W.T., 1893. Geological Survey of Canada

An Eskimo family of Hudson Bay outside their sealskin tupik. Photo taken in 1896 by A.P. Low. Can. Govt.
From: The Cruise of the Neptune. By A.P. Low, Ottawa, 1906.

her on either side. Little by little, right and left, thousands of animals lined the bank for over a mile. Behind them thousands more, which could not make their way through the closed ranks in front of them, stopped. Then all their heads went up, bucks, does, yearlings, fawns, and, motionless, they looked at the Kazan River. Not a sound could be heard. My eyes ached under the strain. Beside me I could feel one of my Indians trembling like a leaf in his excitement. I started counting and reached three thousand. Then I gave it up. There were too many.

"After what seemed to us an interminable pause, the leading doe and the big bucks moved forward. Unhesitatingly they walked slowly down the bank, took to the water, and started to swim across, straight for our little sandy cove.

"In an instant the whole herd had moved, and with a roar of clattering hoofs, rolling stones, and churning waters, all the animals were pouring down the bank and breasting the icy current until the river foamed. On and on they came, swimming madly to the nearest point of the opposite shore. Nothing could stop them. Nothing could make them swerve.

"As soon as they landed they raced up the bank, giving way to the next ones behind them. We were standing up, then, behind our fire. The first ones saw us from the water, but they never changed their direction until they touched bottom. Then they scattered slightly on either side, giving us room. The next ones followed suit. And for what seemed to us an eternity we were surrounded by a sea of caribou galloping madly inland."

A few days before this event, on the edge of the Barrens, Mallet described his adventure with an arctic wolf:

"Suddenly something caught the corner of my right eye as I watched the distant shores of a lake to my left. A lone wolf, a great big Arctic wolf, had silently appeared on the ridge and was standing, facing me, absolutely unconscious of my presence.

"Scarcely daring to breathe, rigid, motionless, I watched the huge beast in the full glory of his strength and beauty. Pure white except for a black streak running from the forehead down the neck and the middle of the back to the end of the tail, I judged him to weigh one hundred and fifty pounds and to be twice the size of a very large dog. Head erect, ears pointed, his tail curved down, the brush only an inch or so from the ground, he calmly gazed around him. His eyes had a bright gold tinge in them. They rested a second on the top of the cairn above my head, then swept farther away, past me, to the right.

"After that, slowly he lowered his head, the muscles playing round his neck and shoulders, and sniffed disdainfully at the sand at his feet. Raising his head again swiftly, he pointed his muzzle straight up to the sky and began to howl. First a deep, low howl coming from far down his throat, then rising and rising until it reached a shrill, haunting note, ending abruptly in a short, sharp cry. Twice again, without moving from where he stood, he sent out that long, nerve-racking call.

"Then — something in me snapped. I could not stand the tension any longer. I felt that I had to show myself. I refused to be peering any more through the crack between two stones. I wanted that wolf to see me. I wanted to be face to face with him.

"Without a noise, in one movement I rose to my full height, stepping away from my hiding place. The wolf flinched slightly, his legs bending a little under him. The hair on the crest of his neck rose, his ears flattened back, and he bared his teeth in a noiseless snarl. For the space of a second, perhaps two, he remained there, looking straight at me. Then, with a mighty sweep of his legs, his body straightened like a bow. He flung himself backward over the ridge and disappeared like a ghost, without making a sound."

Classifying the North

Canada north of 60° latitude is strikingly variable — not a crowded variability but an expansive one: wide glacier-filled valleys of the southwest Yukon, dense dwarf spruce forests of the Mackenzie Valley, extensive prairies and sedge-flats of Wood Buffalo National Park, island-studded waterways of the east arm of Great Slave Lake, gentle rolling hills of Bathurst Island, dead-flat Great Plain of the Koukdjuak on Baffin Island.

From these landscapes, various classifications have been abstracted based upon bedrock, physiography, ecosystems. These classifications have aided the search for minerals, helped in our understanding of the geologic eras, and allowed interpretation of climate/plant/animal inter-relationships, but, most importantly, they have provided to our perception of the north a simultaneous sense of both diversity and order.

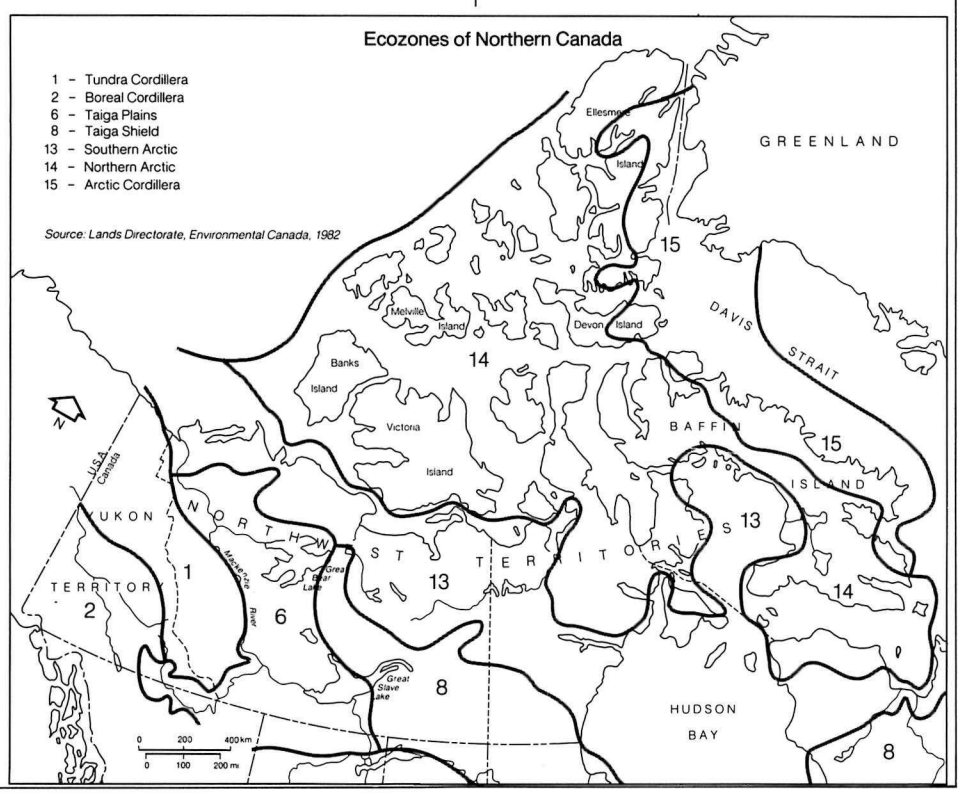
Five *bedrock regions* reveal the divergent origins of various parts of what is now the north, stretching back into antiquity. Three of these regions consist primarily of sedimentary rock, the Arctic Coastal Plain being the youngest. It has the greatest potential significance for oil and gas. The Innuitian Folded Region is made up of older sediments, warped and folded.

In the Paleozoic Basins lie the flat sediments from 400-million-year-old seas that covered the land when the continent lay farther south and the equator stretched across the north end of Baffin Island.

The Precambrian Shield is the dominant bedrock reality of Canada, with its ancient igneous and metamorphic rocks, scoured by glaciers, shot through with dykes and sills, the exposed foundation of the continent. The Cordillera, in contrast, is the handiwork of more recent times: mountain and plateau, lavas and ash, rocks faulted and folded and thrashed into bold contorted landscapes.

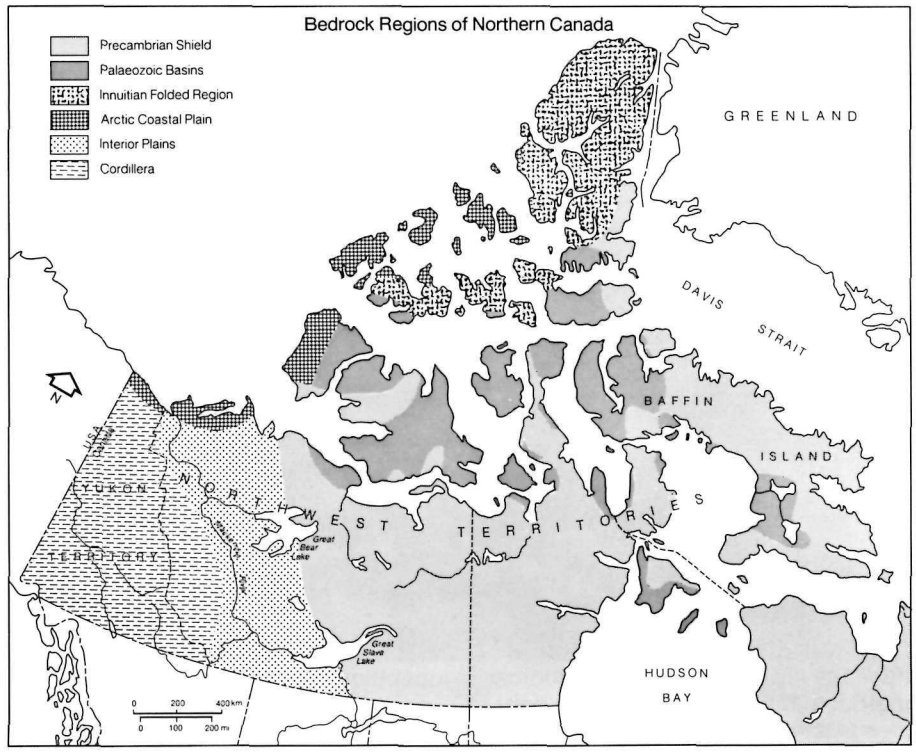
These, then, are the five bedrock regions of the north.

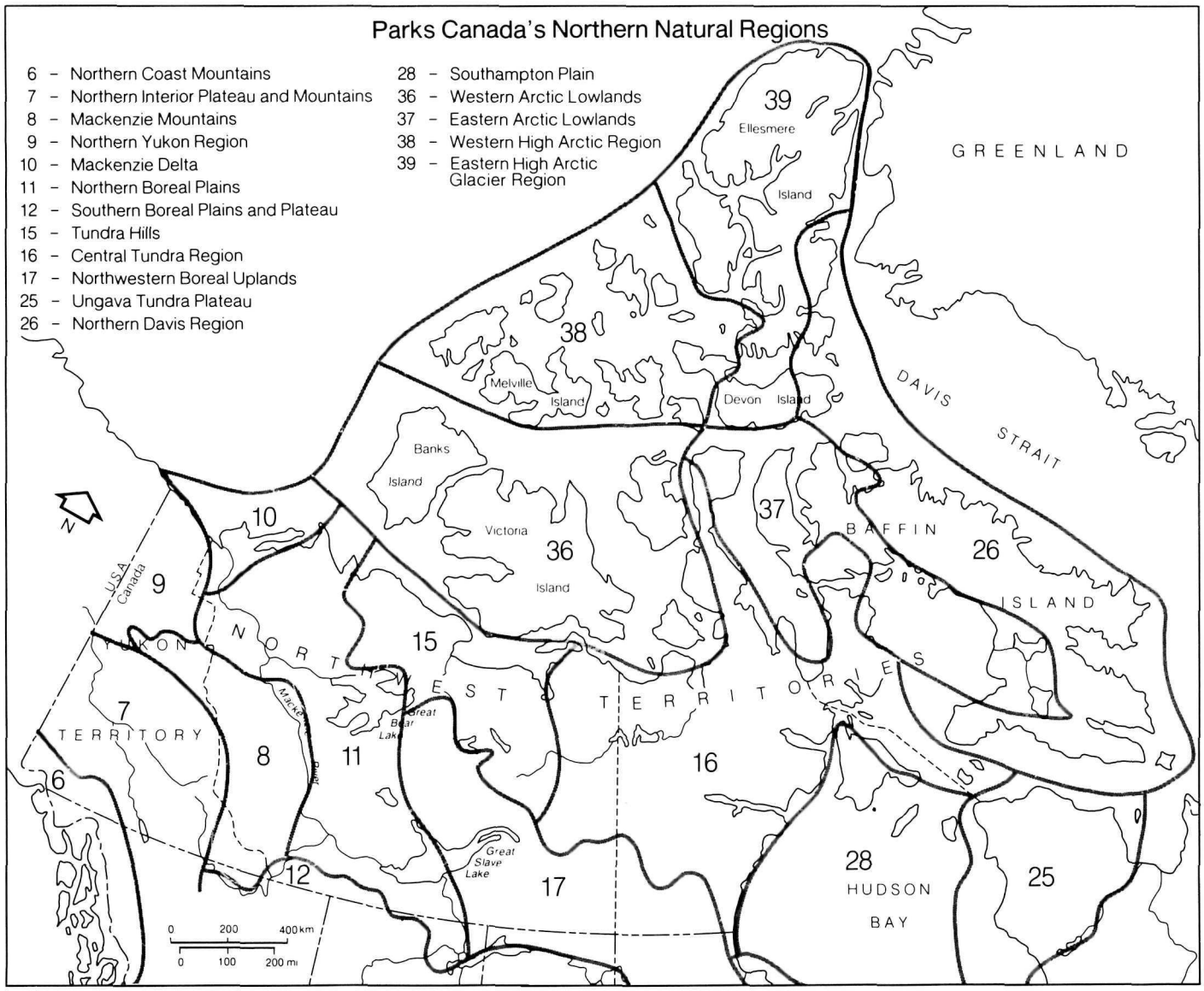
The *National Park Natural Regions of Canada* form the basis of Parks Canada's planning of the park system, with an objective of a park in each region. These regions are based primarily upon physiography, which reflects not only the bedrock, but landforms. Hence, the western Cordillera is subdivided into major ranges. As well, topographically divergent areas are recognized, such as the mountainous parts of Ellesmere Island compared with the gentler relief of Bathurst and Melville Islands even though they share the same bedrock. Also, in Parks Canada's use of physiographic subdivisions, the Precambrian



Shield bedrock region of the arctic mainland is subdivided. For example, the rough but rounded contours of the land southwest of Great Bear Lake put it into a separate region from the very flat country west of Hudson Bay. Thus, Parks Canada's classification reflects areas where the landforms look distinctly different.

The most recent classification of the north is by *ecozone*. This classification was developed in 1982 by the Lands Directorate of the Department of Environment. Unlike the previous two classifications, it recognizes biotic variability, integrating that with landforms and bedrock. "Ecozones represent large and very generalized ecological units" that have "resulted from the mesh and interplay of landform, water, soil, vegetation, climate, wildlife and human factors." Distinguishable are northwest-southeast trending zones that roughly parallel the "tree line," and areas that reflect differences in vegetation due to high, middle, and low arctic as well as subarctic climates.





The Wildlife Concentrations

Scattered across the vast northern landscape are places where ecological conditions for wildlife are just right. These places are characterized by great abundance. Seabird colonies are listed in terms of how many hundreds of thousands of nesting pairs are on the cliffs; caribou herds may number over 100,000 animals; seas may abound with white whales and ringed seals.

The seabird and marine mammal hot-spots are due to marine currents, especially where upwellings and mixing occur in relatively shallow water. Great densities of both groups often occur at the same place, such as in Lancaster Sound in the eastern arctic. The shorelines of this sound, formed on the north by Devon Island, and on the south by Bylot and Baffin Islands and the Boothia Peninsula, provide nesting colonies at a half dozen key cliff sites for a total of about 1,800,000 seabirds. The waters of Lancaster Sound provide feeding and migration routes for narwhal, walrus, ringed seals, and their predators, the polar bears, as well as white whales and harp and bearded seals. The sound is truly one of the wildlife treasures of Canada.

Barren-ground caribou, a symbol of the arctic, number approximately 500,000 animals on the Canadian mainland, with smaller herds of Peary caribou on the arctic islands, and herds of woodland caribou in Labrador and the Yukon. Five herds of barren-ground caribou are reasonably distinct, although there is some interchange. The map arrows represent typical wintering to summering ground movements of the herds, although considerable yearly variation occurs. All the herds winter in open taiga forests, and migrate out onto the tundra at calving time.

One large herd of Woodland caribou numbers over 200,000 animals, the largest caribou herd in Canada. They inhabit central and northern Labrador.

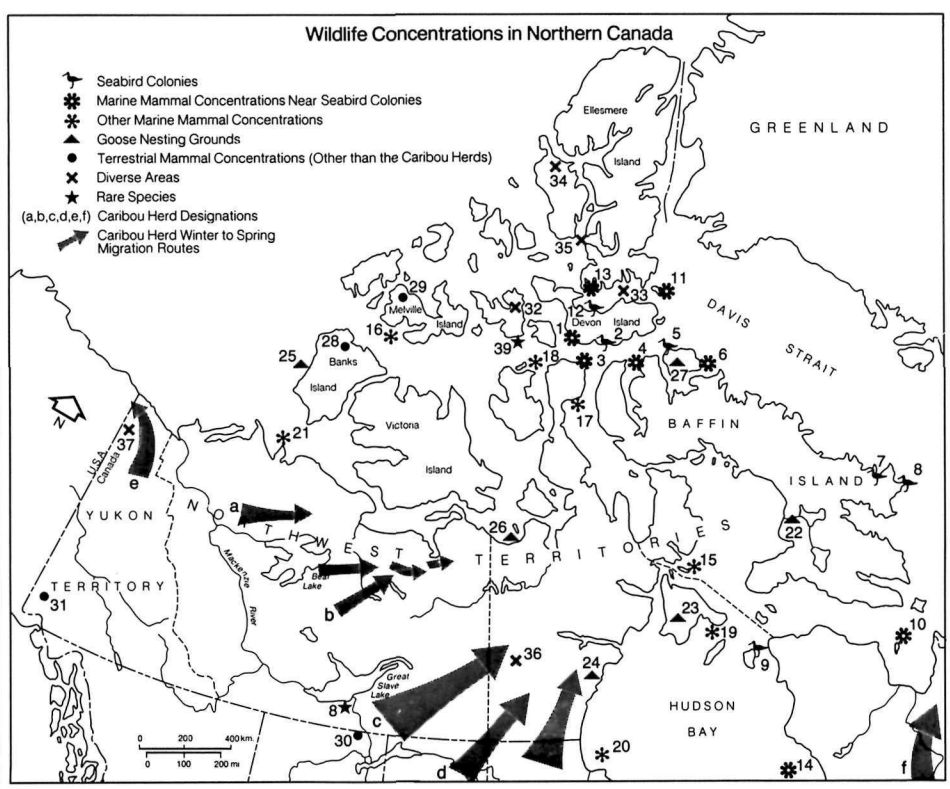
While caribou are the most abundant large mammal, another typical arctic species is the muskox. Decimated in numbers by human kill in the late 1800's, muskox have responded to management programs and increased. They are susceptible to the vagaries of climate, however, and in places rise and fall in numbers. Bailey Point, on Melville Island, is a special place for muskox, often having the highest densities in the Canadian arctic.

Geese, like seabirds, choose traditional nesting grounds, after migrating north from the United States. They space themselves out over flat, often poorly-drained tundra to nest, and the colony sizes are impressive: Great Plain of the Koukdjuak, the largest colony in the world, with approximately one million geese; McConnell River with 160,000 pairs of lesser snow geese. The rarer species nest in smaller numbers but represent a majority of their North American populations at key sites: 9,000 pairs of Ross' geese at the Perry River; 7,500 pairs of greater snow geese, a major part of the world's population on Bylot Island.

In places, climate and soils combine to create "arctic oases" of another kind, where there is less abundance but more diversity of species. In the high arctic, the Fosheim Peninsula is one such place, with muskox, Peary caribou, arctic hares, tundra wolves, king eiders, snow geese, and other waterfowl. At Polar Bear Pass on Bathurst Island, 53 species of birds have been identified, a rich avifauna for so far north. On the Old Crow flats in the northern Yukon, a diversity of waterfowl nest, including a significant part of the western North American flyway production of tundra swans.

The wildlife concentrations of the north can capture the imagination, but there is more. Across the vast landscape are spread the ubiquitous species like lemmings, arctic ground squirrels, rock and willow ptarmigan, and the wide-ranging arctic foxes and wolves.

Herbivore, carnivore, scavenger, concentrated or dispersed, each species plays its part in weaving together the fabric of arctic ecosystems.



Legend

A. The Arrows represent the general winter to spring migration routes of the five major herds of *barren-ground caribou*, and the one large herd of *woodland caribou*. Routes vary somewhat between years. Herd interchange also takes place.

a) Bluenose herd. Estimated 1981 at 38,500 ± 10,400 animals
b) Bathurst herd. Estimated 1981 at 100,000 animals
c) Beverly herd. Estimated 1981 at 100,000 + animals
d) Kaminuriak herd. Estimated 1982 at 134,000 animals
e) Porcupine herd. Estimated 1970-1975 at between 100,000 and 150,000 animals
f) George River herd (Woodland). Estimated 1975 at 240,000 animals.

B. Sites numbers 1 to 14 represent *seabird colonies* of significance in terms of size or species. Sites 1 to 5 represent a grouping around Lancaster Sound. Sites 6 to 8 represent a grouping on the east coast of Bylot and Baffin Islands.

1. Cape Liddon, Devon Island. 10,000 pairs of northern fulmars. Significant numbers of black guillemots and eider ducks.
2. Hobhouse Inlet, Devon Island. Large colony of northern fulmars, 75,000 to 100,000 pairs.
3. Prince Leopold Island and adjacent Cape Clarence. Unique multi-species community of breeding seabirds: 150,000 pairs of northern fulmars, 150,000 pairs of thick-billed murres, 100,000 pairs of black-legged kittiwakes, 2,000 pairs of glaucous gulls. Strong currents from Barrow and Lancaster Sounds converge here; *hence waters are highly productive.*
4. Baillarge Bay, Baffin Island. 25,000 pairs of northern fulmars. Critical to glaucous gulls and Thayer's gulls, kittiwakes and guillemots.
5. Cape Hay, Bylot Island. 400,000 pairs of thick-billed murres, 50,000 pairs of kittiwakes.

In these five sites just described, along the north and south shores of Lancaster Sound, nest 160,000 to 200,000 pairs of northern fulmars, which is close to half the population in arctic Canada. Also, about 550,000 pairs of thick-billed murres and 150,000 pairs of black-legged kittiwakes — or 1,800,000 seabirds in these three species, plus lesser amounts of other species, nest here.

6. Cape Graham Moore, Bylot Island. 20,000 pairs of thick-billed murres, 3,000 pairs of kittiwakes.
7. Cape Searle, Baffin Island. 100,000 pairs of fulmars, some murres, guillemots, and glaucous gulls.
8. Reid Bay, Baffin Island. 200,000 pairs of murres, 10,000 fulmars.

Along the east coast of Bylot and Baffin Islands are the three major colonies described, plus four smaller colonies that each total between 10,000 and 100,000 pairs. In total, then, the east coast of Bylot and Baffin provide breeding places for somewhere around 550,000 pairs, or 1,100,000 seabirds of the major species, plus lesser amounts for the other species, primarily black guillemots.

9. Digges Sound region, Hudson Strait. 600,000 and 400,000 pairs of thick-billed murres in two groupings. Largest colonies in the Canadian arctic.
10. Akpatok Island, Ungava Bay. 600,000 thick-billed murres.
11. Coburg Island. 200,000 thick-billed murres, 1,000 kittiwakes.
12. Skruis Point, Devon Island. Largest black guillemot colony in the Canadian arctic: 10,000 pairs.
13. Cape Vera, Devon Island. 25,000 pairs of fulmars, lesser amounts of kittiwakes, guillemots and eiders.
14. Belcher Islands, Hudson Bay. Nesting grounds for 35,000 eider ducks.

C. Major concentration areas for *marine mammals*. Many of the seabird colonies listed also are areas of significance to marine mammals; both groups benefit from current mixings and upwellings at the same sites. The seabird sites that are also particularly significant for marine mammals are:

Marine Mammals	Site No.							
	1	3	4	6	10	11	13	14
White whale	✓	✓	✓					
Ringed seal	✓	✓	✓	✓	✓		✓	✓
Polar bear	✓	✓	✓	✓	✓	✓	✓	✓
Harp seal	✓							✓
Bearded seal	✓			✓				✓
Narwhal		✓	✓	✓		✓		
Walrus			✓		✓	✓		✓
Hooded seal				✓				

Other areas of marine mammal concentrations are:

15. Duke of York Bay, Southampton Island. Abundant whale, seal, and narwhal.
16. McClure Strait. White whale concentration (source: Parks Canada).
17. Bellot Strait, Boothia Peninsula. Open water pools in winter. White whales and narwhals congregate.
18. Cunningham Inlet, Somerset Island. Calving area for white whales. Polar bears and ringed seals abundant.
19. Coates Island, Hudson Bay. Ringed seal and bearded seal abundant. Polar bears year round. 3,000 walrus migrate and haul out.
20. Cape Churchill-Nelson River. One of the densest and largest polar bear denning areas in the world.
21. Cape Parry and associated islands. High diversity of marine mammals due to unique upwelling which remains open year round. Ringed seal, bowhead whale, white whale, polar bear.

D. Major *goose* nesting grounds

22. Great Plain of the Koukdjuak, Baffin Island. The largest goose colony in the world — one million geese, about 75% lesser snow geese, remainder Canada geese and brant — one half the eastern arctic populations of these three species.
23. Boas River, Southampton Island. 65,000 pairs of lesser snow geese.
24. McConnell River. 160,000 pairs of lesser snow geese.
25. Egg River, Banks Island. 20,000 pairs of lesser snow geese. Largest goose colony in the western arctic.
26. Perry River. 9,000 Ross' geese, most of the North American population. 30,000 lesser snow geese.
27. Southwest Bylot Island. A major part of the world's population of greater snow geese. About 75,000 pairs here.

E. *Terrestrial mammal concentrations* (other than the caribou herds).

28. Lower Thomsen River, Banks Island. One of the most productive areas for muskox in the world. Peregrine falcons and arctic foxes.
29. Bailey Point, Melville Island. Some of the highest densities of muskox in the Canadian arctic.
30. Plains southwest of Grand Detour (outside Wood Buffalo National Park), and parts of the Peace-Athabasca delta such as Lake One inside the Park. Concentrations of bison — herds of one thousand and more.
31. Sheep Mountain, Kluane National Park. Densest concentration of Dall sheep in the Yukon.

F. *Diverse areas*

32. Polar Bear Pass, Bathurst Island. Diverse *fauna due to vegetation — "arctic oasis."* 53 species of birds. Muskox and Peary caribou winter area. Research station of National Museum of Canada.
33. Cape Sparbo, Devon Island. Luxuriant vegetation. Muskox (150 to 200). Arctic foxes, polar bears, Peary caribou. Research station of the Arctic Institute of North America.
34. Chain of Lakes, Axel Heiberg Island. Rich *lowlands for the high arctic. Peary caribou,* muskox, arctic hare, snow geese.
35. Fosheim Peninsula, Ellesmere Island. One of the richest biological sites in the high arctic. Thousands of arctic hares. Muskox, Peary caribou, king eiders, snow geese. (Unfortunately, Imperial Oil made a discovery here!)
36. Thelon Game Sanctuary. Established initially to protect muskox. In the taiga-tundra transition. Grizzly bears, caribou, Canada geese. A large area of wildlife diversity compared with preceding more concentrated areas.
37. Old Crow Flats. Concentration over a large area of many species of waterfowl — a significant part of the western North American flyway production, particularly of tundra swans. Many species of ducks.

G. *Rare species*

38. Whooping crane nesting area. Only one in the world. Wood Buffalo National Park.
39. Seymour Island. One of few nesting sites for Ivory gulls. 150 pairs.

Thick-billed murre colony on Prince Leopold Island.

Bathurst Caribou herd, Northwest Territories.

Fact Sheet About Northern Canada

Northwest Territories

Total area: 3,376,698 km² (1,303,750 square miles)

Percentage of Canada: 34.1

Freshwater area: 132,090 km² (51,000 square miles); of this total, the largest lake is Great Bear, 31,328 km² followed by Great Slave, 28,570 km²

Area covered by glaciers: 155,400 km² (60,000 square miles)

Highest point: Mount Sir James McBrien, 2,762 meters

Population (1979): 46,063 (73 km² per person)

Indian 38.4%
White 40.8%
Inuit 16.6%
Métis 4.2%

Capital: Yellowknife (approximately 8,500 people)

Date of entry into Confederation: 1870 (date the British Government transferred full title of these lands to Canada).

Percentage of Canada's Gross National Product (1978): 0.3 (including both the Yukon and NWT).

Percentage of Canada's Mineral Production (1978): 1.6. Zinc and lead make up 2/3 of the total dollar value, but production has been suspended at Pine Point Mines.

Yukon Territory

Total area: 482,515 km² (186,300 square miles)

Percentage of Canada: 4.9

Freshwater area: 4,481 km² (1,730 square miles); of this total, the largest lake is Kluane, 409 km².

Area covered by glaciers: approximately 22,000 km² (8,494 square miles)

Highest point: Mount Logan, 5,951 meters (highest point in Canada, second highest in North America).

Population: approximately 24,000 (20 km² per person)

Percentage of Canadian population: 0.08

Indian and Métis: approximately 33%
White: approximately 66%

Capital: Whitehorse (14,000 people)

Date of entry into Confederation: 1898

Percentage of Canada's Mineral Production (1978): 1.2, but production has been suspended at all Yukon mines.

General

Tree-Line: A transitional belt representing the northern outliers of stunted spruces and poplars. It extends from 100-200 miles south of the arctic coast in the Yukon, to the Mackenzie River Delta at the arctic coast, and then trends southeast, passing just to the east of Great Bear Lake, just south of Fort Churchill, then northeast across northern Labrador.

Arctic: Area characterized by treeless northern tundra plant communities. In general, this area is bounded on the south by the 10°C isotherm for the warmest month (July), which approximates the tree-line except in regions west and east of Hudson Bay, where it runs approximately 200 miles north of the tree-line. The arctic region is also characterized by continuous permafrost.

Subarctic: Area characterized by open boreal (taiga) stunted forests, being transitional between tundra and closed coniferous forests. In general, the area is bounded on the south by the 15°C isotherm for the warmest month (July) in a line that runs south of Great Bear Lake, through Great Slave Lake and trends southeast to the southern tip of James Bay, then east to the north shore of the eastern end of the Gulf of St. Lawrence. In the mountainous Yukon, subarctic intergrades with subalpine across northern and central portions of the Territory. The subarctic region is also characterized by discontinuous but widespread permafrost.

Arctic Circle: line north of which the sun does not set for one or more days in summer.

Along Caribou Trails

H. ALBERT HOCHBAUM

The lake bends to the northwest where the evening calm is sweetened by the tinkle of running water. We beach our small boat and walk across the spongy shore to a rise overlooking the gap between two barren ridges. Beyond, a spread of open water reflects the golden afterglow. A narrow arm of land sprawls across the gap, connecting the ridges, separating the lakes. It is cut by a flow of water spilling from the far lake.

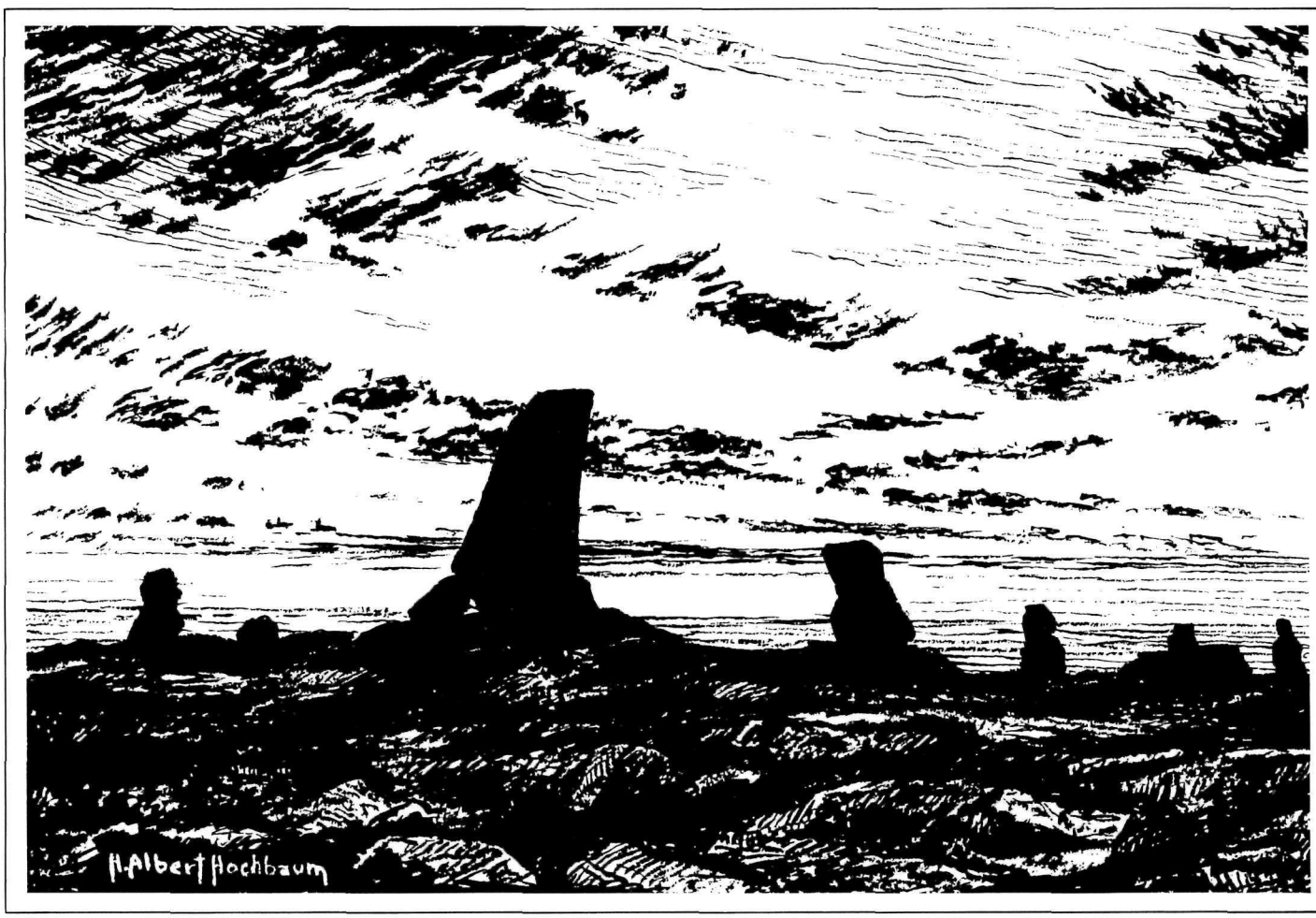
The north ridge, silhouetted against the Arctic sundown, has a line of raised stones along its back. To our left, hugging the tundra, is a low breastwork of stone...and my eye catches tent ring patterns. This is a crossing place of Caribou...and a rendezvous for man.

Pinnaktok! Henry Kamoayok whispers the word from deep within his throat. He stands facing the glow, arms spread, chin raised. *Beautiful... Beautiful...How beautiful this is*! He seems to cast a spell over the land...I am suddenly filled with emotion. Then the charm is broken. Henry turns with a broad grin. "Hey, Al...paint that."

At the narrows I find tracks marking the recent passage of a large herd of Caribou. These 1981 travelers follow the rutted trails cut deep by the hooves of their ancestors back through the ages to that unknown summer evening when the first pioneering band discovered this easy way between lakes.

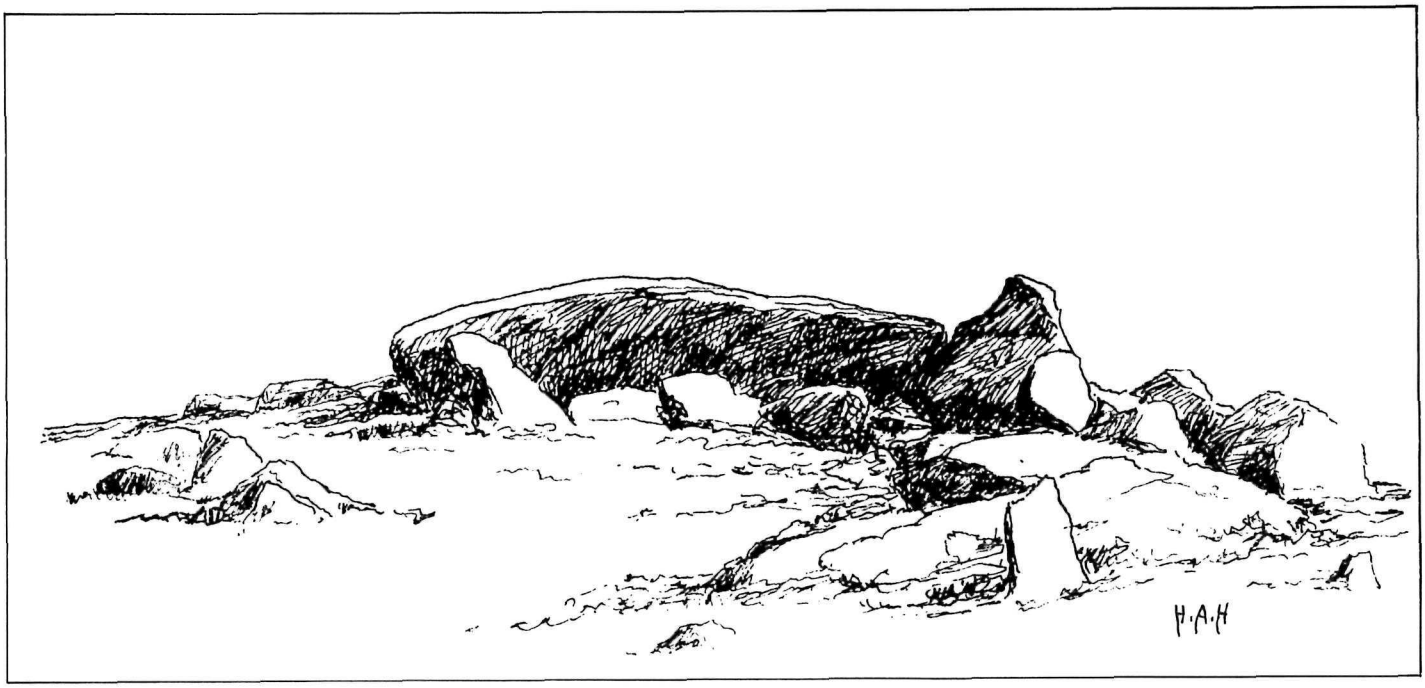
I walk across the narrows, climbing the back trail up the ridge to the first inuksuk. It is a rough slab of basalt mounted at an angle, braced by two smaller stones. Its lichens tell me that it has stood here longer than a human life span. Tools found at tent rings on Bathurst Inlet and here on the shore of Bathurst Lake reveal that men have followed Caribou to these crossings for at least 2000 years.

Henry is on the ridge now and at first I mistake him for another inuksuk. The word means *manlike*. During the hunt, bits of clothing, clumps of moss or whatever were probably added to these upright stones to enhance their human appearance. This illusion was enlarged by here and there a woman or child to scream or wave an arm at the proper moment. The idea was to make sure that the Caribou did not break to right or left but continued on to pass close to the stone blinds where hunters waited with spears and bows.



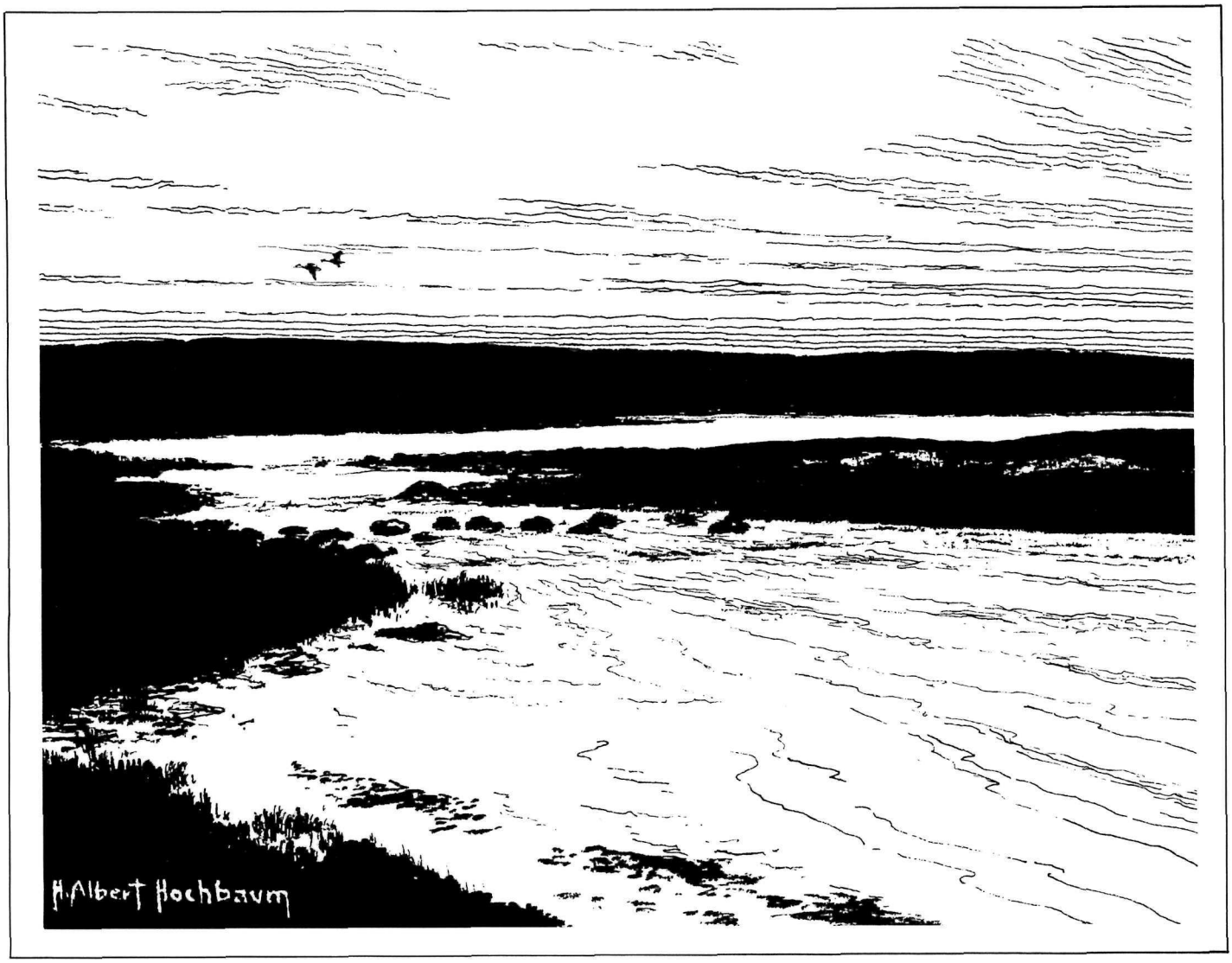
Imuksuk at caribou crossing, north end of Bathurst Lake, N.W.T.

Credit: H.A. Hochbaum



Caribou hunter's blind, north end of Bathurst Lake, N.W.T.

Credit: H.A. Hochbaum



Caribou crossing, north end of Bathurst Lake, N.W.T.

Credit: H.A. Hochbaum

Each handiwork of his ancestors is examined by Henry. Now, when I look his way, he drops behind a bank of stones, then rises as I approach, bending a mock bow. In the spirit of the moment I clutch my side and stagger down the trail to Henry's shout of triumph. Then I step into a blind, kneeling to see how it fits. There behind the largest stone is the pile of winter droppings of a ptarmigan who sought shelter against the north wind. And look! The broken shaft of an arrow!

Henry is again on the ridge gazing skyward as if some wildfowl were passing. He turns quickly at my footsteps to beckon me over. It is his wish that I fully appreciate the lighting arrangement of sunset clouds in the north. I take a little notebook from my pocket and make a quick sketch. Then down the hill we scurry, crossing the spillway where an ancient fish weir offers stepping stones. Just beyond, on higher ground, are several lines of stones where fish and strips of meat were hung to dry in the sun. Higher still, 100 yards away, are large stone caches where surpluses were stored, hopefully against Tundra Wolf, Wolverine, and Grizzly Bear.

At the boat I glance back to see a thin yearling on the south ridge. How did he arrive without our seeing him? He is there only a moment nibbling at some tidbit, then gone across the brow. Late! Lost? Will he live to rejoin the herd, now many miles beyond?

Henry catches our breakfast on the second cast...and we push off for camp halfway down the east shore of Bathurst Lake. Midway across we split a flock of flightless ducks: Greater Scaup drakes. Henry taps his watch and comments on the pleasures of escaping the disciplines of time.

A pair of Yellow-billed Loons greets us. Henry tends the boat; I dress the trout. Then we hit the sack. He is asleep instantly. I dwell upon our place within this barren country. We are alone in a range of at least 20,000 square miles: one person per 10,000. Forty miles north is the little gathering at Burnside River, whence we came yesterday. In all there are probably 120 people on the length and breadth of Bathurst Inlet. Add another 20,000 sq. mi....about one human for every 330. The possibility of an exploration camp or of a party of canoeists coming down the Burnside River increases the density only slightly.

Interesting, as sleep almost arrives, that all of the permanent residents of this vast arena are acquainted, still wandering far and wide as single families or small groups during parts of each year. They have their own school with one of their own as teacher. Patterns are changing slowly. This land supports only one person for every three or four hundred square miles on a primitive basis.

The loon's song awakens us at an hour of no matter. Breakfast: two pounds of trout apiece. Tracks on the lakeshore reveal that a large bull came within a few yards of us while we slept. Henry, who often tests my humour, is himself amused when I point to the evidence and suggest we have Caribou track soup for lunch.

While Henry fiddles with the boat, I climb the ridge behind our tent. Bathurst Lake is 20 miles long, north-south, two or three miles wide. It is perched several hundred feet above the narrow valley on the east where the Western River empties into salt water of Bathurst Inlet. The Delta is a major crossing place of the segment of the Bathurst herd which calves north and east of the Inlet. Each summer during late June and early July, parcels of the herd come south along the east side of the Inlet. Then, massed, they cross the river and march up the slopes to Bathurst Lake. From where I now stand, the ridges along and approaching the east shore are lined with hundreds of trails. When the deer strike the lake, only a few, some years, swim across here. Most or all follow the edge, some around the north end, some around the south. Then, somewhere beyond, the two branches meet and travel 100,000 strong toward the Coppermine River and the forest.

Thanks to the great help and cooperation of Trish and Glenn Warner, I have watched the passage at various places during twelve summers on Bathurst Inlet. I am here now with Henry two weeks after the migration to study the paths of Caribou and of the people who followed them.

Henry was born on the land some 40 years ago. He is familiar with a range considerably larger than 40,000 square miles, traveled by boat, dog team, and in recent years skidoo. He and Lena think nothing of setting off all by themselves in mid-winter to visit friends 400 miles or more away. He likes best to be known as a good hunter, but he can fix anything with a knife, screwdriver, and wrench. Give him a broken

Drawing by H.A. Hochbaum.

computer, an instrument he has never seen, and surely he will have it in working order in a few hours. At the moment, as we aim the boat toward the west shore, he is humming snatches of classical music. He is strong as a Muskox and can carry all of a bull Caribou, weighing considerably more than his own 150 pounds, carry it a mile, hind quarters, legs apart, straddling his shoulders, the rest, including the head, packed within the skin, held on his back with a tump line (from the skin) across his chest. Antlers of bulls are chopped off with hatchet. He says nobody eats stomach contents any more...tongue and head are his favorites.

Henry's smile lightens the hearts of all. His eyes, when stern, are as cold and wild as the North Star. Every time I am afield with him these many summers, he is continually remarking on the beauty of his surroundings.

The west shore is in the "shadow" of the lake, so to speak; the main migrations break southwest from each end. Thus there are only a few trails along the west bank compared with the hundreds on the ridges to the east.

The first major campsite is near the south end, where a little stream winds around a ridge to enter the lake, a fish weir conspicuous at its mouth. Just inland from the shore, here, there and over yonder, are rocks arranged as kayak stands. Henry kneels at each to squint down its length, appraising with his spread hands the width of the kayak now gone forever.

Under the light of day there is less room for play on the emotions...yet this is a glorious moment. Henry is busy reading signs, piecing together the stories the rocks and the bones tell him. Perhaps he camped here once as a child, or as a young man, or last year, except that the tent ring stones have not been lifted for many years, snug in mossy sockets...the little fireplaces are overgrown within.

The lake narrows not far to the south. Across the way is a peninsula. As the Caribou massed, no doubt some chose to cross at these narrows, or were forced into the water by hunters — then speared from kayaks. Henry sits on the ground beside a kayak stand, legs straight out. With an imaginary spear he stabs an imaginary Caribou in the kidney, his face a wild grimace. Arising slowly, he looks me squarely in the eye. "Pretty soon, Al, right now is a long, long time ago."

The emptiness of the country! It was alive only two weeks ago, the ground itself seeming to move...the clicking feet, the froglike barking of the calves, the grunting of their mothers, the coughing of the old bulls when they came along. The silence is stunning. But suddenly two Ravens are scolding and diving. I break through the willows to be rewarded by a fleeting view of a Wolverine. Then a growl from Henry. He is crouched, his eyes on a bend in the bank of low willows. There shows a patch of brown, which suddenly rises dark above the thicket. I have disturbed a napping Muskox. Henry at first thought it was a bear. I wish it had been...almost wish, that is, for the Ox is very close and making worrisome gestures, rubbing its nose against its foreleg. But bears are here. Henry calls me over to the creek where he has found the footprints of a large Grizzly Bear. When I kneel to measure the span with my fingers, he laughs. "Bear track soup's lots better than Caribou!"

The day is calm, the air soft, surroundings spectacular. Two hours at the old camp has been a beautiful experience, especially with the reward of Henry's insight into happenings of long ago. Now two men in a boat with 20,000 square miles of elbow room. With my field glasses I can see serrations of hundreds of Caribou trails where a meadow rises gently from the south shore of Bathurst Lake. Just opposite now is the blunt peninsula where in July, 1974 we found a wolf den, the pups so full of Caribou they could hardly run. Wolf tracks we have seen on the trails and along the shore, but no dens this trip. Wolves without young pups will be close to the herd.

Suddenly we are struck by an ugly odour; Henry abruptly turns toward a gravel beach. The stench arises from the remains of a large, 30-pound trout... and an unholy mass of garbage: spoiled store-bought food, empty food cans, greasy aluminum cooking sheets and pans, paper and plastic all scattered "from Hell to breakfast." In a small gully much more smelly trash, empty bottles of *Miller High Life* beer, and a broad scattering of plastic knives, forks, and spoons. Much more trash has been dumped into the lake just offshore.

"There were three men and a lady," Henry says somberly. Then, with a chuckle. "Lady was scared." He points to her latrine...she had not gone ten yards from the fire place to do her business.

Henry finds a sheet from the Edmonton Sun of July 15 and a July 16 till receipt from a Yellowknife supermarket for $82.72. Glancing again at the latrine, we judge they were here for three days, about ten days ago. And there is evidence that this rough camp has been used during several previous summers.

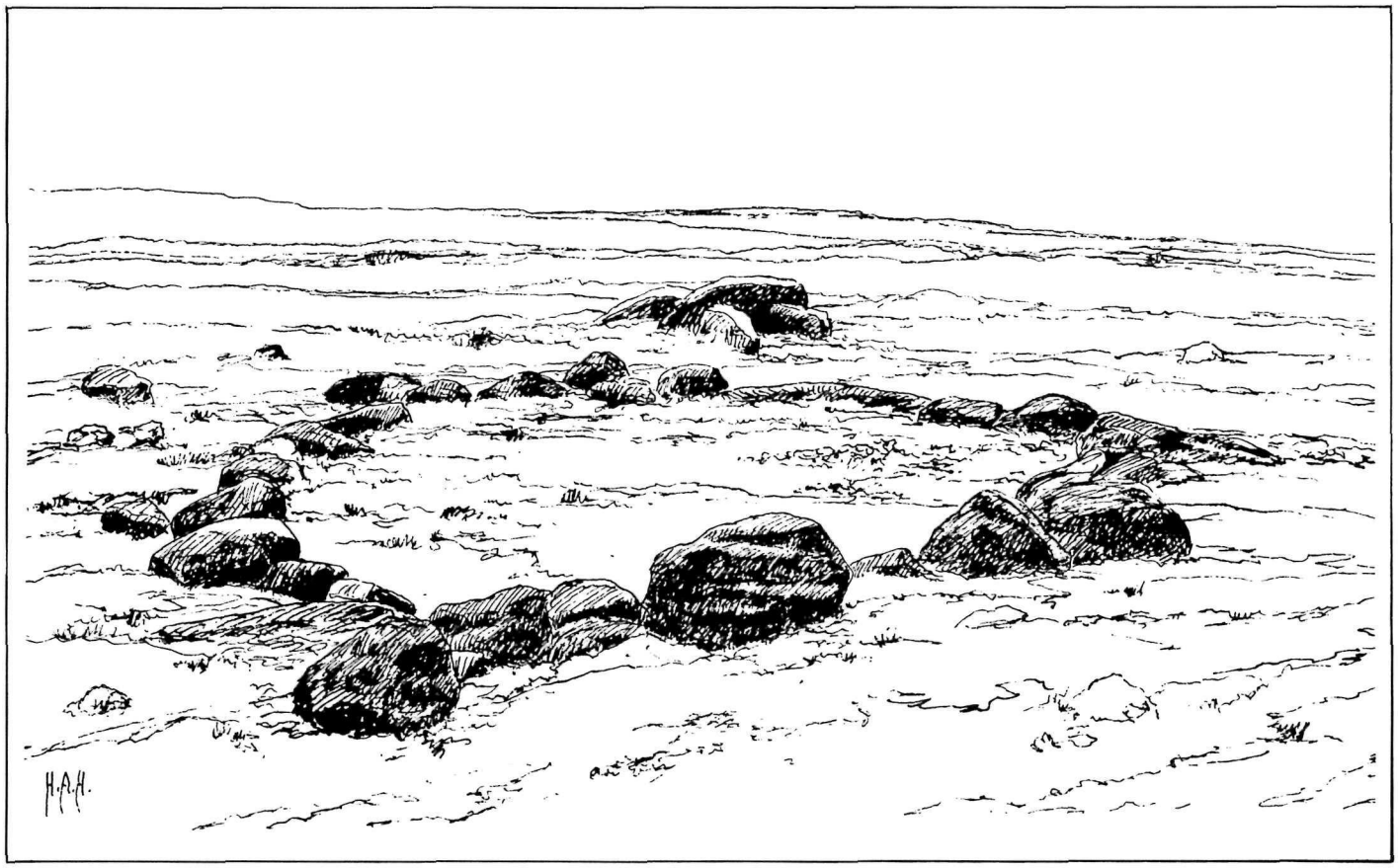
At the south end of the lake...yes, there are more than a thousand separate trails running side by side along the slope, each cut deeply into the tussock meadow. They drop off, down to a little stream, then climb the steep ridges to the southwest. On the ridge just before the dropoff, there are tent rings and blinds straddling the trail, — and no litter except for marrow bones.

Yes, too, there is freshly-scattered plastic and trash washed up on the east shore. Further on is a place where the *Miller High Life* people enjoyed a shore lunch, leaving everything behind... bottles, cans, *Alcan* aluminum sheeting and most of a large red bag of charcoal briquettes.

It is easy to wonder about the future when, as Henry Kamoayok says, right now is a long, long time ago. It is just as easy to "view with alarm" the matter of wilderness littering. Yet this is nothing more nor less than *Homo sapiens canadensis* (and *americanis*) behaving naturally. "*Tourism is an industry in the North...there is a price to pay. And, besides, my friend, you critics from the Provinces have a mess of your own to clean up before you pick on us who live north of 60!*"

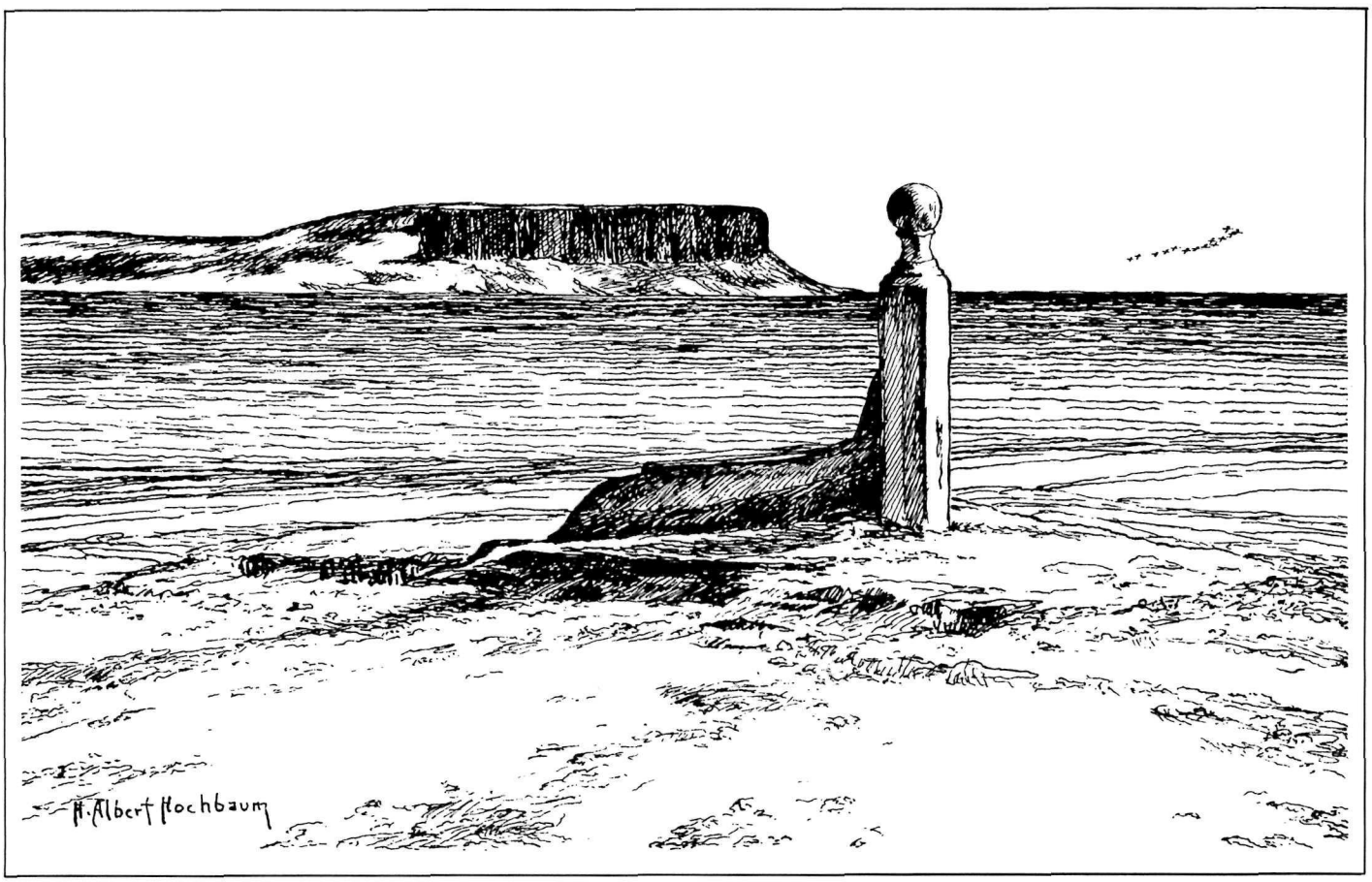
What is one ugly campsite on one wild lake! Some sacred northern ranges administered by Parks Canada, as Fort Prince of Wales, displayed multi-year litter in the summer of 1982. In one recent year, at Beechey Island, there were 122 empty cans of *Moosehead Premium Ale* along a mile of shore at the foot of Lady Franklin's memorial to "Franklin, Crozier, Fitzjames and all their gallant brother officers and faithful companions who have suffered and perished in the cause of science...." *Moosehead* ale, *Sussex Root Beer,* and countless other bottles, cans, and plastics flying the colours of name brands. "*Don't get your wind up, Buster! Look at all the tin cans Sir John himself left behind.*" All of this, of course, is small potatoes compared with the extravagant waste and scarred landscape left behind by U.S. Armed Forces' occupation of the Canadian Arctic. Massive littering, some of it visible in satellite photographs, is the price Canadians are ready to pay to remain under the "Military shelter of Uncle Sam." So what matter a few sheets of *Alcan* aluminum and *Miller High Life* bottles that will be weathered away in one or two hundred years?

Will the Caribou continue to follow Bathurst Lake trails regardless of developments there? Perhaps we worry more about the Caribou than about our own human destiny in the Arctic. There is just the bare possibility that Caribou may still be rounding Bathurst Lake long after our 20th Century culture is extinct.



Tent ring, Bathurst Lake, N.W.T.

Credit: H.A. Hochbaum



Lady Franklin's Memorial to Sir John and his men. Beechey Island, N.W.T.

Credit: H.A. Hochbaum

PART II
THE THREAT

The North — Vulnerable or Resilient?

JOHN B. THEBERGE

Ecologists are sometimes accused of claiming that every ecosystem where a major development is proposed is fragile. Cynics have suggested that some ecologists are trying to protect everything.

Indeed, every ecosystem has vulnerable components. It also has resilient components, — and destruction is a relative term. A seismic strip through a northern forest, regenerating to grasses and fireweed, is still capturing energy and cycling nutrients. It just is not capturing as much as it was before the disturbance, and it is not doing it with white spruces, willow shrubs, soapberry bushes, and arctic rhododendrons. The ecosystem is modified; for many decades it will show that man had been there. However, it still functions.

At a larger geographic scale than a seismic line, one ecologist speculated that fire in many parts of the northern Mackenzie Delta would remove spruce forests for good. He argued that their existence today is a relic of a historically warmer climate 200 years ago, and if they burned, the permafrost would rebound upward precluding the rooting of trees again. The land would become tundra.

There are wildlife concentrations that, if habitats are altered, may never support abundance again. There are rivers that, if diverted, will represent terminal ecological violence. Change is an evolutionary norm, but evolution rarely returns to earlier conditions.

Man has lived in the North American arctic and subarctic for up to 50,000 years at an extreme. Inuit have peopled the high arctic for more than 5000 years. The land can support human life. The land may even be somewhat accommodating to technological chemicals if seismic drilling rigs are hopped from drill site to drill site by helicopter instead of driven across cut lines. Magnetometer exploration for minerals leaves no mark on the land. Bulldozers can drive on raised beachlines and eskers without destroying arctic vegetation. Tourists flying at least 3000 feet over bands of muskoxen will not spook the animals. Large balloon tires on heavy machinery cause less damage to tundra vegetation than caterpillar treads. Settling ponds and dikes around fuel caches can help the land survive the impacts of man. So can regulations on timing of construction to avoid seasonal concentrations of wildlife.

But there are many extremely vulnerable aspects to northern boreal and tundra ecosystems. So many are they that environmental impact analyses and subsequent regulations can only ease the pain of incremental destruction. Rarely can they prevent the damage. These vulnerable characteristics make it imperative to set lands apart from resource extraction and development — extensive lands because ecological links in the north spread over vast areas.

Permafrost is the hidden ecological reality of the north, creating unstable ground on slopes where any destruction of vegetation, even by a bulldozer track, can cause erosion that will continue for decades. Whole hillsides may slump. Fields of mud boils, hills of solifluction ridges, river deltas potted with sink-holes, and ice-cored ridges are all very vulnerable. Without great care, that is, without staying completely off them with anything heavier than the human foot, those areas stop growing anything. Sometimes even too many human feet can de-stabilize them. They become non-vegetated, non-productive, for decades to come.

Then there is the slowness of nutrient cycles translated into landscapes with low productivity. Breakdown of living tissue, such as dead leaves, grasses, sedges, lichens, and even dead animals, is slow. Decay, resulting in the re-release of nutrients, is the task of bacteria and other micro-organisms, whose growth and metabolic rate depend upon temperature. During most months of the year, these micro-organisms are not active at all. This fact, plus the low solar input of a northern latitude, lowers biomass, and lengthens recovery times after disturbance.

In harsh environments, the number of species is characteristically low, but some species that are adapted to survive there do so in abundance. This abundance is typically concentrated where ecological conditions support abnormally high productivity. "Arctic oases" are the result of ocean upwellings, such as around the seabird colonies of Prince Leopold Island, or of reflectance off mountains, such as on the Lake Hazen Plateau of northern Ellesmere Island, or of hydrologic regimes that create wet sedge lands, such as at Polar Bear Pass on Bathurst Island. The arctic oases must be left alone. More than that, they must be legally protected.

In arctic ecosystems trophic interrelationships are relatively few. The overlaps in species' niches are limited by this fact, and the result is that loss of any species may not result in any ecological replacement. There were more species of northern wildlife in Pleistocene and immediate post-Pleistocene times. The causes of extinctions of camels, sabre-toothed tigers, mastodons, mammoths, cave bears, and many species of small mammals have been speculated upon without conclusion. Some say it was climatic change; some say it was overkill by Paleo-man. Regardless, today there are clearly vacant niches in the north. Almost no animals feed on the hundreds of square kilometers in the sub-

arctic dominated by understory dwarf birch (*Betula glandulosa*). At times, snowshoe hares eat the birches, but only when near starvation, just before a characteristic crash in population abundance. White spruce, the predominant tree of northern boreal forests, does not put many calories into any stomach. As well, there is room for more specialization among grazers; all the variety of tundra community types supports only three dominant mammalian species: caribou, muskoxen, and arctic hares.

These vacant niches should warn us that there is little builtin redundancy in arctic ecosystems. With losses of species comes less completeness in ecological functions.

Typical of northern wildlife species are cycles of abundance, averaging either 4 or 10 years. These cycles mean that everything from lemmings to rock ptarmigan to arctic foxes have unstable populations. Unstable populations make unstable ecosystems. At lows of cycles, species are vulnerable to unpredictable stochastic events in nature. Ice storms in the mid-1970's decimated high eastern arctic Peary caribou populations. In a classic of misunderstanding, an industrial vice-president said at hearings over the protection of Polar Bear Pass in 1980 that since there were few caribou left in that area, as admitted by biologists, there is no argument for its protection!

For many northern species, few young are produced each year. Caribou never produce twins. If about ten per cent of their young survive to become one year of age, the herd is doing well and will likely remain stable. Yearling cows rarely breed. By contrast, white-tailed deer in Ontario pull through about 50 per cent of their fawns, and yearlings normally breed.

On Yukon mountain slopes, if thirty per cent of Dall sheep ewes still have lambs with them two or three weeks after lambing, the bands are lucky. High early losses are normal in sheep.

Many arctic-nesting seabirds lay one or two eggs only, and do not mature until two or three or even more years of age. Their productivity is low. Their populations cannot withstand added losses.

Life holds on, abundantly in places, but that abundance can be deceptive. It may not mean resilience. There are silent cliffs where thousands of seabirds once nested, and hills without caribou where thousands once calved. The silence of these deserted landscapes should be a warning.

Two other important aspects of vulnerability of northern lands relate not to specific physical or biological characteristics, but to human perceptions. The depth of ecological ignorance is relatively greater in the north than elsewhere in Canada. The north has been studied less. We do not even understand the causes of the cycles of abundance that so typify northern wildlife. The confidence limits are so broad on caribou surveys that real numbers can change twenty or thirty per cent without our certain knowledge. For example, a large increase in the size of the Kaminuriak caribou herd in 1982 cannot be interpreted. It may have been due to census error, or in-migration, or in part to significantly higher than normal survivorship of calves.

As a result of the limited understanding of how northern ecosystems function, ecologists are normally slower in jumping to their feet at environmental hearings than are industries' spokesmen to say that developments will have no detrimental ecological effects. Given these uncertainties about northern ecology, just an intelligent measure of caution should be sufficient reason to place extensive areas outside the reach of development.

A final aspect of vulnerability of northern lands lies in the perception of wilderness. The long-lasting impact of almost any mechanized human interference decimates the wilderness character of land. At an environmental hearing, I was once asked by a spokesman of a chamber of mines what damage a road would have across a particular south-facing mountain slope where a large band of Dall sheep traditionally wintered and calved. The mountain was in Kluane National Park which at that time (1972) was still ungazetted and under attack. I had difficulty predicting whether or not such a road would result in a perception of danger for the sheep, and thus restrict their range. As usual the burden of proof was on the defender, not on the aspiring destroyer of the environment. But while I could not predict what the effect of the road would be on the sheep, I could state unequivocally what the effect of the road would be on me if I went to see the sheep there. Any feelings evoked by pristine wilderness would be gone. Animals and the land are inseparable parts of a wilderness experience for any naturalist, or for anyone with any sensitivity to wild things. In the United States Wilderness Act, this perceptual reality is recognized by the legal requirement that wilderness remain roadless and without any mechanized impacts.

Northern wilderness is indeed fragile. It will not survive by default. It must be protected, by Act, Statute, Policy, and Regulation, by all of these. It must be protected now.

A herd of barren-ground caribou move across the snow covered tundra in Northern Yukon.

Declines of Northern Wildlife

Barren-Ground Caribou: "Primitive population" (prior to 1700) was estimated at 2,395,000 animals (Kelsall 1968:146). Today, a very generous estimate, based on counts of the five major herds (Porcupine, Beverly, Bathurst, Bluenose, Kaminuriak) would not greatly exceed 500,000 animals (approximately an 80% decline).

"Each herd (Beverly, Kaminuriak, Bathurst) has been experiencing a human kill exceeding its renewal rate and, in addition, a substantial loss to wolves" (Cowan 1981).

Peary Caribou (an arctic island subspecies of barren-ground caribou): "The decline of Peary caribou populations on certain arctic islands through high mortality and decreased reproduction demonstrates the need for extreme caution in use of caribou habitats by resource extraction industries. Caution must also be taken in the utilization of the species as game by native and non-native hunters" (Gray 1977).

Muskox: Pre-contact estimates of muskox do not exist, but Tener (1965: 113) concluded that prior to 1891 "intensive hunting had a serious effect on muskox numbers."

"Early in the fur trade, the muskox was killed for the pelt....Where there were people, there were no muskox, where there were no people, muskox persisted" (Cowan 1981).

Tener (1965) estimated a total Canadian population of muskox at 8,900. Gray (1977) estimated it at 19,000, a substantial recovery. Nevertheless, "dramatic decreases on certain islands have emphasized our lack of basic biological knowledge of the species and its limiting factors and suggest that, for certain populations, survival may be precarious" (Gray 1977).

Other Terrestrial Mammals: Prior to 1967 "moose population declined as did the most accessible populations of Dall sheep, barren ground grizzly and some fur bearers" (especially beaver) (Cowan 1981).

"Present status — moose are thinly distributed and appear to be decreasing in the Northwest Territories. The one population accessible to subsistence hunting is reduced in numbers, but stocks out of reach are thriving" (Cowan 1981).

Beluga: "The harvest of the belugas occupying Cumberland Sound has been monitored over a long period. Commercial whaling by the Hudson's Bay Company terminated at Pangnirtung in 1956. During the period of commercial whaling the annual take was approximately 10 per cent of the estimated population. Despite the elimination of commercial whaling the population has steadily continued to decline" (Anonymous 1980).

"The beluga populations of Cumberland Sound, Ungava and eastern Hudson Bay were reduced to fractions of their former size," and "beluga are probably fully exploited with the Cumberland Sound stock and two other stocks badly depleted" (Cowan 1981).

Narwhal: "There is little concern or recognition that this species may be presently over-exploited within Canada" (Land 1977).

"Beluga, narwhal and walrus were greatly reduced in numbers" (Cowan 1981).

Bowhead whale: "The bowhead whale was reduced to the edge of extermination by European whalers," and "the bowhead has shown no measurable recovery despite 70 years of almost total protection" (Cowan 1981).

"Greatly reduced by American and Scottish whalers a century ago, neither eastern nor western populations have recovered their former abundance" (Macpherson 1981).

Harbour seal: "Mansfield (1967) suggested that the local populations of harbour seals in the Arctic are remnants of more extensive ones eliminated after the introduction of the rifle in the north" (McLaren 1977).

Thick-billed murre: "In arctic waters thick-billed murres appear to have declined considerably since the 1950's though reliable population data from earlier times are scarce" (Nettleship 1977).

"It has probably suffered a 30 to 40 per cent reduction in the eastern Canadian arctic, principally due to oil fouling, drowning in fish nets and hunting" (Folster 1982).

"The future of the more specialized colonial seabird species in eastern Canada's coastal waters must be considered precarious and requires immediate attention and concern. Pollution and disturbance from human populations are not likely to stabilize or decline and even more extensive areas of the continental shelf and Arctic islands are being subjected to oil drilling, mining operations and other forms of industrial expansion" (Nettleship 1977).

General comments: "If we don't have full and open discussion, wildlife is simply going to be sort of ground up between three of the large millstones in the territory: the northern affairs department, the Yukon Government, and the Indian interests....The wildlife resource is being two-bitted away — you get a road here, a farm there and a dam somewhere else, and a little bit of over-zealous hunting exploitation somewhere else, and the resource is nibbled away" (Hartman 1980).

"Since the elimination of the Queen Elizabeth Islands Game Preserve, no land has been set aside specifically for wildlife in the whole Canadian arctic archipelago. With the increasing domination of arctic islands by the oil and gas industry, it is time that wildlife and habitat be given the consideration so often promised" (Gray 1977).

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Decline of Conservation Reserves

The major impact of human activities upon northern wildlife over the past decades has been overkill. Only locally have developments themselves, such as mines and townsites, reduced wildlife abundance, and their impacts largely have been to cause overkill through increased access.

The mega-projects such as island-building and port facilities at the Beaufort Sea are shifting concern to habitat destruction. So, too, are cumulative mining impacts in some places. Nevertheless, the declines of northern wildlife have been, to this point, the result of overkill.

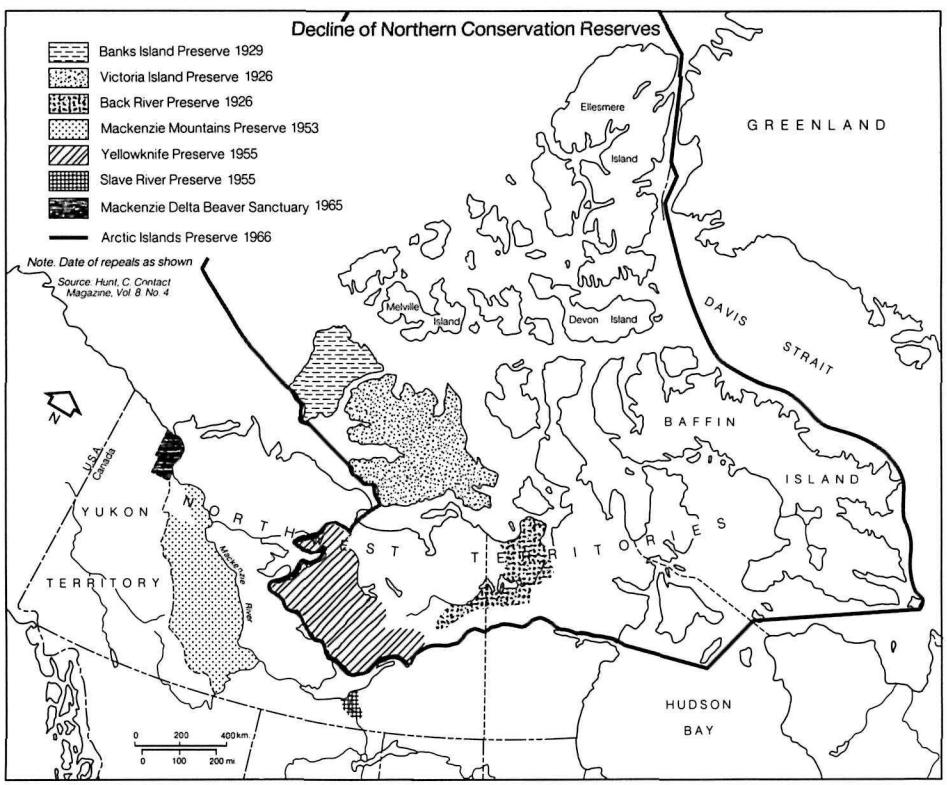
The overkill was evident long ago. In 1915, C.G. Hewitt, Dominion Entomologist and Consulting Zoologist, architect of revisions to the Northwest Game Act, wrote: "The caribou have been totally exterminated in some localities....The musk-ox is another animal which is being exterminated in certain parts of the arctic....Protection is needed in the Northwest for the white fox, which is there becoming gradually reduced in numbers" (Proc. Commission of Conservation Canada, 1916).

Greater protection came through incremental amendments to the Northwest Game Act, which, among other measures, instituted licensing for non-native hunting and trapping in 1917. Subsequently, beginning in 1918, game preserves were established in which only native people could hunt or trap. These reserves both limited human harvest and assigned a priority right to resident native people. The huge Arctic Islands Preserve, which eventually incorporated many of the smaller preserves (Banks Island, Back River, Victoria Island), was geographically a very significant conservation lands reality in Canada.

Most of those reserves exist no longer. The detailed history of both their establishment and their repeal has been documented by C. Hunt in "The Development and Decline of Northern Conservation Reserves," *Contact* 8(4):30-69, November 1976, published by the University of Waterloo. She wrote, "Within less than twenty years the reserve system was decimated.... These sweeping changes came about at the hands of the Territorial government. The groundwork was laid in 1948 when the Federal Government, through an amendment to the Northwest Territories Act, delegated all authority over preservation of game to the government of the Northwest Territories."

Considerable debate took place prior to the repeal of the Arctic Islands Preserve in 1966. The Canadian Wildlife Service was opposed, as initially was the Commissioner of the Northwest Territories. The Canadian Wildlife Service argued that the preserve not be abolished until better enforcement of game laws was possible, education in the need for the game laws was conducted, and safeguards were in place to protect subsistence hunting by Eskimos. But pressures for greater hunting and trapping rights won out.

These northern conservation reserves provided one way to attempt to check the over-exploitation, and assign priority rights to wildlife. Both are still a problem today. New concepts of conservation lands can contribute to their better resolution. Conservation lands can still help very substantially in preventing overkill through more detailed censusing of wildlife and enforcement and regulation than may be possible territory-wide. But they are needed, and must be broadened to contribute to habitat protection and the preservation of the wilderness character of key northern lands.



Mega-Projects

MARK STABB

Resource development projects in the North are characteristically large in scale and financially and technologically risky in nature. The environmental implications and synergistic impacts in a land of low productivity and high sensitivity are enormous. Government often sponsors or provides incentives for these mega-projects; it seems likely that this trend will continue in the future.

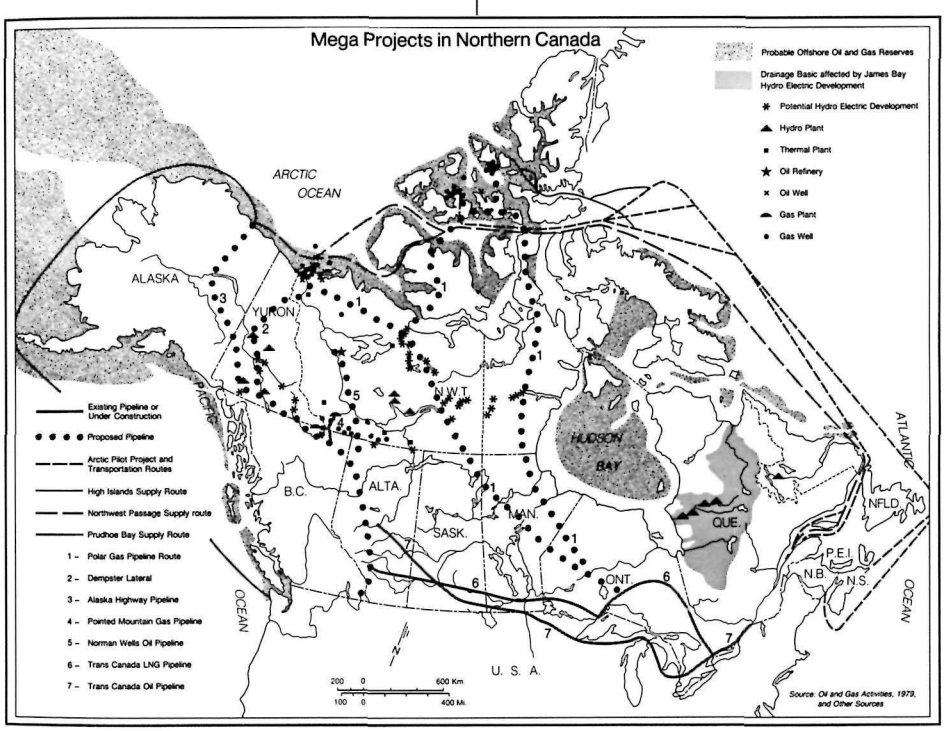
Petro-Canada's *Arctic Pilot Project* involves the extraction and liquefaction of approximately two trillion cubic feet of natural gas from Melville Island and its transportation for production in eastern Canada. Liquefied natural gas (LNG) icebreakers would ply the Northwest Passage 64 times a year; it is the first time the passage would be open year-round. The LNG tankers would pass through Lancaster Sound, one of the most vital ecosystems in the Canadian Arctic. Tanker activity, noise and possible oil spills could severely affect the highly sensitive concentrations of marine birds and mammals there. A pipeline needed for gas transport on Melville Island will undoubtedly affect the Peary Caribou population, already recognized as threatened by the Committee on the Status of Endangered Wildlife in Canada. Native hunting of the caribou would also be affected. There are international implications as well: there are perceived impacts on the renewable resources, mostly mammals and fish, occupying the waters to be travelled bordering Greenland, and on the native peoples hunting them.

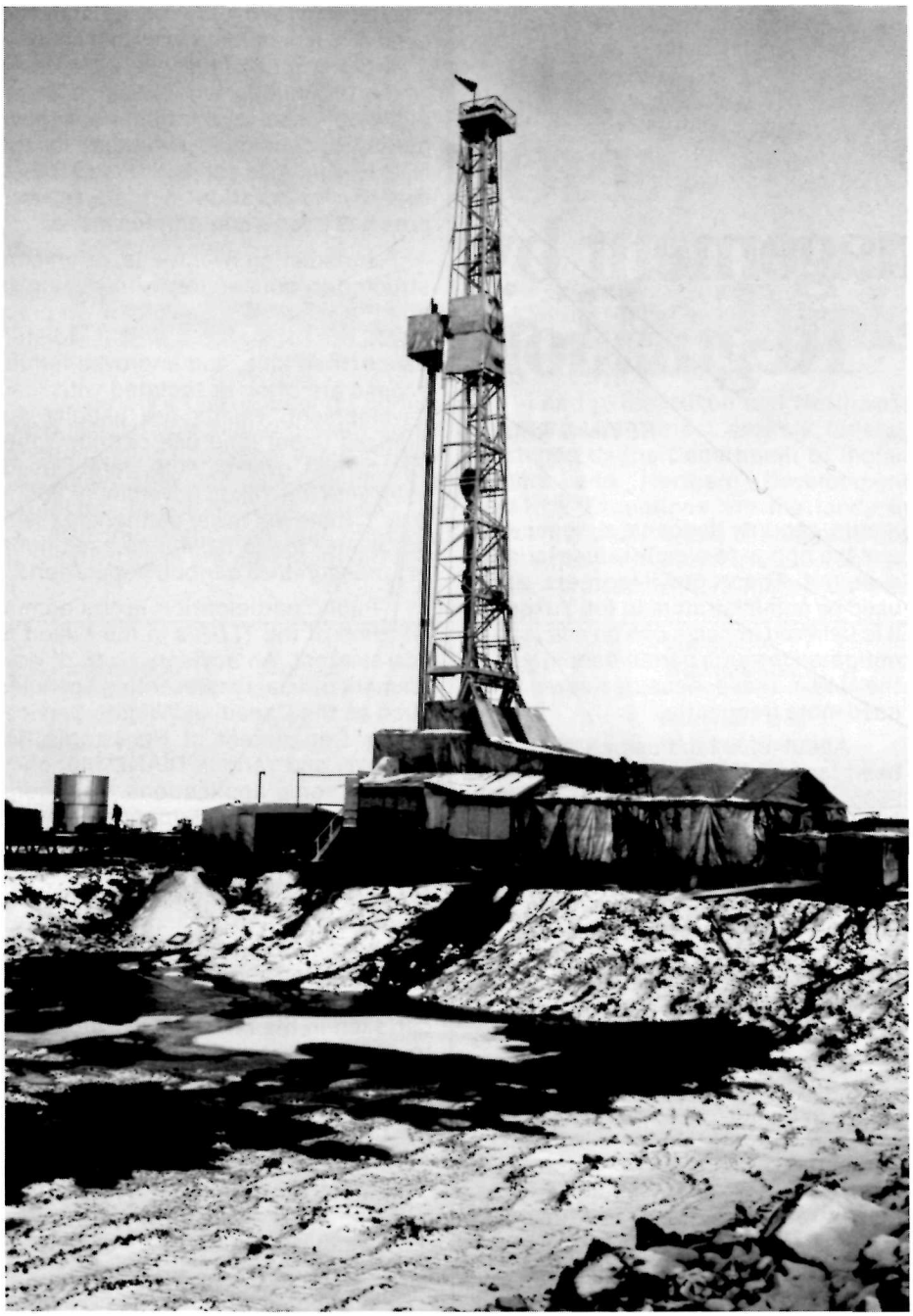
The *Beaufort Sea* and *Mackenzie Delta* are home for beluga whales, polar bears, seals, and, according to the Geological Survey of Canada, roughly 10 billion barrels of oil and 3.5 trillion cubic metres of natural gas. Working under their own higher estimates of oil and gas potential and with a nearly 80% subsidy from the federal government, exploration companies have moved into this region en masse. Drilling rigs must battle severe ice conditions and the possibility of oil spills by manoeuvering with reinforced drill ships in the short arctic summer. Artificial islands the size of the Egyptian pyramids are also used. Twenty have been built to date, the largest having required five million cubic metres of dredged sands. There are roughly 130 wells in the region...and production has not even begun yet. Still unresolved is how the oil and gas will be transported to southern markets (tankers? pipeline?). The Department of Indian Affairs and Northern Development (DIAND) is finally putting Beaufort exploration through the federal Environmental Assessment and Review Process (EARP) after seven years of drilling. In preparation for EARP activities, the Beaufort Sea Research Coalition of environmental and energy groups was established to coordinate background research on Beaufort Sea issues and to form an effective voice at the hearings. This group has had to disband, however, because previously promised funding from the federal government (in quantities needed for adequate studies) was drastically cut.

Gulf Canada Resources Inc., one of three companies heavily involved in Beaufort exploration, has applied to build a "temporary" port to maintain its exploration efforts — the site: *Stokes Point*, Yukon. This $60 million facility would be on the coast of the Northern Yukon, within a Land Withdrawal for a national park. The port development would include an airstrip, a large wharf, crew facilities, and a possible winter road, all within the park reserve. DIAND is considering how it can circumvent the spirit of the land withdrawal and the COPE Agreement-in-Principle, and recommendations of the Berger Commission and the National Energy Board, to allow this development to go through. The granting of a land use permit for such a project in a potential park would set a dangerous precedent for development proposals elsewhere in the North, and will be challenged with court action by the Canadian Arctic Resources Committee if approved.

Norman Wells, N.W.T. is the focus of expanded oilfield production and the origin of an oil pipeline to northern Alberta. Expansion is to include six wells built upon man-made islands within the Mackenzie River. Both the pipeline and the activities associated with island development have potential for affecting the river's biota, its water quality, and the native people who use the waterway. At present it seems that the project will go ahead without any settlement of native land claims (a prerequisite for good planning in the North). It also looks as if this project is but a stepping stone for a pipeline carrying Beaufort oil and possibly gas to the south.

The *Alaska Highway Gas Pipeline*, one of the biggest proposed construction projects in North America, was chosen as the more environmentally and socially acceptable means of





Drill rig, Tuktoyaktuk Peninsula.

transporting northern gas southwards, as opposed to the Mackenzie Valley Pipeline. The proposed route in the Yukon is 818 km long, and is part of a larger system carrying natural gas from Alaska to the lower 48 states. After having gone through lengthy (some would say unsatisfactory) EARP hearings, the pipeline basically has the go-ahead. As it stands, however, the project is on the back burner, awaiting ensured funding; the development is expected to cost approximately $30 billion. The proposed route runs beside Kluane National Park and the shore of Kluane Lake in the southwest Yukon. The lake is a scenic wonder which should have been included in Kluane National Park. The sheer size of the undertaking ensures that impacts upon wildlife will be difficult to minimize.

Associated with the Alaska Highway Pipeline is the *Dempster Lateral Pipeline*, a proposed tie-in bringing Mackenzie Delta natural gas south. Its route will follow the already controversial Dempster Highway corridor, connecting Dawson and Inuvik year-round. Use of the highway so far has meant a large increase in the hunting pressure on the famous Porcupine Caribou herd, even with a ban on hunting within a 16-km management corridor. Combined with the highway, the Dempster Lateral greatly increases the possibility that portions of the Porcupine herd's preferred habitat may be abandoned, possibly reducing the herd's numbers.

The latest news from the *Polar Gas Project*, coming from a March 1983 press release by the consortium, is that in 1983 it will be applying for a "multi-phase pipeline system" to connect the Beaufort's natural gas reserves to southern markets. Several routes were studied over the years; it is not known which will be the one applied for, but it will lead to the nearest point of connection with any existing pipeline systems. The Norman Wells line comes to mind.

Besides these oil and gas mega-projects, huge mining developments are being proposed, or, as is the case of the *Nanisivik* mine on Baffin Island, are now operating. Nanisivik needed a $16.7 million boost in the form of federal grants and infrastructure to become operational. With an active life of only 12 years, there are questions surrounding the mine's ability to show a benefit for the Canadian taxpayers aiding it. The lead-zinc mine proceeded with its development despite unresolved questions about its environmental impacts. This pattern is continuing with the *Polaris* lead-zinc mine on Little Cornwallis Island in the High Arctic; no EARP procedure has been applied to either mining project.

As is the ecology of the North, many of these projects are linked together. They have common ground in that we as a country are paying for them dearly: through monetary support and through the loss of many of Canada's finest examples of wilderness landscapes. Effective land use planning *should* deal fairly with all aspects of northern development and conservation. Parks and wildlands designation, therefore, should parallel development, because at present, land use controls alone are not resulting in "balanced development."

Editor's Note: Mega-projects are sometimes the subject of the "Federal Environmental Assessment and Review Process" (EARP). Increasing numbers of people are viewing this process, regretfully, as of limited worth. Neither is it a legal requirement of the proponent of development, nor are recommendations that come out of the process any more than recommendations. It rarely is used to assess whether or not to develop; rather it only assesses how to reduce damage. It sometimes commences after development has begun. So political is it that biologists who could contest statements of a proponent have sometimes been ordered by their government employers not to appear at hearings. No subpoena, cross-examination, or other adversarial features are used.

Land Management by Regulation

KEVIN O'REILLY

Legislation to manage northern lands has generally developed in response to demands for these lands. Regulation rather than planning is the norm. The result is that decisions on the best use of public lands are usually made by the private sector. Until the late 1960's, when large-scale northern development began, little concern was expressed over the lack of provisions for environmental protection in land management legislation. Since then, ad hoc, incremental resource development has proceeded largely unimpeded, with its cumulative impacts, despite the federal government's commitment to "balanced development."

The *Territorial Land Use Regulations* (*TLUR's*), administered by the Department of Indian Affairs and Northern Development (DIAND), were approved by the federal cabinet in 1971 to regulate short-term land use and remain the major land management tool for the North. DIAND has the conflicting roles of promoting resource development and protecting the northern environment. One explicit purpose of the TLUR's is protection of the ecological balance of the Yukon and N.W.T. This protection is to be achieved by regulating road building, power lines, campsites, forestry operations, hydrocarbon exploration, and other activities through a permit system. Two types of permits exist. Class B permits are issued for minor land use operations and have a three-day review period. Class A permits are for larger operations and have a ten day review period plus provisions for delaying decisions by up to about 59 weeks. Conditions may be attached to permits governing the timing of operations, equipment used, erosion and flood control, and protection of wildlife habitat, recreational, and/or ecological objects or places. An inspection and enforcement regime is established under the regulations, with numerous discretionary measures available to administrators. These include environmental impact assessments, security deposits, suspensions, and the option to simply refuse to issue a permit. These provisions are rarely used by administrators in the Yukon, as it is believed impacts can be adequately mitigated through permit conditions. In the N.W.T. these measures seem to be used more frequently.

About 1400 land use permits have been issued in the Yukon and around 2600 in the N.W.T. In the Yukon, the major activities requiring permits have been, in decreasing order, roads, campsite/staging areas, forestry operations, and quarrying. Hydrocarbon exploration is the major permit activity in the N.W.T., along with mining and quarrying. No comprehensive assessments of the *TLUR's* have been conducted to document statistically the frequency of various procedural mechanisms such as refusal to issue permits, security deposits, or suspensions. The writer is currently undertaking such a study on the administration of the *TLUR's* in the Yukon. Very few applications are rejected on environmental grounds, particularly in the Yukon. Violations of land use permits, ranging from failure to notify inspectors of operation commencement to conducting an operation without a permit, appear to be fairly common. DIAND has initiated only 11 prosecutions under the *TLUR's*, with a maximum fine of $5,000 possible. The emphasis is obviously on prevention, which requires effective inspection and enforcement, but the current system has never been evaluated for its effectiveness.

In the Yukon, the major issue surrounding land management is the precedence of the Yukon mining statutes over the *TLUR's*. Mineral development proceeds with virtually no environmental regulation. Claim holders do not have to obey the *TLUR's* for work on their claims. The mining legislation in the Yukon guarantees access to mineral claims. DIAND has interpreted this to mean surface access and thus land use permits for mining roads cannot be denied. Yukon mining has thus become a single purpose land use, something which the mining lobby itself is vigorously opposed to, particularly with regards to conservation lands. In the N.W.T., mining is subject to the TLUR's. Uranium exploration in the Keewatin area has been a contentious issue.

Jurisdiction over roads, often constructed in connection with mining is another Yukon land management problem. Loss of habitat, wildlife disturbance, road kills, and improved hunter access are often associated with road development. Roads are usually authorized under land use permits while jurisdiction over closure, rarely used, rests with the Yukon government. In the N.W.T. there are fewer permanent roads but winter roads have increased hunting pressures on caribou populations.

Public participation in the administration of the *TLUR's* in the Yukon is non-existent. An advisory body of government officials representing agencies such as the Canadian Wildlife Service, Yukon Department of Renewable Resources, and various DIAND branches reviews some applications. This committee has no legal mandate, holds closed meetings, and considers each application in isolation with no regard for cumulative impacts. In the N.W.T., there is a similar advisory committee and communities are often consulted before issuing permits. Several northern regional planning initiatives were undertaken in the late 1970's, attempting to remedy some of the land management problems outlined above, but they were never implemented. DIAND is in the process of establishing a northern land use planning program which is to include a conservation strategy.

The *TLUR's* can never "protect the ecological balance" of the Yukon while their mandate excludes the regulation of mining. Ancient Yukon mining legislation has remained unchanged for at least 60 years and thus requires a major overhaul. A clearly defined, open approval process for land use permits is necessary to create public confidence and accountability. More importantly, a broad planning context for land management in the North based on sound ecological principles is needed rather than ad hoc regulation. All interest groups have accepted the principle of comprehensive land use planning. Ideally this process would dovetail with native land claims settlements and should include a strong conservation strategy. A set of revised TLUR's could form an effective management tool for multiple use lands. The North is at a crossroads. This golden opportunity for comprehensive land use planning and truly "balanced development" should not be missed.

PART III
THE HOPE

Protection — The Tools

A variety of governmental bodies have legislative tools to protect areas of outstanding ecological value. If used in concert, they can give Canadians a protected lands heritage second to none in the world. The four principal legislative tools are described in Table 1.

Land in the Yukon and Northwest Territories is almost entirely federal, managed by the Department of Indian Affairs and Northern Development (DIAND). Exceptions are the lands in and around cities and towns, much of which has been transferred to Territorial ownership, but this makes up less than one per cent. A small amount of privately owned titled land exists outside these Territorial Lands.

Most resources, like land, are under federal jurisdiction, with the exception of wildlife other than migratory birds. The federal Department of the Environment administers the Migratory Bird Treaty Act and is responsible for the regulation of waterfowl hunter-kills.

The elected Territorial Councils (one in each of the Yukon and Northwest Territories at present, but eventually with two in the NWT) provide social and other services similar to those provided by provincial governments, and administer the communities and adjacent lands under their control.

National Parks legally can be established on the federal lands, that is, most of the territories, without approv-

Legislation	Agency	Purpose	Land Designation	Land Uses Permitted	Land Uses Not Permitted
National Parks Act (1930, 1974).	Parks Canada	"benefit, education and enjoyment ...maintained and used so as to leave them unimpaired...."	National Parks National Historic Parks National Landmarks National Wild Rivers	Traditional hunting, fishing, trapping by native people	Mining, Logging, settlement, or any disposition
Canada Wildlife Act (1973)	Canadian Wildlife Service	conservation, interpretation and research on wildlife and protection of endangered species.	National Wildlife Areas	Any use if compatible with wildlife research, conservation and interpretation	
Yukon Territorial Parks Ordinance (1979)	Department of Renewable Resources of Yukon Government	"protect unique natural and historic features and provide comprehensive outdoor recreational opportunities	wilderness preserves, nature preserves, natural environment parks, recreation parks, and others	Development limited "so it is consistent with park purpose...."	
Northwest Territories Park Ordinance (1975)	Dept. of Economic Development and Tourism Div. of Parks	Establish territorial parks	Natural Envirnment, recreation parks, wayside parks	Outfitting and guiding	Hunting, disposition of surface rights

Table 1. Canadian Legislation to Protect Areas of Outstanding Ecological Value.

Adapted from J.G. Nelson, "Analytical framework and results of legislative analysis," *In Environmentally Significant Areas of the Yukon Territory*, 1980. Theberge, J.B., J.G. Nelson, and T. Fenge (eds.). Canadian Arctic Resources Committee, Ottawa.

Legislation	Agency	Purpose	Land Designation	Land Uses Permitted	Land Uses Not Permitted
Migratory Bird Sanctuary Regulations (1974)	Canadian Wildlife Service	Protect migratory birds	Migratory Bird Sanctuary	Hunting by permits	Land uses deleterious to migratory birds
Yukon, and NWT Territorial Game Ordinances	Territorial Governments	Regulation and control of hunting	Game Sanctuary Game Preserve	Any land use	Hunting

Table 2. Canadian Legislation to Protect Northern Ecosystems.

al, but after consultation with Territorial Legislative Assemblies, according to the amended National Parks Act (1973). In reality, however, the agreement of the Territorial Governments is necessary. National parks are established only after considerable negotiation. Parks Canada has adopted a policy for the establishment of new parks that involves considerable consultation and public review with local and other northern residents who may be affected, and the interested Canadian public in general. Land designated as a park must be transferred from the control of the federal Department of Indian Affairs and Northern Development to the federal Department of the Environment (DOE).

A similar transferral of control must take place for the establishment of a National Wildlife Area. The one National Wildlife Area, Polar Bear Pass on Bathurst Island, announced in 1982, was the subject of formal hearings in both northern and southern Canada. A board was set up for these hearings chaired by DIAND and consisting of representatives from both federal and territorial governments.

Territorial Parks cannot be established without the transferral of control of the land from federal to territorial governments. Despite applications for transferrals for territorial parks made by the Yukon Government to the DIAND, no lands have been turned over for that purpose.

Thus, the federal DIAND exerts considerable control over efforts not only of its sister federal department (DOE) but of the territorial governments to protect conservation lands. While DIAND is dominated by the northern development portion of its mandate, it has a "Northern Environment Program" with its own Assistant Deputy Minister, within which is a Northern Conservation Division and a Land Use Planning Division. Recent events indicate increasing recognition by DIAND of the importance of northern conservation lands. These events include Minister Munro's decision to protect Polar Bear Pass by turning the land over to DOE for a National Wildlife Area, and a conservation policy paper currently under review.

Conservation lands cannot be established in isolation of competing claims on northern lands. Thus, Parks Canada will not create a national park without extensive survey of mineral potential in the proposed park area by the Geological Survey of Canada. As well, Parks Canada consults with native people. A more comprehensive effort at conflict resolution may be possible through land-use planning. Ideally, planning can allow territory-wide focus on priority conservation lands, mineral lands, native claim lands, potential utility or road corridors, and other future uses.

A land-use planning initiative for the north is in its formative stage within DIAND. In reaction, the Yukon Government has announced its intention to plan, passing a "Land Use Planning Act" in December, 1982. Some jurisdictional conflicts have arisen, compounded by the unresolved state of native land claim negotiations.

Legislative tools exist to protect land or some aspects of land, besides the four previously mentioned. They include the two that are described in Table 2. The track record of both of these pieces of legislation does not indicate that they have been very effective tools for protecting conservation lands. Ecologically damaging exploration and development have been allowed in many of these areas. While a designation of bird and game sanctuaries has played some role in preventing over-hunting, better conservation lands tools exist today, as described.

Other legislative tools may be useful in "support" roles as buffers around National and Territorial Parks and National Wildlife Areas. Although not used to date for such purposes, they include: the Territorial Land Use Regulations (administered by DIAND), which allow the establishment of "land management zones" for protection of ecological balance through a permit system; the Area Development Ordinances (Territorially administered) to provide for orderly development; and the Northern Inland Waters Act, under which land may be reserved for protection of water "to provide for the conservation, development and utilization of water resources...."

Thus, legislative tools to protect northern areas of outstanding ecological value are largely in place.

Northern Yukon.

Northern Conservation Lands:

A Position Paper of the National and Provincial Parks Association of Canada (February, 1983)

The Board of Directors of the NPPAC approved the following northern conservation lands objective, in February 1983. The Association is mounting a campaign for its realization.

Northern Conservation Lands

Canadians have a rich northern natural heritage, a landscape of incredible beauty. From wave-battered polar seas, across rolling expanses of tundra, to rugged mountain peaks, Canada's northland encompasses great diversity. There are places in our north where caribou and muskoxen roam, where great colonies of seabirds nest and migratory geese congregate — providing unsurpassed wildlife spectacles.

These places are not adequately protected. Governments at all levels have failed the people of Canada. Slowly, step by step, development by development, we are losing this heritage.

The National and Provincial Parks Association of Canada is calling for a strong united voice from conservationists and others concerned with the protection of this heritage, to make governments aware of our deep concern, and demand that they act now to reverse this incremental loss.

Our Demands

By the end of 1983, we ask that:

Each federal and territorial Minister responsible for any conservation lands issue a press release and policy statement, approved by Cabinets, that *promises the Canadian public to establish the conservation lands under their jurisdiction, by January 1988.*

These statements must include a schedule of steps describing ways, means, and times of public input for completing this task. Specifically, the following Ministers should commit themselves as below:

- Federal Minister of the Environment: *Complete the system of national parks, marine parks, national landmarks, national heritage rivers, and national wildlife areas.*
- Territorial Ministers of Departments of Renewable Resources (Yukon and Northwest Territories): *Complete the system of territorial parks — historical, recreational, day use.*
- Federal Minister of Indian and Northern Affairs: *As present landowner of all the potential conservation lands,* support *their transfer to the aforementioned jurisdictions, specifically for conservation purposes. Support the establishment of conservation lands as a key and fundamental component of land-use planning.*

Our demands imply the settlement of native land claims.

The North — Our Precious Heritage

A system of protected conservation lands does not exist in northern Canada, even though the legislation which would enable the federal and territorial governments to do so has existed for several years. Consider the following:

- there is only one national wildlife area in the north, Polar Bear Pass, announced in 1982;
- fifteen of eighteen natural regions as defined by Parks Canada are without parks;
- only a few of the 151 ecological sites identified in the International Biological Program are protected;
- existing bird and game sanctuaries legislation is not strong and fails to protect the habitats from development.

The delicate nature of arctic ecosystems is a familiar theme to many, but efforts to protect significant examples of these ecosystems have been rare and sporadic. The urgency is real and well-documented. For more than a decade, the federal government has talked of "balanced development." It has poured millions of dollars into the north to stimulate exploration and industrial development, while doing little to protect areas of outstanding natural significance.

Growing development

Many people visualize Canada's north as a vast, empty land of ice and snow. In fact, there is little of the north that has not been explored. Much of this exploration, aside from the travels of the native people, has been in the form of searches for non-renewable resources such as oil, gas, and coal. Others have surveyed the flora and fauna.

When individuals visit the north, they are frequently astounded at the amount of development that has already occurred. The Mackenzie Valley is a good example. Barges ply up and down the river, and it is now possible to drive within a few miles of the Arctic Ocean. Supply ships, drill ships, tugs, and others frequent the offshore region. Tuktoyaktuk is a bustling hub of industrial/marine activity with fuel tanks, an airport, dry dock, and facilities for several hundred people.

The land is dotted with communities, both isolated native towns and larger developed areas. The oceans and rivers carry more traffic than most Canadians realize. There are many mines in the two territories, and the network of roads continues to spread. Development is occurring at an accelerating rate.

The Framework of Government

The federal Department of Indian Affairs and Northern Development is the land manager/owner. Its mandate originates in various legislation such as the Territorial Lands Act. DIAND not only has authority over land disposition, but is responsible for negotiating and settling native land claims.

The federal Department of the Environment is responsible for environmental matters. Included in its mandate is responsibility for establishing and managing national parks and national landmarks, national wildlife areas, and migratory bird sanctuaries.

The Yukon government and the Northwest Territories government act primarily through ordinances such as the Area Development Ordinance, the Game Ordinance, and Parks Ordinance. These allow for the establishment of territorial parks both for the protection of important natural features and for recreation. (To establish these, the land must be transferred from the control of the federal government — DIAND.)

Land use planning as proposed by the federal and Yukon governments is an important program currently under way. This planning will identify prime areas for various priority uses and has great importance for the establishment of a system of conservation lands in the north. Currently, however, land use

planning has no legislative base or terminal date. Governments write position papers and talk about land use planning, but the process has not begun. In Alaska, 25 per cent of the land is protected as national parks and wildlife refuges. Yet in the Canadian north, less than two per cent of the land is protected.

The Struggle for the Land

The activities of governments, developers, and individuals occur within a complex political framework. Perhaps the most prominent feature of this framework is the struggle for control over land and natural resources. The mining and petroleum industries clearly would prefer to be bound by as few restrictions as possible. The federal and territorial governments frequently seem to disagree on who the primary land manager should be. Native people are caught in the midst of these discussions with their very legitimate claims to land resources and the protection of their culture. Agencies and individuals who are concerned about the protection of the environment struggle within the morass of political and regulatory conflicts. Time and time again, it is the environment that suffers.

Despite the complexities of land ownership and management, the essential missing ingredient to establishing conservation lands is *political will*. The key candidate areas for protection are all known. The technical work in identifying them and classifying them is essentially complete. But, at the point of political action, the process of protection has bogged down.

It is up to concerned Canadians to speak out on this issue. Otherwise we forfeit not only the immense treasure of a system of conservation lands to protect our northern natural heritage, but the right to complain about the loss.

Official Response to N.P.P.A.C. Northern Conservation Lands Objective

Department Of Environment

Dear Mr. Henry:

I appreciate very much this initiative on your part to promote the conservation of northern lands. Insofar as Parks Canada is concerned, I know that most of your members are aware of the process leading to the establishment of new parks. Let me say at the outset, that when the Parks Canada Policy was approved by Cabinet in 1979, it included a statement that each of Canada's natural regions "should be represented in the system of national parks." This remains my intention and I am fully committed to this objective.

The policy, reflecting public views, also committed the department to a rather complicated process of consultation with native groups, communities, and governments. That process is being followed, however, do not always move as quickly as I would like or I expect as you would like [*sic*].

With the pursuit of new national parks in the north being one of Parks Canada's highest conservation priorities, their office in Yellowknife has recently been further staffed. As well, I am now reviewing plans aimed at the eventual completion of the national park system in the north. These plans, to which I am fully committed, will lead to the eventual establishment of a system of northern parks representing each of the natural regions north of 60°N.

When complete, the northern national park system would include representation of the 15 terrestrial natural regions of the Territories. Presently, one national park and three national park reserves have been established by legislation. Three areas have been withdrawn by Order in Council from disposition under the Territorial Lands Act, and a further four areas have been publicly announced as potential national parks. Consequently, a total of four terrestrial areas of interest as potential national parks remain for me to announce. I anticipate doing this before the end of 1983 which corresponds to your own target date.

The Canadian Wildlife Service policy has been to promote the establishment of a comprehensive network of protected areas north of 60°N, to provide adequate protection and management for areas of significance to the preservation of Canada's migratory bird populations. As early as 1941 the first Migratory Bird Sanctuary (Dewey Soper MBS) was established in the Northwest Territories. Since then 13 additional sanctuaries have been established north of 60°N, most of which provide protection for the nesting habitat of breeding colonial nesting geese. The area protected under the Migratory Bird Sanctuary Regulations is 42,775 square kilometers or 1.1 per cent of the Territories.

In 1981 Canada acceded to the Convention of Wetlands of International Importance, for brevity known as the Ramsar Convention. In 1982 seven areas north of 60°N were dedicated in the List of Wetlands of International Importance in cooperation with the Territorial Governments, the Department of Indian and Northern Affairs, and Parks Canada. All but one of these areas are totally within the territories and cover a total of 99,500 square kilometres.

The Canadian Wildlife Service first documented areas of interest in the North when it produced the Arctic Ecology Map Series in 1972. That material was revised beginning in 1979 and has been incorporated in the recent Environment Canada publication "Canada's Special Places in the North." The 136 areas listed were selected in consultation with the territorial governments on the basis of the criteria outlined in that publication. The material will be reviewed shortly from the Canadian Wildlife Service perspective, to priorize areas of interest as future National Wildlife Areas, Migratory Bird Sanctuaries, and Co-operative Wildlife Areas.

The Canadian Wildlife Service has been working recently with the Department of Indian Affairs and Northern Development to develop a Memorandum of Understanding for the establishment of National Wildlife Areas in the north. Three priority areas have been selected — Polar Bear Pass, Prince Leopold Island, and the eastern portion of the North Slope. Polar Bear Pass should be declared a National Wildlife Area by early summer, and will be managed in cooperation with the Government of the Northwest Territories. A draft management agreement is being reviewed and should be finalized and in place before Polar Bear Pass is declared a National Wildlife Area. A management plan is also being developed.

I do plan to move aggressively on the establishment of new conservation areas in the north. We are well along in the process of establishing some of the national parks and some national wildlife areas. I propose to act on each opportunity expeditiously. I will need your support and I look forward to receiving it.

Yours sincerely,

John Roberts

Minister of Environment

Department of Indian Affairs and Northern Development

The conservation of northern lands as well as the management of natural resources for the benefit of both northerners and all Canadians are important issues to the federal government and to the department of Indian and Northern Affairs. Hence, I am pleased to have this opportunity to outline some of the initiatives my department has taken — and is in the process of developing — to conserve the environment in Canada's North.

However, before I get into details, I would like to introduce some of the complexities which are part and parcel of being the landowner, on behalf of Canadians, of northern lands. Specifically my department's mandate includes a wide variety of legislation, policies and programs concerned with Indian and Inuit affairs and the development of the two northern territories. These responsibilities include:

- initiating, encouraging and supporting measures that will respond to the needs and aspirations of Indian and Inuit people and improve their social, cultural and economic well-being;
- ensuring that lawful obligations to Indians and Inuit are met;
- encouraging the orderly economic and political development of the Yukon and Northwest Territories; and
- settling of claims related to traditional native use and occupancy of lands in those areas of Canada where this traditional right has not been extinguished by treaty or superseded by law.

In practical terms, this means that the various competing — though not incompatible — interests have to be taken into consideration in the formulation of new policies and programs which affect the North and its people.

Consequently, while I am in full agreement with the establishment of special conservation areas such as parks and wildlife conservation areas, historic sites etc. there is a need for an orderly approach to the transfers of land for such purposes. Such transfers should be evaluated in terms of:

- implications for native land claim settlements;
- implications for future resources administration;
- implications for land use planning; and
- implications for other conservation/ recreation initiatives.

I have included the above in order to illustrate the diversity of concerns and interests which play a part in the formation of northern policy initiatives. Nevertheless, I would like to explore two recent policies which directly concern the conservation of northern lands.

First, the progressive increase in land and resource use activities in the North and the associated increase in conflicts between traditional environmental use, protection, and development emphasized the need for a new approach to managing northern lands. For this reason, in July 1981, a Northern Land Use Planning policy was announced. Northern land use planning is an organized process for determining the use of the land and related resources, based upon cooperative decision-making by governments, groups and individuals, according to their various needs and desires and the limitations imposed by the environment.

The basic principle of land use planning is respect for the people and for the land. The aims of land use planning are to provide an equitable distribution of the benefits and costs of orderly and timely development; to ensure that northerners, particularly native people, may play a full role in shaping their destiny and in influencing national affairs; and to ensure that resources are used in ways that maintain cultural and environmental values for future generations of Canadians.

I expect that the readers are in full agreement with the aims of land use planning outlined above.

Because land use planning is a cooperative process, considerable time is being spent in consultations. In October 1982, the department distributed a draft paper entitled "Land Use Planning in Northern Canada" in order to foster public discussions. Other federal departments and agencies, territorial governments, native organizations, industry, planning professionals and others in the public sector are participating in discussions about its implementation.

DIAND has reviewed all the comments on the draft paper and is currently focusing on establishing an acceptable planning mechanism, and on initiating planning in selected priority areas in the North.

The second initiative I would like to mention is the development of a comprehensive conservation policy for the north. A draft discussion paper entitled "A Comprehensive Conservation Policy and Strategy for the Northwest Territories and Yukon" was released in October 1982. The objective of the paper was to determine how conservation initiatives could be dealt with in the most efficient manner.

A national workshop was convened in Whitehorse in February 1983 which used the paper as a working document. One of the results was an action plan to guide the development and implementation of the policy.

I am pleased that senior officials from a wide range of federal and territorial agencies, industry, conservation and native organizations participated in the workshop and entered into fruitful discussions.

I have considered the Action Plan submitted by the workshop participants and have decided to accept the proposal to establish a task force. In consultation with the two territorial governments and other federal departments I will establish a small task force, consisting of individuals from governmental and non-governmental organizations. The group will be asked to advise me by the end of the year on a framework for a comprehensive conservation policy for the North, on a strategy and ongoing mechanism for implementing the policy, and on conservation targets which can be met in the period 1984/85.

The nature of the process by which proposals are to be considered for territorial parks, ecological sites and other conservation lands will be addressed by the task force. The development and implementation of a comprehensive conservation policy will ensure these needs are addressed in the department's northern land use planning process.

In closing, I would like to reiterate that my department has a long track record of supporting conservation in the North. For over 20 years, DIAND has actively worked towards the establishment of national parks and other protected areas in northern Canada.

Three national park reserves (Auyuittuq, Nahanni and Kluane) were created in 1971-72. Land was withdrawn for national parks on the east arm of Great Slave Lake in 1970, the northern Yukon in 1978, and northern Ellesmere Island in 1982. An ecological reserve (Polar Bear Pass) was created in 1982.

It is my hope and expectation that the two policies that I have explained at length here will serve to further the cause of preserving and protecting our northern natural treasures.

John C. Munro

Minister

Department of Indian Affairs and Northern Development

Note: *Letter from the Minister of Indian Affairs and Northern Development was not received in time for translation.*

Government Of The Northwest Territories

Dear Mr. Henry:

Thank you for the opportunity to outline to your readers the position of the Government of the Northwest Territories concerning Parks development. The framework for development, systems in place, our position, and future actions are given below.

The Government of the Northwest Territories has recently established priorities to serve as guidelines for action. Resource Development is one of those priorities and aims to promote "balanced development of renewable and non-renewable resources, ensuring that benefits from development accrue to the N.W.T. in the form of gainful employment and revenue while preserving the natural and social environment for present and future generations."

Although non-renewable resources are often seen as the key to development, we certainly cannot overlook the wealth of natural resources or the need to preserve lands in their natural state. This latter area is an integral part of the culture and heritage of the people of the N.W.T., the preservation of which is also a priority of this government. Parks development falls within these priorities.

The Department of Economic Development and Tourism plays a leading role in Parks development and planning while the Department of Renewable Resources provides professional expertise with regard to preservation of wildlife habitat and land use planning. Several other agencies and Federal departments are involved in the process as well.

As an overview to the area of Territorial parks, over thirty now exist, serving the needs of residents and the travelling public. Community parks are available to provide outdoor recreational opportunities for particular communities and the travelling public. Wayside parks are similar in purpose but located farther from communities and near points of interest. Natural Environment Recreation Parks preserve the natural environment within these parks for the benefit, education, and enjoyment of the public. Outdoor recreation parks provide facilities for the travelling public which are attractive and suitable as destinations in themselves.

A recent amendment to the Territorial Parks Ordinance allows for the development of a new class of parks called Historic Parks to allow for the designation of sites that have historic significance to the Northwest Territories and are suitable for visitation and on-site interpretation, such as archaeological sites or remnants of past exploratory expeditions. Archaeological sites not suitable for visitation will remain under the Territorial Ordinance on Historic Sites, Museums, and Archives, which emphasizes the preservation and protection of those sites.

These park classifications and the parks that are in place are designed to assist in meeting outdoor recreational needs or to interpret and conserve significant natural and cultural resources, while assisting residents in realizing park-related business and employment opportunities.

Complementary to the development of Territorial Parks, the Department of Economic Development and Tourism works closely with Parks Canada in the development of parks of a significant nature to Canada as a whole. Together, these parks provide an integrated program serving a variety of purposes from recreational use to preservation of unique and significant wilderness areas.

The Government of the Northwest Territories' position on Territorial and National park development reflects the cultural background, economic circumstances and environmental setting unique to the Northwest Territories.

Parks development should take into account the needs of residents in terms of traditional access and use of designated areas as well as employment and training needs to counter the high unemployment and lack of business opportunities facing many small Northern communities. Examination of the opportunity costs of restricting use of lands, degree of nearby community support, maximization of the potential social and economic benefits arising from park development and assurance that park development will not prejudice land claims, all must be taken into account in evaluating park proposals.

Dialogue with Parks Canada has taken place regarding park reserve lands as in the case of Ellesmere Island National Park Reserve. It is important that this dialogue with respect to future National Park initiatives continue in order to assure that the people of the N.W.T. are provided with a direct and meaningful voice in the decision-making process associated with the selection, development, and operation of national parks.

In terms of how much land should be ultimately set aside for parks, our view is that parks are one of several uses of the land which must be balanced with resource development, community needs, transportation, and other requirements. These potential uses of the land which are often in conflict must be dealt with through an integrated approach, with the concerns and needs of all parties being heard.

The immense wealth of natural resources contained within the Northwest Territories is of value to all Canadians as part of a rich wilderness and cultural heritage. Preservation of that heritage and traditional lifestyles, while giving Northerners the opportunity to participate in a wage-based economy, is the balance which this government is striving for.

At a workshop to develop a Northern Conservation Strategy held in Whitehorse February 27 to March 3, Richard Nerysoo, Minister for Energy and Resource Development, outlined the need for and commitment to developing a comprehensive land use plan which will address these needs.

The major recommendation of the workshop was that a Task Force be established to clarify the overlapping of jurisdictions between various levels of government and determination of the interests of various proponents of land use in order to establish a land use plan.

The Task Force would also recommend the establishment of a permanent mechanism for implementation of a conservation strategy which would provide for input from both Yukon and Northwest Territories, the Federal Government, and non-government organizations. The Task Force itself would dissolve by the end of 1983 after the permanent mechanism is in place.

One specific goal will be the identification of representative conservation lands and dedication of these lands by 1985.

Preservation of our rich cultural heritage and natural resources are high priority areas with this government. The establishment of a land use plan and consequent system of National and Territorial Parks for the use and enjoyment of all Canadians and which reflect the needs and interests of our residents will accomplish much towards these ends.

Yours sincerely,

George Braden,

Leader of the Elected Executive

Northwest Territories

Government Of The Yukon Territory

Dear Mr. Henry

Thank you for the opportunity to comment on your association's north-

ern program objective. Canada's northlands and especially Yukon are indeed rich in natural heritage and there are places unsurpassed in natural beauty throughout the remainder of Canada. As with other jurisdictions, Yukoners hold these lands in trust for future generations of Yukoners for their benefit, and thereby the benefit of other Canadians. At present a greater amount of Yukon land has been identified, withdrawn, or set aside for conservation purposes than most other jurisdictions across the country. Approximately 7 million hectares are currently managed to preclude development except in the interest of conservation and approximately another 6 million hectares have been identified and proposed to be set aside. Clearly Yukoners are committed to the concept of conservation lands that are available for the use of all Canadians. We are committed as well, however, to the concept of comprehensive land planning leading to balanced use of resources so as to not preclude the economic viability of the Territory and indeed the Nation. We believe strongly that planning of this nature done in the north should be undertaken by northerners for the long-term benefit of northerners. Southern viewpoints and observations in this regard are appreciated, but all too often they are derived from southern experience and simply are not applicable. In addition, southern Canadians must recognize that while they enjoy all the economic benefits of extensive resource developments in their provinces, it could be seen as an unreasonable, perhaps colonial, attitude to then demand let alone request their conservation lands from another political jurisdiction.

Unquestionably there is a need for conservation lands in the north and I submit this need has not been overlooked or bypassed by governments. While the process to protect these lands may be somewhat slower than envisioned by your association, nevertheless it exists and functions and is more than adequate to meet the current rate of development.

When the need to set aside conservation lands accelerates, the support of your association rather than confrontation with the governments involved will produce much more desirable and beneficial results. In the meantime, we encourage and invite all southern Canadians to look to Yukon for enjoyment of our still relatively intact wilderness.

Sincerely,

Howard Tracey

Minister of Renewable Resources

The Yukon Territory

Yukon Chamber Of Mines

No response to the following letter:

Dear Sir:

I am writing as editor of the summer issue of our magazine *Park News* to ask you for a brief article. I am putting together a special issue on the north. An outline is attached. The NPPAC has as a program objective the creation of greater public support for northern parks, wildlife areas, and related reserves. An outline of our program objective is enclosed. We want these conservation lands to be established on the basis of sound land use planning, which means with consideration of the areas of greatest interest to mining, native users, and others.

I have been personally involved in promoting parks and reserves in the Yukon for more than a decade. In recent years I see encouraging signs that conservation and mining interests are resolvable without as much conflict as has occurred in the past.

What I would like, as editor of this issue of the magazine, is a response to our program objective, in the form of a statement of the position of your Chamber on the subject of the establishment of parks and reserves. Can you support the principle, including the ecologically based need for many of these to be large? What is the best way to establish these areas that would be most accommodating to a mining perspective. Is the Chamber willing to support revision to the Yukon Quartz Mining and Placer Mining acts that would allow land use planning to take place in the Yukon? And a question that I have long pondered, if hard-rock mining exploration were permitted in categories of parks and reserves that may be established, would the industry be willing to do its exploration work, such as diamond drilling, without any roads or cat trails, that is by moving everything by helicopter? There could be worthwhile compromise from both sides with such a notion.

This issue of *Park News* will have a high profile. It will include Ministerial statements on the subject of northern parks and reserves. I hope you see this invitation to contribute as an important opportunity to go on record with your position.

Thank you for your consideration, and hopefully positive response to my request. I am making a similar request from the NWT Chamber of Mines.

Sincerely,

John B. Theberge

Vice President

Metis Association Of The Northwest Territories

A Comment On Parks

The Metis Association of the N.W.T. supports conservation as an ethic, a way of life. It should govern the way we think about *all* land and resources, not just parks and sanctuaries.

We do not want to see the north become a sea of environmentally unsound industrial development with a few pristine islands dotted on it. Rather, we believe in development of renewable and non-renewable resources based on the ethic of conservation. This can include small-scale industrial development which is properly controlled, the proper management and study of wildlife, and the establishment of more national and territorial parks.

These must be based on *the just settlement of native land claims*, *proper consultation with the affected people*, and *a consultative, co-operative land use planning process*. None of these exists to any great extent at present.

Therefore, we support in general the initiatives of the National and Provincial Parks Association of Canada.

This is providing that the settlement of native land claims is recognized as crucial to northern peoples, and providing that the aboriginal right to pursue traditional activities is upheld. This will mean properly managed hunting, fishing, and trapping by native people in parks.

We too are angered at the lack of initiatives from government to follow through on commitments concerning parks. Of particular concern now is the northern Yukon. There has been extensive proof that this area is very environmentally delicate and the Federal Cabinet actually withdrew it from industrial development in 1978. It is also subject to land claim negotiations. And yet we see yet another threat to it with recent proposals to develop a marine supply base at Stokes Point, Y.T.

This is only one example. We must be vigilant and we must co-operate with each other if our common objectives are to be met.

Metis Association of the N.W.T.

Yellowknife, N.W.T.

March 1983

N.W.T. Chamber Of Mines

No response

No responses were received from the Committee on Original People's Entitlement (COPE), Inuit Tapirisat, Dene Nation, or Council of Yukon Indians.

French Translations of Government Letters

Ministre d'Environnement Canada

En ce qui concerne Parcs Canada, je demeure fidèle à la politique qui consiste à représenter chacune des régions naturelles du Canada par un parc national, y compris les 15 régions géologiques que comptent les territoires. Le ministère procède au moyen de consultations avec les groupes autochtones, les communautés et les gouvernements. Ce processus ne se déroule pas toujours rapidement. À l'heure actuelle, un parc national et trois réserves de parc national ont été créés par législation dans le Nord; trois régions ont été mises de côté en vertu d'un décret et quatre régions ont été désignées comme lieux possibles de parcs nationaux. Je prévois annoncer quatre autres sites éventuels de parc d'ici à la fin de 1983.

Le Service Canadien de la Faune (S.C.F.) a pour objectif de promouvoir l'établissement d'un réseau complet de régions au nord du 60e parallèle qui sont protégées en raison de leur importance pour les populations d'oiseaux migrateurs. Il existe actuellement 14 refuges d'oiseaux migrateurs au nord du 60e parallèle — soit 1,1 p. 100 des Territoires — qui visent pour la plupart à protéger les lieux de nidification de l'oie.

En 1982, sept régions au nord du 60e parallèle ont été incluses dans la Liste des zones humides d'importance internationale établie aux termes de la Convention de Ramsar.

Le Service Canadien de la Faune examinera sous peu 136 régions du Nord qui pourraient constituer éventuellement des réserves nationales de la faune, des refuges d'oiseaux migrateurs ou encore des réserves de faune à gestion conjointe.

Le S.C.F. travaille avec le Ministère des Affaires Indiennes et du Nord à l'établissement de réserves nationales de la faune dans le Nord. Trois régions prioritaires ont été retenues et l'une d'entre elles, Polar Bear Pass, devrait être annoncée au début de l'été.

J'entends consacrer des efforts importants en vue de la création de nouvelles régions de conservation dans le Nord. Je compte ainsi donner rapidement suite à chacune des questions qui sera soumise à mon attention.

Ministère des Ressources Renouvelables du Yukon

À l'heure actuelle, une proportion importante des terres du Yukon est consacrée, de fait ou par proposition, à des fins de conservation. Les habitants du Yukon acceptent que des terres consacrées à la conservation soient mises à la disposition de tous les Canadiens. Cependant, ils croient en une planification globale des terres visant à permettre une utilisation juste et équitable de ses ressources. Cette planification devrait être faite par des habitants du Nord et dans l'intérêt des habitants du Nord. Le point de vue des gens du Sud est écouté avec intérêt, mais il s'avère souvent non pertinent. Puisque les Canadiens du Sud jouissent des bénéfices économiques qu'ils tirent de l'exploitation de leurs provinces respectives, ils n'ont pas le droit d'exiger que des terres soient consacrées à la conservation par d'autres autorités. Le besoin de terres réservées à la protection de l'environnement dans le Nord n'a pas été négligé par les gouvernements. Bien que le processus de protection de ces terres peut sembler assez lent, il se déroule néanmoins à un rythme plus que satisfaisant.

Association des Métis des T.N.-0.

L'Association des Métis des T.N.-0. appuie le principe de la conservation dans la mesure où celle-ci s'applique à *toutes* les terres, et non seulement aux parcs. Cette notion pourrait couvrir notamment l'établissement de petites industries faisant l'objet d'un contrôle, la gestion de la faune et la création de nouveaux parcs nationaux et territoriaux. Ces diverses activités exigent au préalable un juste règlement des revendications territoriales des autochtones, la consultation de toutes les parties concernées et la planification concertée de l'utilisation des terres. Nous appuyons en général les initiatives de l'A.P.N.P.C., dans la mesure où l'on attache au règlement des revendications des autochtones une importance primordiale et l'on conserve aux autochtones leur droit à l'utilisation traditionnelle de la faune dans les parcs. Nous aussi sommes mécontents de l'absence d'initiatives gouvernementales en vue de donner suite aux engagements qui ont été pris concernant les parcs. Le nord du Yukon constitue une source particulière de préoccupations à cet égard.

Chef du Gouvernement des Territoires du Nord-Ouest

Le Gouvernement des Territoires du Nord-Ouest a pour objectif de promouvoir l'exploitation juste et équitable des ressources renouvelables et non renouvelables, de façon à fournir des emplois et des revenus aux habitants des T.N.-0. tout en permettant la protection de l'environnement naturel et social. La nécessité de conserver les terres dans leur état naturel fait partie intégrante de l'héritage des habitants des T.N.-0. et elle constitue également une priorité gouvernementale. On compte à l'heure actuelle plus de 30 parcs territoriaux à l'intention des résidents et des voyageurs. Le réseau des parcs territoriaux est destiné à offrir diverses activités de plein air, à préserver les ressources nationales et culturelles et à favoriser le commerce et la situation de l'emploi pour les résidents. Le gouvernement collabore également avec Parcs Canada à la création de parcs d'envergure nationale et mène ainsi un programme intégré poursuivant divers objectifs, depuis les activités récréatives jusqu'à la protection de la faune.

Divers facteurs doivent être considérés en ce qui concerne la création de parcs dans les T.N.-0.: l'utilisation traditionnelle des terres par les résidents, les possibilités d'emploi, l'opportunité de restreindre l'utilisation des terres, l'appui des communautés avoisinantes, l'obtention du plus grand nombre d'avantages sociaux et économiques possible, ainsi que les revendications territoriales des autochtones. Les habitants des T.N.-0. doivent pouvoir participer à la planification et à l'exploitation des parcs nationaux. Le Gouvernement des T.N.-0. a pris part en février 1983 à un atelier portant sur l'établissement d'une Stratégie de conservation dans le Nord. On y recommandait l'établissement d'un groupe de travail chargé de mettre sur pied un mécanisme permanent en vue de l'application d'une stratégie en matière de conservation, ainsi que l'identification et la désignation de terres destinées à la conservation d'ici à 1985.

Brown River Tributary, Wager Bay.

A Proposal for Natural Heritage or ESA Boards for the Northern Territories*

J. G. NELSON and SABINE JESSEN

During the last twenty years many areas in the Northwest Territories and the Yukon have been recognized as especially significant for geomorphic, scenic, wildlife, and other reasons. However, little progress has been made in establishing national parks, national wildlife areas, or other forms of management appropriate to the use and protection of these areas. No large territorial parks have been created in the N.W.T., and in spite of attempts to establish conservation management in native claims settlements, no success has been achieved in either territory to date.

Why is this so? The constraints include: 1) unsettled native land claims; 2) federal-territorial rivalries; 3) interagency competition; 4) lack of comprehensive land and resource use planning and management; 5) the evolving nature of territorial and regional government; and 6) an uncertain social, economic, and political environment.

Indeed environmentally significant area (ESA) planning and management are typified by competitiveness, complexity, and uncertainty. Given the nature of the constraints, this situation is likely to continue for years. If so, a coherent system of national parks, national wildlife areas, territorial parks, or other means of properly managing ESA's is not likely to develop. In the interim, various development projects are under way or apparently so; for example, the Norman Wells pipeline, mining and hydroelectric projects at Nanisivik and Slave River, and ports at Stokes Point and other Beaufort Sea locations. Such projects will impinge on ESA's, with no strong conservation direction to mitigate and manage impacts.

It seems essential, therefore, that bridging institutions be developed which are flexible enough to provide for progress in planning ESA's and yet merge into a changing managerial and political system as federal, territorial, regional, and corporate responsibilities take on a different character in the years ahead. Ideally the bridging institution should be a body which co-ordinates the knowledge and concerns of citizens with the strengths of Parks Canada, the Canadian Wildlife Service, and territorial groups responsible for planning and managing parts of any ESA system which will emerge in the north.

Various types of ESA co-ordinating bodies can be considered on the basis of the following assumptions and principles.

1) Any organization which is created cannot function effectively without considerable government funding over which the co-ordinating body has control.

2) A secretariat is needed to ensure some independence as well as the capacity to conduct research and day-to-day activities.

3) The body should have a formal mandate set forth in legislation or perhaps an agreement, which specifies the duties of governments regarding any recommendations which the agency makes.

4) As much opportunity as possible should be given to allow local people and other knowledgeable persons to be members along with government officials.

5) Careful consideration should be given to reporting relationships. The key is to develop a reporting direction(s) which will enhance the body's ability to proceed but in a manner not likely to make it politically unacceptable.

6) The co-ordinating body should be given the power to involve the public in its work through public hearings, advisory committees, publications, and other means.

One type of co-ordinating body worthy of very serious consideration is a NWT or YT Heritage or ESA Board created under both a territorial ordinance and a federal statute. The Board would report through the territorial commissioners and the ministers of DIAND and DOE, to the territorial legislative councils and the federal Cabinet and Parliament. The most financially independent version of this Board would be a public foundation. While the Board would receive a large percentage of its funding from the governments of Canada and the NWT, it would also be empowered to raise money and receive private donations of both money and property. The Board would be under the direction of a Chairman and a Board of Directors, whose members would be chosen for their knowledge, experience, and expertise.

In order to undertake its responsibilities in an effective and efficient manner, the Board would be served by a secretariat, with staff drawn in part from various govenment departments.

The following are suggested as potential powers and responsibilities:

1) to review the existing ESA system and to determine the need for additional management categories;

2) to serve as the central repository for all ESA data and information and to establish a computer system for its storage and retrieval;

3) to develop an ESA registry;

4) to advise on ESA allocation to various government, native, and other organizations for management;

5) to undertake regular assessment of the ESA programs and make recommendations for more effective and efficient management;

6) to promulgate regulations for ESA management;

7) to provide guidance and advice to existing and newly established ESA organizations, for example, those to be established under agreements between Canada and the native organizations; and,

8) to hold public hearings and other forms of public participation in proposed new designations.

May 4, 1983

* The large study upon which this short statement is based was funded by the Canadian Arctic Resources Committee.

Prospective National Parks in the North

TOM KOVACS

It is Parks Canada's objective, approved by Cabinet, to include in the system of national parks at least one representative of each of 48 natural regions of Canada. Given this objective the north can be easily recognized as the primary target for new park establishment activities in the country. While in Canada as a whole national parks are considered to represent 40 per cent of our natural diversity, in the north, the system is only 20 per cent complete. This means that one-third of the total number of parks yet to be established are required in the territories. The need for new national parks in the north is evident. The need to secure them as soon as possible is dictated by the push for resource development, the settlement of native claims, and political devolution. In the end, these processes will have a profound effect on the management of northern lands and thus not only do they impose a need to act now but they also present an opportunity for agencies like Parks Canada to be included in decisions about land tenure and use in the north.

In more precise terms, the need in the north is to attain eventually a system of 15 national parks. At present, there is only one national park, Wood Buffalo, partly in the territories. In 1972, three national park reserves, Kluane, Nahanni and Auyuittuq, were created. The reserve status will be removed once the native claims affecting them are satisfied. In addition to the reserves, three areas — northern Yukon, East Arm of Great Slave Lake and northern Ellesmere Island, are set aside by Order-in-Council for future national park purposes. Obviously, a great deal of progress is required in order to realize a complete system of northern national parks. Progress, however, is conditional on a number of factors.

In my view, the road to park establishment is like a challenging obstacle course. I do not mean this in a negative sense for it is the obstacles which define the course and point the way to reaching our goal. Also, I recognize these obstacles as legitimate concerns and conflicts which arise whenever areas are designated for future national parks status. Obstacles do not generally represent interests opposing park establishment in principle. Usually, they are expressions of concerns about the application of a particular park proposal or some aspect of it. As such, they demand consideration in the process. Obstacles always require time, and getting by them sometimes involves compromises.

Prospective national parks are drawn from the pool of Natural Areas of Canadian Significance. As potential park areas are selected, an establishment process is charted which is both public and consultative in nature. The process tends to become increasingly complex and political as a proposal approaches fruition. As obstacles are encountered in the process each exacting its own toll, a transformation of the ecological ideal into the socially feasible takes place. The end result is the best possible one under prevailing circumstances. Seeing that the future may hold diminishing opportunities for new national parks, the near future is the best time for securing those

Wilberforce Falls, Bathurst Inlet region.

nationally significant areas not yet within the national park system.

Parks Canada has recognized the particular need and opportunity for new national parks in the north. In 1978, a two-year public discussion was initiated involving five areas of interest for future national parks and a proposed Canadian Landmark. Known as the "6 North of 60°" initiative, the program was the first concerted effort at establishing a number of national parks in the north since 1972, when Kluane, Nahanni, and Auyuittuq were set up as national park reserves. The 6 North of 60° areas are magnificent representations of northern landscapes and natural features.

Northern Ellesmere is undoubtedly the most scenically dramatic of all northern lands. Its grand scale, rich colours, and unique geographical location leave an indelible impression on the visitor. It has also imprinted on visiting Parks Canada staff a sense of responsibility for the protection of its untrodden wilderness. The introduction of an appropriate resource management regime is Parks Canada's foremost concern here. Northern Ellesmere appears secure as a future national park. It was withdrawn in 1982 and a process is in place to see the area established as a park or a park reserve under the National Parks Act within the year.

Northern Yukon is perhaps the most precious northern natural area because of its internationally significant wildlife values. As well, it is superlative in terms of scenic appeal and topographic diversity. The combination of biotic and landscape features places northern Yukon in a unique position as a prospective national park. There is simply no alternative within the region. Rapid action on this area seems assured because it is also a priority for DIAND and the subject of ongoing native claim negotiations. It is in this area, therefore, that much of the new park planning effort will have to be focused. Sorting out the multitude of conflicting interests in northern Yukon is proving to be a Herculean task.

Northern Banks Island has been designated as an area of interest for a future national park due to its bold seacoast, austere desert-like badlands and lush valleys. The area also contains the most productive musk-ox range in the world and important breeding grounds for waterfowl and raptors. In combination, the features of Northern Banks Island make it the most desirable area for a national park in the natural region. The area would make an important addition to the system and is in a priority location under the World Conservation Strategy. The people of Sachs Harbour have taken a wait-and-see attitude about the proposed national park. The park proposal can likely be advanced, with the support of local people, once Ellesmere Island national park has been successfully established.

Wager Bay, Bathurst Inlet, and the pingos of Tuktoyaktuk round out the 6 North of 60° initiatives. While both Wager Bay and Bathurst Inlet are deserving areas, local opposition and little support for the proposals have augured against progress since 1978. The Wager Bay proposal has been dormant since 1980, pending the settlement of native claims. The pingo landmark is also awaiting progress within the framework of COPE negotiations. Bathurst Inlet, however, will have to be reconsidered in view of the recently completed assessment of potential non-renewable resources by the Geological Survey of Canada. High prospects for mineral development in the area have been found. If a set of national park boundaries in the area cannot be rationalized, an alternative area may have to be considered to represent the natural region.

Since the submission of a report to the Hon. John Roberts on the 6 North of 60° initiatives in 1980, focus on Lancaster Sound has brought the North Baffin — Bylot Island area forward as a high priority. This area's importance is unparalleled in terms of international marine mammal values and of seabird and Greater Snow Geese populations. It is also of vital interest to local native people. The national park proposal was introduced in the forum provided by DIAND's Lancaster Sound Regional Study and further advancement of the proposal is likely to be tied to a regional land use planning exercise. Lancaster Sound is one of DIAND's top priorities for regional planning.

The East Arm of the Great Slave Lake National Park proposal lies along the western perimeter of the Canadian Shield. It is dominated by precipitous cliffs, canyons, cuestas, scenic peninsulas, islands, wild rivers, Great Slave Lake shoreline, and rugged relief. The transition between the taiga of East Arm and the tundra of Artillery Lake is dramatic. The area withdrawn lies largely within the best representation of the natural region.

Lack of progress with the East Arm proposal over the years has recently pushed this area forward as a priority. The proposed park area was withdrawn in 1970; however, local opposition to the park idea has resulted in a long-standing stalemate that must be resolved.

These are the current top candidate national park areas in the north. Their realization would go a long way toward achieving the ideal system, which would require at least 11 additional terrestrial and some marine national parks in the north.

The pressure for resource development, the evolving relationship between the federal and territorial governments, the negotiation of native claims, and regional planning exercises offer opportunities for new park establishment. Parks Canada will work toward the attainment of the ideal system, within the opportunities presented by these and other related processes and on the basis of emerging priorities. Parks Canada would also be prepared to act in a comprehensive fashion following the Alaska example, provided sufficient support existed for such a move. The passage of the Alaska National Interest Lands Conservation Act in 1980 resulted in providing permanent protection, in a single piece of legislation, to more than 41 million ha. of wilderness. The possibility of such sweeping action should not be overlooked for the Canadian North. There are indications, within both the government and private interests, that such a comprehensive effort could be appropriate. The acquisition of a number of new national parks in the north in a short time frame has obvious appeal to conservation interests. Industry representatives would seem to prefer settling the conservation lands issues soon so that areas for resource exploitation can be identified and development can commence.

The establishment of national parks in a rapid fashion would not mean cutting corners in the process, *i.e.*, sidestepping the obstacles. However, a collapsed time frame for the process would require intergovernmental and interagency cooperation, political commitment, and concerted effort. In areas of outstanding native land claims, the parks would have to exist as reserves pending the settlement of claims, as is the case with Kluane, Nahanni, and Auyuittuq.

The establishment of new northern national parks is an urgent requirement in Canada today. However, the park acquisition program has to be paralleled by a development of fitting northern policies and management practices. Much has been accomplished in this area to date. A successful northern park program will depend on special considerations being given to the use of renewable park resources by native people and the specific resources protection requirements of northern environments. The expansion of the northern national park system and the development of innovative and sensitive northern park policies are two challenges facing Parks Canada today.

Polar Bear Pass.

Polar Bear Pass

In July, 1982, Canada's first National Wildlife Area north of 60°, Polar Bear Pass (2,364km²), was announced jointly by the Minister of Indian Affairs and Northern Development and the Minister of the Environment. Protection of the site was the culmination of four years of off-and-on public hearings and debate, after a freeze in 1978 of new non-renewable right allocations there, and initiation of a decision-making process. Considerable public interest was focused on the issue. Contestants included not only native and conservation interests but opponents such as Polar Gas, Cominco, Panarctic Oil, and the Canadian Petroleum Association. At one point, the Minister of Indian and Northern Affairs received hundreds of letters of protest over recommendations of his advisory committee that failed to protect the site.

What is at Polar Bear Pass that makes it so valuable? It has been described as an "Arctic Oasis." Being the most vegetated area on Bathurst Island, it provides habitat for large and diverse animal populations. Its extensive lowland meadows are maintained by a multitude of tundra ponds which capture and regulate the flow of meltwater throughout the growing season. Part of Polar Bear Pass is, as well, a "thermal oasis," described by the National Museum of Natural Sciences as an area where "the spring melt is well under way by the second week of June. The warming action is generated by wind-blown dust from adjacent hills being carried by prevailing winds on the lowlands with the drifting snow. The solar warmth absorbed by these particles quickly melts through the snow cover exposing vegetation and forming shallow pools. This warming condition activates invertebrates overwintering in the mud, mosses, and plant debris, and provides a source of food for Red Knots, Black-bellied plovers, Sanderlings, Purple Sandpipers, and other shorebirds. The availability of food in such areas, surrounded by almost unbroken winter conditions, also attracts several hundred Brant, King Eiders, Snow Geese, and Jaegers....Fifty-three species of birds have been recorded within the site, and 30 species are known to breed."

The National Museum of Natural Sciences has maintained a field research station at Polar Bear Pass since 1968. Research here has documented fluctuations in animal populations, breeding success, and the impact of climate on many species.

Polar Bear Pass, a unique, highly diverse site, at last has the protection it deserves. It is one of the 151 ecological sites identified by the International Biological Program, Panels 9 and 10 (subarctic and arctic).

Hoping Big

The land — its immense beauty, its intricate ecosystems, its expansiveness, its silence, its abundance where the seabirds nest and the caribou calve.

The threat — the demand for frontier resources, governments that facilitate instead of regulate, jobs, megaprojects, economic opportunism, political evolution, the rights of competitive land users.

The hope — some encouraging words, Polar Bear Pass, some civil service construction lands initiatives. But, in the responses, and lack of them, one can gather some pessimism too.

Yet the United States did it in Alaska — put 25 per cent of the State in parks, wildlife refuges, wild rivers, all at once in 1980. A whole swirl of political and land-use pressures was there, too. The U.S. Congress overwhelmingly endorsed it — wilderness heritage of not only State but National significance.

Anyone who loves and respects ecosystems and the living things they contain, needs no convincing. Of greater concern is whether the NPPAC vision is too narrow. In his book *Arctic Oil*, John Livingston writes:

"We are accustomed to "setting aside" natural areas for their protection, or for our recreation or study, by means of putting fences around them and letting the process of urban-industrial development continue outside and around them. Industrial man is excluded; nature is enclosed. Such enclosures, depending upon their size, shape, proximity to each other, intrinsic peculiarities and other factors, may or may not have the internal strength, richness, resilience or adaptability to survive over the long term. They are islands in a monocultural sea.

"In the north, we would have the opposite of this. The fences would enclose industrial man, not nature. Outside the fences, the sea of heterogeneity would be permitted to continue around and past these industrial caissons, within which technological man could continue his works on sites already heavily or irretrievably changed. The sheer physical vastness that is required for healthy, unimpeded life processes in the arctic indicates a completely different approach to the establishment of defended areas from the "island" technique we use in the south. But since the arctic is wholly unlike any other living community, the application of any form of conventional wisdom must be considered risky."

Livingston concedes that "unfortunately, this scenario has formidable limitations...," but his vision has unquestionable scientific and philosophical validity.

Northern parks and reserves, incrementally established over the next century on what is left of a dwindling northern natural heritage is not what the NPPAC wants. Extrapolate another 100 years of "the threat"! In Canada, surely our governments can do better than that.

Merging glaciers on Bylot Island.

Cover Photo

Muskoxen, Ellesmere Island.

Photos

All scenic and wildlife photos in this issue, except the picture of Polar Bear Pass were taken in unprotected areas which have been identified by Parks Canada as Natural Areas of Canadian Significance.

Photo Credits

Courtesy Parks Canada except where otherwise noted.

Cartography

B. Levely, Cartography Lab, Faculty of Environmental Studies, University of Waterloo.

Colour Map

Provided by Lands Directorate, Dept. of Environment, Ottawa.

Artwork

By H. Albert Hochbaum, courtesy Agassiz Galleries, Winnipeg.

Authors

John Theberge is a professor of wildlife ecology at the University of Waterloo.

H. Albert Hochbaum, founder of the Delta Waterfowl Research Station in Manitoba, has received an Order of Canada medal for his contribution to conservation. An author and artist, he has turned his attention north for the last 12 years.

Mark Stabb recently completed his B.E.S. degree at the University of Waterloo.

Kevin O'Reilly is completing his M.A. thesis on northern land management, at the University of Waterloo.

J. Gordon Nelson is Dean, Faculty of Environmental Studies, University of Waterloo.

Sabine Jessen is completing a Ph.D. at the University of British Columbia.

Tom Kovaks is Head, Northern Park Proposals, National Parks System Division, Parks Canada, Ottawa.

NATIONAL AND PROVINCIAL PARKS ASSOCIATION
47 Colborne Street, Suite 308, Toronto, Ontario M5E 1E3

park news