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ENVIRONMENT CANADA'S CONSERVATION INTERESTS

IN NORTHERN YUKON

THE NATIONAL PARK PROPOSAL

for BSEAR?

AND

OTHER CONSERVATION REQUIREMENTS

Submission Prepared for the
Beaufort Sea
Environmental Assessment Panel

October, 1983

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1.0 INTRODUCTION

This submission has been prepared in response to a request from the Beaufort Sea Panel for information on the conservation values of northern Yukon. The paper outlines the Department of Environment's proposals to ensure conservation of the significant resources of the northern Yukon. Specifically, consideration is given to Parks Canada's proposal for a national park in the western portion and to Canadian Wildlife Service's proposal for conservation of the wildlife resources of the withdrawn lands, particularly in the eastern portion.

1.1 Background

A chronology of the significant events and decisions leading to the withdrawal of northern Yukon lands for a national park and other conservation purposes is included in Appendix 1. It will suffice to say that northern Yukon has been identified as a nationally and internationally significant environment for over a decade.

Support for its protection has arisen through the forums of the Arctic International Wildlife Range Conference in 1970, the Berger enquiry and report on the Mackenzie Valley Pipeline Hearings in 1977, the National Energy Board Hearings on the Canadian Arctic Gas Pipeline proposal in 1977, and the U.S. House of Representatives in a letter to Honourable P.E. Trudeau in 1978. Actions taken to protect this outstanding environment include the public announcement in 1978 of a proposed national park in the western portion, the withdrawal from development in 1978 by the Minister of Indian and Northern Affairs of all Yukon lands north of the Porcupine and Bell Rivers, the DOE proposal in 1979 for establishment of a national park in the western portion and a national wildlife area in the remaining withdrawn lands, and the commitment in the COPE Agreement-in-Principle in 1978 to establish a national wilderness park across the Yukon North Slope. In 1983, Parks Canada presented its boundary proposal for the national park.

1.2 Public Support

The special environment of the northern Yukon is well known to the Canadian public. Widespread support for its conservation was expressed at the time of the Berger enquiry and, again, following Gulf's recent application for development of a support base at Stokes Point. In response to Gulf's application, over 100 letters were sent to the Minister of the Environment urging action on protection of northern Yukon. The Department's position was given by Mr. J. Roberts, the then Minister of the Environment, who stated his opposition "...to any permanent port site being decided upon, until the Beaufort Sea environmental assessment process is complete..." before the Standing Committee on Fisheries and Forestry on Dec. 2, 1982. Mr. C. Caccia has taken a similar position on this issue.

The outstanding conservation values of the northern Yukon were aptly summarized by Mr. H. Faulkner, then Minister of Indian and Northern Affairs, at the time of the land withdrawal in 1978.

"The region includes critical wildlife habitat, archaeological and paleontological sites of international significance and spectacular geography. It is home for all three of the continent's species of bears. It includes some of the finest habitat in the Arctic for birds of prey, it is a major continental waterfowl area and it includes critical Canadian areas for the Porcupine caribou herd. It is the only extensive non-glaciated area in Canada and is perhaps the only area where Arctic tundra, alpine tundra and boreal forest can be observed in their natural condition in the same location."

1.3 Native Claims

All of the withdrawn lands in northern Yukon are subject to native claims. The Council for Yukon Indians (CYI) claim traditional use and occupancy primarily south of the watershed while the Committee for Original Peoples' Entitlement (COPE) make the same claim to the north of the watershed. Some Dene and Métis of the Northwest Territories harvest in northern Yukon and there is overlap between the claims of the three claimant groups. It is Environment Canada's continuing policy to take into account the aspirations of native claimants while promoting establishment of conservation areas in the North. The Department has, through the negotiating process, participated with federal and territorial departments and with COPE and CYI in attempting to define a conservation regime for northern Yukon.

1.4 Alaskan Protected Areas

Alaskan protected lands contiguous to the Yukon withdrawal area are shown on Fig. 1. In 1960 the U.S. government set aside 8.9 million acres to create the Arctic National Wildlife Range, primarily for the protection of the Porcupine caribou herd, particularly the calving range. With the passage of the Alaska National Interest Lands Conservation Act in 1980, the U.S. government added 9 million acres to the existing Range to create the Arctic National Wildlife Refuge (additionally, the original National Wildlife Range received National Wilderness Area status). The stated purpose of creating the Refuge is, in part, "to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to, the Porcupine caribou herd (including participation in coordinated ecological studies and management of this herd...)". The current Refuge encompasses essentially all of the Alaska component of the Porcupine caribou herd's range. Thus, the U.S. government has established a strong precedent for conservation of the caribou herd which must be taken into account by the Canadian

government within the context of conservation planning for northern Yukon.

Canada's initial step in response to the conservation initiatives in Alaska was the July 5, 1978, land withdrawal by Order-in-Council. Lands in that part of the Yukon north of the Porcupine and Bell Rivers were withdrawn from further development as they "are required for a National Park and other conservation purposes".

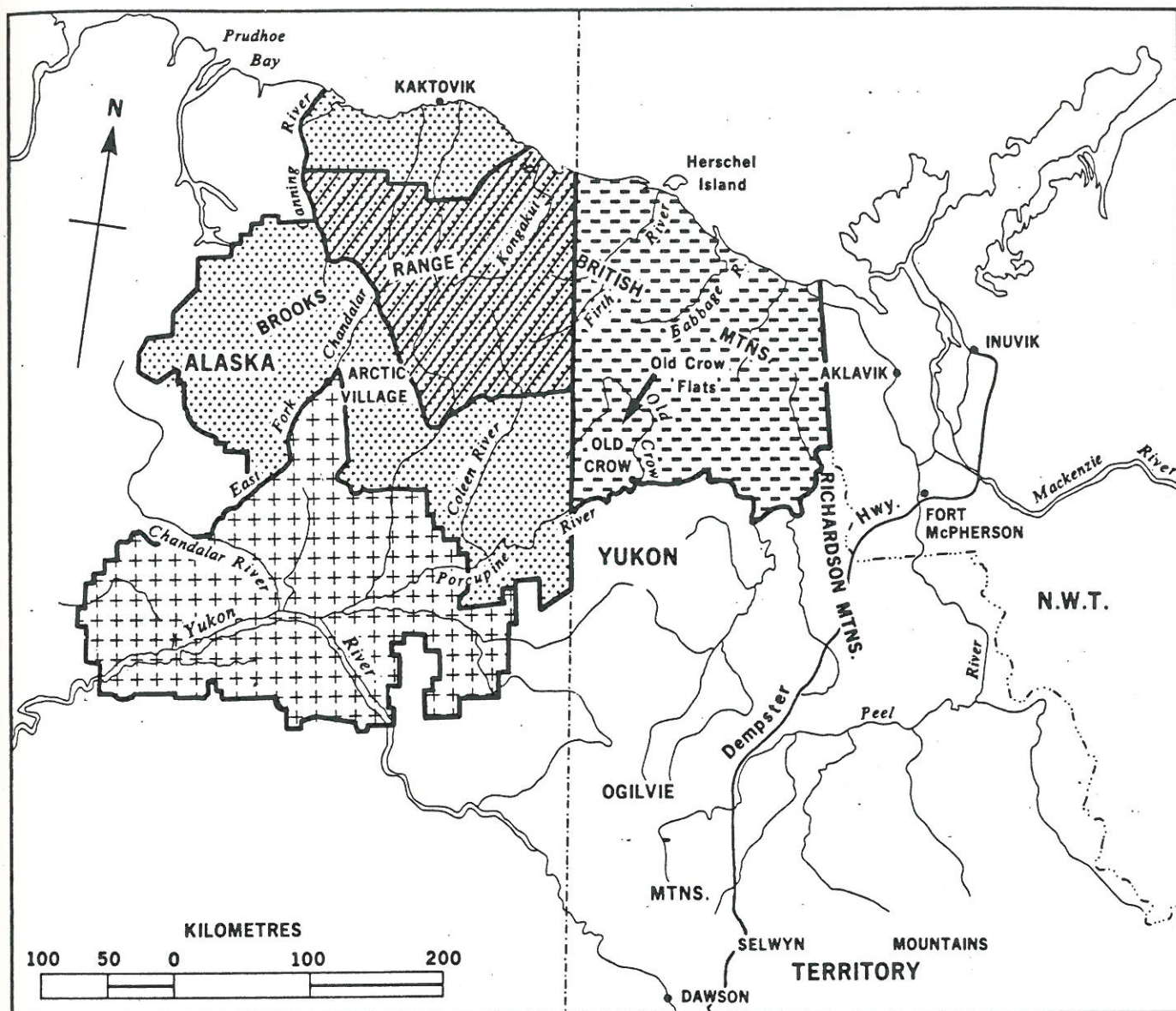
In 1978 the Minister of the Environment announced the beginning of discussions with the U.S. Department of Interior on a Canada-US agreement to protect the Porcupine caribou herd. An international agreement was required because of "...the need to manage the entire herd and it's range, on both sides of the border, as an ecological unit" (D.O.E. Release, July 6, 1978). The two federal governments were close to an agreement in 1981, but the U.S. government has subsequently deferred action. The urgent concerns for an international agreement revolve around existing and proposed industrial developments (the Dempster Highway, Yukon coast port development and Alaska coast oil and gas activities), a subsistence harvest level currently at the maximum which the herd can sustain, and a strong positive lobby from nearly all special interest groups.

1.5 Department of the Environment Position





It is Environment Canada's position that the entire withdrawn area of northern Yukon (Fig. 1) requires special environmental conservation measures to protect the national and international wildlife and other outstanding resources of the area. The Department's preferred means of achieving this objective was proposed in 1979 and called for the creation of a National Park in the western portion of the area and a National Wildlife Area to cover the remainder of the withdrawn lands. It was also proposed that the National Wildlife Area boundary be extended eastward to encompass caribou migration corridors in the western Northwest Territories.

It is Environment Canada's position that no action should be undertaken at this point that would compromise the exceptional conservation values of the area and that any development proposal must be reviewed in the context of the effects of Beaufort Sea development as a whole on wildlife conservation. Environment Canada recommends that, on the evidence now available, shore and harbour facilities either for exploration or development should not be established at this time on the Yukon North Slope. Environment Canada further proposes that no decisions on industrial developments in the withdrawn area of northern Yukon should be made until:

- (1) The Beaufort Sea Environmental Assessment Review Panel has completed its work;
- (2) The interests of native people have been resolved through the land claims process;
- (3) A regional land-use plan has been established for northern Yukon; and
- (4) Decisions are made on the final boundaries of the Northern Yukon National Park and the adjacent conservation area.



LEGEND

-  NORTHERN YUKON WITHDRAWAL LANDS (1978)(9,600,000 ACRES)
-  ARCTIC NATIONAL WILDLIFE REFUGE (1980)(18,050,000 ACRES)
-  ARCTIC NATIONAL WILDLIFE REFUGE WILDERNESS (1980)(8,000,000 ACRES)
-  YUKON FLATS NATIONAL WILDLIFE REFUGE (1980)(8,630,000 ACRES)

**FIGURE 1. LAND DESIGNATIONS, NORTHERN YUKON AND ALASKA
(BOUNDARIES APPROXIMATE)**

2.0 PROPOSED NORTHERN YUKON NATIONAL PARK

2.1 Need for a National Park

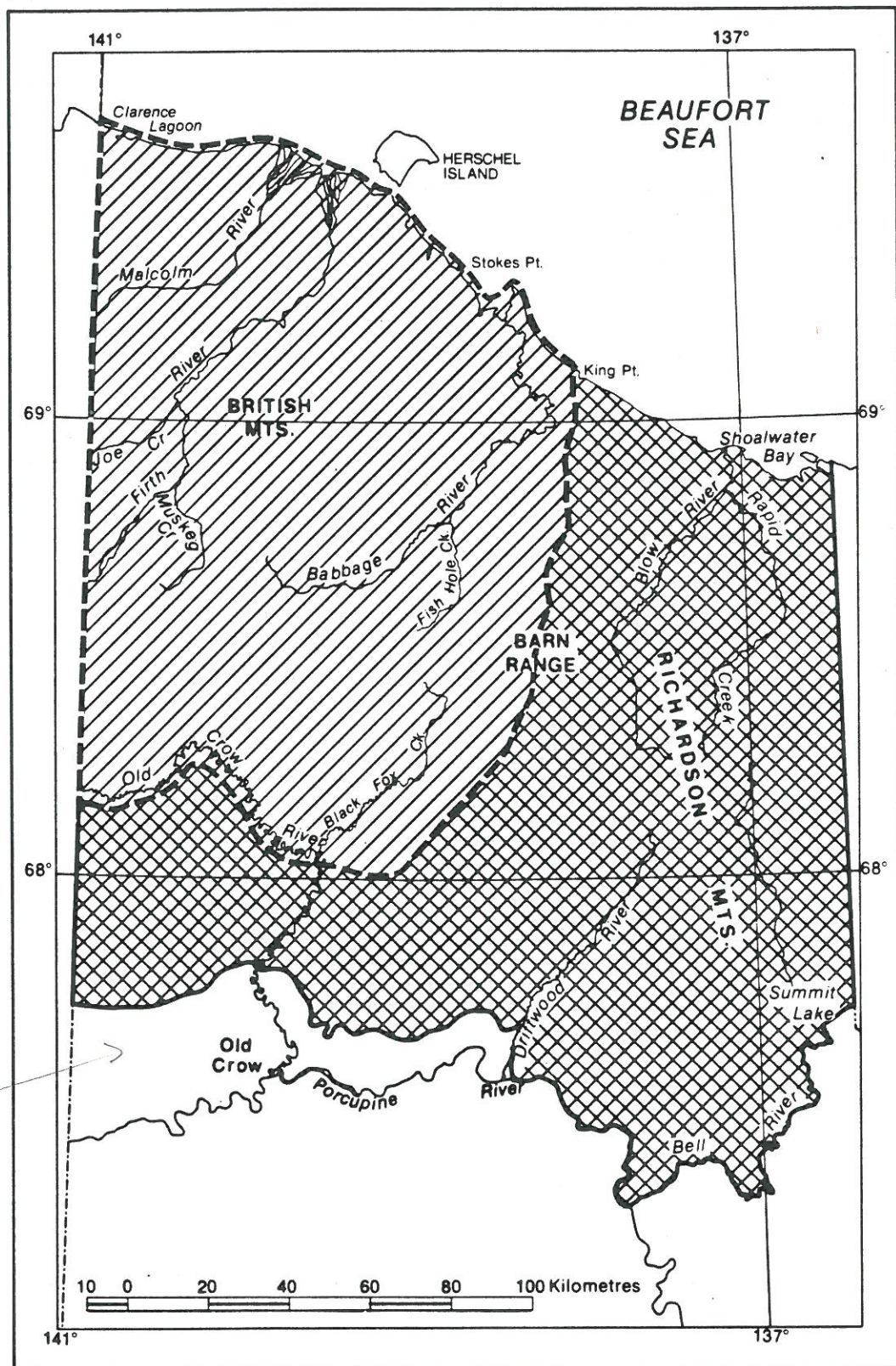
2.1.1 National Park Mandate

Parks Canada's interests in the north relate to the preservation of outstanding areas of Canadian heritage, including representative natural landscapes of national significance, and unique and outstanding sites of Canadian or international significance. As outlined in the National Parks System Planning Manual (1972), a systematic approach to identification of natural areas of Canadian significance in Canada's north has been employed. Most terrestrial areas of interest as national park proposals of a northern wilderness character have been identified and similar work in identification of areas as possible national marine park proposals is progressing rapidly in the Beaufort Sea region. Consequently, the perspective of Parks Canada on Beaufort Sea oil and gas development is one of concern for protection of the wilderness and historic values of those special areas of our Canadian heritage, both onshore and offshore.

Parks Canada's goal, endorsed by Cabinet in 1979, is to establish a national park in each of Canada's natural regions in order to protect areas of national significance representing the diversity of Canada's landscapes, for the benefit and enjoyment of present and future generations. There are 39 terrestrial regions in total, and only 20% of the 15 natural regions north of 60° are represented by national parks.

In 1978, the Minister of Indian and Northern Affairs publicly announced the western portion of the northern Yukon as a proposed national park because the area provides outstanding representation of the diverse natural features and resources of the Northern Yukon Natural Region (Figure 2).

Figure 2: Northern Yukon National Park Proposal
and Withdrawal Lands



////// Proposed National Park

XXXXX Remaining Withdrawal Lands

While a regional analysis identified three Natural Areas of Canadian Significance (NACS) in the Northern Yukon Natural Region, the report concluded that the other two areas lacked representation of certain essential natural themes of regional significance (Morin, 1977). The northwestern portion of the natural region, centred around the Firth and Babbage Rivers, British Mountains, and Old Crow Flats was considered to provide excellent representation of prime regional themes. Within the Northern Yukon Natural Region, therefore, the area proposed as a national park is the only area which can adequately fulfill Parks Canada's goal of a representative national park in each region.

In the case of the proposed northern Yukon national park, however, the area has been identified not only because of its representation of the natural region in which it lies. The entire northern Yukon stands out as one of Canada's "Special Places" (Environment Canada, 1982). Indeed, past proposals and events have highlighted the unique nature of the northern Yukon as one of Canada's foremost national heritage areas. Recognizing that for political reasons the entire region of environmental importance is too large to be included in a national park, Parks Canada has identified that portion in which there is a concentration of representative and outstanding values, of a size to protect some of the core wildlife habitat areas. The proposed boundary contains only those lands required for adequate representation. In so doing, it identifies an ecologically sound configuration which encompasses primary resource and other park values within the national park. The concentration of national and international heritage values in this area warrants its protection under the National Parks Act, Canada's strongest legislation for protection of conservation lands.

2.1.2 Protection Afforded Under the National Parks Act

National Parks are established through an amendment to the National Parks Act, by Parliament. The National Parks Act

states that National Parks are dedicated to the people of Canada for their benefit, education and enjoyment, subject to the Act and its Regulations, and that National Parks shall be maintained so as to leave them unimpaired for future generations.

National Parks are therefore set aside under strong legislation and changes to their status would require an Act of Parliament. Regulations may be passed for preservation, control and management of the park, to ensure protection of flora, wildlife and fish, and for other purposes. National parks, then, are a means of preserving in a natural state representative and outstanding examples of our Canadian heritage.

In order to provide for continued resource protection, Parks Canada has developed a five class zoning system to ensure that a proper balance is achieved between wilderness preservation and visitor use within each national park. In some parks in remote and sensitive natural regions, such as the northern Yukon, where large areas are required for ecological preservation and where man will experience nature on its own terms, only certain zones may be designated so as to maintain the area in a wilderness state.

2.1.3 Wilderness Value

The northern Yukon is one of the few remaining areas of Canada, including its north, which can be considered as largely a "pristine" environment. There are no permanent habitations, other than the two DEW Line stations, and existing signs of disturbance, such as seismic lines and winter exploration roads from the 1960's, are barely visible and will eventually be undetectable.

The presence of environmental contaminants is very slight, any sources being either from distant areas or from offshore oil exploration. The lack of pesticides and

But what, specifically,
does lack of natural
wilderness degradation &
N.Y. Park? S.M.P.!!

petroleum pollutants and limited access by man favour the successful rearing of young by certain species.

Wilderness is an abstract entity, difficult to define in a concrete manner for management purposes. The 1964 U.S. Wilderness Act provides a definition for wilderness as being "a place where the earth and its community of like are untrammelled by man, where man himself is a visitor who does not remain". Parks Canada has approached the concept of wilderness pragmatically through its zoning system for national park management, by identifying a Wilderness Zone "to preserve the essential wilderness, natural, or primitive condition of the area" and permitting public use which is consistent with preservation of wilderness or primitive conditions. Motorized means of transportation are not usually permitted. Another approach to defining wilderness is in terms of the ability of an area to support wildlife species which require large tracts of undisturbed land for survival and, finally, to determine if these species generally exhibit behaviour which has not been altered by man's presence.

The northern Yukon portrays all of these characteristics of wilderness. The area is perhaps most renowned for its concentration of critical habitat for wildlife species requiring large tracts of undisturbed land. Included among these are barrenground caribou, grizzly and polar bear, arctic wolf, arctic fox, and raptors such peregrine falcon, gyrfalcon and golden eagle. Offshore, bowhead and beluga whales are found. The behaviour of some of these species is essentially unmodified by pressure from man's activities. As well, the area contains many nationally rare and threatened plant and animal species, as well as endemics, whereas foreign weedy species are few.

As there remains in Canada few such areas combining these wilderness characteristics, the wilderness value of the northern Yukon should be treated as one of its unique aspects, of great value to future generations.

2.1.4 Educational and Research Value

The great variety of physical and biological phenomena, the multitude of outstanding characteristics, and the distinct contrasts over a relatively small distance have created in the northern Yukon an almost limitless potential for research and education. The Ecological Land Survey (Wiken et al, 1981) has rated the area as one of the most important in Canada for a wide range of research studies.

The very extensive list of research studies in all scientific disciplines pertaining to the northern Yukon attests to its importance for scientific research. Yet, gaps in knowledge and understanding are great and research activities will continue to play an important role within a national park and the northern Yukon as a whole. Within the national park, research which advances man's understanding of wilderness resources and a "benchmark" environment will be encouraged, as long as such research does not result in adverse environmental impacts. Parks Canada will cooperate with agencies involved in scientific research, particularly in the field of wildlife resources where studies often involve large areas and migratory species.

The fact that the northern Yukon is probably one of the best known areas of the Canadian Arctic demonstrates its educational value and appeal to the general public. A national park would provide many opportunities through interpretive material and publicity to further educate the public on the values of northern environments and wilderness.

Because of its outstanding natural values as well as its research and educational values, the entire northern Yukon is a prime candidate for the UNESCO Man and the Biosphere Program. Designation as a Biosphere Reserve would draw attention to its research value and would increase awareness of its international significance. As well,

the proposed park area is already listed in the IUCN inventory of Natural Sites of World Heritage Quality and therefore its formal designation as a national park would lead to the area being considered as a World Heritage Site.

2.2 Management Planning Considerations for a National Park in Northern Yukon

2.2.1 Management Planning

Northern national parks will in large part be managed as wilderness-oriented parks where preservation objectives are foremost and visitor activities will involve those which are compatible with a wilderness environment. In the northern Yukon, it is likely that the entire park could be maintained as either wilderness or special preservation zones, under the Parks Canada five class zoning system. The reasons for zoning the area in this manner are twofold: 1) to provide a suitable level of protection to this special environment and to maintain its wilderness values, 2) because the traditional native users of the land, through the forum of native claims negotiations, have indicated their desire to have the northern Yukon maintained as wilderness where wildlife conservation is the primary objective.] -

Several established procedures provide a framework for the systematic identification of a comprehensive resource data base which is then used in the development of a resource management plan, an overall park management plan, and in assessment of potential impacts and mitigative actions required for any park projects. The structured processes to accomplish this include the Planning Process for National Parks, Parks Canada Natural Resource Management Process, and the Federal Environmental Assessment and Review Process. The overall objective of such processes is to ensure the long-term protection of park resources. In each of these processes, public participation plays an important role. As well, Parks Canada consults with other

national, international and territorial agencies with wildlife management responsibilities.

The Park Management Plan is the most important single planning document as it forms the guide by which Parks Canada administers the resources and uses of a particular national park. Management Plans express National Park Policy within its regional context and they must be approved by the Minister of the Environment.

2.2.2 Native Participation and Use

1) Native Rights

Parks Canada Policy (1979) states that in new national parks, the treaty rights of Indian people and those rights recognized in native land claims settlements will be honoured. These rights may involve hunting, fishing and trapping within the national park, subject to the requirement to protect the ecosystem and maintain viable populations of fish and wildlife species. A national park in northern Yukon will be planned and managed to reflect these special circumstances and to ensure meaningful native involvement.

2) Mechanism for Native Involvement In Park Planning and Management

Parks Canada is committed to the involvement of native people in park planning and management of northern national parks. Such native involvement will be formalized through the land claims settlement process and/or the park establishment process. In the case of northern Yukon, an agreement will be reached with local native people, in consultation with the appropriate native organizations and government bodies, on the details of their involvement in the National Park.*

*Agreements made through COPE and CYI claim negotiations may alter specific details of the advisory body.

The agreement on native involvement, specific to the needs and conditions of the National Park, will be developed according to defined principles. A formalized group will provide its recommendations to the park Superintendent. Membership criteria will be determined at the time the agreement is reached. While the group will primarily be involved in the planning and management of wildlife resource use activities and conservation of wildlife resources within the park, it may also contribute to other aspects of park planning and management as determined in the agreement.

In fulfilling their responsibilities, the advisory group will consider the principles of resource protection as outlined in the Parks Canada management guideline, "Renewable Resource Harvesting in New National Parks: Protection and Conservation Requirements." The guideline outlines principles to ensure that resource harvesting is carried out in a manner least disruptive of park values with particular attention to habitat preservation and sustainable harvests, that rare, threatened or endangered species are protected, and that no ecosystem manipulation, such as predator control or habitat alternation, will occur.

The advisory group will contribute to the preparation of Resource Management Plans for all harvesting activities. These Plans will consider how viable populations are to be maintained and how conflicts between resource harvesting and other park activities can be minimized. In the case of migratory species, the appropriate land management agencies and other concerned groups will also be consulted in the preparation of resource management plans and regulations. Advising on participation in the hunt, location and timing of wildlife harvesting will be a responsibility of the native group, in conjunction with any larger caribou management board which might be established, and subject to the considerations for conservation as outlined above. The

advisory group will also play a role in the development of the Park Management Plan.

The management of the national park will continue to be under the National Parks Act, and the park Superintendent will be responsible for application and enforcement of the Act.

Parks Canada is hopeful that a Canadian or International Porcupine Caribou Herd Management Board will be created in the near future. In that event, Parks Canada would closely cooperate with the Board in terms of caribou management within the national park. As long as park conservation requirements are met, the Board recommendations could be applied within the park area. It is likely that park interests and advice would be presented by the Canadian Wildlife Service (DOE) representative on such a Board. In order to maintain cooperation and close liaison with the Board, members of the park advisory body could possibly be the same as those on the Caribou Management Board.

While Parks Canada cannot play a lead role in resource management outside a national park, it will certainly cooperate with any agencies or mechanism set up to ensure conservation of the natural resources of the northern Yukon.

3) Employment, Training and Economic Opportunities

As part of any agreement reached between Parks Canada and native people on the establishment of a national park in northern Yukon, there will be specific provisions for employment and economic opportunities.

Among these are included: 1) first opportunity for qualified individuals to compete for employment including management and administration positions, 2) preferences with respect to business opportunities, and 3) provision of

training. Training programs will be provided with the intent of qualifying interested individuals for employment and economic opportunities. Parks Canada is also supportive of the idea of Government establishing a renewable resource management technical program in Yukon. Such a course would serve to fulfill some of the training requirements for park employment, similar to that provided by the resource management program at Fort Smith for the Northwest Territories.

Further economic and employment opportunities will likely arise from the fact that communities such as Old Crow, Inuvik, and possibly Aklavik will become entrance points for visitors to the national park. Socio-economic studies of established and proposed northern national parks have indicated that considerable economic benefits flow to local communities and that such activity is generally not disruptive to community patterns and lifestyles.

2.3 Proposed Boundary of the National Park

At the time of the public announcement in 1978 of a proposed northern Yukon national park, Parks Canada intended that the identified area of interest would require a detailed boundary analysis once additional information was available on major park values, a non-renewable resource inventory, and native land selection. This refinement has taken place over the past two years and a boundary proposal was put forward in September, 1983, incorporating recommendations from various sources (see attached Parks Canada Boundary Proposal).

The identification of national park boundaries was based on an assessment of: 1) natural and outstanding theme representation, 2) ecological integrity, and 3) management considerations. Information on development proposals and native land selection was also taken into consideration.

Parks Canada proposes that the national park should include the watershed of the Babbage River, Sleepy Mountain,

representation of the Barn Range, the Black Fox Creek catchment and its surrounding pediments. The proposed southern boundary incorporates the northern portion of the Old Crow Flats, including the Old Crow River to its junction with Black Fox Creek. The portion of the Flats recommended for inclusion is the smallest area which can still provide protection to an adequate representation of their significant features (Yapp, 1982).

Compared with the area of interest identified in 1978, the recommended national park area increases the representation of several major natural themes and outstanding features of the Natural Region, provides ecological integrity and defensibility to the park boundaries, and takes into consideration management and visitor use requirements. The Babbage River itself does not form a suitable boundary, for both ecological and management reasons. The rationale for the proposed boundary is presented in detail in the Parks Canada Boundary Proposal, Appendix 4. X

The boundary put forward is considered to be a feasible one, based on ecological and management requirements, and tempered by political and practical realities. The overall park area, however, is reduced to 18,200 km² (7,000 sq. mi.) from the 1978 study area which comprised 21,000 km² (8,200 sq. mi.). While smaller in size, this refined boundary provides improved protection to the significant resources within the park area.

Creation of a national park of this configuration would be a major step towards conservation and protection of the highly significant natural and cultural resources of the entire northern Yukon. In conclusion, it is particularly important that a national park in the northern Yukon possess sound boundaries from the perspectives of ecological and resource protection requirements, not only for park management, but also because of the international responsibilities associated with it.

2.4 Parks Canada's Position on Development Proposals With Potential Impacts upon the National Park

Industry has outlined in its Environmental Impact Statement several proposed developments for the Yukon's North Slope which, if pursued, would have implications for establishment of a national park. Included among these are proposals for development of shore bases at Stokes Point and King Point and of a rock quarry and camp at Mount Sedgwick. Attendant infrastructure would involve interconnecting roads, a road to the Dempster Highway, and air and sea transportation corridors.

This section will address very briefly some of the implications these proposals would have for a national park. While King Point is outside of the proposed park boundaries, major development there could lead to impacts upon a larger area including the national park. The implications of such development proposals and the recommended procedure for considering them are discussed by the Canadian Wildlife Service, in Section 3.0 of this submission and in other technical submissions to the Panel. X

In brief and to the point, Parks Canada opposes in the strongest possible terms any development of a port at Stokes Point, including that proposed by Gulf for a marine support facility, and of a quarry operation at Mount Sedgwick. Our opposition rests on two interrelated considerations: (1) the first has to do with the natural values and location of the sites in relation to the rest of the proposed park; (2) the second with the incompatibility of wilderness and industrial development. The following are the primary reasons why Parks Canada opposes development at Stokes Point and Mount Sedgwick:

Stokes Point falls within the central portion of the north shore of the proposed park. Mount Sedgwick is situated within an area of ecological importance to the park. Both

areas are, therefore, integral components of the proposed northern Yukon national park. Development at either of these locations, even if contained, would have wider repercussions on the wilderness values of the park area. This would be due to the vulnerability of various local wildlife species to disturbance from aircraft, large vessel and road traffic, and human presence associated with garbage dumps, hunting and noise, as well as to the resulting aesthetic damage to the natural landscape.

Any form of industrial development is considered to be incompatible with the concept of a wilderness national park. Major development at Stokes Point or Mount Sedgwick could require a reconsideration of the possibilities for a national park, with a host of associated consequences. Drawing a boundary around Stokes Point or Mount Sedgwick to exclude either from the park for development would not solve the problem. The adverse impact on natural features or on the very concept of wilderness would still exist.

A major concern over development at this time of even a limited exploration base at Stokes Point is the likelihood of incremental growth leading to a more extensive infrastructure involving large aircraft, a road to the Dempster Highway, a major quarry operation at Mount Sedgwick with a road to the coast and possibly south. Implementation of such proposals would lead to considerable impacts over an extensive portion of the proposed park area.

Parks Canada's response to the Beaufort Sea EIS, incorporated into the DOE response provided to the Panel, outlines many examples of potential impacts of proposed North Slope developments upon a national park and discusses concerns related to industry's lack of consideration of the environmental significance of the northern Yukon. It is therefore included for further information as Appendix 4.

Dr. Graham Yapp, a visiting Australian scientist and expert in ecological land classification, concluded in the boundary assessment completed for Parks Canada:

"Development at Stokes Point... would greatly increase the pressure for quarrying of Mt. Sedgwick unless alternative hard rock sources were discovered. My overall conclusion is that development at Stokes Point would so seriously affect the representation of the landscapes of the coastal plain, and raise such difficulties for park management, that the international reputation of a Northern Yukon National Park would be jeopardized."

2.5 Outstanding Features and Park Values of the Area Proposed as a National Park

An extensive body of research has been recorded for the northern Yukon, including the Mackenzie Valley-Northern Yukon Pipelines Environment-Social Committee Task Force reports, and the Canadian Arctic Gas Study Biological Report Series, and others relevant to the area. The completion of an Ecological Land Survey (ELS) of the northern Yukon by Lands Directorate staff (Wiken, Welch, Ironside, and Taylor; 1981), at the request of Parks Canada and Canadian Wildlife Service, was a major step in identification of ecological units and analysis of the diverse resources of the area.

Information on the ecoregions, natural and cultural history, wildlife resources, and outstanding phenomena of the proposed national park area is presented in Appendices 2 and 3. As well, the migratory wildlife resources of interest to the Canadian Wildlife Service are discussed in Section 3. Therefore, this section will provide a brief summary of the most outstanding features and resources which would be protected within a national park.

The northern Yukon is perhaps most renowned for its spectacular concentrations of wildlife resources. The

Porcupine caribou herd is one of the world's great herds of caribou, reaching numbers as high as 135,000. The proposed national park will protect critical Canadian habitat for caribou calving and the surrounding portion of the migration route. The coastal plain and Old Crow Flats provide critical habitat for significant numbers of waterfowl, shorebirds and snow geese, for nesting, staging, moulting, and migration. An isolated herd of Dall sheep, Canada's most northerly population, ranges along the Firth River in the British Mountains. All three species of bear, grizzly, polar, and black, are found within the area. Birds of prey find excellent habitat in the northern Yukon. Peregrine falcons, gyrfalcons, golden and bald eagles, and rough legged hawks all nest within the proposed national park.

Important habitat for beluga and bowhead whales and ringed and bearded seals exists offshore. Arctic fox and wolf, wolverine, muskrat and moose are among the other wildlife species found in the area. The coastal environment and major rivers and their tributaries provide significant habitat for fish resources, including Arctic char.

Perhaps less well known, however, is the fact that the land which supports these wildlife resources is also unique in many ways and deserving of protection in its own right. The unusual features of the landscape and its mixed boreal-arctic-alpine flora contribute to the area's capacity to support a diversity of wildlife species.

The single most outstanding aspect of the physical environment is the fact that the northern and western Yukon has never been glaciated and therefore landforms and vegetation populations have developed uninterrupted over millions of years. Most of Canada was glaciated during the last Ice Age and landscapes have resulted largely from processes during and after the glacial period. In the northern Yukon, however, landforms unusual in Canada such as pediments, inselbergs, and upland periglacial features are common. The landscape has been shaped over tens of

millions of years by weathering, mass movement, and fluvial processes in a semi-arid climate, accompanied by gradual land uplift. Consequently, major rivers such as the Firth, Malcolm and Babbage display spectacular gorges, bedrock terraces or incised meanders. Interlocking spurs, feather drainage patterns on pediments, extensive alluvial fans and a general absence of lakes are typical of river development uninterrupted by glaciation. As well, the Firth River may qualify as the oldest continuously flowing river in Canada (Wiken et al, 1981).

The northern Yukon national park will be the only national park representing a major non-glaciated region and its associated landforms and features in Canada. Adding to its interpretive and research value is the fact that the eastern portion of the coastal plain was glaciated, representing the furthest advance of glaciation in northwestern Canada, and therefore its features provide a striking contrast to the remainder of the national park area.

Within the relatively small area of the proposed national park, three major vegetation regions meet. Arctic tundra, alpine tundra, and boreal forest-tundra (taiga) are all found in their natural condition, relatively uncontaminated by introduced species. As a result, vegetation is diverse with over 300 native vascular plants, 100 bryophyte and lichen species (Hulten, 1968) and numerous rare plant species (Douglas et al, 1981). In particular, the area contains a high number of endemics, plant species occurring naturally in a restricted area. In addition, the northern Yukon represents the eastern extent of the Beringian refugium, having supported vegetation and wildlife at a time when most of Canada was covered by ice.

The proposed national park contains the most northerly extension of coniferous trees in Canada. It also supports a mature stand of balsam poplars, reaching 11 metres in height and with a lush understory of wildflower species. The entire area provides an interesting example of "treeline gradation" from spruce-lichen woodland to medium

shrub to heath and tussock tundra. Finally, the northern Yukon will be the only national park to represent a relatively lush and continuous arctic tundra vegetation. This vegetation cover is also of great value as wildlife habitat.

Other physical features of note relate to the coastal environment of the northern Yukon, its bedrock geology, and the oriented lakes, extensive river meanders and oxbows of the Old Crow Flats. The coast is characterized by spits, barrier islands, lagoons, coastal fans and deltas, narrow beaches and extensive eroding bluffs, with associated slumps, mud flows, and exposed massive ground ice and ice wedges. The high bluffs of Babbage Bight contain spectacular mud slides in massive ground ice and are the most rapidly eroding shores of the Yukon coast. The presence of massive relict Pleistocene ice underlying the sediments of the Babbage River delta is an unusual feature beneath deltas. The proposed national park area displays a wide variety of rock types and structures, representing most of the Earth's major ages from the Precambrian Era to the Quaternary Period.

The northern Yukon has acquired international stature as an area where highly significant archaeological and paleontological sites have been found. The unglaciated landscape has permitted the preservation of artifacts and fossils providing evidence of some of the earliest habitation of the Western Hemisphere. Radiocarbon dates of animal fossil bones date back at least 40,000 years. Engigstciak, a prominent rock outcrop overlooking the Firth River and coastal plain, is the most important archaeological site of the Western Arctic, having been used as a camp by every major known Inuit culture. The proposed national park area is rich not only in natural but also in cultural history including both archaeology and recent human history. Additional sites are likely to be found and information from such sites will contribute to a greater understanding of human and evolutionary history in North America.

While each of the above characteristics is individually significant, it is the combination of many outstanding features which makes the northern Yukon stand out as one of Canada's foremost heritage areas, an arctic wilderness environment unequalled elsewhere in Canada. Such an ecologically important area requires recognition of its national heritage values. Creation of a wilderness-oriented national park would be a major step toward accomplishing this goal, as would be recognition of resource conservation as the primary objective in management of the remaining area. Establishment of a wildlife conservation regime east of the park would provide an ideal complement and would encourage an integrated approach to wildlife management.

2.6 Potential National Marine Park in the Beaufort Sea

While Parks Canada has recently released a draft Marine Park Policy for public review, planning studies to identify marine regions and possible Marine Areas of Canadian Significance (MACS) have been underway for some time. Even though it is unlikely that a marine national park would be established until after policy approval, nationally important marine areas need to be identified so that such areas can be considered when decisions are made on optional resource uses.

An analysis of the Beaufort Sea Marine Region (the Western Beaufort from Amundsen Gulf to the International Border and north to the limits of the permanent polar ice pack) was conducted by Woodward-Clyde in 1981.

Three potential Marine Areas of Canadian Significance were identified at that time - the Yukon Coast-Herschel Island area, Tuktoyaktuk Peninsula-Liverpool Bay area, and Franklin Bay - Amundsen Gulf area.

Recently, LGL Ltd has completed an assessment of the comparative regional representation of these three area and of their suitability as potential national marine parks.

Each area was evaluated to determine the degree to which it portrays the diversity of natural themes of the Beaufort Marine Region. The Tuktoyaktuk- Liverpool Bay and Yukon Coast-Herschel Island areas both were found to provide good representation of the region's significant marine characteristics.

Criteria identified by Parks Canada as being important in new park selection include consideration of ecological representativeness, potential for longterm protection, ecological integrity, opportunities for public education and enjoyment, potential for positive and negative regional impacts, and location of other protected areas (Parks Canada Policy, 1978). Considering all of these criteria, LGL Ltd (1983) concluded that the Yukon Coast-Herschel Island area, including the shorezone and extending east to include King Point and offshore about 50 km, is the most suitable site for a national marine park in the Beaufort Sea region.

Parks Canada has accepted the recommendations of LGL Ltd. and therefore considers the Yukon Coast-Herschel Island area to be the prime candidate for a national marine park in the Beaufort Sea. We ask that the Environmental Assessment Panel take Parks Canada's interest in a marine park into consideration in its deliberations.

Frances Rennie
Senior Planner
Northern National
Park Proposals

3.0 CANADIAN WILDLIFE SERVICE MANDATES AND THE NORTHERN YUKON

The Department of Environment and more specifically the Canadian Wildlife Service has a primary responsibility to the people of Canada with regard to wildlife resource concerns of national or international scope. Legislative authority for management of migratory birds is found within the Migratory Birds Convention Act and an ability to formally cooperate with provincial and territorial wildlife management agencies in achieving wildlife conservation is found within the Canada Wildlife Act. In working toward an objective of wildlife conservation in the national interest, the Canadian Wildlife Service will also frequently act in a research and advisory capacity in encouraging application of other federal, provincial, or territorial legislation to a specific wildlife problem.

3.1 Parks Canada - Environmental Management Service Memorandum of Understanding

An agreement between Parks Canada and E.M.S. (now Environmental Conservation Service), signed in 1980, provides for cooperative work by the two agencies in matters of resource and environmental conservation within national parks. C.W.S., as part of E.C.S., provides expertise and advice in areas such as wildlife management.

Studies aimed at obtaining information needed for the management of parks and lands of interest to Parks Canada with respect to wildlife are normally undertaken by C.W.S., or by other wildlife specialists on the advice of C.W.S. Within national parks C.W.S. conducts regional and national studies, such as research and surveys on migratory birds.

3.2 Eastern Portion of the Yukon North Slope

It is Environment Canada's view that because of the local, regional, national, and international significance of its wildlife resources, the eastern portion of the Yukon North Slope requires the level of protection that would be afforded under the Canada Wildlife Act, and that any specific conservation regime that may be established must have the conservation of wildlife and wildlife habitat as it's overriding principle. Environment Canada recognizes that, as a result of native land claims and other local expectations, various means of achieving wildlife conservation have been proposed for the eastern portion of northern Yukon and Environment Canada is prepared to be flexible as to the means of achieving the conservation objective. ✓

It may well be possible to achieve this objective through cooperative management of wildlife and habitat in northern Yukon. The mandate for the management of wildlife rests largely with the Yukon Territorial government (important exceptions are migratory birds, fish and marine mammals), and the management of land and habitat rests with DINA. Some populations of birds and mammals range across territorial and international boundaries. Such populations must accommodate the needs of a number of interest and user groups both within and outside Yukon. Environment Canada must consequently aim for cooperative action with a view to developing a special conservation regime for the area. To that end, while keeping open the options for potential application of the Migratory Bird Convention Act and the Canada Wildlife Act, Environment Canada will actively investigate alternative existing or proposed legislative and cooperative avenues toward wildlife conservation in northern Yukon.

Elements of such a special conservation regime have been identified and include a land use planning process and a satisfactory screening process to determine the potential impacts of any proposed land use activities upon the wildlife resources. Affected native user groups will be involved in these processes. Development activities which are shown to have no significant negative impacts upon the wildlife resources would be acceptable. For those activities which will have significant negative impacts to proceed, it will be necessary to determine, following a public environmental impact assessment and review process, that public convenience and necessity outweigh conservation interests. Environment Canada will continue to contribute to the development of criteria and guidelines to be used in conducting the impact assessment and review.

Environment Canada strongly supports the approach of involving government agencies with native user groups in planning and managing the wildlife resources of northern Yukon.

3.3 Wildlife Resources of Northern Yukon

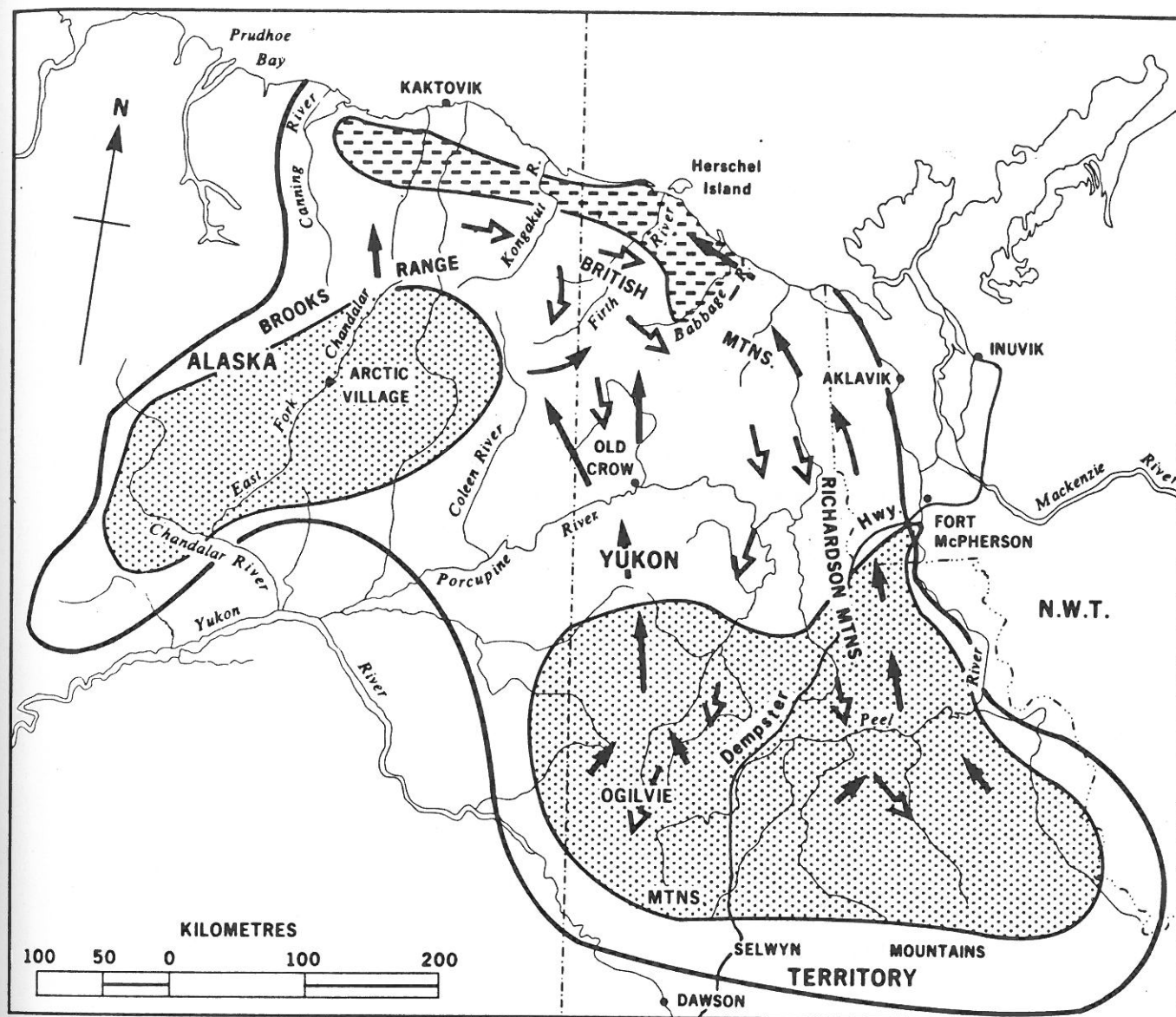
An extensive volume of information on the wildlife resources of Northern Yukon exists in the form of scientific articles, transcripts of public hearings, data files and popular literature. It is expected that much of the published information, and the direct advice of biologists who have studied the wildlife of Northern Yukon will be available to the Panel. There is however a need to emphasize some aspects of the resources in support of Environment Canada's statement of the need for conservation initiatives. Two of the most significant elements of the wildlife resources, of local, national and international importance, are the Porcupine caribou and migratory birds.

3.4 The Porcupine Caribou Herd

The Porcupine Caribou herd was estimated to include 105,000 animals (LeResche, 1975; Bente and Roseneau, 1978 in Kelsall and Klein, 1979). More recent estimates (Martell, 1983, pers. comm.) place the figure at 135,000. This is one of the largest caribou herds in Canada, and is the largest herd of Grant's caribou, Rangifer tarandus granti, in Canada.

The herd utilizes a range of tundra and forest in the northern Yukon and contiguous areas of Alaska and the Northwest Territories (Fig. 3) which extends from Dawson City to the Beaufort Sea and from the Mackenzie Delta to the Chandalar River (Surrendi and DeBock, 1976). Generally, the Porcupine caribou winter south of the Porcupine River, although groups of caribou have been found overwintering north of the settlement of Old Crow and on the coastal plain in some years. Northerly spring migration routes and southerly fall routes pass through the Ogilvie Mountains, the Old Crow Range, and the Richardson, Barn and British Mountains. A portion of the traditional calving area lies on the Yukon North Slope and extends into Alaska, and post-calving summer range occupies parts of the Barn and northern Richardson Mountains (Martell, 1983, pers. comm.).

A very long history of native use of caribou is evidenced from archaeological studies on the Porcupine and Old Crow Rivers (Irving and Harrington, 1973, in Surrendi and DeBock, 1976) and, more recently, by the presence of caribou fences and old hunting camps north of the Old Crow Flats (Surrendi and DeBock, 1976). Currently, native people from the villages of Aklavik, Fort MacPherson, Old Crow, Arctic Village, Fort Yukon, Venetie and Kaktovik, rely on the Porcupine caribou as an important source of food.



LEGEND



- ~ LONG-TERM RANGE BOUNDARY
-  CALVING RANGE
-  PRINCIPAL WINTER RANGES (1971-78)
- PRINCIPAL SPRING MIGRATION ROUTES
- ⇝ PRINCIPAL FALL MIGRATION ROUTES

FIGURE 3. PORCUPINE CARIBOU HERD RANGE AND MIGRATION ROUTES
(AFTER KELSALL & KLEIN, 1979)

Recent developments (the Dempster Highway) and proposed developments (pipelines, North Slope harbor sites) within the northern Yukon portion of the Porcupine caribou range create concerns for the continued well-being of the herd. The U.S. Dept. of Interior (1981), in discussing the potential biological effects of petroleum related environmental disturbance, provides a reasonable summary of the kinds of impacts that industrial developments as a whole may have upon the Porcupine caribou herd. Direct and indirect habitat loss due to surface activities which destroy or alter plant communities may be a minor concern except in those areas where caribou concentrate at critical times (i.e., calving period and post-calving aggregation). Interference with movements is of major concern where linear facilities such as pipelines or roads cross traditional migration routes and create a potential for shifts in normal migration patterns. Similarly, noise and activity (heavy equipment operation, use of explosives, and aircraft overflights) could cause caribou to abandon traditional ranges. Land, air, and water pollution (oil spills, toxic chemical spills and gaseous pollutants) could be of minor concern, with the exception of the effects of sulphurous air emissions on caribou forage plants. Increased human activities, and particularly the disturbance and increased caribou harvesting opportunities that accompany development of roads, must be considered a major management concern.

3.5 Migratory Birds

In developing a list of important migratory bird habitats in Yukon Territory (CWS, 1981), the Canadian Wildlife Service has recognized the Old Crow Flats and the Yukon North Slope as two areas of very special interest, particularly for waterfowl.

The entire Yukon North Slope area, from the coastal deltas and spits inland to approximately the 1000' contour line, is of importance to migratory birds. The Western Arctic Lesser Snow Goose population which breeds in the Anderson River Delta and on Banks Island, migrates westward along the Beaufort coast each fall and numbers of 160,000 to 500,000 were recorded during a 5 year period between 1971 and 1976 (Koski, 1975, 1977) on the Yukon North Slope (Fig. 4). Areas receiving heaviest use appear to be the uplands adjacent to the Walking River, the Crow River - Phillips area and the Babbage River. Black brant pass along the Yukon coast during the spring migration and, during the fall migration, barrier beach lagoons and deltas at the mouths of the Babbage and Firth-Malcolm Rivers provide resting and feeding sites for upwards of 12,000 brant (Koski, 1977, Schweinsburg, 1974). Whistling swans breed, moult, and stage along the coast and on adjacent inland waterbodies. Mossop (1974) estimated a minimum breeding density of .07 pairs of swans per square mile on the coastal plain and .55 pairs per square mile at the Blow River delta. Canada and White-fronted geese pass over the Yukon North Slope in migration but there are no records of stop-over areas. The relatively protected waters between Herschel Island and the mainland provide moulting areas for a variety of ducks. Gollop et al, (1974) estimated 10,000 ducks using the area in early August, 1972, and Mossop (1974) found average concentrations of 2,500 Oldsquaw and 500 Scoters in the area during August, 1972. Vermeer and Anweiler (1975) estimated 5,500 Oldsquaw and 4,500 Surf Scoters moulted in the area south of Herschel Island. Other ducks using that area during August and September include scaup, eiders, mergansers and pintails. The complex of small lakes and ponds adjacent to the coastline, and extending from just east of the Firth River delta to Shoalwater Bay provide breeding habitat for a variety of diving and dabbling ducks, loons and mergansers. The only known breeding area in the western Canadian arctic for Black Guillemots occurs on

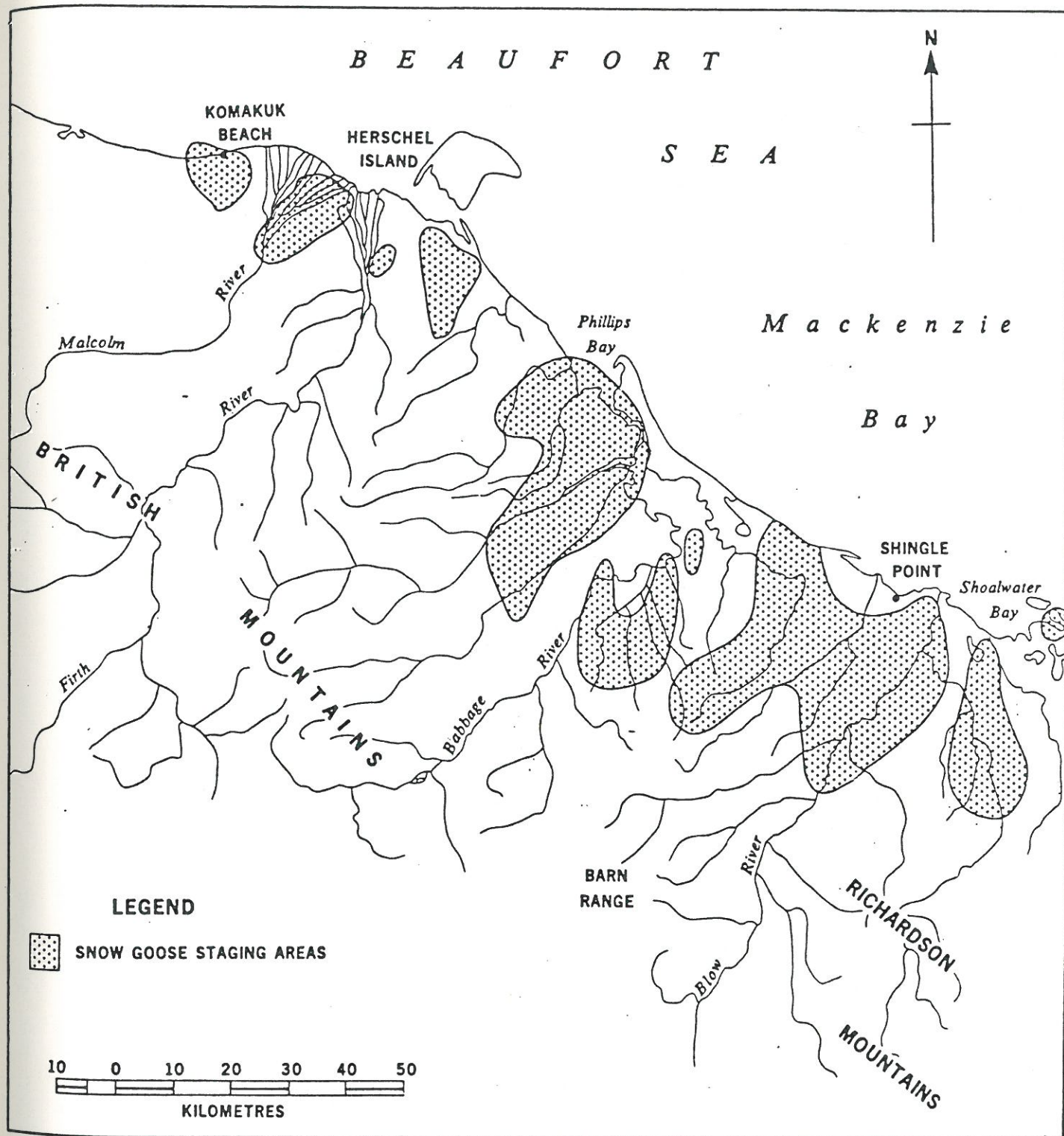


FIGURE 4

Note: These apparently separate patterns of use represent only a few years data. The geese shift their area of use from year to year. The entire coastal strip from the beaches inland to the 1,000 foot contour is used by Snow Geese.

Herschel Island and the Yellow Wagtail, not known to breed elsewhere in Canada, nests regularly along the foothills. The Buff-breasted Sandpiper is a rare species that migrates from Asia and Africa to breed on the tundra in the western part of the Yukon North Slope. Vermeer and Anweiler (1975) reported "thousands" of northern Phalaropes, Pectoral Sandpipers and Golden Plovers, and "lesser numbers" of Red Phalaropes, Ruddy Turnstones, Semi-Palmated Sandpipers, Least Sandpipers, Sanderlings and Long-billed Dowitchers migrating along the coastline near Herschel Island in August.

The Old Crow Flats have long been recognized for their value as waterfowl habitat; a value unequalled elsewhere in the territory. Detailed examination of the Flats by the Canadian Wildlife Service during the Mackenzie Valley Pipeline Study resulted in a Class 1 rating ("excellent northern waterfowl habitat") for the Old Crow Flats (Poston et al, 1973). Mossop (1975, 1976) and Mossop and Hayes (1977) conducted the most intensive waterfowl population studies on the Flats to date. There appears to be considerable variation in population size from year to year, but during the summers of 1975, 1976 and 1977, duck populations on the flats averaged 128,000 during the spring and 396,000 during the fall months. Gray geese averaged 1,700 during the spring and 8,400 by fall, while swans averaged 300 during the spring and 1,600 by fall (fall population averages for ducks, geese and swans were determined on the basis of 1975 and 1976 data only). Scaup, Scoters and Oldsquaw were the most numerous of the diving ducks (other species were Canvasback, Goldeneye and Ringnecks) while Green-winged Teal, Pintail and Wigeons made up the bulk of the dabbling population. It is significant that a build-up of waterfowl numbers occurs during the late summer on the Old Crow Flats, indicating that the Flats should be viewed not only in terms of waterfowl production but also as an early fall staging site. King (1973) estimated that the breeding population of ducks (dabblers and divers) averaged 314,200 over the ten-year

period, 1960-70, and the fall population would be about double the breeding population. It is reasonable to assume that half a million waterfowl utilize the Old Crow Flats in any given year.

Factors associated with proposed or potential developments which may have an impact on migratory birds include direct or indirect habitat loss, noise and other disturbance activities, water pollution and increased human utilization. Vermeer and Anweiler (1975) expressed concern about potential oil spills along the coastline, particularly in the passage between Herschel Island and the mainland where significant numbers of Oldsquaws and Surf Scoters concentrate during the moulting period in August. Lesser Snow geese are extremely sensitive to aircraft sound disturbance when on the tundra feeding areas during the fall (Schweinsburg, 1974). Studies to date have indicated that ducks utilizing small wetlands along the coastal plain react negatively to aircraft activities during the moulting period. As in the case of caribou, there is a continuing concern for the management problems associated with increased access to remote migratory bird habitats and subsequent increased harvesting activities.

Particular concern has been expressed for habitat loss through surface disturbance activities in the Old Crow Flats where there is a high potential for lake-basin drainage through erosion of the permafrost regime.

4.0 CONCLUSIONS

The importance of the northern Yukon as habitat for wildlife and fish species was recognized by Berger in 1977, the National Energy Board in 1977, the land withdrawal by the Federal Government in 1978, and the COPE Agreement-in-Principle in 1978. The significance of the area for wildlife and fish resources has not changed, it only becomes more important as other wilderness areas are touched by industrial development. The wilderness environment and lack of harassment from human activities also contribute to the area's value for wildlife resources. In conclusion, therefore, government commitment to wildlife conservation as the primary objective for northern Yukon land use planning remains as relevant now as it was in 1978.

The Department of the Environment considers that the northern Yukon withdrawn lands represent an area to be afforded exceptional environmental protection. Establishment of a national park of a wilderness character and encompassed by ecologically sensible boundaries will be a major step towards protection of natural resource values. Comprehensive regional land use planning for the remainder of the withdrawal area, in which wildlife conservation is acknowledged as the primary objective, represents a second major step. Settlement of native claims is integrally linked with these two processes. Furthermore, native claim interests in northern Yukon are generally compatible with DOE interests in environmental conservation.

We therefore request that the Panel take into consideration the outstanding wilderness and resource values of the northern Yukon in its assessment of developments proposed for the North Slope. We also ask that the Panel consider DOE's proposals to ensure adequate protection of these resource

values and for a framework within which development proposals ought to be considered. Such a framework would permit government commitments to wildlife conservation to be considered fully in land use planning decisions, rather than pursuing the present ad hoc approach to assessing industrial development proposals.

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APPENDIX I

BACKGROUND DECISIONS/SUPPORT FOR WITHDRAWAL OF THE NORTH SLOPE OF THE YUKON FOR CONSERVATION PURPOSES

October 1970

An Arctic International Wildlife Range Conference was held in Whitehorse, attended by prominent conservationists and representatives of government and industry, from Canada and the United States. The Conference passed resolutions recommending the establishment in the Northern Yukon of a Canadian Wildlife Range adjoining the existing Arctic National Wildlife Range in Alaska.

June 1971

The Honourable Jean Chrétien, then Minister of Indian Affairs and Northern Development, acknowledged the contribution of The Arctic International Wildlife Conference, and supported the establishment of The International Range recommended by the Conference.

September 16, 1972

At the 12th Technical Meeting of The International Union for Conservation of Nature and Natural Resources (IUCN), a resolution was passed urging the Governments of Canada and the United States to complete at the earliest possible date the establishment of an International Wildlife Range in the Yukon and State of Alaska.

July 1974

An article was published in Nature Canada, entitled "The Urgent Need for a Canadian Arctic Wildlife Range". The article created an upsurge of interest in the subject.

April 15, 1977

In his report on the MacKenzie Valley Pipeline Enquiry (Volume I), Justice Thomas Berger recommended the withdrawal of lands north of the Porcupine River and the establishment of a National Wilderness Park, within boundaries as recommended by The Arctic International Wildlife Range Conference.

June, 1977

In denying the application of the Canadian Arctic Gas Pipeline Ltd., the National Energy Board referred to the impacts of the pipeline on the unique and sensitive environments of the northern Yukon and concluded that:

"Based on the evidence put before it, the Board has concluded that the CAGPL Prime Route, both the northern Yukon coastal and the Cross-Delta sections, would be environmentally unacceptable, having impacts of a type falling into the first category (i.e., unacceptable)..... The main concerns underlying the environmental unacceptability of the northern section of the Prime Route are centered around the Porcupine caribou herd in the Yukon coastal area and the Beluga whales, snow geese and swans in Shallow Bay....in summary, the Board is not convinced that mitigative measures could adequately assure protection of this wildlife. The possibility of elimination or significant diminution of the numbers of these mammals and birds is too great a risk to accept if it can be avoided...

From an environmental viewpoint, it is undesirable to develop a new pipeline corridor....in a valuable wilderness and wildlife area in northern Yukon, particularly when other developed corridors could be utilized with relatively less impact on the environment."

January 23, 1978

The Minister of Indian Affairs and Northern Development announced the commencement of public consultation with respect to the protection of six arctic wilderness areas in Northern Canada, including the Northern Yukon. A national park was proposed for the western portion of the northern Yukon because of the national and international significance of the area.

June 28, 1978

The House of Representatives of the U.S. Congress, informed the Hon. P. Trudeau that the House approved doubling the size of the Arctic National Wildlife Range on the Alaskan-Yukon border. The letter supported the establishment of a Canadian counterpart in the northern Yukon noting it could not imagine "a more fitting action that might be taken by the Government of Canada at this juncture than the establishment of a northern Yukon wilderness park of the dimensions recommended by Justice Berger".

July 6, 1978

The then Minister of Indian Affairs and Northern Development withdrew from new development, 38,700 km² (15,000 square miles) of the northern Yukon. He concluded that "the conservation values of region exceed the development potential and we must reserve all the land north of the Porcupine and Bell Rivers".

October, 1978

Section 12 of the C.O.P.E. agreement-in-principle commits both government and C.O.P.E. to the establishment of a National Wilderness Park for the purpose of wildlife protection and wilderness conservation, of not less than 5,000 square miles in the Northern Yukon, including the shoreline.

May 1979

Environment Canada proposed the establishment of a national park in the western portion and a national wildlife area in the remaining withdrawn lands. It was also proposed that the national wildlife area be extended eastward to encompass caribou migration corridors in the western Northwest Territories.

November, 1979

The Committee for Original Peoples' Entitlement (C.O.P.E.) stated in supporting the concept the proposed Canada-United States Migratory Caribou Convention that the convention alone "cannot deal directly and effectively with land protection and management....What is needed within Canada and within the United States in addition to a good convention, is the enactment of legislation, agreements and policies for the most important components of management: land/habitat protection and the integration of land and wildlife management strategies".

APPENDIX 2

ECOREGIONS, HISTORY AND OUTSTANDING PHENOMENA OF THE PROPOSED NORTHERN YUKON NATIONAL PARK

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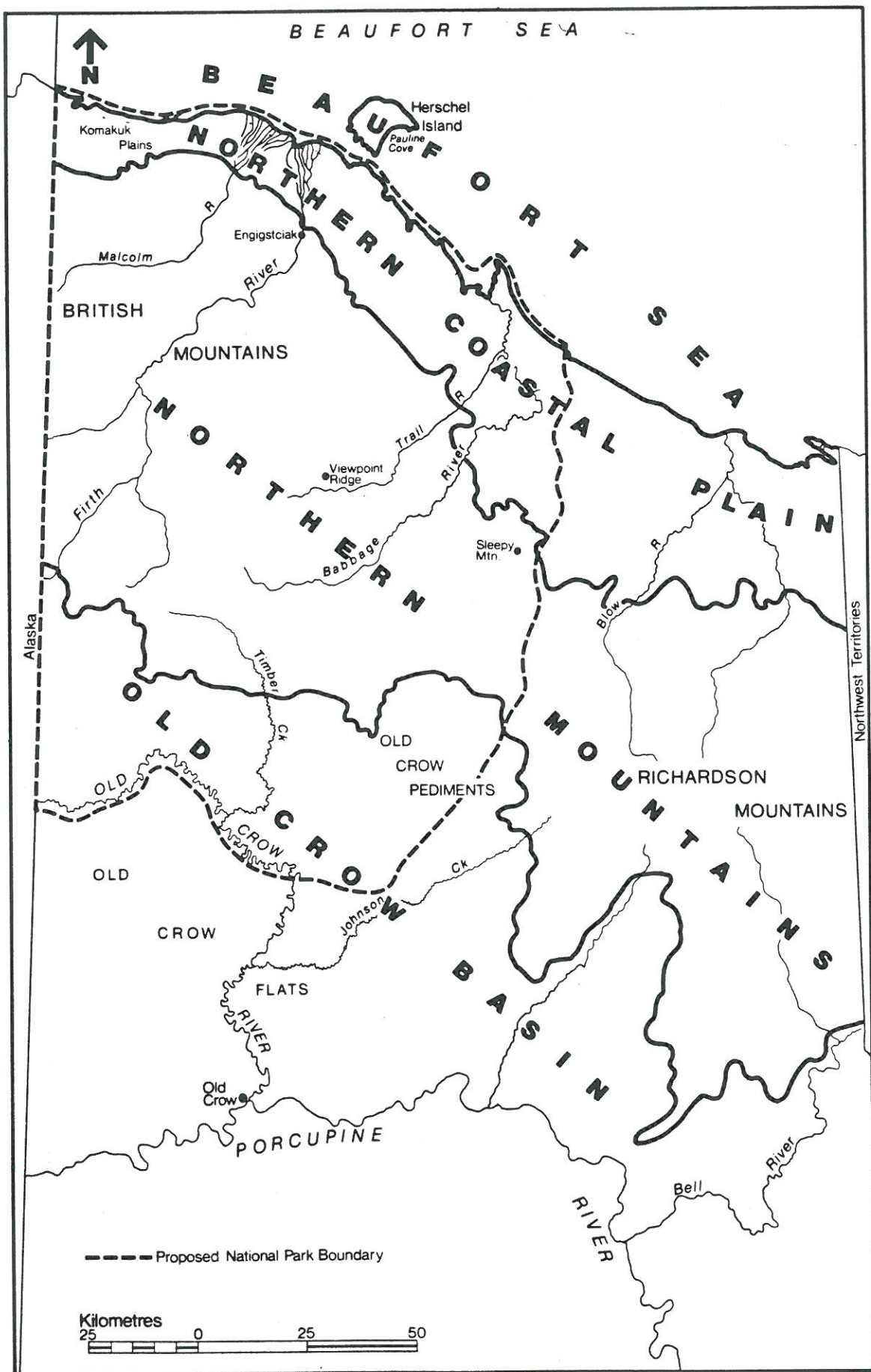
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INTRODUCTION

A national park is proposed for the northwestern Yukon precisely because it contains excellent representation of major landscape types and wildlife and does so in a relatively small area. The non-glaciated, treeless landscape of much of the area gives it outstanding value for certain landforms including pediments, periglacial phenomena such as patterned ground and tors, oriented lakes, and a variety of drainage patterns and coastal erosion and deposition features. The area also juxtaposes three major vegetation types, boreal forest-tundra transition, arctic tundra and alpine tundra. Perhaps best known of the Northern Yukon's outstanding values is its use by the Porcupine caribou herd, by a wide variety of waterfowl, shorebirds and raptors, and by all three species of North American bear, grizzly, black and polar. These widespread phenomena are described in sections on ecoregions, natural history and wildlife.¹ In addition there are many features rare in Canada, odd or simply spectacular, which also contribute to the special character of the Northern Yukon (Wiken and others, 1981). Some of these are described in a section on outstanding phenomena.

¹ See Appendix 3 for section on Wildlife.



ECOREGIONS

Ecoregions are broad areas of the earth's surface characterized by distinctive ecological responses to climate as expressed through vegetation species and successions, soil development, water regime, wildlife and habitats, etc. Three ecoregions are represented in the proposed Northern Yukon National Park, (1) the Old Crow Basin Ecoregion, (2) the Northern Mountains Ecoregion and (3) the Northern Coastal Plain Ecoregion (see map). These ecoregions are described in the following sections, with emphasis on their dominant characteristics, ranging from forest-tundra and riparian woods to arctic and alpine tundra, and from barren peaks to extensive peat accumulations. Information on these ecoregions is drawn largely from the "The Northern Yukon: An Ecological Land Survey" by Wiken and others (1981), which incorporates many previous references on geology, geomorphology, soils, vegetation and wildlife. Unusual or unique features and processes are described in other sections on natural history and outstanding phenomena.

THE OLD CROW BASIN

This ecoregion consists of two principal landscapes, the Old Crow Flats and the Old Crow Pediments. Together they form an extensive plain of wetlands, lakes and meandering rivers. The Flats are a waterscape of tundra ponds and squared lakes typically less than 2m depth and rich in organic debris and emergent vegetation. The lakes are a major breeding, moulting and staging area for waterfowl and shorebirds.

The Flats are underlain by unconsolidated lacustrine clays and silts laid down during Quaternary glaciation. The level terrain, impervious sediments and cool climate result in prolonged soil saturation, favouring a vegetation of sedge-moss fenlands and low rates of decomposition. Consequently the mineral soils are generally covered by several metres of peat with continuous permafrost and many areas of frost polygons. Local relief is largely due to this peat buildup, whereby the shores of larger lakes are peat bluffs up to 6m high. Moose and muskrat are common throughout these wetlands. Despite the wet soil conditions, tundra fires are common and numerous burn scars are visible on air photos.

Most of the lakes drain by seepage through the peat soils. The main streams of the Flats, such as the Old Crow River and Johnson Creek, originate on the surrounding hills and pediments. Because of the fine-grained and unconsolidated substrate, the rivers have cut broad trenches characterized by torturous channels, sandbars, oxbow lakes and alluvial terraces. Stream banks are lined by riparian woods of white spruce, willows, balsam poplar and white birch; terraces are covered by dense willow thickets.

The Old Crow Pediments occupy the north and east portions of the Basin. They are extensive, smooth, gently sloping surfaces of silty soils with peat accumulating along shallow drainage depressions and seepage lines. This drainage of the pediments contributes to maintaining the water balance and nutrient status of the eastern half of the Old Crow Flats. Vegetation on the pediments includes a variety of shrub and heath plants as well as white spruce on upper slopes and along streams. Black bears are associated with the spruce stands, and major fall migrations of caribou take place across the pediments.

THE NORTHERN MOUNTAINS

This ecoregion is an unglaciated mountain barrier separating the coastal plain from the Old Crow Basin. It includes the British Mountains in the northwest and a series of smaller ranges, hill and intermontane basins in the east and south. Like most mountain environments, its ecosystems are affected not only by latitudinal factors of climate, but also by altitude and aspect. Whereas the other ecoregions are relatively homogenous in terms of vegetation, hydrology and microclimate, etc., the environments of the Northern Mountains vary greatly over short distances. In the upper reaches of the Firth River, for example, a traverse of several hundred metres can encompass permanent ice, seasonally dry river beds, mature poplar stands, krummholz forest and alpine tundra.

The British Mountains consist of closely spaced, angular ridges oriented on a southeasterly axis, with summits generally between 1100 to 1600 metres a.s.l., and local relief of 500 to 700 metres. The surrounding hills and basins are less rugged, with sinuous bedrock ridges typically up to 600 metres a.s.l. and local relief of 200 to 500 metres. Like much of the western cordillera, the Northern Mountains are of folded and tilted sedimentary rocks; exposures are common and are dominated by sandstone, shale, limestone and dolomite, mainly of Precambrian, Carboniferous and Cretaceous age.

Although rock outcrops are common and bedrock structures account for major landforms, residual (weathering) deposits and colluvium cover most of the land surface. Unlike most of Canada, continental ice did not intrude into and erode these mountains during the Quaternary period. Instead, frost and fluvial processes have played the major roles in denudation. At higher altitudes the common landforms are frost-shattered crags on mountain crests, blockfields and tors on the upper slopes, and radiating alluvial fans and lobate waves of soliflucted material on hillsides. At lower elevations, frost has encouraged turbation and slumping in the alluvial and fan deposits, especially where the material is fine-grained.

Mountain streams of various sizes have been the major factor in depositing the unconsolidated material which has accumulated on lower slopes in the form of coalescing fans and pediments, usually below 600 metres elevation. The overland flow necessary for this fluvial process is assisted by the denudational effects of frost action on rocks at higher altitudes, the rapid rate of spring snowmelt and runoff common to many arctic environments, and the shallow depth of thaw to impervious permafrost during the runoff period. Soil development is limited due to repeated accumulation and downslope movement of materials. Permafrost is continuous and regosolic cryosols predominate.

Because of the absence of glaciation, the Firth and Malcolm rivers have continued to cut gorges during geologic uplifts of the Tertiary and Quaternary periods. Other rivers and streams are braided, gravel-bed types which show high spring and low summer flows. Again because of the lack of glaciation, lakes are almost entirely absent from this ecoregion. Several accumulations of aufeis occur on the Firth and Babbage River systems.

Vegetation is characterized by combinations of alpine tundra and arctic tundra. Alpine tundra, found mainly above 900 metres a.s.l., consists of a sparse or discontinuous cover of mountain avens, alpine bearberry, saxifrage and crustose lichens. At lower elevations, including the intermontane pediments and basins, a continuous cover of arctic tundra includes a variety of tussock-forming sedges, low to medium shrubs and heath plants. On wetter soils, such as adjacent to late-lying snow patches, herbaceous plants predominate. White spruce, willow and balsam poplar are found along floodplains; the white spruce also spreads to lower mountain slopes.

Overall, the diversity of this ecoregion provides a range of habitats suitable for raptors, Dall sheep and grizzly bears. Caribou use this area for calving and for summer and early winter range.

THE NORTHERN COASTAL PLAIN: THE LAND

This ecoregion owes much of its character to three factors: proximity to the Beaufort Sea; continuous, near surface permafrost; and a surface form which lacks marked relief. Summers are brief, with average daily temperature minima exceeding 0°C in June and July only. Despite precipitation of just 120mm to 190mm per year, frequent fog and cold sea air reduces evaporation and attenuates the thaw of snow and frozen soil. Wet soils and prolonged surface drainage are common, in contrast to the Northern Mountains where rapid spring runoff prevails and most headwater streams are dry in summer.

Two distinct divisions of the plain can be recognized. Recent fluvial deposits, mostly still in the process of deposition, predominate west of Herschel Island. The deposits are the sands, silts and gravels of the extensive and level braided fans of the Firth, Malcolm and other rivers. Between these fans are pediments and lacustrine sediments of clay to sand sizes. This western section of the coastal plain is extremely smooth, local relief being 1m-2m at major river channels. From Herschel Island eastward the coastal plain consists of rolling, clay-silt moraine deposits interspersed with many lakes and low-lying areas of fluvial silt and sand. Local relief of this undulating terrain is typically 10m-30m.

Throughout the coastal plain, level areas and depressions tend to collect overland seepage waters, thereby promoting the growth of sedges and mosses as well as the accumulation of organic debris. Frost wedging is active on these wetlands and creates very visible net-like polygons of both high- and low-centered varieties. Drainage across these wetlands is often by so-called "beaded" streams, series of rounded ponds connected by seepage zones or narrow channels.

In the Northern Mountains and the Old Crow Basin the annual depth of thaw exceeds 30cm, whereas the Northern Coastal Plain has an average depth of thaw of only 25cm. The shallow active layer results from low heat accumulation, the insulating effects of organic horizons and low potential evapotranspiration, low slopes and fine-textured materials. All these act to impede surface drainage; even away from depressional wetlands the soils are gleyed or strongly

mottled cryosols. These wet conditions limit oxygen supply and favour the accumulation of organic debris in surface horizons.

The continuous cover of arctic tundra consists of sedge tussocks interspersed by low or trailing shrubs such as labrador tea, dwarf birch, blueberry and cranberry; cottongrass is the predominant sedge. Caribou migrate and range throughout the coastal plain, although the western portion is the favoured calving area. Arctic fox are common in the eastern, moraine dominated area. The major rivers and lakes are used by arctic char and grayling for spawning and overwintering.

NORTHERN COASTAL PLAIN: THE SHORE ZONE

The Beaufort Sea coast is characterized by eroding tundra bluffs alternating with spits, barrier islands and baymouth bars (McDonald and Lewis, 1973; Rampton, 1982; Woodward-Clyde, 1981). The bluffs are composed of the ice-rich, unconsolidated sediments of lacustrine, fluvial or glacial origin which make up the coastal plain. These bluffs range from less than 5m high west of the Malcolm River to over 90m high on northwestern Herschel Island. Erosion rates vary between 0.25m to over 1m per year, with forms including steep, wave-cut banks, bowl scars of soil flow, thaw slides and rotational block failures. On Herschel Island and several mainland sites to the east, spectacular retrogressive thaw slides reveal massive, pure ground ice layers and ice wedges.

Fine sediment from this erosion is deposited offshore. Silt, sand and gravel fractions, however, are moved alongshore to form spits and baymouth bars. The Malcolm and Firth rivers supplement this sediment supply; they are fronted by a string of barrier islands, each several kilometres long but reaching only 1m or less above high water. Along these spits and barrier islands, on the narrow beaches at the base of the more stable bluffs, and at the back of lagoons, there is a characteristic log line at the high tide level, logs which have drifted down the Mackenzie River. The log deposits indicate zones of deposition or minimal erosion, and reveal the extent to which backshores and embayments may be inundated by storms surges. These lagoons are breeding, staging and moulting areas for large populations of waterfowl and shorebirds.

NATURAL AND HUMAN HISTORY

BEDROCK

Throughout geologic history the area has experienced repeated sequences of marine submergence and deposition, followed by uplift accompanied by folding, faulting and erosion. Rock types include argillite, limestone, conglomerate, sandstone, shale and many others. The British Mountains correspond to Precambrian rocks (over 570 million years old), and the hill lands to the south and east are mainly of Carboniferous (286-360 MY) and Cretaceous (66-144 MY) rocks respectively (Geological Survey of Canada, 1975; 1977). The current phase of uplift began 60-70 million years ago.

NON-GLACIATED LANDSCAPES

Except for an advance of Laurentide ice along the coastal plain, the area was never glaciated during the Quaternary period. There was no local glacier formation within the Northern Mountains, therefore no cirques, U-shaped valleys or moraine deposits usually associated with upland glaciation (Wiken and others, 1981). Instead, denudation throughout the Tertiary and Quaternary has produced features corresponding to an uninterrupted fluvial history under a semi-arid climate, including for example V-shaped valleys, inselbergs (isolated conical hills), and absence of lakes, and soils developed on residual materials corresponding to the local rock type. Most notable are the pediments, gently inclined planar erosion surfaces cut in bedrock and mostly veneered with colluvial or alluvial sediments and, in the Northern Yukon, organic deposits. As well as being prominent landforms throughout the Old Crow Basin and the Northern Mountains, former pediments underly much of the Coastal Plain. The Northern Yukon is unique in Canada, containing the oldest and only mature landscape of fluvial origin; being north of the tree-line these landforms, rare in Canada, are also revealed to their best advantage.

Although fluvial action accounts for the macro landforms of the Northern Yukon, weathering and hillslope development has been by periglacial processes. The absence of glaciation has allowed many features to survive which glaciers would normally remove. These include side-slope tors and cryoplanation terraces, i.e. level benches cut into upper bedrock slopes by frost weathering. The tors provide nesting sites for golden eagle, gyrfalcon and peregrine falcon.

QUATERNARY EVENTS

Quaternary glaciation had two direct impacts on the Northern Yukon. On at least two occasions Laurentide ice advanced along the coastal plain, with a maximum limit between the Firth and Malcolm River fans (Rampton, 1982). The coast is now blanketed by a rolling till plain; Herschel Island itself is of marine sediments moved and emplaced en bloc as a moraine. In the Old Crow Basin, meltwater from continental glaciers moving westward into the Richardson Mountains, flowed down the Porcupine and Bell rivers to create a lake over what is now the Old Crow Flats, filling and levelling the lower parts of the Old Crow Basin with lacustrine clays. About 11,000 years ago this lake found an outlet to the west, where erosion has since created an entrenched outlet and established the present Porcupine River.

In the Old Crow Basin and on the Coastal Plain, deposition has buried and preserved fossil evidence of early man and associated flora and fauna dating back at least 40 thousand years. These fossils include mammoth, horse and American lion, and boreal plants common today such as willow, spruce, sedges and herbs. Together they show the Northern Yukon to have been a refugium, an area exempt from glacial interruptions and from which organisms recolonized as ice sheets retreated. In general a semi-arid climate has persisted, accounting for such geomorphological features as pediments and inselbergs. However, temperatures fluctuated to the degree that at various times forest-tundra, now present in the Old Crow Basin and parts of the Firth River valley, covered the Northern Coastal Plain and at others disappeared entirely from the Yukon north of the Porcupine River.

From 11,000 to 7,000 years ago the climate was warmer than at present, and tree species, including poplar, colonized the coastal plain. From 5,500 to 4,000 years ago the climate cooled to present levels, a change accompanied by southward regression of the tree line and intensification of periglacial processes. Shallow tundra ponds and lakes, such as those of the Old Crow Flats, probably developed since that time, following cycles of peat buildup, drainage, permafrost thaw, subsidence, flooding, peat buildup and so on. Other principal landform developments include erosion of the Beaufort Sea coast and the creation of many spits and barrier islands, and the continued aggradation of the Malcolm, Firth and Babbage deltas.

ARCHEOLOGY

As well as creating a refuge for plant and animal species during glacial maxima, the lack of glaciers in the Northern Yukon and Alaska allowed the preservation of older sediments and fossils dating back at least 40,000 years. Today the area offers archeological and paleontological evidence of international importance. Virtually the whole length of the Old Crow River yields fossils and artifacts, although most sites excavated so far are south of the proposed park. One site has yielded a caribou bone tool, used possibly as a fleshing implement, which indicates that man may have occupied the area up to 27,000 years ago. A human jawbone and other artifacts are estimated to be between 20 and 30 thousand years old. Other findings have yielded evidence of human occupancy during Illinoian glaciation, i.e. about 150,000 or more years ago (Irving, 1982; Jopling and others, 1981).

The site of Engigstciak is considered to be the most important archeological site in the western Arctic. Engigstciak is a small, isolated hill with a commanding view over the lower Firth River valley and the coastal plain. Because of its strategic position it was occupied by numerous hunting groups at many times. Excavations have revealed nine different cultures, including all known Inuit cultures, dating back 5,000 years. The site is also rich in bones of ungulates no longer found in the Northern Yukon, such as wapiti, bison and horse, as well as animals still native to the area (MacNeish, 1956).

THE KUTCHIN INDIANS

Prior to contact with white people, the Old Crow Basin and British Mountains were part of the territory of the Kutchin Indians. They fished for salmon and freshwater fish in summer and hunted moose, caribou, hare and other game in winter. During spring and fall they hunted migratory caribou at river crossings. In the mountain and pediment areas they also funnelled caribou into corrals via long fences made from spruce. Remains of several Kutchin fences still exist, some of which are over 3km long and built of thousands of stunted spruce trees.

This subsistence lifestyle was interrupted during the fur trade and gold rush periods of the 19th and early 20th centuries. Many Kutchin migrated south to trade with miners, many moved to the Mackenzie Delta to trap muskrat near the trading posts. Now known as the Loucheux, their nearest settlement is the village of Old Crow, about 60km south of the proposed park boundary. About 2000 Indians

live there mainly by fishing, hunting of caribou, moose and waterfowl, and trapping. "Ratting", the annual spring muskrat hunt on the Old Crow Flats, provides cash through the sale of furs. Furs of fox, lynx, mink, marten and wolverine are also sold.

SETTLEMENT OF THE ARCTIC COAST

From about 1000 A.D. through to the arrival of Europeans in the 19th century, the Yukon coast was occupied by Taissumanialungmiut (Inuit of the Thule culture), and their descendents the Kigirktarugmuit, or Mackenzie Inuit. They led a rather sedentary life without the necessity of major seasonal movements in search of game. The group seems to have passed the winter in several villages along the coast. Fish was probably the staple food, along with some seal, caribou, whale and other species (Yorga, 1980). During the whaling era the group gathered around their main settlement on Herschel Island. The social disruption and epidemic diseases of the whaling period led to a decline of the entire Mackenzie Inuit from about 2,500 in 1850 to under 150 in 1910.

Europeans discovered Herschel Island during the second overland expedition, 1825-1828, of Sir John Franklin. The Island was also visited by expeditions seeking the Northwest Passage, including Amundsen in 1905-06. With the start of commercial whaling in 1889, Herschel's deep, protected harbour at Pauline Cove became Canada's first outpost on the Arctic Ocean. By 1894-95 the winter population climbed to 2,000, and the first Anglican mission on the shores of the Arctic Ocean was established there in 1896. In 1903 the Island became the first locale where Canada expressed sovereignty in the north when the North West Mounted Police established a detachment. This act was in response to pressures from missionaries and others wanting law and order, and because all the whaling ships were flying American colours. The two policemen had instructions to inspect cargoes, collect taxes and customs duties, and confiscate illicit liquor. A total collapse of the whaling industry by 1906 was supplanted by fur trading, and by 1915, when a Hudson's Bay Company post was established, Herschel had become the major trading centre in the western Arctic. It remained so until the late 1930's when the growth of other Arctic settlements brought about the abandonment of Herschel. Today the old whaling buildings remain as the only evidence of the Island's past importance, commemorated as a National Historic Site.

OTHER OUTSTANDING PHENOMENA

Komakuk Plains

This section of the coastal plain west of Herschel Island narrows to 10-15 km wide. The extreme levelness of these plains contrasts with the British Mountains along their southern border. The two landscapes combine to create the best known vista in the Northern Yukon.

"Viewpoint Ridge"

An unnamed ridge near the headwaters of the Trail River is surrounded on three sides by broad, tundra-covered valleys backed by rounded, barren limestone formations of the British Mountains. The ridge provides a superb prospect for viewing sub-herds of the Porcupine caribou which frequent this district. The ridge itself contains good examples of cryoplanation terraces and blockfields, both expressions of upland periglacial denudation.

Firth River Canyons

Through the British Mountains the Firth River incises its way through spectacular gorges. The translucent greenish-blue water continuously alters its behaviour, passing through narrow canyons, rapids, pools and broad, shallow channels. Bedrock terraces become prominent as the river approaches the coastal plain; these sites carry the northernmost tree (white spruce) in Canada.

Aufeis

At several locations, year-round groundwater discharge provides a significant contribution to river flow. In winter this water freezes (icing) into fields of perennial ice (aufeis) on the valley floor. Summer melting of aufeis helps maintain river flow, albeit with daily fluctuations depending on sun angle. The major aufeis fields are easily visible on Landsat images, although many smaller aufeis fields exist. The largest, on the Firth River, is 10-15km long. As well as being

striking, these icing locations maintain a pool of cold air over their surface and thereby create an insect-free refuge. Whereas surface runoff elsewhere ceases during winter, the continued groundwater discharge creates habitats for the overwintering of arctic char.

Geological Structures

As well as the many impressive coastal, fluvial and periglacial landforms described in other sections, there are many examples of sinuous bedrock ridges indicative of fold structures. These are best developed to the southeast of the British Mountains, and in the Timber Creek headwater area which includes a distinctive horseshoe-shaped hill.

Mesas, Buttes and an Inselberg

As well as the many pediments, the semi-arid, fluvial history of the landscape is represented by mesas, buttes and inselbergs, hill forms indicative of the advanced stages of a semi-arid cycle of erosion. The best example is the Sleepy Mountain inselberg, a prominent conical hill on which slopes have retreated by erosion to the point where none of the original upland surface remains.

Oriented Lakes

The Old Crow Flats, covering nearly 5,000 km², is a spectacular wetland which features hundreds of lakes which are squared, rectangular or triangular, and all oriented in a northwest/southeast direction. As well there are thousands of irregular ponds and small lakes which are remnants of earlier, squared lakes which have been partially infilled by peat accumulation - growth patterns are clearly visible from the air. These lakes are probably an expression of a tundra-pond cycle in which lakes are infilled by peat, raised by permafrost buildup, drained, subsided by permafrost melting and reflooded. Most discussion on their shape and orientation, however, centres on the controlling influence of patterned ground, prevailing wind direction and the erosional influence of drifting lake ice.

Biology: Endemic Plant Populations

There are few areas in Canada where three vegetation regions meet. In most such areas, disturbance by man has been so great that pioneer or weedy species abound. In the Northern Yukon, however, arctic tundra, alpine tundra and forest-tundra can all be observed in their natural condition. As well, the area has a high proportion of endemic plant populations, i.e. occurring naturally but in a restricted area. Most endemic plants in Canada were formerly quite widely distributed, but their range was reduced by glaciation and other natural forces. Because they lack genetic diversity, they have been unable to recolonize in the wake of deglaciation. The higher elevations of the unglaciated British Mountains support several possible endemic plants, mainly species and subspecies of well-known genera. Examples include the willow Salix niphoclada var Mexiae, the chickweed Cerastium maximum, several saxifrages such as S. reflexa, and 10-15 other shrub and herbaceous plants (Wiken and others, 1981, extracted from Hultén, 1968; Douglas and others, 1981).

Biology: White Spruce and Balsam Poplar

In the British Mountains, 300km north of the Arctic Circle, white spruce are locally abundant, especially on south-facing slopes along the Firth River valley. This is the most northerly extension of boreal forest in Canada. Tributary valleys of the upper Firth River include dense stands of balsam poplar, up to 11m high and 23cm diameter breast height, with lush understories of glaucous larkspur, monkshood, valerian and other herbs. These stands, mainly on riparian sites, stand in contrast to the surrounding stunted and sparse forest-tundra.

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APPENDIX 3

WILDLIFE AND FISH RESOURCES OF THE PROPOSED NORTHERN YUKON NATIONAL PARK

The northern Yukon has been described as "perhaps the most productive area for wildlife in the Canadian Arctic" (Wiken et al, 1981). A national park will thus contribute to the protection of a unique and impressive array of wildlife populations and their habitats. The core calving habitat area of the Porcupine Caribou herd, whose international range extends into Alaska where it is protected, will be included within the national park. Extensive portions of the Yukon coastal plain and Old Crow Flats wetland complex, both outstanding wildlife habitat, will also be fully protected through park establishment. In addition, creation of a national park will be a major step towards meeting Canada's obligations for habitat protection and conservation of wildlife populations of international and national significance.

The Canadian calving and post-calving aggregation areas of the Porcupine caribou herd are located within the proposed boundaries of the national park (Martell, pers. comm.). These critical areas, where the herd can number in the order of 50,000 per square mile (Le Blond, 1979) and thus where industrial development would have its greatest impact, will therefore be formally protected by law. The proposed park also includes and will protect other areas essential to the maintenance of the herd such as portions of the cows' and bulls' spring migration routes including the Old Crow Flats, pediments and Babbage watershed, as well as bull segregation areas, and numerous staging and summer dispersal areas.

The importance of and concern over the welfare of the caribou herd is evidenced by the many past and continuing national and international discussions on management of the herd. In addition, the degree to which local native people's well-being is linked

to the health of the Porcupine caribou herd is expressed in specific provision for its management in proposed land claims agreements.

Further information on the Porcupine caribou herd is presented in the Canadian Wildlife Service component of this submission, Section 3.0, and in the Parks Canada Boundary Proposal. Additional information on migratory birds and their habitats is also presented in the CWS component.

The Old Crow Flats and the Yukon Coastal Plain provide vital habitat for an outstanding spectrum of migratory birds. The Canadian Wildlife Service has categorized both areas as critical migratory bird habitats (CWS, 1981). For some species, such as lesser snow goose, these areas are important in a continental context.

Prior to the 1978 land withdrawal, a moratorium on petroleum exploration was enacted by the Minister of IAND in recognition of the importance of the fertile wetlands of the Old Crow Flats. The Flats are also included on the list of I.B.P. sites for the Yukon and in addition have been recognized as a wetland of international importance under the Ramsar convention. In the spring approximately 100,000 diving ducks can be expected, plus 40,000 dabbling ducks. In late summer, ducks arriving to moult double these figures to about 300,000. Thus, about 500,000 ducks utilize the area during the course of the year (CWS, 1981; Mossop, 1976). The Flats also serve a very important function as a substitute summer habitat for waterfowl displaced from their usual breeding areas on the prairies during dry years.

The shallow waters along the coastal plain foreshore from Alaska to the N.W.T., the lagoons, river deltas and networks of small lakes provide a wide range of critical

habitat types for hundreds of thousands of waterfowl and shorebirds. Salter et al (1980) identified 122 species of migratory birds of which a minimum of 46 species were shown to breed along the coast. Black brant and up to one million oldsquaw and eider utilize the coastal plain corridor during migration (Jakimchuk, 1979). Black brant use the deltas of the Firth, Malcolm, and Babbage Rivers for resting and feeding during their autumn westward migration along the coast. Approximately 60% of the Western Arctic lesser snow goose population stages along the coast during September, particularly in the Babbage delta/Phillips Bay area and the Firth and Malcolm River deltas (CWS, 1981).

The area south of Herschel Island and the area between the island and the mainland provide moulting areas for a variety of ducks. Uncommon species such as black guillemots and yellow wagtails, and numerous species of shorebirds (Vermeer and Anweiler, 1975) are encountered along the coastal plan. The Phillips Bay area appears to be an important area for both whistling swans and sandhill cranes (CWS, 1981).

The northern Yukon, and particularly the Northern Mountain ecoregion, provides essential habitat for a variety of raptors, several of which are rare or threatened in Canada. Peregrine falcons are regularly observed at several coastal locations during August (Salter et al, 1980) and throughout the Northern Mountains ecoregion. Two of the three North American sub-species are present, one of which is classified by COSEWIC* as endangered and the other as threatened (Flook, 1983). Gyrfalcons, year-round residents, are seen more often than peregrine falcons. The area supports as high a density of gyrfalcons as any population reported in the literature (Mossop and Hayes, 1982). Golden

* Committee on the Status of Endangered
Wildlife in Canada

eagles are distributed throughout the area, particularly in the British Mountains, and bald eagles have been recorded along the Babbage and Firth Rivers (Salter et al, 1980). In the Old Crow Flats, merlin, osprey and red-tailed hawks are common, in as far as any raptor population can be described as common.

All three species of North American bear (polar, black and grizzly) are present within the relatively small area of the northern Yukon. Grizzlies are the most common bear. The area represents the black bear's northernmost range in Canada. Polar bears are found along the coast in winter and den sites have been recorded on Herschel Island. Muskoxen, from populations re-introduced in Alaska, are occasionally seen on the coastal plain and inland. The proposed park area contains significant habitat for the re-establishment of muskoxen on the coastal plain (MacNeil, 1977). The most northerly Canadian population of Dall sheep is located on the western side of the Firth River north of Joe Creek. As there is uncertainty over the degree to which this small population (estimated at 100; pers. comm., Hoefs, 1983) interacts with an Alaskan population of Dall sheep, it presents an important opportunity for future study.

Moose are common in the Old Crow Flats and in areas of suitable riparian habitat throughout the park area. The Flats also provide the most extensive habitat for muskrat in the Yukon. Muskrat is important to the people of Old Crow in terms of cash income from pelts and, in some years, as spring food. Arctic and red fox, arctic wolves (including the only known dens on the North Slope), the rare wolverine, and many other species of mammals such as mink, marten, and lynx are also present in the proposed park area.

In addition to its rich wildlife resources, a variety of anadromous and freshwater fish are present in the rivers,

lakes and coastal lagoons of the proposed park area. The Malcolm, Firth, and Babbage Rivers are prime overwintering, spawning, rearing, and feeding areas for two important species, arctic char and arctic grayling. All the northern Yukon's arctic char overwinter in these and other north-flowing rivers (McCart, 1974A). Three populations of arctic char have been identified in the northward-flowing rivers, including anadromous, male-only non-anadromous, and non-anadromous (Kendel et al, 1975). The Babbage drainage and Phillips Bay contain the most diverse fish populations of the entire Yukon coastal plain (Kendel et al, 1975; McCart 1974B). Other common species in the coastal plain area are least and arctic cisco (restricted in North America to the western Beaufort coast), boreal smelt, and humpback whitefish. The many lakes and ponds of the coastal plain support populations of broad and humpback whitefish, lake trout, pond smelt, and northern pike (DIAND, 1976). To the south, the Old Crow Flats drainage contains 14 fish species (DIAND, 1976) which are used, to varying degree, by the people of Old Crow.

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- * References in this Appendix are included in the Bibliography of the paper.