

INTERNATIONAL BIORESOURCE AGREEMENTS: THE CASE OF  
THE PORCUPINE CARIBOU

by

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ABSTRACT

INTERNATIONAL BIORESOURCE AGREEMENTS: THE CASE OF THE PORCUPINE CARIBOU

This study analyses thirteen selected international wildlife conventions as the basis for the recommended elements for an international convention on the conservation and management of the Porcupine Caribou herd and its ecosystem. The nature of the study stems from the confusing array of overlapping proposals for northern Yukon Resources.

The oil, gas and mining industries continue to exert pressure on the political decision-makers to provide incentives and release the area for future exploitation. The Committee for Original Peoples Entitlement and the Council for Yukon Indians have traditional land claim settlements to the area, including provisions for involvement in wildlife and habitat management. The Yukon Territorial Government continues to advocate and strive for provincial status. The federal government has displayed continuing inter-departmental and inter-agency rivalry evidenced by competing proposals for the area. Parks Canada wishes to establish a national wilderness park, and the Department of the Environment's Canadian Wildlife Service, a Canada wildlife area. Across the international boundary, decisions pending on the wilderness status, and possible oil and gas exploration in northeastern Alaska also bear directly on the northern Yukon's future.

The focus of attention has been on the Porcupine Caribou, one of the world's largest herds, migrating over a vast, unique and fragile

ecosystem with no regard for physical or jurisdictional boundaries. Conservation of this population depends to a large degree on the success of planning and management of the ecosystem of which it is a part. This struggle for authority and control of the area is a major stumbling block to comprehensive planning. Caribou can only be adversely affected by the potential results -- over-harvesting, reduction of winter ranges, disruption of calving grounds and barriers to migration. The northern Yukon is an important challenge to those who would adopt an ecosystem approach to planning the environment. One proposed solution is the draft convention between Canada and the United States on the Conservation of Migratory Caribou and Their Environment as an element of a comprehensive planning and management framework.

Having studied the social, economic, ecological and political issues in the northern Yukon, a set of principles and criteria for future resource management are proposed. These provide the evaluative framework for analysing the thirteen international conventions. The principles embody the concepts of conservation and enhancement of the Porcupine Caribou herd and its ecosystem, aboriginal priority use of the resources and native long-term involvement in wildlife management and planning, and the development of a flexible management framework.

Based on this analysis, elements for an international convention on the conservation and management of the Porcupine caribou herd and its ecosystem are recommended. This is followed by a critique of the May 1979 draft Convention for the Conservation of Migratory Caribou and Their Environment.



The method of investigation has been a literature review, extensive interviewing of personnel involved in all aspects of the problem, and a comparative analysis of international wildlife agreements.

Major conclusions include:

- the proposed caribou convention should provide for legally-entrenched reservation of lands for the protection of the herd and its habitat;
- these lands must include critical or sensitive habitat areas, i.e. calving grounds, to remain inviolate to all forms of development;
- native peoples must have priority use of resources and be involved in long-term management and planning of the wildlife and habitat, specifically the migratory caribou;
- an independent commission on the conservation and management of the caribou and their ecosystem should be provided for in the convention; and
- this commission must also have an active role in future land use planning and management committees and agencies.

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## CHAPTER I

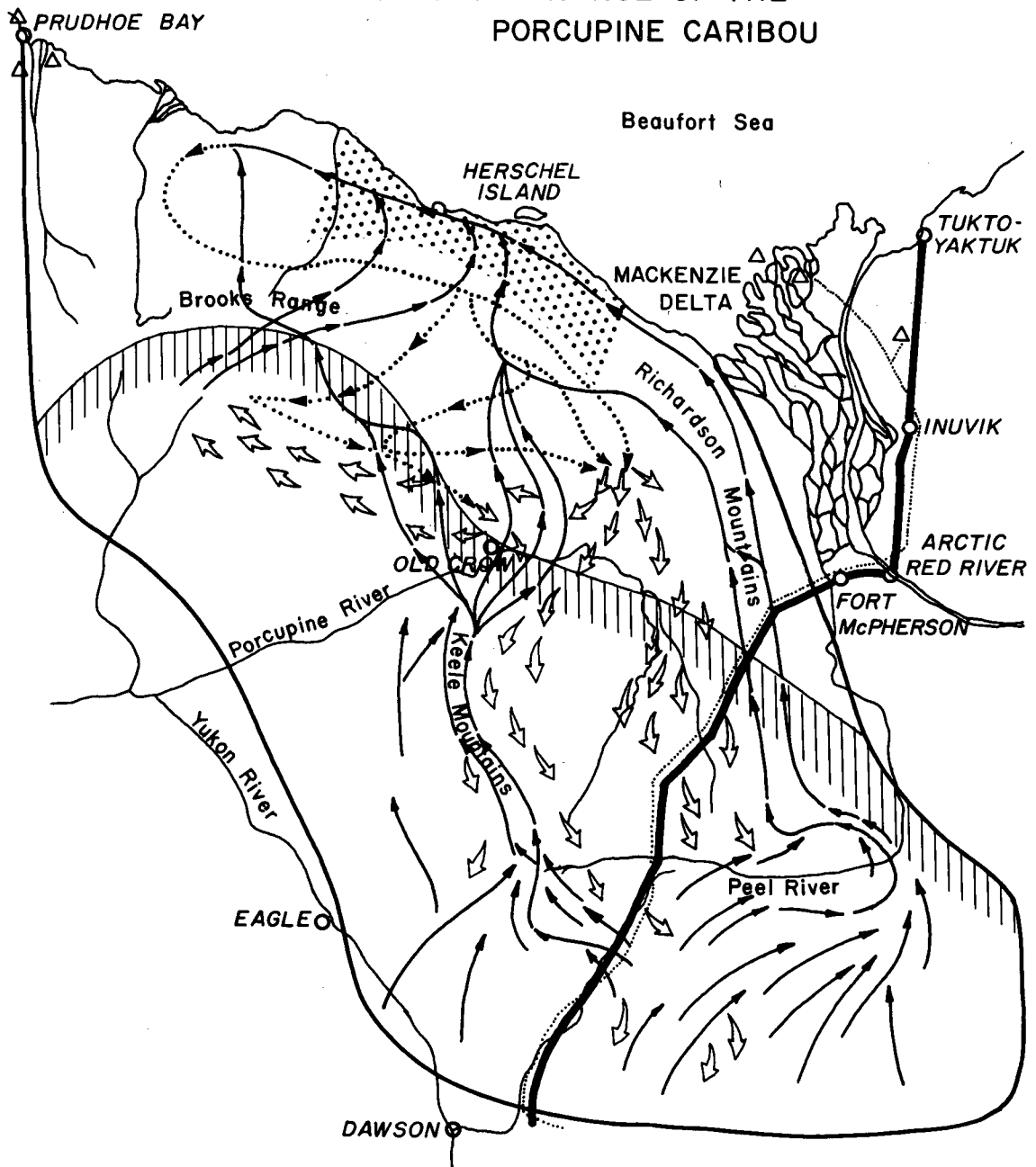
### INTRODUCTION

This study focuses on key elements of a proposed international migratory caribou convention between Canada and the United States. The geographic area of concern is the northern Yukon, encompassing the region north of Dawson, generally described by the range of the Porcupine Caribou herd (see Figure 1). The unique landforms, ecological diversity, and cultural and archaeological significance of the northern Yukon are part of an irreplaceable natural heritage of regional, national and international importance. The migratory Porcupine Caribou herd is symbolic of this heritage.

The potential caribou convention which focuses on the Porcupine herd is only one element in a confusing array of proposals for the northern Yukon, including the suggested Arctic International Wildlife Range and a possible national wilderness park. The scope is therefore broadened from caribou to comprehensive land use planning and management. This broader context will provide the framework for identifying the elements of importance. For example, specific problems of concern in the northern Yukon, such as native rights, recreational pressures and industrial potential receive attention in this context.

Assuming that interest in northern wilderness conservation and wildlife protection and management remain a high priority within the Department of Indian and Northern Affairs (DINA) and the Department of the Environment (DOE), conservation values of the northern Yukon's

FIGURE 1. THE RANGE OF THE  
PORCUPINE CARIBOU



SPRING MIGRATION —————→  
 SUMMER MOVEMENTS .....→  
 FALL MIGRATION ↪↪↪  
 APPROXIMATE NORTHERN  
 LIMIT OF WINTER RANGE ▨▨▨▨▨

APPROXIMATE LIMIT  
 OF CARIBOU RANGE —————

CALVING GROUND ▨▨▨▨▨▨▨▨▨▨

DEMPSTER CORRIDOR —————

PROPOSED GAS PIPELINE .....→

GAS FIELDS Δ

(ALASKA HIGHWAY PIPELINE PANEL, 1978b)



land and resources are of primary importance, and industrial potential of secondary importance to the government of Canada. This is the context of comprehensive planning in this analysis. I have also assumed that some form of international agreement will be realized between Canada and the United States on migratory caribou and the ecosystem of which they are a part.

Given these assumptions, the objectives of the study are to:

- a. develop an analytic framework to approach the problem of an international migratory caribou agreement, with emphasis on overall land use planning and resource management issues; and
- b. propose a schedule of essential elements that must be included in any eventual agreement if the multiple socio-economic-ecological principles of such an agreement are to be observed.

The thesis is divided into several chapters. It begins with a brief treatise of the development of the concept of an international wildlife range and the subsequent myriad of proposals for the northern Yukon. A discussion of biological characteristics of the Porcupine caribou herd follows, drawing upon past research and interviews of caribou biologists who have worked with the herd. Social, conservation and industrial issues are then outlined in the context of land and resource planning and management. Special reference is made here to the role of native peoples regarding use of the land and resources for traditional purposes, as well as their involvement in long-term

planning and management. Existing international wildlife agreements are then critically evaluated according to a set of principles and criteria. The study concludes with possible elements of an international agreement and a critique of the most recent draft Convention Between the United States of America and Canada for the Conservation of Migratory Caribou and Their Environment.

## CHAPTER II

### HISTORICAL SKETCH OF THE PROPOSAL FOR AN ARCTIC INTERNATIONAL WILDLIFE RANGE

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#### INTRODUCTION

The unique landforms, ecological diversity, and cultural and archaeological significance of the northern Yukon are part of an irreplaceable natural heritage of regional, national and international importance. The migratory Porcupine Caribou herd is symbolic of this heritage. However, various industrial developments pose a serious threat to the region and its resources. The recently completed Dempster Highway, the plans of Dome Petroleum for access across the North Slope to the Beaufort Sea, and possible authorization of oil and gas exploration in northeastern Alaska, are examples of immediate concern.

#### 2.1 THE EARLY YEARS

The history of the proposed Arctic International Wildlife Range (AIWR) has important implications for its current and future status. The term AIWR (Canada) was coined in 1970 at a conference in Whitehorse and refers to the same general area of northern Yukon lands tentatively withdrawn from future development by Hugh Faulkner, former Minister of Indian and Northern Affairs, in July 1978 (Communique #1-7821, July 6, 1978). The proposed Canadian reserve adjoins the Arctic National Wildlife Refuge (ANWR) in northeastern Alaska. It was originally anticipated that AIWR would become the name of the combined Canadian and United States area. Today, however, AIWR has come to represent the potential Canadian reserve only.

The proposal for a northern Yukon reserve originates from the 1920's when Olaus and Mardy Murie conducted field studies on the Porcupine Caribou herd's range in northeastern Alaska. They were able then to impress upon U.S. officials the conservation value of the Arctic ecosystem. Nevertheless, research did not begin until the 1950's, headed by George L. Collins, then Chief of Land Use Planning for the Western Region of the National Park Service; Lowell Sumner, Chief Naturalist of the Service; and A. Starker Leopold, zoology professor at the University of California (Leonard 1978a).

As part of this renewed interest, biologists, including the Muries, surveyed the upper Sheenjek River drainage in the eastern Brooks Range in 1956. Their studies were supported by the Wilderness Society, the Conservation Foundation and the New York Zoological Society, and provided part of the initiative for the 1957 Sierra Club Wilderness Conference. This meeting focused on northeastern Alaska and the northern Yukon, and was attended by heads of all the U.S. federal land management agencies and environmentalists from across North America.

The U.S. Arctic National Wildlife Refuge stemmed from the conference's major recommendation for formal protection of the caribou and other wildlife in the Brooks Range area. In part because of objections by mining interests, the formal establishment of such a reserve was not taken up by Congress until December 1960 when, in the final days of the Eisenhower administration, Interior

Secretary Seaton withdrew 8.9 million acres by public land order to establish the Arctic National Wildlife Refuge (ANWR) (Leonard 1978a). Lobbyists for the ANWR also attempted to have a Canadian counterpart withdrawn, but as there was no evidence of any type of threat in the Arctic, there was no Canadian government support for this proposal.

## 2.2 OIL AND GAS DISCOVERIES AND CONSERVATION INITIATIVES

In 1968 the situation changed dramatically. The discovery of oil and natural gas at Prudhoe Bay, Alaska, and subsequent exploration in the western Canadian Arctic, resulted in increased pressure on the Canadian government to protect the range of the Porcupine herd in the northern Yukon as a wildlife reserve adjoining the ANWR. George Collins and his conservation-oriented associates attended the International Conference on Productivity of Circumpolar Lands in Edmonton in 1969 with the intention of urging Canadian Arctic specialists to lobby for protection of the northern Yukon lands (Leonard 1978b). Dr. Andrew Thompson, a conservationist and law professor at the University of British Columbia, subsequently organized the Arctic International Wildlife Range Conference, which took place in Whitehorse in October, 1970.

This meeting attracted 66 Arctic wildlife specialists, representatives of state, territorial and federal governments, mining, oil and gas companies and native groups. A majority of participants agreed upon several resolutions regarding the establishment of a Canadian wildlife refuge. This majority stressed the need for formal protection of the northern Yukon under Section 18(e) of the Territorial

Lands Act, and for research into possible international agreements for the management of the resources. The principal recommendation suggests:

... that the governments of Canada and Yukon establish an area to be known as the Arctic International Wildlife Range (Canada) with boundaries to be established with reference to suitable landmarks approximately following the Porcupine and Bell Rivers and thence to the Blow River near its mouth, along the Arctic coast to the international border and south along that border to the Porcupine River (U.B.C. Law Review 1971).

The AIWR (Canada) Society was also formed, with Dr. Thompson as president and George Collins as vice-president.

Following the conference, the Hon. Jean Chretien, then Minister of Indian and Northern Affairs (DINA), and participant at the two-day meeting, acknowledged the recommendations and resolutions passed at the conference, and indicated his support for the Range.

Additional support came from the 12th Technical Meeting of the International Union for Conservation of Nature and Natural Resources (IUCN) 1972, where a resolution was passed urging the governments of Canada and the United States to cooperate in establishing an international range for the protection of the Porcupine Caribou herd.

The AIWR conference resolution reached the Order-in-Council stage, but was subsequently dropped by Chretien's office in 1973. The key factor at this time was the increasing concern over land claim negotiations, and the concomitant pressure on government (specifically DINA) to disallow any further land dispositions (Thompson 1978). A second factor was the attitudes of mining

interests and local chauvinism, expressed through Commissioner Smith's (Yukon) objection. Local residents felt that the federal government should not proceed on decisions having a major effect on the Yukon until the issue of provincehood was settled (Thompson 1978).

### 2.3 THE BERGER INQUIRY

DINA therefore kept the proposal shelved until an upsurge in interest occurred during the Berger Inquiry 1974 - 1977. In conducting hearings on the environmental impact of a Mackenzie Valley gas pipeline proposed by the Canadian Arctic Gas consortium, Commissioner Justice Berger heard extensive evidence on the value of wilderness, which he defined as a non-renewable resource (Berger 1977, Vol.1, p.30). Justice Berger concluded that the coastal portion of the proposed route was incompatible with the environment, including wildlife and hunting, trapping and fishing activities of native people. He argued for the protection of the resource base:

In the North, certain ecosystems and certain migratory populations can be protected and preserved only by recognizing the inviolability of wilderness (Berger 1977, Vol.1, p.31).

He therefore recommended the withdrawal of lands north of the Porcupine River for establishment as a national wilderness park:

The wilderness park that I am proposing here would cover approximately the same area as the Canadian part of the proposed Arctic International Wildlife Range, and it would adjoin the 9 million acre Arctic National Wildlife Refuge in Alaska. ... Together, these two areas would constitute a magnificent area of 18 million acres spanning the international boundary (Berger 1977, Vol.1, p.48).

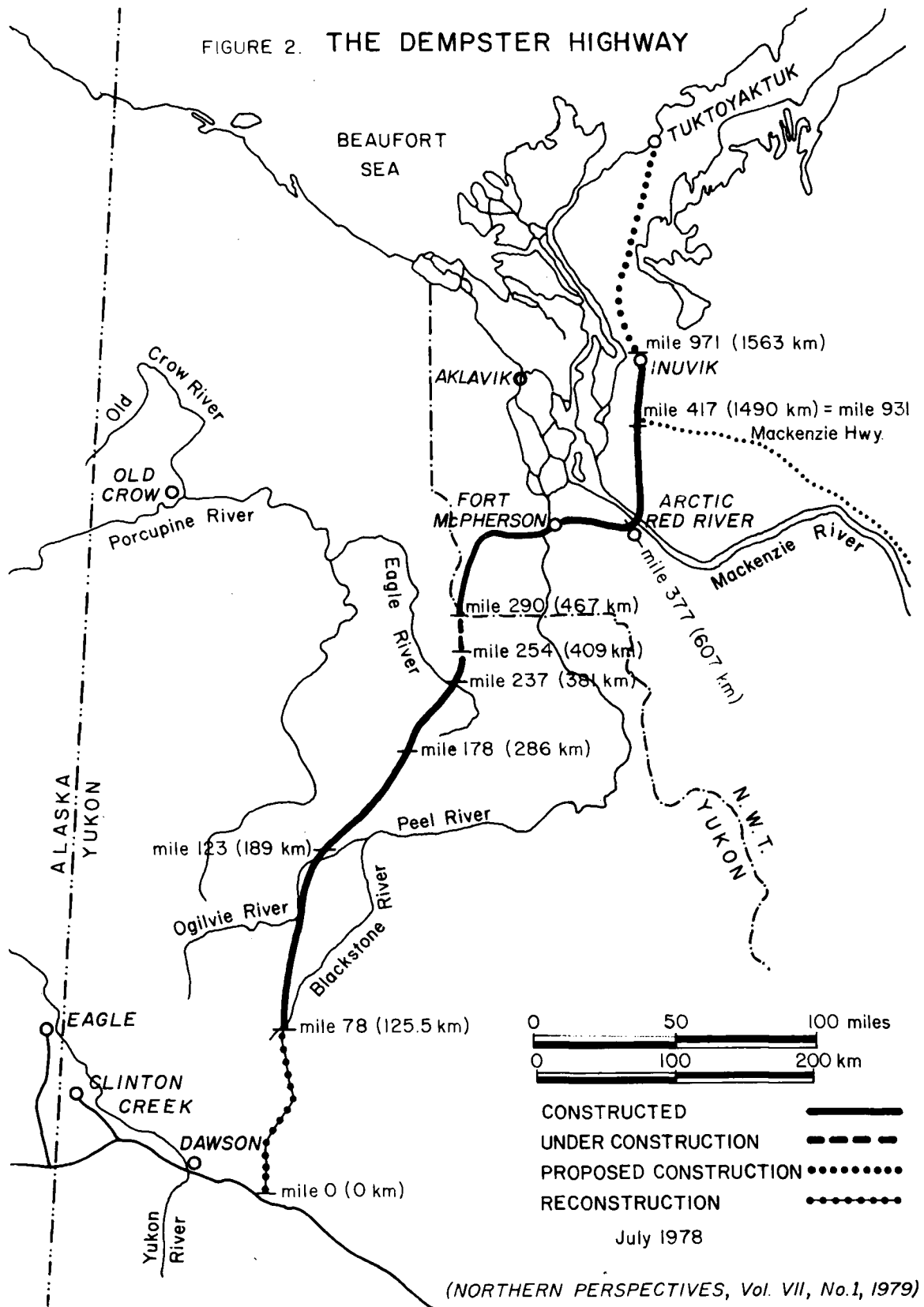
The significance of this proposal is further emphasized by Justice Berger's recognition of the need for a new type of "wilderness park". He noted explicitly that certain recreation and development-oriented activities usually associated with Canadian national parks are incompatible with the interests of wildlife protection. Berger thus suggested a revision to Canadian national parks legislation to include a new statutory creation, wilderness parks (Berger 1977, Vol.1).

On July 4, 1977 the National Energy Board (NEB), following the Berger Inquiry and results from their own hearings, rejected the Mackenzie Valley Gas Pipeline route proposed by Canadian Arctic Gas (Rees 1978). As an alternative, they recommended the last minute proposal by Foothills Pipe Lines (Yukon) Limited, whose route would follow the Alaska oil pipeline to the Alaska Highway and thence southeast to Alberta. Included in this proposal was a spur link called the Dempster Lateral which would eventually facilitate the transportation of Mackenzie Delta gas to southern markets. The Dempster route would approximately parallel the Dempster Highway from Inuvik to Dawson, and continue southeast to the Alaska Highway Pipeline (see Figure 2). Application for the Dempster Lateral must be submitted to the NEB by July 1, 1979 in conjunction with an environmental impact assessment of the pipeline.

#### 2.4 NATIVE PROPOSALS

The pace of events increased through this period. The Committee for Original Peoples Entitlement (COPE), an organization representing





the 2,500 Inuvialuit (Inuit of the Western Arctic), presented its Inuvialuit Nunangat land claim settlement proposal to the federal government in May 1977. While this emphasized the protection of Arctic wildlife as a primary goal, creation of a specific wilderness park was not suggested.<sup>1</sup> COPE originally envisaged that wildlife habitat protection would fall under a Land Use Planning and Management Commission, which would be empowered to manage an area designated as the Western Arctic Region. Wilderness areas or wildlife preserves could then be set aside within this Region by the Commission (Inuvialuit Nunangat 1977).

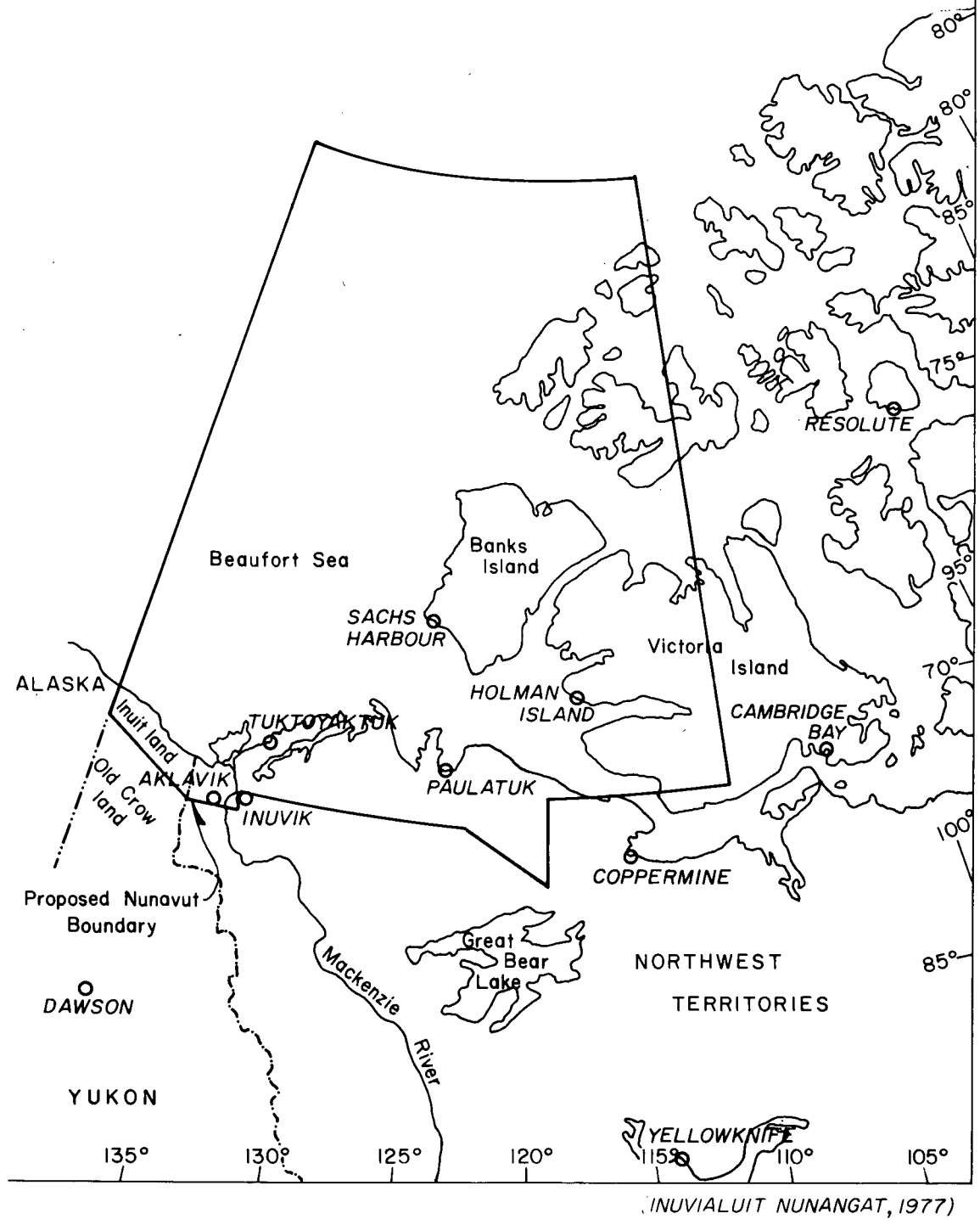
This "Western Arctic Region" overlaps with the proposed AIWR along the coastline, as well as with the lands identified for a land claim settlement by the Council for Yukon Indians (see Figure 3). The Old Crow people, the only native group living within the proposed AIWR, subsequently agreed upon a jurisdictional boundary to separate their traditional lands and those of the Inuvialuit under the COPE claim.

In February 1978, the Old Crow people, under the Council for Yukon Indians, submitted their proposal for much of the area in question to the Working Group on Parks and Scientific Preserves at a Canadian Arctic Resources Conference in Edmonton. This proposal included a provision for an international wildlife range:

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1. As noted in a later section, COPE, following on Justice Berger's recommendation, later proposed the creation of a National Wilderness Park.

FIGURE 3. WESTERN ARCTIC REGION



We the residents of Old Crow do hereby resolve that:

1. The Government of Canada legislate and negotiate with the Government of the United States, an Arctic Wildlife Range in northeastern Alaska and northern Yukon;
2. That the birds and wildlife in the above areas are international in status and therefore require international protection;
3. That the above request will not include the Old Crow Flats area, as it is negotiable under the Yukon Indian Land Claims Package.  
(Northern Transitions 1978, p.251)

## 2.5 GOVERNMENT STUDIES AND TASK FORCES

Meanwhile, various branches of the federal government initiated a confusing array of studies of the northern Yukon lands. Parks Canada commissioned the Lands Directorate to do an ecological land survey of the area north of the Porcupine and Bell Rivers, covering approximately 16,988 mi<sup>2</sup> (44,000 km<sup>2</sup>). The Northern Yukon: An Ecological Land Survey was completed in August 1978, and is available to the public. This survey was in response to the need for greater knowledge of an area identified in March 1977 by Parks Canada for a proposed National Park Reserve (DINA 1977, see Figure 4). Parks Canada's proposal covers about 8,200 mi<sup>2</sup> (21,238 km<sup>2</sup>) with examples of major Arctic landscapes, i.e. the Old Crow wetlands, the unglaciated British Mountains, the Firth River Valley, the Arctic coastal plains and offshore waters. Important habitats for waterfowl, barren-ground caribou, grizzly, black and polar bears, Dall's sheep, Arctic fox and hare, ringed seal, beluga whale and others are also included.

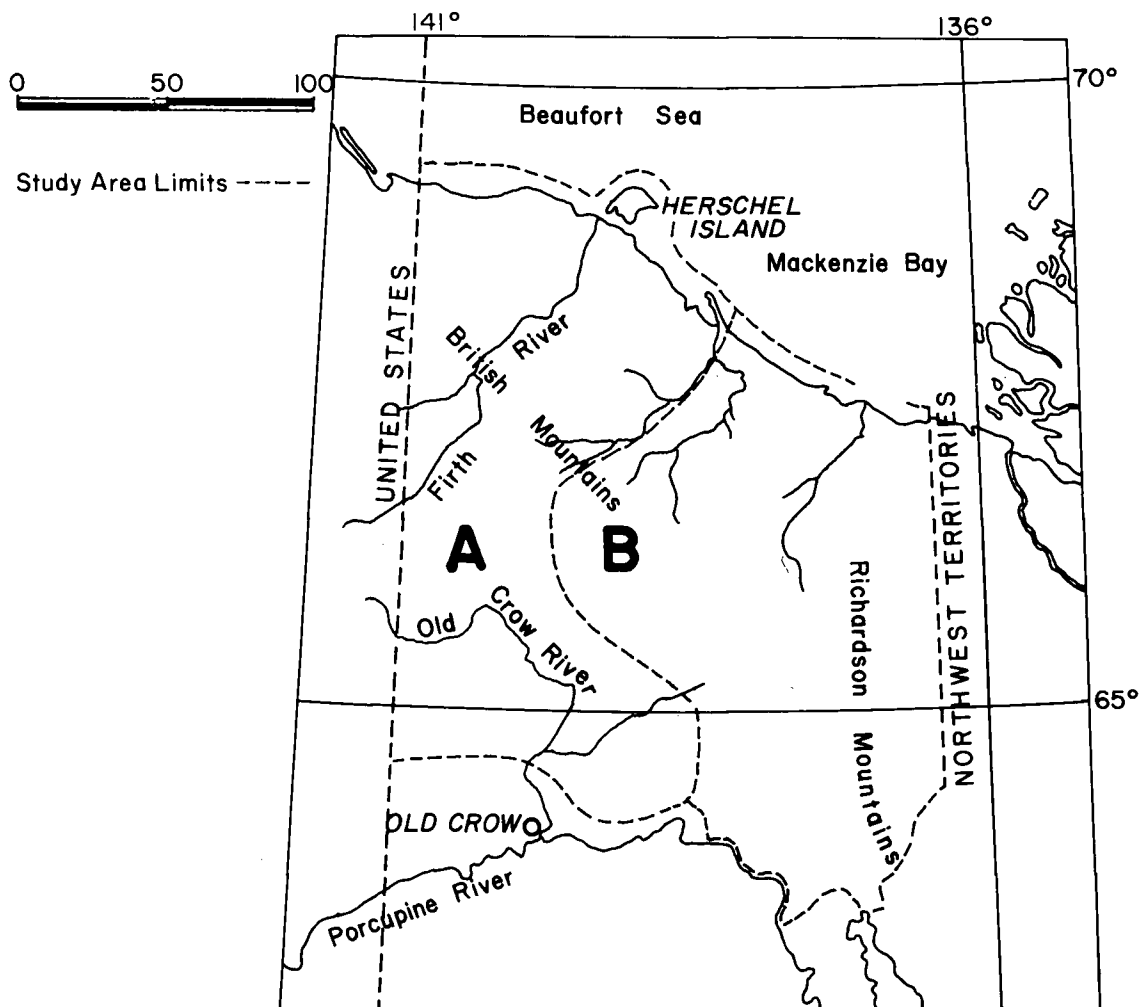
FIGURE 4. THE NORTHERN YUKON



Index to Ecological Generalizations

A- Ecoregions, ecodistricts, and ecosections.

B- Ecoregions and ecodistricts.



(THE NORTHERN YUKON: AN ECOLOGICAL LAND SURVEY, PARKS CANADA, 1978)

Dr. Art Pearson, then Commissioner of the Yukon Territory, felt that the proposed park would not provide adequate protection for the Porcupine caribou. The Department of Indian and Northern Affairs therefore organized a Northern Yukon Conservation Planning Task Force.

The Task Force will:

Identify the manner in which a National Park and other conservation mechanisms could be established so that they could exist in the most complementary way in the context of other identified interests (Terms of Reference, Appendix I, Northern Yukon Conservation Planning Task Force, 1978).

The Task Force's membership included representatives from the Northern Program, Office of Native Claims and Parks Canada (all agencies of DINA), Canadian Wildlife Service of the Department of the Environment, the Yukon Territorial Government and the U.S. Fish and Wildlife Service. The Task Force produced an internal report in 1978 which presented six options for the area north and west of the Porcupine, Bell and Rat Rivers (16,000 mi<sup>2</sup> or 41,440 km<sup>2</sup>).

These are:

1. No action (status quo)
2. Special Land Management Zone under the Territorial Lands Act
3. Canadian Wildlife Area under the Canada Wildlife Act
4. National Wilderness Park using the National Parks Act
5. Combinations of (3) and (4)
6. Withdrawal under section 19 of the Territorial Lands Act, as an interim measure only.

Each option was discussed according to its advantages and disadvantages in terms of flexibility (multiple use), ease of implementation, and level of preservation. Table 1 summarizes this analysis.

Significantly, the Task Force concluded that the settlement of Native land claims was an overriding consideration, and that the confusing variety of preservation interests and management decisions necessitated a conservation plan to provide a mechanism for coordinated and cooperative management. They therefore were unable to propose any ready-made solutions and instead, recommended the following to the Minister of Indian and Northern Affairs:

1. That the Northern Zone be withdrawn under section (sic) 19 of the Territorial Lands Act (Option 6) pending further study and consultation with the concerned parties. The wording of withdrawal Order-in-Council stipulates that:
  - a. such a withdrawal will not prejudice native land settlements; and
  - b. local people may continue to harvest renewable resources as they have done previously.
2. That the current efforts toward achieving a management plan for the Dempster Highway be accelerated and implemented by the Yukon and Northwest Territorial Governments. This is considered urgent.
3. That the Yukon Mineral Act be passed to enable control of mineral activities by means of the Territorial Lands Act.
4. That the Northwest Territorial Government be requested to prohibit the sale of game meat except if otherwise specified in Native Claims Settlements. This would not preclude intersettlement trade or barter.

Table 1: Relative Strengths and Weaknesses of Conservation Options

Conservation Option	*Rank in terms of:		
	Flexibility	Ease of Implementation	Preservation
No Action	1	1	5
Special Zone	2	3	4
Wildlife Area	3	2	3**
Combination	4	4	2**
Wilderness Park	5	5	1

\* 1 = greatest; 5 = least

\*\* allows for a measure of conservation for the areas south of the Porcupine and Bell Rivers through a CWS/YTG agreement

- Option 6 was not rated in the table as it is regarded as a temporary measure only.

(Northern Yukon Conservation Planning Task Force, 1978)



5. That the Canadian Wildlife Service (DOE) be requested to negotiate a caribou research and conservation agreement with the agencies responsible for the management of the Porcupine Caribou herd with a view to achieving cohesive management (North Yukon Conservation Planning Task Force, 1978).

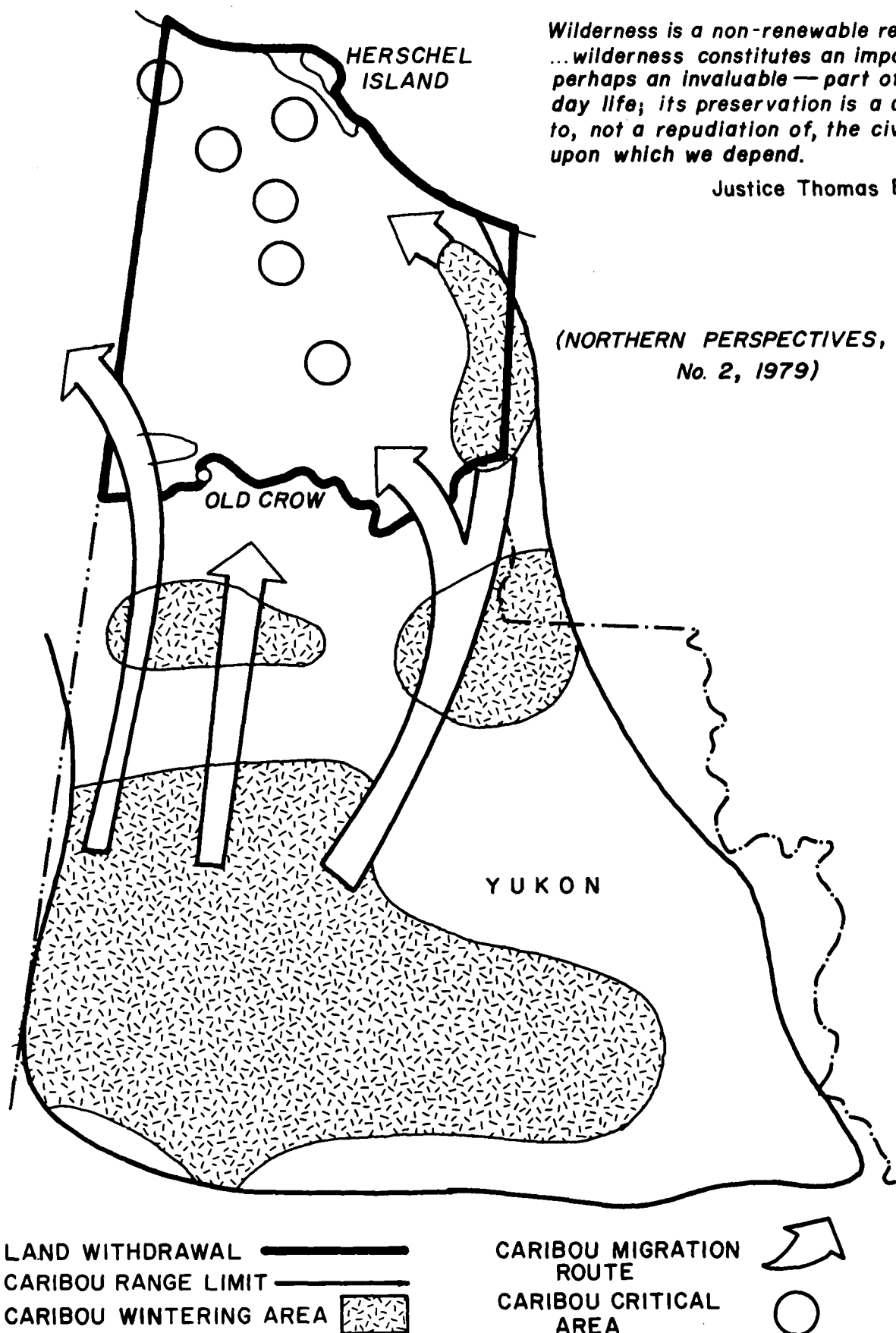
Background information supplied by the Task Force report led to the Hon. Hugh Faulkner's announcement in January 1978 of the initiation of public consultation respecting six potential wilderness areas in the Arctic "... as reserves for future national parks" (DINA Communique #7792). The proposed package included the Northern Yukon as one of the six. On July 6, six months after this initiation, Mr. Faulkner announced the withdrawal of 9.6 million acres ( $3.87 \times 10^6$  ha) of northern Yukon lands, between the Porcupine River and the Beaufort Sea, as an initial step towards establishing a northern wilderness park (see Figure 5).

I have concluded that the conservation values of the region exceed the development potential and we must reserve all the land north of the Porcupine and Bell Rivers. ... The action will not prejudice land claims discussions nor traditional native hunting, fishing and trapping activities in the area. ... Existing mineral claims and oil and gas interestes are not affected by the withdrawal, and exploration on such proterties (sic) may proceed under normal government regulatory controls. [However], the withdrawal stops further disposal of land under the Territorial Lands Act for oil and gas exploration, ends the sale or lease of surface rights, and prohibits entry for staking of mineral claims... (DINA Communique #7821).

The Minister also announced the establishment of a second Task Force to "... develop and recommend a comprehensive Resource Management Plan covering the Canadian range of the Porcupine Caribou herd, including definition of boundary options for a National

FIGURE 5. WILDERNESS WITHDRAWAL AND THE  
PORCUPINE CARIBOU

- 20 -



*Wilderness is a non-renewable resource.....  
...wilderness constitutes an important —  
perhaps an invaluable — part of modern-  
day life; its preservation is a contribution  
to, not a repudiation of, the civilization  
upon which we depend.*

Justice Thomas Berger

(NORTHERN PERSPECTIVES, Vol. VII,  
No. 2, 1979)

Wilderness Park" (DINA, Task Force Terms of Reference, 1979). The Task Force is comprised of one representative from:

- Government of Yukon (Chairman)
- Government of Northwest Territories
- Department of Fisheries and Environment
- Northern Program, DINA
- Parks Canada, DINA
- Committee for Original Peoples Entitlement
- Council for Yukon Indians
- Old Crow Community
- Communities of Fort McPherson, Arctic Red River and Aklavik
- Yukon Chamber of Mines
- Oil and Gas Industry
- Conservation organization under auspices of the Yukon Conservation Society.

The Terms of Reference were internally drafted from November 1978 to January 1979, and were circulated to the participants. The study is underway and final recommendations are to be submitted to the Minister by December 1979.

Herman Dirschl, Executive Secretary of this Northern Yukon Task Force, has indicated that the Task Force would act as an umbrella organization to coordinate working groups on northern Yukon land use planning and management. For example, the Territorial Governments of Yukon and Northwest Territories have a joint Dempster Highway Working Group which has recently completed an Interim Plan for the management of the Dempster Highway; Parks Canada is continuing the public consultation program for a national wilderness park announced by Faulkner in January 1978; and under the COPE/Canadian Government Agreement-in-Principle, a National Wilderness Park Steering Committee has been established to make recommendations to the Minister by October of 1979 on the possible purpose, functions and management of the 5,000 square mile (minimum) Wilderness Park.

There is considerable overlap between this last committee and the DINA Task Force in terms of membership and objectives.

Indeed, COPE feels that the Task Force is encroaching upon the responsibilities of the Steering Committee regarding concerns inside the Wilderness Park:

...the primary responsibility of the Steering Committee is to consider the area that is withdrawn including both the 5,000 sq.miles which is the minimum area to be dedicated as a National Wilderness Park and the additional 11,000 sq. miles which is recommended to be dedicated as the National Wilderness Park. We feel that it is not the responsibility of the Task Force ... to review and evaluate options for the ultimate disposition of the withdrawn area particularly the 5,000 sq. miles (COPE letter to Minister Faulkner, March 6, 1979).

Conflict may arise therefore when broad land allocations, including the delineation of wilderness park boundaries, are decided upon within the Steering Committee that are contrary to the other interests represented on the Northern Yukon Task Force. This, with other interdepartmental rivalries, may seriously hamper coordinated land use planning and management.

## 2.6 CARIBOU CONVENTION

Concurrently on July 6, 1978, Environment Minister Len Marchand, stated that the Canadian Wildlife Service (CWS) would open discussions with the U.S. Department of the Interior on a Canada/U.S. agreement on the protection of the Porcupine Caribou herd which migrates between the Yukon, NWT and Alaska.

The central idea... is the need to manage the entire herd and its range, on both sides of the border, as an ecological unit. In other words, there needs to be a comprehensive approach, which means close and continuing cooperation between the various agencies responsible for caribou and its habitat in both

countries (Environment Canada Press Release, July 6, 1978).

Accordingly, the Canadian Wildlife Service (CWS) organized a committee, headed by Mr. Anthony Keith, to draft an international convention. Representatives of the CWS and the U.S. Fish and Wildlife Service have met on several occasions to discuss basic concepts and to draft proposed conventions. The main concepts include (compiled from American and Canadian drafts):

- long-term conservation and management of the caribou and the ecosystem of which they are a part;
- establishment of a flexible management model based on the principles that:
  - consumptive and non-consumptive values are optimized on a continuing basis,
  - present and future options are to be ensured,
  - risk of irreversible change or long-term adverse impact is to be minimized,
  - subsistence use of the caribou must have priority over any other consumptive use;
- a ten-member Migratory Caribou Commission would be established, five from each country. A scientific advisory committee and an advisory committee of traditional subsistence users would be established by the Commission for direct assistance in the performance of its duties;
- the powers and duties of the Commission include:
  - the recommendations on measures for harvest quota allotment including establishment of maximum allowable take (total numbers and per country), taking seasons, methods, etc.,
  - recommendations on measures to ensure conservation and enhancement of caribou habitat, including long-term measures,
  - coordinated research is encouraged,
  - public participation on the Commission's annual reports and recommendations.

## 2.7 COPE/FEDERAL GOVERNMENT AGREEMENT-IN-PRINCIPLE

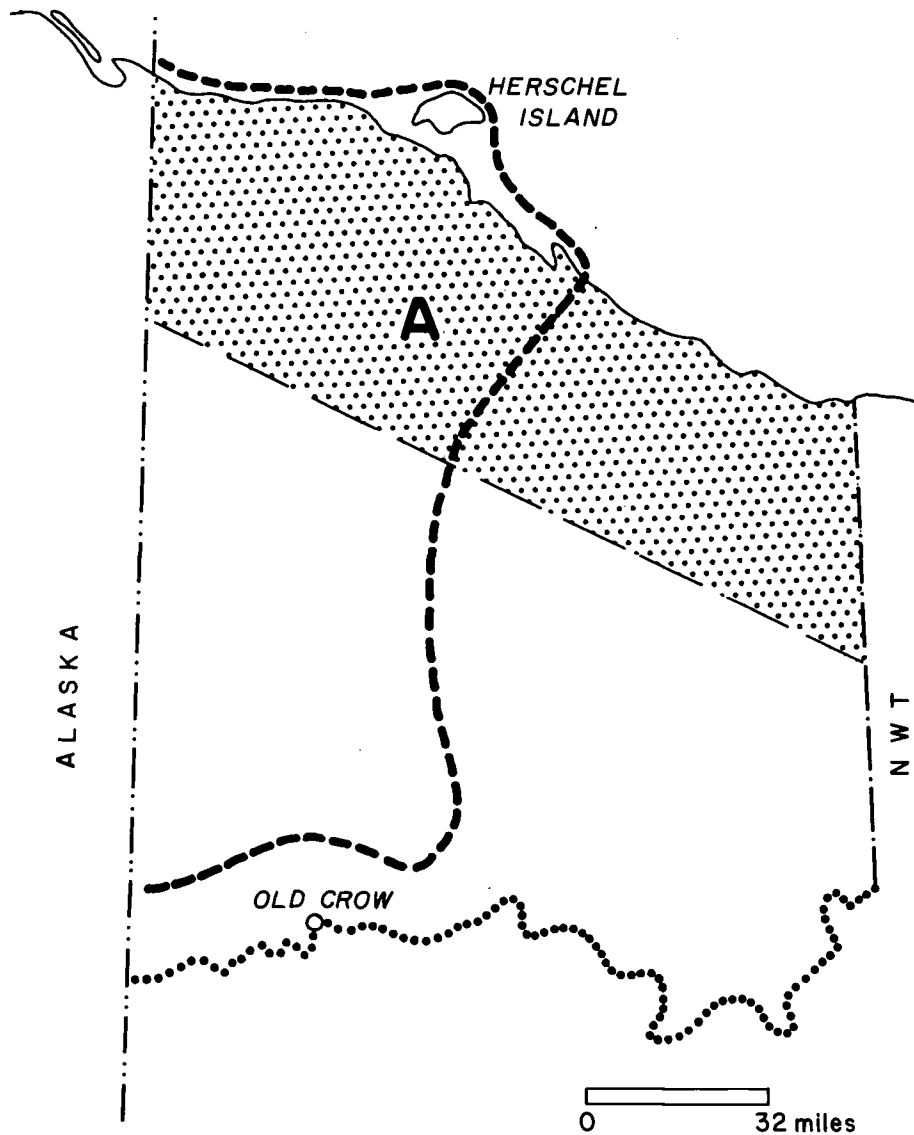
The Inuvialuit Land Rights Settlement is also of significance in this context. On October 31, 1978 COPE and the federal government signed an Agreement-in-Principle on the COPE claim. Regarding the northern Yukon's potential as a wilderness reserve, the Agreement states in Section 12 that as a minimal agreement:

- 12(1) Canada agrees to establish a National Wilderness Park for the purpose of wildlife protection and wilderness conservation of not less than 5,000 square miles of traditional lands of the Inuvialuit in the northern Yukon shown as the area marked "A" in Annex E and in pursuance thereof has withdrawn from disposal under the Territorial Lands Act certain lands therein as described in the Prohibition and Withdrawal of Certain Lands from Disposal Order, 1978 SOR/78 - 568, 6 July 1978 (COPE 1978, see Figure 6).

However, the Agreement recommends that the government actually withdraw the much larger area north of the Porcupine River for this purpose as outlined by Berger (1977 Vol.1). As previously noted, this deviates from the original COPE proposal that called for a Land Use Planning and Management Commission which had authority to set aside wilderness areas or wildlife reserves.

It should be noted that at present there is no legal basis for "National Wilderness Parks" in Canada. While discussion is underway concerning possible policy for such reserves in future, it is currently uncertain given the strong development-orientation historically of Parks Canada (Turner and Rees 1973) whether a National Wilderness Park or other form of conservation reserve would best serve the multiple objective of society in the disputed lands of the northern Yukon.

FIGURE 6. COPE'S NATIONAL WILDERNESS PUBLIC DEDICATION  
YUKON TERRITORY



MINIMUM 5000 SQUARE MILE PARK AREA  
PARAGRAPH 12 (1)



SOUTHERN BOUNDARY REFERRED TO IN 12(1)  
BERGER'S AREA OF RECOMMENDATION



PARKS CANADA PROPOSED NATIONAL  
WILDERNESS PARK



(INUVIALUIT LAND RIGHTS SETTLEMENT, AGREEMENT-IN-PRINCIPLE, 1978)

## 2.8 ADDITIONAL PROPOSALS

Several other proposals for the preservation of northern Yukon lands have also been promulgated. There are six proposed Ecological Reserves of the International Biological Programme - Panel 9: Site 4-1 (Canoe Lake, Richardson Mountains); 4-7 (Herschel Island); and 4-10 (Firth River) - Panel 10: Site 5 (Old Crow Basin); Site 6 (Firth River - larger than Site 4-10); and Site 7 (Rat River, Yukon/NWT Border). The National Museum of Canada has great interest in the rich and internationally-significant archaeological and palaeontological resources in the northwest area of the Yukon. Current research is being carried out by Dr. Richard Morlan for the National Museum of Man under the "Northern Yukon Refugium Project", and By Dr. William Irving under a Parks Canada contract in the Old Crow Flats area (Morlan 1978). Discussion within several federal agencies also continues on the possibility of a joint submission by Canada and the U.S. to the United Nations Educational, Scientific and Cultural Organization World Heritage List, to cover the ANWR and the lands within the withdrawn area.

Meanwhile, private environmental organizations from Canada and the U.S. held a special strategy meeting in Whitehorse on March 16-18. Representatives of the Yukon Conservation Society, the Alaska Conservation Society, the Canadian Arctic Resources Committee, the Canadian Nature Federation, the Sierra Club of Western Canada, and the Arctic International Wildlife Range Society, agreed to form a united front to support a comprehensive approach to



conservation and development for northern Yukon lands and resources. To carry this forward, the Arctic International Wildlife Range Society will be revitalized. The resolutions stemming from the Whitehorse meeting represent a firm commitment to comprehensive planning and management.

#### Resolutions on Northern Lands

WHEREAS Northeast Alaska, the Northern Yukon, and the northwestern part of the District of Mackenzie in the Northwest Territories comprise a natural heritage of regional, national and international importance for its unique landforms, plant and animal species, including migratory birds and marine life, and for its cultural and archeological significance;

AND WHEREAS the migratory Porcupine Caribou Herd is symbolic of this natural heritage;

AND WHEREAS conservation of the Porcupine Caribou Herd, its habitat and the ecosystem of which it is a part is the primary objective for this region;

AND WHEREAS we believe the following principles must govern the activities of man within this region:

1. there must be an international regime for the region;
2. to achieve the primary objective, there must be unified management and planning based on thorough research and carried out by effective implementation and enforcement;
3. there must be recognition of native interests and rights;
4. regional interests must be reflected in the research, management, planning, implementation and enforcement;
5. there must be security for the region by entrenchment of these essential principles through legislation or agreement;
6. there must be continuing involvement of the public in planning and management by such means as monitoring, reporting, educating, and by representation at hearings;
7. there must be timely implementation of these principles;

AND WHEREAS a Canada-United States convention for conservation of migratory caribou and their environment is under negotiation, and the proposed convention will establish an independent Commission to make recommendations governing harvest of caribou, conservation of caribou habitat, and the ecosystem of which caribou are a part, and any other measures it deems necessary to ensure the long-term conservation of the caribou;

AND WHEREAS the Government of Canada has entered into an Agreement-in-Principle with Inuvialuit (COPE) that a National Wilderness Park of not less than 5,000 square miles in the Northern Yukon be established for the purpose of wildlife protection and wilderness conservation;

AND WHEREAS Old Crow People in conjunction with the Council for Yukon Indians are negotiating an Agreement-in-Principle that will have a direct, long-term effect on the lands and wildlife of the Northern Yukon;

AND WHEREAS the Government of Canada has withdrawn all lands north of the Porcupine and Bell Rivers (15,000 square miles) in the Yukon for a national wilderness park and other conservation purposes:

BE IT RESOLVED THAT:

1. We strongly endorse the speedy completion of the international convention between Canada and the United States for the conservation of migratory caribou and their environment.
2. Under the umbrella of this convention there be established a unified regime of land management, habitat management and species management to ensure the accomplishment of the principles stated above for the entire range of the Porcupine Caribou Herd in Alaska, Yukon and Northwest Territories.
3. This management regime must provide for certain restraints that are basic to the primary objective of conservation of the herd, its habitat and the ecosystem of which it is a part. These are:
  - a. that subsistence harvesting of any species be given priority within the sustaining capacity of the ecosystem,
  - b. that any other use of the region must not be prejudicial to the primary objective; and the onus of establishing that a particular use is not prejudicial must rest on the potential user.

4. Within the withdrawn portion of the region and the adjacent portion of the caribou range in the Northwest Territories we support a national park of a wilderness character, a national wildlife area, or a combination of these, following appropriate agreements with native peoples but only if the legislation establishing such a national wilderness park or national wildlife area fulfills the principles stated above.

## 2.9 CONCLUSION

The various overlapping and/or conflicting proposals for much of the northern Yukon suggest that some form of permanent conservation status for at least part of the area is likely. Cooperation between Canada and the U.S. on planning and management policies for the Porcupine Caribou and their habitat is of course a central issue, and essential to the success of any future reserve. Although current conflict and debate focuses on the withdrawal lands, management of the entire range in conjunction with the Arctic National Wildlife Refuge must be emphasized in order to realize the comprehensive scope outlined by Marchand in July of 1978.

### CHAPTER III

#### CARIBOU MANAGEMENT

Caribou herds are like a geological force as they flow over the land. ...Forever on the move, they appear on one distant horizon and vanish on the other... dominating the landscape and the lives of the people who hunt and depend on them (Calef 1976).

#### 3.1 WHY BE CONCERNED?

The Porcupine caribou herd, currently stable at approximately 100,000 animals, is one of the largest herds in existence. Since the herd's range covers the northern Yukon and portions of the Northwest Territories and northeastern Alaska, it is a major international resource. Until recently, white society has been satisfied knowing that the caribou herds were there. However, industrial development has now begun to threaten the wilderness of the caribou. Society is now asking: do we have sufficient knowledge of the behaviour and movements of the caribou to confidently predict the effects of this development push? Should we be concerned about the preservation of wildlife in the north?

"Conservation" is usually meant to include "wise use" of a resource for future generations.

In its broad definition, it includes management measures, and means the collection and application of biological information for the purposes of increasing and maintaining the number of animals within species and populations at some optimum level with respect to their habitat (Holt and Talbot 1978).

Conservation of wildlife necessarily includes protection of the species' habitat. No species exists in isolation from its habitat, and any impact on one species has an impact on the other components of the entire ecosystem. As a result, an ecosystem approach must be taken to wildlife conservation and management. This approach was endorsed by Environment Minister Len Marchand on July 6, 1978 regarding international protection of the Porcupine herd in the northern Yukon:

The central idea... is the need to manage the entire herd and its range, on both sides of the border, as an ecological unit. ...There needs to be a comprehensive approach, which means close and continuing cooperation between the various agencies responsible for caribou and its habitat in both countries (Environment Canada Press Release, July 6, 1978).

There are a number of arguments for preservation and conservation of species and habitat, including scientific, educational, social, spiritual and moral factors (Robbins 1963). Central to all these concerns is the use of nature as a laboratory for research on the elements of ecosystem integrity and interrelationships. Maintenance, intact, of ecosystems provides a base datum with which man's impact can be compared. Sinclair (1977) urges that "the establishment of unexploited" baseline or control areas is an insurance policy for the ecological viability of a country". Preservation of wildlife and wildlife habitat ultimately ensures the preservation of the basic resource systems upon which man depends.

... unless better conservation measures are implemented, society stands to lose a substantial part of its heritage in species and genetic resources within a few decades (Myers 1976).

The establishment of a northern Yukon wildlife range involves both biological and political battles with a focus on the Porcupine caribou. As with other herd animals, the caribou have migratory habits which follow the seasons. With the difficulties of surviving in the Arctic, there are limited areas capable of supporting large numbers of these animals. Consequently, each major component of their habitat, i.e. winter and summer ranges, represents a potential weak link in the chain of survival. Hence were any major ranges significantly disrupted or migration routes between them altered, the future of the herd would be jeopardized. "Once important patterns of one or a few major species have been disrupted, ultimately an entire ecosystem will be affected" (Laycock 1976). For these reasons, some type of comprehensive reserve is required for the protection of the entire ecosystem.

### 3.2 RANGES AND MIGRATION ROUTES

The barren-ground caribou (Rangifer, tarandus, granti) of northeastern Alaska, northern Yukon and Northwest Territories, embody a single group known as the Porcupine herd. The accepted definition of a caribou herd is --- a group of animals that calves in a traditional area different from areas used by other groups (Skoog 1968 and Thomas 1969). The herd is currently numbered between 100,000 and 110,000. The caribou annual cycle can be divided into seven phases distinguished by distribution and behaviour: spring migration, calving, post-calving aggregation, late summer dispersal, fall migration, rut, and winter (see Table 2 and Figure 7). Bergerud (1971a), Calef (1974) and Skoog (1968) have recognized similar phases.

Table 2 - Seasonal Activities and Distribution of the Porcupine Caribou Herd

Time of Year	Annual Cycle Stage	Area Used	Habitat	Area of Range Available	Typical Group Size and Composition	Average Density	Average Distance Travelled per Day
April -May	Spring Migration	Richardson Mtns., Eagle Plains, Porcupine Plateau, Keele Mtns. Old Crow Flats, Barn & British Mtns.	Mountain ridges Boreal Forest	Variable	Variable between years. Groups up to 30,000 may be encountered. Cows, yearlings, young bulls precede mature bulls by 2-4 weeks.	Variable	10-20 mi.
May 31 -June 15	Calving	Coastal Plain Northern Foothills of British Barn & Romanzov Mtns. to 3,500 ft. level.	Tundra sedge meadows. Eriophorum tussocks, drier uplands	4,000mi <sup>2</sup> usually limited to 2,500mi <sup>2</sup>	Small groups (10 animals) gradually coalescing into loose aggregations of several thousand cows and calves, pregnant cows, and yearlings only.	12/mi <sup>2</sup>	6 mi.
June 15 -July 30	Post-calving aggregation	Coastal Plain and Foothills until July 8. Foothills only after July 8.	Tundra, new willow & sedge forage particularly important.	7,500mi <sup>2</sup> Very large herds use only a few sq.mi. of this area at any time.	Entire population present in one small area, all ages and sexes present.	50,000/mi <sup>2</sup>	15 mi.

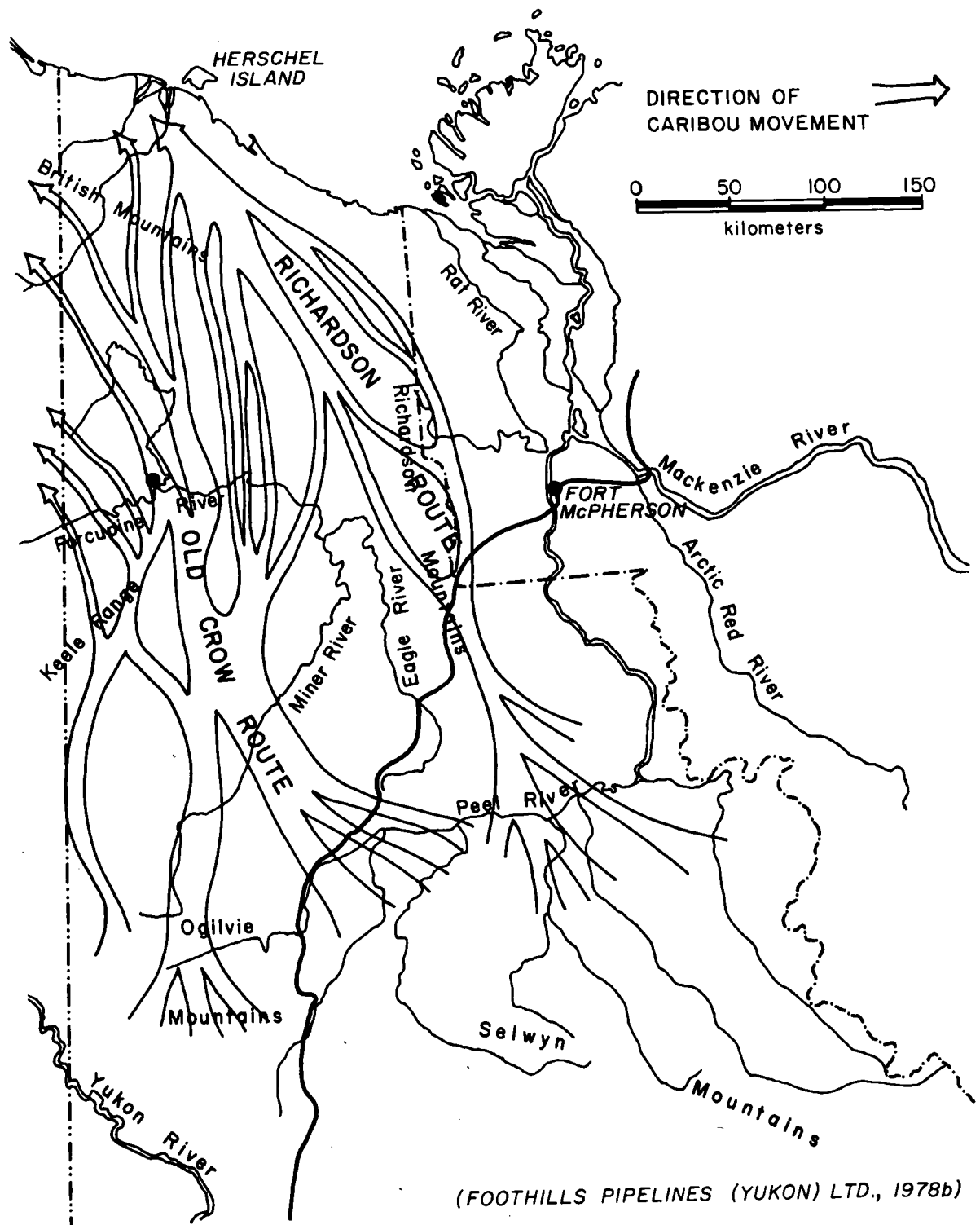
August- Sept.15	August dispersal	Most of area north of Porcupine River, especially Sheenjek & Colleen River drainage & surrounding mountains.	Alpine tundra, river flats.	20,000mi <sup>2</sup>	Less than 100, some aggregation probable (not well documented)	Variable Overall density less than 5/mi <sup>2</sup>	15 mi. during dispersal, less after.
Oct.10- Oct.20	Rut	Depends on progress of migration.	Same as for fall migration.	Variable	Large loose aggregations	Up to 1,000/mi <sup>2</sup>	Up to 30 mi. but usually less.
Nov.- April	Winter	Ogilvie Mtns. Chandalar River drainages, Eagle Plains. Wintering on Old Crow Flats and Coastal tundra not as common.	Mountain ridges, Boreal forest, river flats.	60,000mi <sup>2</sup> Never all used in one year.	20-100 animals. Segregation between sexes occurs.	10/mi <sup>2</sup> and more in late winter.	less than 1 mi.

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Adapted from Calef (1974) Table 1 and references in text.



FIGURE 7. SPRING MIGRATION OF THE  
PORCUPINE CARIBOU, 1971-1978



Spring migration normally begins with small groups (about 100) drifting northward in mid-March. The groups of thousands typifying migratory movement do not occur until late March or early April (Roseneau and Curatolo 1976). Snow conditions along the routes appear to be important in initiating migration, however:

Based on the results of studies by Pruitt (1959) and Henshaw (1968), the actual timing of caribou movements and selection of migration paths are probably the result of a combination of snow conditions, the presence of favourable geographic and physiographic features, and the stimulus of advanced pregnancy of the adult female (Surrendi and DeBock 1976).

There are two major spring migration routes -- the Richardson Route and the Old Crow Route -- which have been used consistently since 1971 (Jakimchuk et al 1974, and Foothills Pipe Lines (Yukon) Ltd. 1978b, herein referred to as "Foothills", see Figure 7). The Richardson Route follows the axis of the Richardson Mountains. Commencing from the Trevor Range - Bonnet Plume area, and the Wind, Snake and Arctic Red Rivers, migrants cross the Peel River and proceed up the east slope of the Richardson Mountains. Some groups move west across the mountains and follow the west slope, while the remaining animals continue along the east slope. Upon reaching the Fish Creek - Rapid Creek - Blow River area, the groups mass again and continue northwest along the Barn and British Mountains to the Alaska border (Jakimchuk et al 1974, and Foothills 1978b).

The Old Crow Route is travelled by caribou wintering in the Ogilvie and Central Yukon areas. Extending north from the Hart, Blackstone, Ogilvie and Tatonduk Rivers, the caribou pass through the Keele Range

(between the Alaska border and the Porcupine River), cross the Porcupine River at traditional crossing sites, and continue through the Old Crow Flats. These herds join the Richardson Route animals near the western edge of the Barn Mountains, and proceed in a broad front to the Firth River (Jakimchuk et al 1974, and Foothills 1978b).

Based on the summary of available information on the herd's migration 1950 to 1970 (Kevan 1970), and Foothills' own data survey 1971 - 1977, Foothills concludes that the migration patterns have been consistent since 1950. Archaeological records also support this conclusion. Morlan (1978) and Irving and Harrington (1973) have found evidence that northern Yukon natives have killed caribou at traditional crossing points of the Porcupine River for at least 30,000 years. According to long-time residents of Old Crow, the predictability of caribou migration determined the location of hunting camps and settlements such as Old Crow. Moreover, Warbelow, Roseneau and Stern (1975) have presented evidence on the distribution and orientation of Kutchin caribou fences -- "large, corral-like structures or drift fences... were built by the Kutchin or Loucheux peoples ... across traditional migration routes... to guide and entrap caribou" -- which suggests that the herd's movements have been consistent for the past 200 years.

Calving occurs on the Coastal Plain and in the foothills up to 1,100 meters above sea-level. The herd's calving grounds extend between the Blow River drainage in the Yukon to the Canning River in Alaska, and inland from the Arctic coast as far south as the

northern slopes of the Brooks Range in Alaska and the northern portion of the Old Crow Flats (Roseneau, Curatolo and Moore 1975, Roseneau and Curatolo 1976, and McCourt et al 1974, see Figure 8). Habitats of wet sedge meadows to dry ridges are used, with preference for dry uplands. The distinguishing feature is the absence of snow, but sheltered areas with growths of cotton grass seem important. Calving generally occurs between May 31 and June 15, but may vary by seven to ten days (Calef 1974, and Roseneau, Curatolo and Moore, 1975).

The exact area of calving is also variable, depending on the chronology of migration and use of wintering areas. "If caribou... are able to migrate earlier in the spring they will probably calve further west along the Alaskan coast. When conditions inhibit early migrations caribou will likely calve in the Yukon" (Surrendi and DeBock 1976).

Immediately after calving, the cows and calves join the yearlings, dry cows and bulls in loosely aggregated concentrations of 25,000 - 50,000 (Roseneau and Curatolo 1976). These post-calving aggregations have also been known to reach 80,000 - 100,000 animals with densities over 50,000/mi<sup>2</sup>, especially when crossing rivers (Calef 1974). By early July, the herd which calved in northeastern Alaska begins to re-enter the Yukon and join the Yukon segment on their eastward movement (see Figure 9). The majority cross the Malcolm River, sometimes pausing to congregate, at what is therefore known as a staging area, on the Firth River. They continue their trek in loosely aggregated groups through the foothills of the Barn and

FIGURE 8. CALVING GROUNDS OF THE PORCUPINE CARIBOU  
1972 - 1974

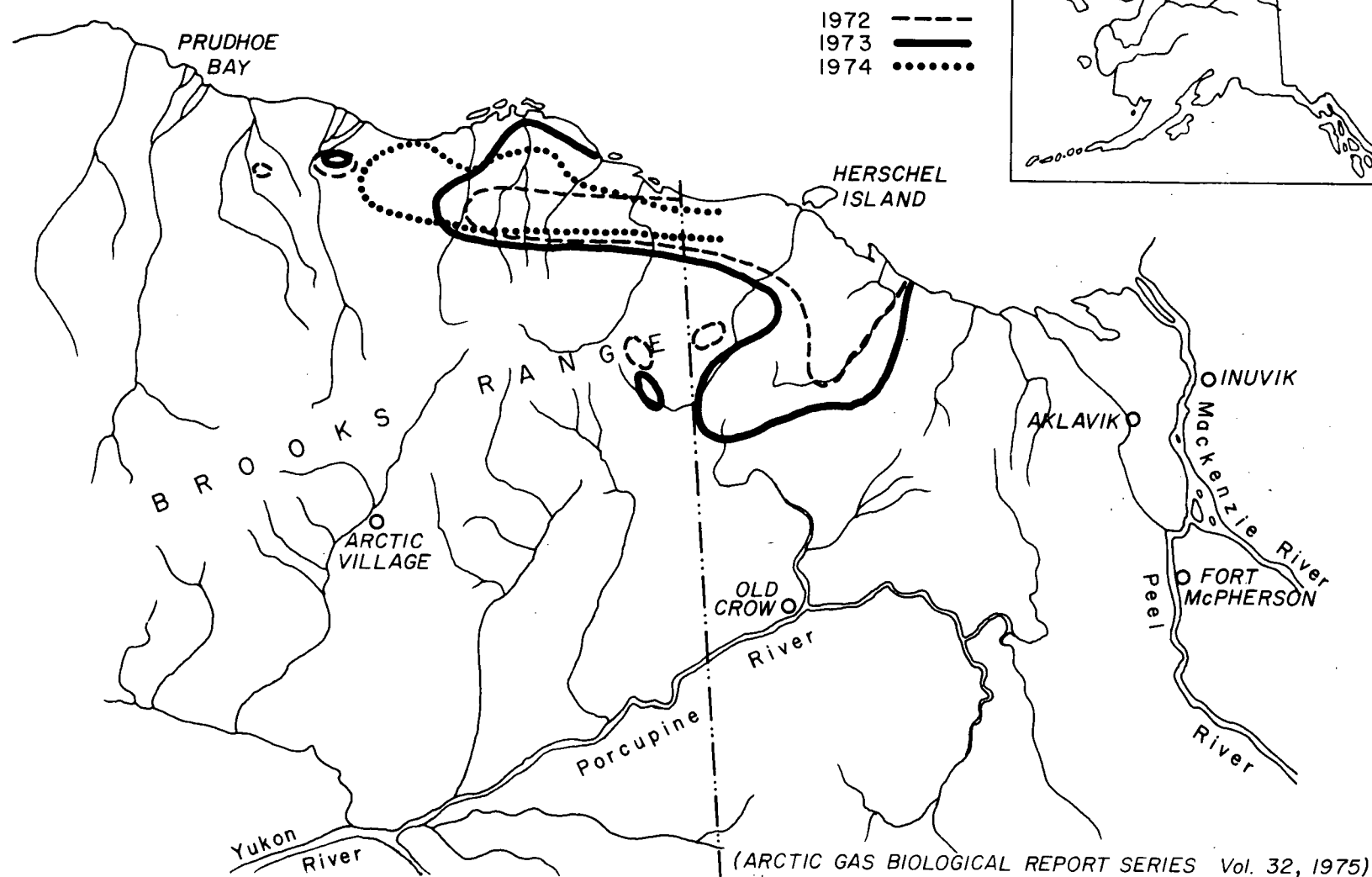
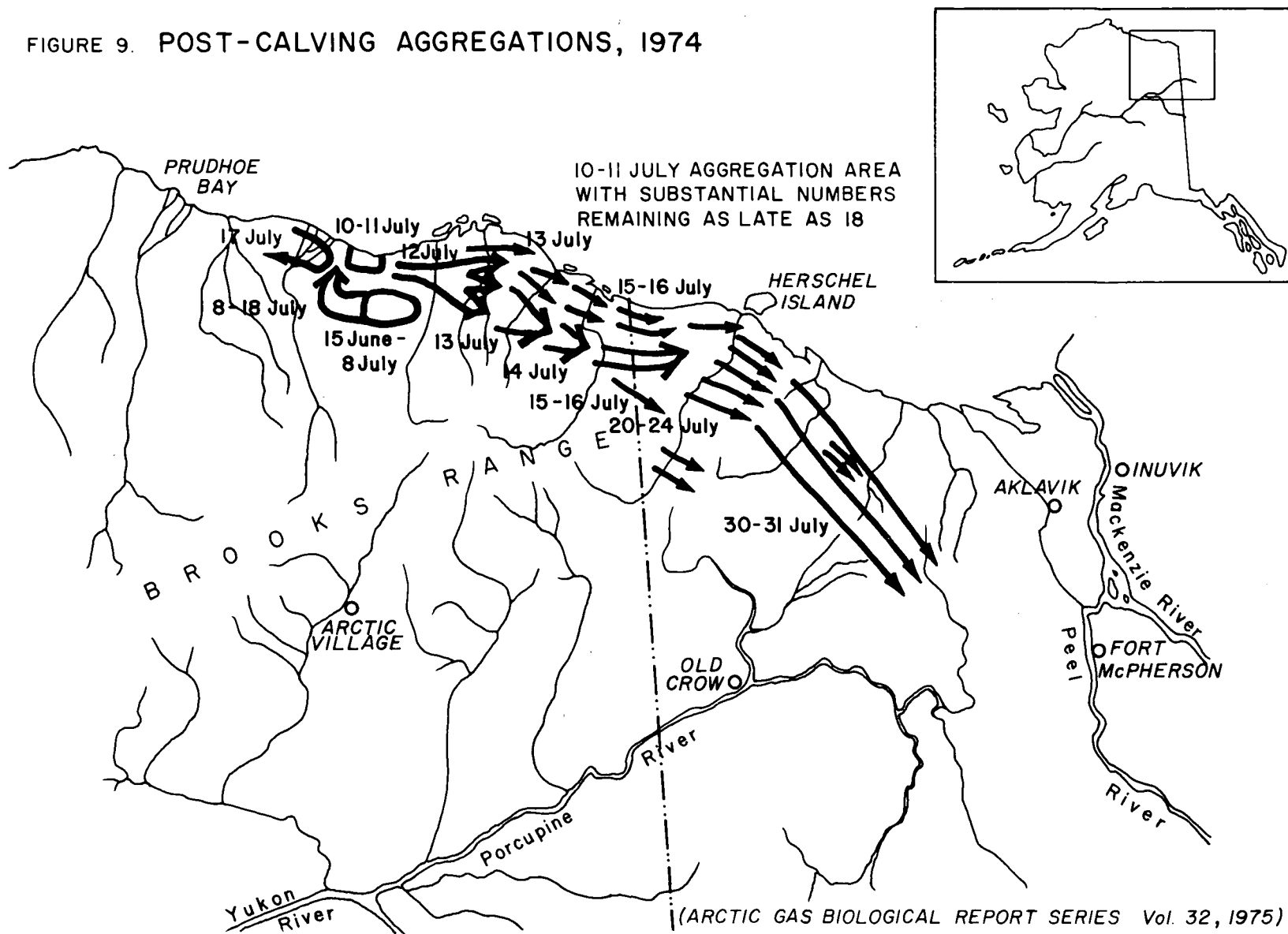


FIGURE 9. POST-CALVING AGGREGATIONS, 1974



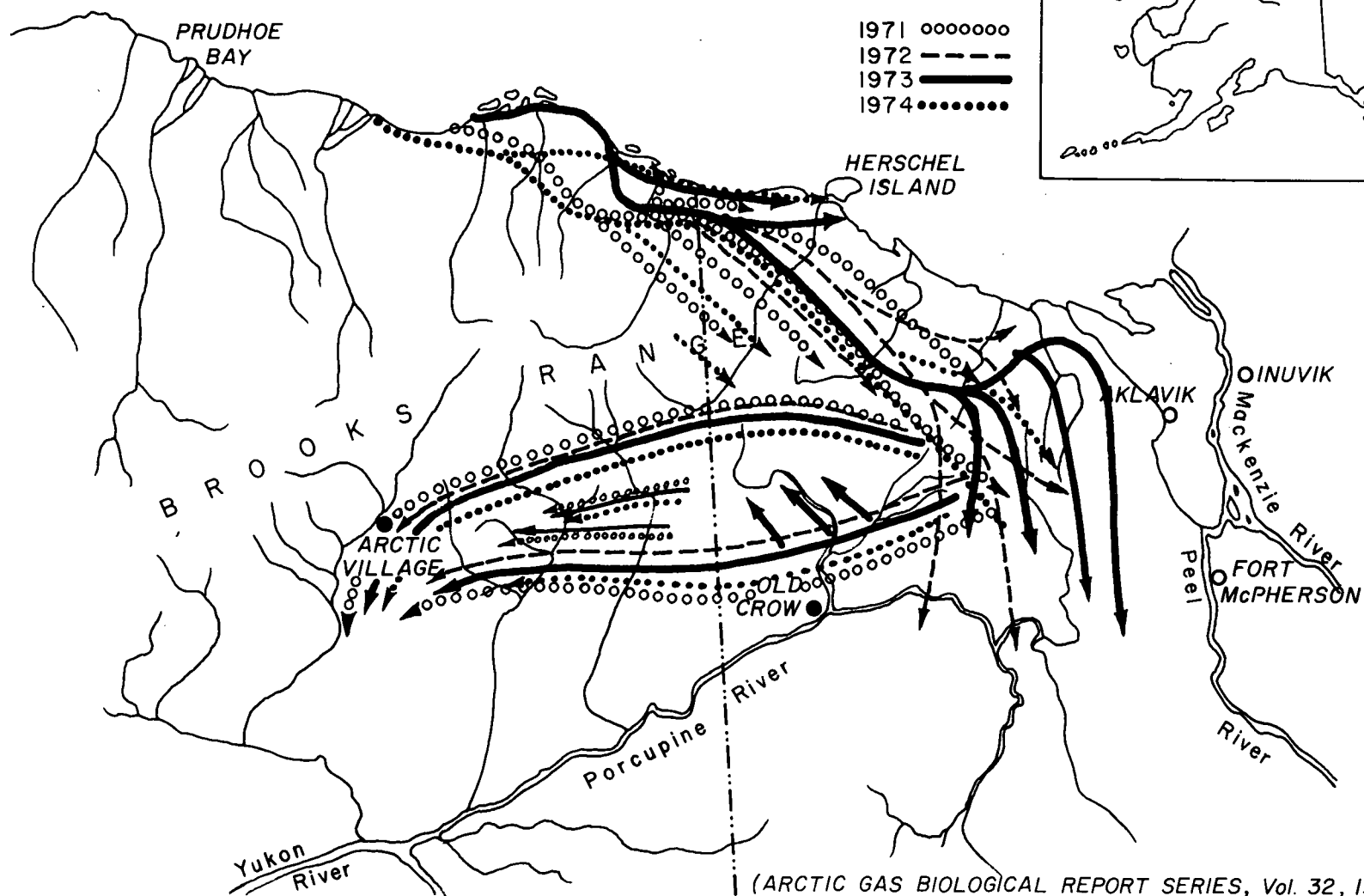
British Mountains, and thence southeast to another staging area in the Richardson Mountains - Driftwood Hills locale (Roseneau, Curatolo and Moore 1975, and Surrendi and DeBock 1976). Animals that initially do not move east appear to travel south into the Brooks Range and continue in a southeasterly direction (Roseneau and Stern 1974).

By early August the concentrations disperse rapidly westward from the Driftwood River area, crossing the Old Crow Flats and the Yukon/Alaska border, reaching the Arctic Village - Sheenjek River area, by mid to late August. The East Fork Chandalar River appears to form the western boundary of their dispersal (Calef 1974, Jakimchuk et al 1974, Roseneau, Curatolo and Moore 1975, and Surrendi and DeBock 1976, see Figure 10).

Some caribou did not move westward into Alaska, but, as in past years, remained scattered in various areas of the British and Barn mountains, northern Richardson mountains and probably around the periphery of the Old Crow Flats (Roseneau, Curatolo and Moore 1975).

Fall migration begins with small groups drifting southwestwards back towards Old Crow Flats in early September. Movements are leisurely. By mid-September, snowfalls accelerate the migration. Larger concentrations rapidly return to the Yukon, apparently always crossing the Porcupine River between the confluence of the Driftwood and Porcupine Rivers and the Yukon/Alaska border. One major portion of the herd, approximately 40,000 - 50,000 in number, then moves south through the Nahoni Range and Ogilvie Mountains towards the Ogilvie and Tatonduk winter ranges. Another group of

FIGURE 10. POST-CALVING AND AUGUST DISPERSAL  
MOVEMENTS, 1971-1974



(ARCTIC GAS BIOLOGICAL REPORT SERIES, Vol. 32, 1975)



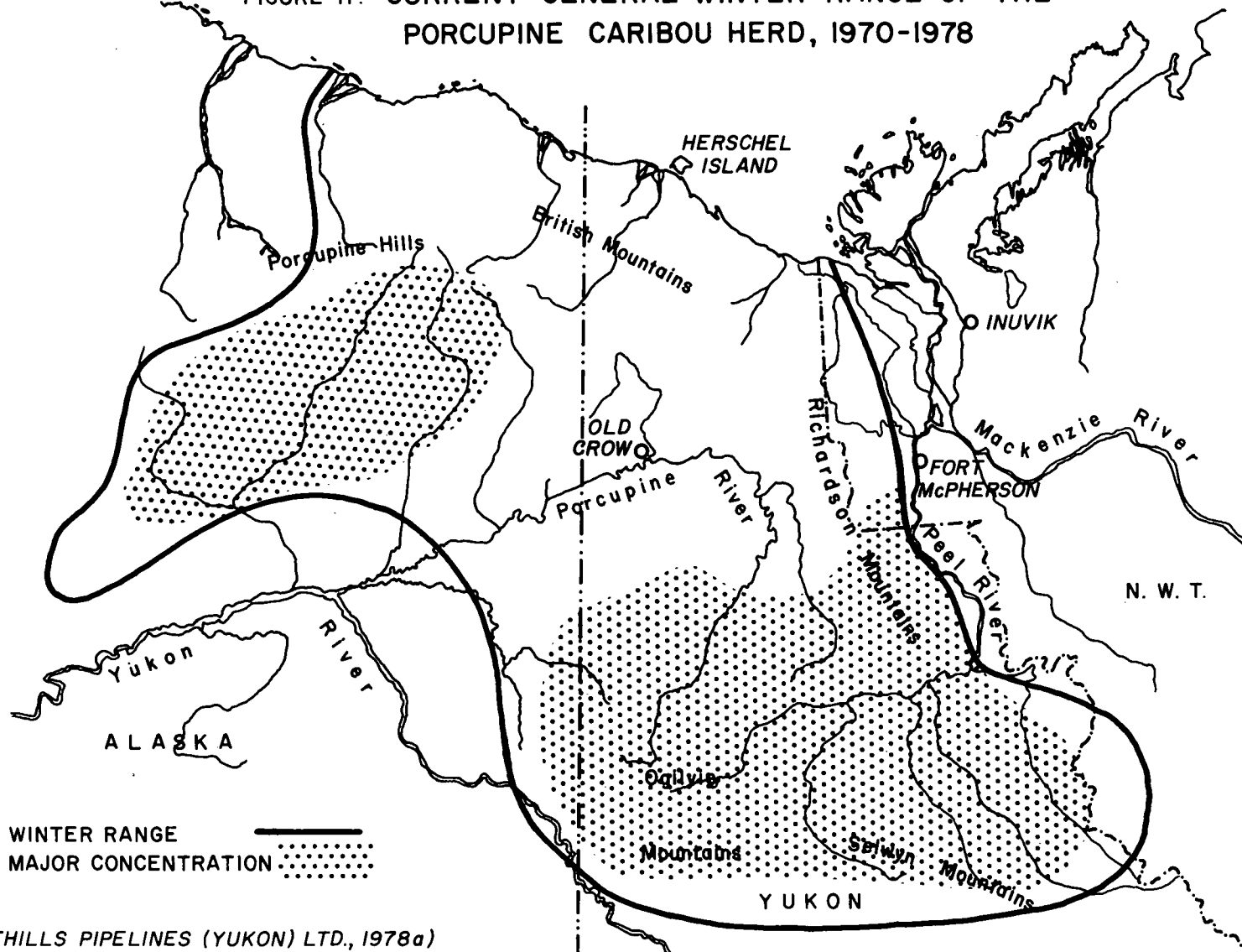
about 25,000 - 35,000 crosses the Coleen River, travels east through the Barn and British Mountains towards Eagle Plains and the Richardson Mountains ranges. A third group, speculated at 10,000 to 15,000, travel southwest into the Chandalar drainage area to winter (Calef 1974, Jakimchuk et al 1974, Roseneau, Curatolo and Moore 1975, and Surrendi and DeBock 1976).

The rut takes place during the fall migration, generally in mid-October.

Because of the variability of the fall migration, there is no characteristic locality for the rut, although it usually occurs in the Forest-Tundra, particularly in the open spaces or flats among the conifers (Calef 1974).

The winter ranges of the Porcupine herd are extensive; research suggests that "the winter distribution patterns of the Porcupine herd have altered little since at least 1828" (Foothills 1978a). Since 1970, more detailed information on winter ranges has been reported in Calef and Lortie (1971) and (1973), Jakimchuk et al (1974), McCourt et al (1974), Roseneau and Stern (1974), Roseneau, Curatolo and Moore (1974 and 1975), LeResche (1975), Surrendi and DeBock (1976), Curatolo and Roseneau (1977) and Foothills (1978a). Figure 11 shows the entire range with two major areas highlighted, as reported by Foothills. Area 1, the Ogilvie - Peel Region, embodies over 80,000 km<sup>2</sup> including the headwaters of the Porcupine River and the upper segment of the Peel River drainage in Canada, and a small section between the Porcupine and Yukon Rivers in Alaska (Foothills 1978a).

FIGURE 11. CURRENT GENERAL WINTER RANGE OF THE  
PORCUPINE CARIBOU HERD, 1970-1978



(FOOTHILLS PIPELINES (YUKON) LTD., 1978a)

Area 2 encompasses over 25,000 km<sup>2</sup> of northeastern Alaska, including most of the Chandalar River drainage, the mid and upper reaches of the Sheenjek River drainage, the upper Christian River drainage and portions of the Dall, Hodzana and Hadweenzic river headwaters (Foothills 1978a).

The majority (over 90%) of the Porcupine herd has wintered in the Ogilvie - Peel Region since 1970, with major use of the Chandalar River drainage only in the winters of 1972/73 and 1978/79. Within the two general areas, however, distribution is variable and extensive. Topography and vegetation are key factors in the amount of snow cover in any given area, and snow cover determines the available winter range for caribou use (Surrendi and DeBock 1976, Bergerud 1974, and McCourt et al 1974). It appears that medium density black spruce and alpine tundra with abundant lichens are the chief vegetation types for winter range use.

### 3.3 POPULATION CHARACTERISTICS

#### 3.3.1 Size and Composition

The limited data on the size and composition of the Porcupine herd date from the early explorers' records of the 1800's. No specific numbers were recorded, just reports indicating that caribou were common year-round at Herschel Island and were "in abundance" along the Arctic Coastal Plain and the Mackenzie Delta (Skoog 1968). The reports by Russell (1898) suggest that winter ranges and distribution patterns are similar today as in the 1800's, with semi-annual crossings of the lower Porcupine River during migration.

During the early 1900's, caribou continued to be reported numerous in northeastern Alaska and northern Yukon. "Riggs (1920:6) estimated

60,000 animals present in herds along the northern Alaska/Yukon boundary; O.J. Murie (1935:66) considered this estimate to be conservative" (Skoog 1968). Porsild (1945) reported that "millions" migrated southward along the eastern Richardson Mountains in the late 1920's; and during the 1930's, Fort Yukon's fall harvest steadily increased. Despite the numerous studies in the early 1900's, most were of a general nature, and hence scientific reporting of age, sex and numbers is inadequate for a population estimate of the herd. Skoog's analysis of historical data of the 1940's and 1950's indicates that the Porcupine herd suffered a "drastic decline in total numbers". Skoog subsequently suggested that the decline was actually a population shift, either east or west, to other herds.

Since 1953 the herd has increased. "During the winter of 1957-1958 there were large numbers of caribou along the entire arctic slope, between Point Barrow on the west and Barter Island on the east" (Skoog 1968). In June of 1961, Skoog censused the Porcupine's calving grounds and arrived at an estimate of 110,000 - 117,000 animals. In the spring of 1964, 15,000 - 20,000 caribou from the Fortymile herd to the south joined the Porcupine herd, although Skoog suggests that most of them returned to the south later on.

The historical information presented earlier, however, indicated a rather frequent interchange of animals between this herd [Porcupine] and the Fortymile herd. Such interchanges probably will continue as long as either population remains high, facilitated by the overlap which occurs on the wintering grounds when both herds utilize the Ogilvie Mountains (Skoog 1968).

Using "systematic censusing techniques", Skoog estimated the 1964 herd to be 140,000 caribou excluding calves, which probably contained the 20,000-odd caribou from the Fortymile herd.

In 1970-1971, Renewable Resources Consulting Services, Limited, and Interdisciplinary Systems Limited, were given contracts by Arctic Gas and Environment Protection Board to undertake impact assessment studies in relation to the proposed natural gas pipelines. The Canadian Wildlife Service and the Alaska Department of Fish and Game expanded this work in 1972. These studies provided the first documentation of range use, migration patterns and estimates of population characteristics. However, many of the data are simply descriptive, based on small samples.

The most recent population estimates were derived in 1972 (LeResche) and in 1977 (Bente and Roseneau) by aerial photography. The "aerial photo - direct count - extrapolation technique" was used in both the 1972 and 1977 estimates, and involves the collection of: an estimate of the number of caribou in post-calving aggregations by using aerial photography and aerial surveys as supplements, the simultaneous age and sex classifications of the post-calving aggregations, and the age and sex classifications of the caribou during the rut (Pegau and Hemming 1972, LeResche 1975, and Bente and Roseneau 1978). This technique involves four basic assumptions that must hold true if an accurate estimate of the total population is to be achieved:

1. All animals in the post-calving aggregations, including peripheral groups, can be located, photographed and counted at nearly the same time.
2. All of the 2+ [2 years and older] females in the total populations are present and accounted for at the time of aerial photography and associated reconnaissance.
3. Summer classifications of post-calving groups represent the correct proportion of 2+ females present among all the animals accounted for at the time of aerial photography and associated reconnaissance.
4. Fall classifications are obtained from a randomly mixed herd during the rut, such that the classifications represent the true composition of the entire herd (Bente and Roseneau 1978).

To arrive at the final population estimate, one must:

- a. count all animals on the photographs;
- b. add any other unphotographed animals in the post-calving area; and
- c. add the bulls and yearlings not in the post-calving area when the areal photographs were taken (i.e. compare the ratio of bulls and yearlings to cows in the post-calving aggregations with the ratio of bulls and yearlings to cows during the rut) (Bente and Roseneau 1978).

Bente and Roseneau later conclude that the assumptions associated with this technique are often suspect with variable error sources.

... depending on the methods and data selections, several estimates of the 1977 total fall population ranging from 88,659 + 22,949 to 105,176 + 28,009 are possible. The large confidence intervals limit the usefulness of these estimates. ...until better estimates are possible, the practical application of the technique is seriously limited (Bente and Roseneau 1978).

As the magnitude of the error sources is unknown, both over and under estimates of herd size are possible. Nevertheless, the "best estimates" for the Porcupine caribou herd's population during

the 1972 and 1977 seasons are included in Tables 3 and 4.

### 3.3.2 Predation and Mortality Factors

Outside of human predation, golden eagles, grizzly bears and wolves are the main predators on the Porcupine caribou. Golden eagles have been noted circling cows and calves on the calving grounds and have apparently killed a few calves (Roseneau and Curatolo 1976). Grizzly bears have been observed near calving grounds and following post-calving aggregations. They will kill caribou if the opportunity arises, and are often found feeding on Carrion (Calef and Lortie 1973, Jakimchuk et al 1974). Wolves are considered the most effective predator of caribou in North America. Jakimchuk et al (1974), during their surveys in the northern Yukon in 1971, reported 131 wolf kills of Porcupine caribou, the majority being calves. Later surveys observed low numbers of wolves and few wolf-kills (Roseneau and Curatolo 1976), apparently partially due to the efficiency of aerial and snowmobile hunting of the wolves (mainly in the U.S.). The numbers of wolves and grizzly bears are reported to be greater south of the calving grounds, but the amount of predation is unknown (Curatolo and Moore 1975).

Human predation of the Porcupine caribou herd is by far the greatest source of loss. Spring and fall migrations are the main seasons for hunters from the Alaskan villages of Arctic Village and Kaktovik, Old Crow in the northern Yukon, and Aklavik, Fort McPherson, Arctic Red River, Inuvik and Tuktoyaktuk in the Northwest Territories. Annual native harvest is estimated at 3,000 to 5,000 caribou

Table 3 - Calculation of the 1972 and 1977 Porcupine herd population estimates using the areial photo - direct count - extrapolation technique:

	<u>1972</u>		<u>1977</u>	
Number of caribou (including calves) counted on areial photos of post-calving concentrations	82,680		51,405	
Number of caribou (including calves) counted in peripheral groups	10,080		8,992	
Total caribou in post-calving concentration groups	92,760		60,397	
Composition of post-calving group	<u>No.Counted</u>	<u>%</u>	<u>No.Counted</u>	<u>%</u>
a. cows	6,157	52.5	36,856	61.0
b. calves	3,052	26.0	14,464	24.0
c. bulls	1,433	12.2	combined	
d. yearlings	1,079	9.2	9,026	15.0
Number of cows in post-calving group (and therefore minimum number of cows in entire sub-population)	48,727		36,856	
Composition of entire herd, as determined: by Lortie during rut ('72) and from Nov. composition counts, assuming random mixing at each time	<u>No.Counted</u>	<u>%</u>	<u>No.Counted</u>	<u>%</u>
a. cows	1,461	48.7	3,487	39.0
b. calves	443	14.8	1,657	18.5
c. bulls	837	27.9	2,707	30.3
d. yearlings	257	8.6	1,089	12.2
	<u>2,997</u>	<u>100.0</u>	<u>8,940</u>	<u>100.0</u>
Minimum size of entire herd assuming:				
a. 48,726 cows represents 48.7% of the herd (1972)	99,959			
b. 36,856 cows represents 39.0% of the herd (1977)			94,503	
c. 48,726 cows (1972 figure) represents 39.0% of the herd			124,938	

Adapted from Davis (1978): Appendix I and II.



Table 4 - Porcupine Caribou herd composition observed during post-calving migration - 1972-1976.

Year	Source*	Cows		Calves		Calves/ 100Cows	Yearlings		Bulls		Total No.
		No.	%	No.	%		No.	%	No.	%	
1972	ADF&G	6157	53	3052	26	50	1079	9	1433	12	11,721
1973	RRCS/ ADF&G	11037	58	5144	27	47	1070	6	1830	10	19,101
1974	RRCS	7818	55	5176	37	66	437	3	696	5	14,127
1975	RRCS	9823	52	4986	27	51	1711	9	2294	12	18,814
1976	RRCS	7579	55	4456	32	59	1428	10	299	2	13,762

1972 - 1976  $\bar{x} = 54.6$   $\bar{x} = 29.8$   $\bar{x} = 54.6$   $\bar{x} = 7.4$   $\bar{x} = 8.2$

1977	ADF&G/ RRCS	15675	61	6057	24	39	2786	11	1002	4	25,520
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Adjusted 1977 data based on assumption that 54.6 calves/100 cows were present:

15675	56	8559	31	54.6	2786	10	1002	4	28,002
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\*Alaska Department of Fish and Game = ADF&G  
Renewable Resources Consulting Services = RRCS

Adapted from Davis 1978.

(Roseneau 1979), although the 1977/78 harvest data estimates report 1,700 animals (Porcupine Caribou Committee 1978, Davis 1978, see Table 5.

An additional factor regarding harvest levels is the existence of potentially discrete sub-units within the total population, i.e. the Richardson Mountain sub-group. Over-harvest by Fort McPherson and Delta natives of this sub-unit must be considered a possibility, especially with the increased access provided by the Dempster Highway. Empirical evidence exists both for and against the sub-units being discrete; hence the problem requires further scientific study (Porcupine Caribou Committee 1978).

Sport hunters have been responsible for a relatively minor harvest of the herd, mainly near the Dempster Highway. As Table 5 shows, 32 caribou were killed in the Yukon and 57 in Alaska by sport hunters in the 1977/78 season. A 5-mile no-hunting zone on either side of the Dempster Highway is proposed by the Yukon Territorial Government's Wildlife Branch to help reduce the potential increase in sport hunting, but enforcement of this regulation presents serious difficulties. In Alaska, sport hunting of the herd is expected to increase. Due to President Carter's recent land withdrawals in Alaska, and their restrictions on hunting, the Arctic National Wildlife Refuge, which remains one of the few areas where hunting will be permitted, may be subjected to increased hunting pressure (Roseneau 1979). Specific herds, including the Porcupine herd, may come under concentrated hunting beyond their harvesting capabilities (Keith 1979).

Table 5 - Harvest Data

a. Estimated Harvests, Spring 1972 - Spring 1973 (LeRosche)

<u>Alaska</u>	<u>Caribou</u>	<u>Canada</u>	<u>Caribou</u>
Arctic Village	1,000	Aklavik, Inuvik, Fort MacPherson, Arctic Red River, Tuktoyaktuk	2,000
Kaktovik	300	Old Crow	600
Venetie, Fort Yukon, Chalkyitsik	100	Dempster Highway and Other	75
Other	100		
	<u>1,500</u>		<u>2,675</u>
TOTAL: 4,175			

b. Total Harvest for the 1977 - 1978 season (Davis, Roseneau)

<u>Alaska</u>	<u>Caribou</u>	<u>Yukon</u>	<u>Caribou</u>	<u>NWT</u>	<u>Caribou</u>
Kaktovik	200	Old Crow	470	Ft. Mc Pherson	350
Arctic Village	200-300	Dempster Hwy. Hunters Collission	32 3	Aklavik	114
Sport Hunting	57			Inuvik, Arctic Red River	100
	<u>450-550</u>		<u>505</u>		<u>564</u>
TOTAL: 1,519 - 1,619 (estimated at about one-third average annual harvest)					

Other mortality factors include disease and insect harassment of new-born calves and weak animals, severe weather conditions, and "crippling loss" due to harassment and wounding by predators.

### 3.4 MANAGEMENT

Wildlife management is an institutional means for manipulating the elements and interactions between habitat, wildlife and man in order to achieve specific social goals and objectives. It is essentially goal-oriented, i.e. a desired result is identified and subsequent management reflects the spectrum of biological, social and political needs involved in the ecosystem to accomplish this result. This diversity of needs necessitates that management be flexible and knowledgeable -- flexible to allow for changes in objectives, information and interested parties, and cognizant of the priorities of interest groups and their objectives.

Regarding the Porcupine caribou, there are diverse interest groups, each with its own objectives and management priorities. The Yukon Indians, the Inuvialuit (under COPE) and the Northwest Territories Indians, while differing on numerous elements of their respective land claims, are concerned with retaining traditional hunting rights as well as protecting the herd. White consumptive users are interested in maintaining the herd for hunting; and non-consumptive users and many environmental organizations (among others) desire protection and conservation objectives to be applied.

Various management scenarios are possible, including maximization of meat production through game ranching, maximizing the tourist potential for non-consumptive uses such as photography and "game watching", or managing for the herd's expansion and habitat enhancement. These scenarios are not static, but will likely change according to society's changing values and priorities. Assuming the Porcupine caribou will be managed according to some consensus on objectives outlined by the interest groups, there is a common stock of biological data for any management scenario. The following data are used in formulating management policies and plans, however the elements chosen depend on which management scenario and concomitant objectives are focused on in current policy.

#### Data of Priority Interest

##### Population Statistics:

1. size and density of herd
2. age and sex compositions
3. births and deaths (recruitment rate)
4. calf/cow and cow/bull ratios
5. survival of calves (rates at different ages)

##### Behaviour Patterns:

1. migration paths: where, why, timing, alternatives
2. response to artificial barriers: roads, pipelines buildings, and to moving objects: traffic, aircraft
3. tolerance of cumulative impacts: road + pipeline corridor, etc.
4. effects of harassment

##### Mortality Data:

1. harvest: # of animals killed (age and sex)  
# of hunter kills/year (successful and unsuccessful)  
selectivity of harvest: by whom, timing, location,  
number  
predator/prey ratio  
effects of management on kill ratio
2. mortality by type and age of animals.

Data of Secondary Interest (the above plus...)

Population Statistics:

6. immigration and emigration (including existence of discrete sub-units)
7. carrying capacity
8. breeding habits
9. genetic characteristics (i.e. physiology)

Behaviour Patterns:

5. relationships between caribou and their habitat
6. stress of weather and disease
7. rate of travel
8. intra-relationships between caribou; inter-relationships between caribou and other species

Range and Vegetation Studies:

1. minimum amount of range which the species can successfully occupy
2. range requirements: size, type, diversity, vegetation types
3. habitat and vegetation preference, i.e. elements of selectivity such as food preference, abiotic factors (snow conditions) and sub-unit preferences
4. effects of caribou on their habitat
5. regenerative capacity of the ranges selected
6. effects of fire, frequency of fires, succession of land in relation to forage preferences

Mortality Data:

3. illegal and crippling losses
4. area/kill ratio.

In the existing political and social situation of the northern Yukon, high priority will undoubtedly be given to native concerns on the issues of wildlife management. Because native land claim settlements include the objective of "protection of the Porcupine caribou and other wildlife", as well as of participation in the planning and management of the herd on an international basis, and because the natives are current major users of the herd for subsistence purposes, it is likely that priority should be given to their objectives,

with the caveat of consistency with the sustaining capacity of the herd and its ecosystem.

This does not mean that rigid or entrenched arrangements pertaining to subsistence harvesting are necessarily in the interests of native peoples. Such a situation would be in direct conflict with future management options for non-consumptive use and tourism. If concern for the social and economic well-being of native people is of high priority, provision should be made in future management policies to ensure the preferential involvement of natives in non-intensive recreational pursuits and management planning.

Clearly, the above discussion indicates the critical elements of flexibility and cognizance of priorities that are necessary for a comprehensive plan. This plan may require special management strategies and regulation even for range areas outside of any legal reserve that is eventually established by international agreement. The Hon. Len Marchand's July 1978 statement on the Porcupine herd's protection points out that to manage "the herd and its range... as an ecological unit requires a comprehensive approach to habitat preservation on the long-term scale". Although any agreement between Canada and the United States will partially achieve this goal, wider habitat protection necessitates that land users and regulatory agencies commit themselves to this objective within their management policies. In other words:

... How the link between the caribou population and its range requirements relates to the broader issue of comprehensive land planning and management is clearly an important factor. The inter-relationships of local subsistence users, researchers, resource developers, and government regulatory and management agencies, from the local to the international levels, must somehow be clarified. Institutional mechanisms for such involvement need to be developed (Mair 1978).



#### CHAPTER IV

#### THE SOCIOECONOMIC CONTEXT FOR CONSERVATION AND DEVELOPMENT CONCERNS

##### 4.1 SOCIAL AND CONSERVATION ISSUES

Social and political considerations are central to any international agreement for management of the Porcupine caribou. Native groups are presently the primary users of the caribou and their habitat for food and supplementary income. Accommodating the interests of native groups is therefore important to the ongoing negotiation of an international agreement. However, the terms and conditions of an agreement should not be limited to the present time horizon, nor to the socio-political climate of today.

##### 4.1.1 Native Concerns

In recent years, native peoples' organizations have been primarily concerned with land claim settlements by which they hope to gain control over the land (see for example, Council of Yukon Indians Claim Proposal, COPE/Canadian Government Agreement-in-Principle 1978, and Usher 1976). Land is viewed by many natives as a permanent source of security and sense of well-being, in contrast to employment which is often temporary and unreliable (Usher 1976).

An important negotiating point respecting land claims is provision for maintaining traditional hunting, trapping and fishing activities. Wildlife continues to provide a major source of highly nutritional food, as well as supplementary income. The maintenance of this lifestyle, in conjunction with development of renewable resources, is seen as a viable alternative to the either/or situation of

"... development as industry and government have planned it, or a return to the stone age" (Usher 1977). Very simply, native people desire jobs and hunting, and not jobs rather than hunting.

Respecting the northern Yukon, both the Old Crow Indians and the Committee for Original Peoples Entitlement (COPE) have outlined their positions on traditional use of the resources. COPE's basic principles on wildlife include the following:

14(1) (a) A basic goal of the Inuvialuit Land Rights Settlement is to protect and preserve the Arctic wildlife, environment and biological productivity, through the application of conservation principles.

14(1) (b) In order to achieve effective protection ... the Settlement should ensure an integrated result of wildlife management and land management ... (Inuvialuit Land Rights Settlement, Agreement-in-Principle 1978).

In addition, COPE insists that aboriginal subsistence use of caribou and other wildlife must also be maintained through preferential harvesting rights. The Agreement-in-Principle calls for:

14(2) (a) (i) the exclusive right to harvest game on Inuvialuit lands and if agreed upon, other areas;

(ii) the exclusive right to harvest furbearers, including black and grizzly bears, <sup>1</sup> throughout the Western Arctic Region;

(iii) the exclusive right to harvest polar bear and musk-oxen throughout the Western Arctic Region;

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1. The Western Arctic Region boundaries were subsequently changed between COPE's original Inuvialuit Nunangat proposal and the Agreement-in-Principle. Respecting northern Yukon lands, this area was deleted from the Region, hence the western-most boundary is the Yukon/NWT border, rather than the Yukon/Alaska border. It should be noted that the area is subject to reversionary rights on 5,000 sq.miles of the northern Yukon should wilderness designation and protection be abandoned.

- (iv) the preferential rights to harvest all other species of wildlife (except migratory non-game birds and migratory insectivorous birds) for subsistence usage, through the Western Arctic Region. In the event harvesting rights are extended to other native peoples pursuant to paragraph 14(2) (d), their requirements as to subsistence usage will be taken into account as well when setting the subsistence quotas; ... (Inuvialuit Land Rights Settlement, Agreement-in-Principle 1978).

Finally, following Justice Berger's recommendation (Berger 1977, Vol.1), the COPE Agreement advocates establishment of a National Wilderness Park to achieve these ends:

- 12(1) Canada agrees to establish a National Wilderness Park for the purpose of wildlife protection and wilderness conservation of not less than the 5000 square miles of traditional lands of the Inuvialuit in the northern Yukon shown as the area marked "A" in Annex E ... (See Figure 6; Section 12, Inuvialuit Land Rights Settlement Agreement-in-Principle 1978).

In response to the October signing of the Agreement-in-Principle between COPE and the Canadian government, a meeting was convened at Old Crow on November 16, 1978 between the Old Crow Indians and a coalition of Alaskan native villages or Gwitcha-Gwitchen-Ginkhye (Yukon Flats People Speak). These groups also passed resolutions advocating protection and management of wildlife, specifically the Porcupine caribou.

The following management regulations are endorsed and (sic) by the undersigned villages and organizations of the United States and Canada and are recommended for inclusion in the international treaty for management of the Porcupine Caribou herd:

1. Protection of all lands utilized by the Porcupine Caribou herd in an International Wildlife Range (as opposed to National Wilderness Park) in such manner as to prevent detrimental human changes.
2. An annual census of the Porcupine Caribou involving local peoples working with biologists.
3. Maintenance of an overall safe harvest level.
4. No aerial hunting of the Porcupine Caribou.
5. No commercial selling of meat from animals of this herd.
6. Restricted use of the U.S. pipeline haul road and of the Canadian Dempster Highway so as not to cause ill effects to the herd; i.e. restricted use by permit, seasonal road closure, strictly controlled hunting in the vicinity of the roads.

The above quotation indicates substantial agreement on the protection and management of the Porcupine herd. However, the native groups appear to be at odds over the appropriate mechanism. COPE favours a "National Wilderness Park", while the Alaskan coalition and the Old Crow Indians, fearful of the recreational aspects and development associated with existing national parks in Canada (Turner and Rees, Nature Canada 1973), advocate an "International Wildlife Range". They emphasize this latter point by specifically noting their opposition to a National Wilderness Park in Resolution 1 above.

This problem appears more semantic than substantive. The current National Parks Act makes no specific provision for "national wilderness parks" and hence there is as yet no legal description of such an entity. Conceivably, therefore, all native concerns could be incorporated into this concept as it evolves. Indeed, the 1978 "draft" Policy Statement for National Parks provides for the following:

## 6.1 Selection

6.1.1 National Wilderness Parks would be selected only in places in Canada's north which are identified as representing natural areas of Canadian significance.

6.1.2 The opportunity to protect critical habitat for renewable resources upon which local people have traditionally depended would be a selection consideration.

## 6.3 Protection

6.3.1 Appropriate legislation would be required for national wilderness parks to ensure exclusion of all activities inconsistent with the preservation of the wilderness character of the landscape and its natural and cultural values (Parks Canada "Draft" Policy 1978). 1

The concept of an international wildlife range stemming from the 1970 Whitehorse conference similarly remains undefined. As debate about the appropriate kind of reserve continues, the primary concern is in danger of slipping from sight. Whether the new institution is named a "wildlife range" or "wilderness park", the stated concern of native groups is the protection, conservation and management of the wildlife and habitat. What ultimately counts is the description of the range and its management practices that are incorporated into law. This will determine the kind and intensity of activity allowed within the bounds of the management area.

## 4.1.2 Archaeological Potential

The internationally significant archaeological and palaeontological resources of the area are of prime interest to the National Museum

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1. After this thesis was prepared, Parks Canada released their Policy Statement. It should be noted that the identification of National Wilderness Parks does not appear in the official Policy, but that this type of area is handled within their zoning classification. Wilderness is found under section 2.4.2 and is a Class II area.

of Canada. Dr. Richard Morlan, working under the Museum of Man, is currently heading a multi-disciplinary team on a study of the late Pleistocene paleoenvironments of all unglaciated areas in the Yukon Territory. This "Yukon Refugium Project" initiated in 1975, places particular emphasis "on the earliest appearance of man and his subsequent role in the changing ecosystems of Beringia" -- a geographical province of unglaciated interior Yukon, Alaska, the Bering Land Bridge and ice-free portions of northeastern Siberia (Morlan 1978).

Dr. William Irving, under contract to Parks Canada, has organized the "Northern Yukon Research Program". This study, also a multi-disciplinary effort, is examining all phases of human prehistory in the Old Crow area (Morlan 1978). Among the numerous artifacts collected to date are bone artifacts dating 25,000 - 29,000 years BP, collagen of 33,000 - 35,000 BP (thought to represent mid-Wisconsinan fauna), indigenous peat in the Old Crow Region of 35,500 BP and  $41,100 \pm 1,650$  BP, and organic remains older than the limits of the radiocarbon dating method (Morlan 1978 and Harrington 1977).

Beringia is theorized as playing a key role in the initial colonization of North America by humans emigrating from northeastern Asia, but the lack of evidence on late Pleistocene human occupation in Beringia has frustrated archaeologists from concluding their theories with proof. "Northeastern Beringia finally has begun to yield such evidence in the form of a distinctive bone technology found primarily in northern Yukon Territory" (Morlan 1978).

#### 4.1.3 Conservation and Recreation Concerns

Besides the proposed Arctic International Wildlife Range, several additional proposals for preservation have been put forth. Six ecological sites have been proposed under the International Biological Programme. These are:

##### Region 9:

Site 4-1: Canoe Lake, Richardson Mtns. -  $225 \text{ km}^2$  -- low Arctic sub-alpine system noted for the diverse plant life (more than 400 plant species identified).

4-7: Herschel Island -  $176 \text{ km}^2$  on the Yukon coast -- low Arctic, insular system noted for the presence of rich vegetation and fauna in both marine and terrestrial habitats. It is also an important nesting site for various ducks and birds, including the Black Guillemot.

4-10: Firth River -  $4820 \text{ km}^2$  -- the recline, coastal, sub-alpine and alpine system is "rich in wildlife and includes the most northwesterly occurrence of Dall sheep in Canada" and trails of the Porcupine caribou herd. The area also "includes the most northerly extension of forest (white spruce) in Canada with more than 15 major landscape units..." delineated (Ecological Sites in Northern Canada 1975).

##### Region 10:

Site 5: Old Crow Basin -  $5000 \text{ mi}^2$  [ $12,950 \text{ km}^2$ ] -- Arctic alpine tundra and low arctic alpine forest section of the northern boreal forest. The site is a unique marsh-like area containing important geological, archaeological, palaeontological, zoological and botanical elements. Important as a breeding area for waterfowl, it contains habitat and breeding grounds for several rare and endangered species including the peregrine falcon and barren-ground grizzly. But more importantly, it is an area suitable for preservation for the study of the relationship between game and furbearing animals and humans who utilize them almost exclusively for their livelihood. A "solar bowl", it is protected on all sides by mountain ranges, ...

- Site 6: Firth River - 2,300 mi<sup>2</sup> [5,957 km<sup>2</sup>] --  
(larger area than Region 9's Site 4-10, see  
latter description).
- Site 7: Rat River, Yukon/NWT Border - 775 mi<sup>2</sup>  
[2,007 km<sup>2</sup>] -- Arctic-alpine tundra, low  
Arctic alpine forest section and lower  
Mackenzie section of the northern boreal  
forest. ... of interest for botanical,  
glacial and northern mammal population studies,  
with areas of unique flora" (IBP Ecological  
Sites in Sub-Arctic Canada 1975).

As mentioned in Chapter Two, Parks Canada has prepared a proposal for a national Wilderness reserve in the northwestern Yukon encompassing 21,238 km<sup>2</sup>. "...the area extending from the Old Crow Flats to the Arctic coast offers outstanding representation of the natural heritage values of the northern Yukon (Region 9) and would qualify for inclusion in the National Parks System" (Parks Canada 1977, see Figure 4).

Recreational concerns for the northern Yukon also include tourism potential. For the 1978 season, the highest on record, 300,000 tourists mainly from the United States, visited the Yukon, spending \$30 million (Globe and Mail, January 23, 1979). Tourism, already second after mining in providing dollars for the Yukon economy, has an increased potential in light of the varied park and wildlife range proposals. This may be illustrated by Kenya, where wildlife-oriented tourism is the major source of foreign exchange. Similarly, Yukon wildlife may eventually become valued more for aesthetic and recreational purposes than consumptive ones, resulting in economic and social benefits for the Yukon populace. The unexplored economic and social opportunities for Yukoners in



the Yukon's spectacular wildlife conceivably exceed those associated with certain forms of industrial development and therefore should not be ignored.

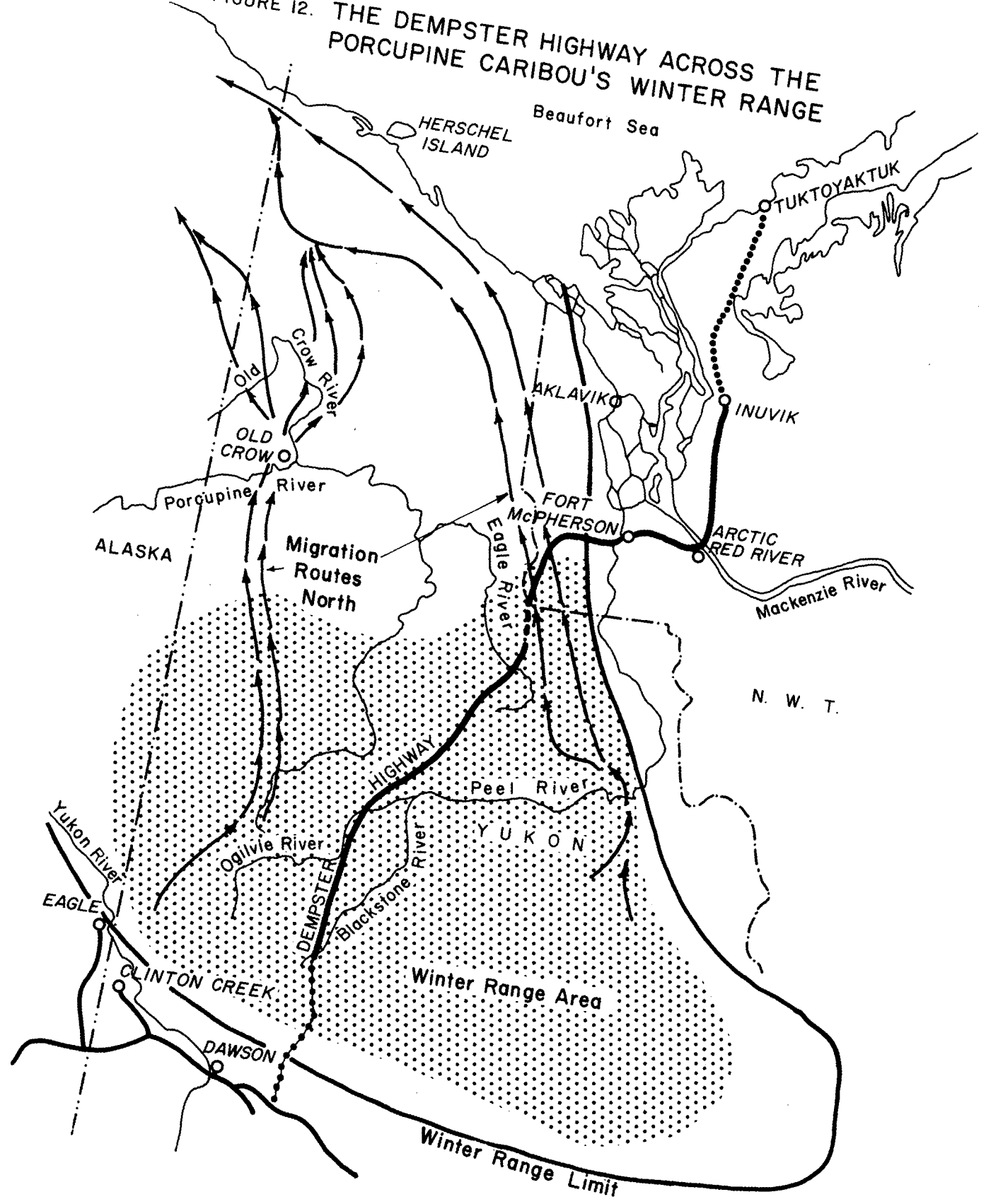
#### 4.2 INDUSTRIAL CONCERNS

Industrial issues have direct bearing on comprehensive land use planning in the north, especially in light of past governmental policies of increased economic and industrial growth at the expense of social and environmental values. The government's northern development policy is predicated on the assumption that managed or multiple use can occur in the north with no-one's interest being prejudiced. "... since the lands in question are Crown lands, all competing users are on equal footing, and the government's role is as neutral arbiter among them" (Usher 1978). In light of this philosophy, industrial issues of the northern Yukon must be considered when one talks about planning and management of wilderness parks and wildlife ranges.

##### 4.2.1 Dempster Highway and Lateral Pipeline

The Dempster Highway, part of the 1960's "Northern Vision" of John Diefenbaker (Northern Administration Branch 1964), was completed in 1978, yet the impact the Highway will have on wildlife and native lifestyles is unknown. The Highway crosses the migratory routes of the Porcupine caribou from the eastern slope of the Richardson Mountains in the north, to the vicinity of the junction of the Ogilvie River and the Highway in the south. It therefore has the potential of inhibiting the use of winter ranges east of the Highway (Alaska Highway Pipeline Panel 1978b, see Figure 12).

FIGURE 12. THE DEMPSTER HIGHWAY ACROSS THE PORCUPINE CARIBOU'S WINTER RANGE



In June 1977, the Alaska Highway Pipeline Panel, an independent group of environmental scientists funded by Foothills Pipe Lines Limited to undertake environmental studies of their pipeline proposals, concluded that there was still virtually no research available on the environmental setting for the Dempster Highway route (McLeod 1978).

Accordingly, the Panel initiated an environmental evaluation of the Highway and the proposed Dempster Lateral pipeline during the 1977-1978 season, and a socio-economic impact study in the 1978-1979 season (Fox 1978). Regarding the Porcupine herd, the environmental evaluation report concluded that:

Unregulated public use of the Dempster Highway threatens the welfare and possibly the existence of the Porcupine caribou herd. Hunting and harassment of caribou within the Corridor combined with disturbance from traffic and human activity, and the appearance of an elevated roadbed could prevent caribou from crossing the highway ... which could result in abandonment of a major portion of winter range, and eventually lead to large-scale population declines. Even without range abandonment, continued hunting and harassment associated with highway use could increase mortality and reduce productivity (Alaska Highway Pipeline Panel 1978a).

The Dempster Highway thus poses several threats to the Porcupine caribou. Increased hunting pressure and other harassment affecting mortality along a 300 km stretch are of particular concern in winter, when the caribou are in the vicinity of the road or cross it during migration (Alaska Highway Pipeline Panel 1978a; McLeod 1978).

The potential disruption of the herd's movements and abandonment of the winter ranges east of the road would involve approximately one-third of the total winter range. Although the forces contributing to migratory patterns and choice of winter range are not fully understood,

It seems that caribou populations have a strong homing tendency to traditional ranges and traditional pathways. In a sense they learn where the best ranges are and how to reach them by following experienced animals. They can also 'unlearn' established patterns if they are repeatedly deflected or blocked from traditional areas, a process that could probably take several years and involve several generations (Calef 1974).

Contributing factors this "barrier effect" include high berms, snowbanks along the roadside, and lateral ditches filled with snow (Alaska Highway Pipeline Panel 1978b). Highway traffic compounds the disturbance potential. This "... would enhance the barrier effect and greatly increase the risk of range partitioning" (Alaska Highway Pipeline Panel 1978a).

A third threat posed by the Highway is the factor of delay or deflection during migration. This would mean that the caribou

... would have to spend energy reserves to get back on course or on schedule. If delayed too long in spring, calves could be born outside the calving ground where they would probably be more vulnerable to predators; if delayed in fall, they could be caught by heavy snows en route to wintering areas. In both cases, caribou would become stressed, waste limited energy reserves, and be more susceptible to disease, predation and starvation (Alaska Highway Pipeline Panel 1978a).

Caribou-highway interaction studies have been insufficient to understand fully the impact of the Highway and related activities on the animals. Nevertheless, the construction of roads and railroads elsewhere have caused decreases in caribou populations as documented in the Berger Inquiry:

Dr. George Calef presented an analysis of recorded changes in the size of various caribou herds during their contact with industrial man. The Fortymile herd used to roam the Yukon Territory and east-central Alaska. In 1920, Olaus J. Murie estimated this herd to be 568,000 animals, but its population stands today at something like 6,000 animals. The Nelchina herd of south-east Alaska consisted of 70,000 animals in 1962; by 1973, it had been reduced to only 8,000 animals. ... Dr. David Klein has written about the gradual abandonment of ranges in Scandinavia by reindeer, after their migration routes had been interrupted by rail or highway traffic (Berger 1977, Vol.1).

Since 1972, only piecemeal monitoring of the caribou-highway interaction along the Dempster has been undertaken by government biologists. For example, in 1976 Manfred Hoefs monitored the caribou's response to road construction activity and highway traffic, and mapped the important crossing locations for the purpose of establishing hunting and traffic regulations as mitigative measures (McLeod 1978). These attempts have been descriptive and sporadic. No overall scientific framework for analysis has been designed; no generalized hypotheses have been tested.

Finally, in November 1977, DINA initiated and financed a study of the impacts of the Dempster Highway and traffic on the caribou. The Yukon Game Branch is carrying out the program with the following objectives:

1. To monitor the distribution of caribou along the Dempster corridor.
2. Map the important crossings used by the caribou.
3. To carry out age and sex counts to compare with summer and fall counts.
4. Employ native trainees to assist in the Study. (Russell et al (1978).

As data accumulates in successive years, an accurate picture of caribou response to the Highway and associated uses may be attained. Until such time, much of the reporting remains descriptive.

Despite the current lack of data, in January 1978 the Northern Roads and Airstrips Division of DINA completed a revised draft of its Dempster Highway Management Plan. The stated aims of the Management Plan are:

1. To allow year-round use of the highway with minimum adverse impact of the highway and its users on the environment. Conservation and management are to be regarded as interdependent;
2. To introduce a method of control that is technically and economically feasible as well as being socially and environmentally acceptable. It is recognized that certain aspects that are environmentally or socially acceptable to one sector of our society are often unacceptable to another group. Conflict of this nature would possibly occur among the following highway users: native people, tourists, hunters, truckers, hikers, campers, canoeists, photographers, artists, miners, petroleum and mineral exploration crews. It is hoped, however, that the plan will be able to accommodate the needs and interests of the majority of people;
3. To ensure a comprehensive programme is implemented before the highway is completed;
4. To make management sufficiently flexible so that modifications can easily be made to accommodate the conditions of the settlement of native land claims; and
5. To be receptive to the findings of the research activity pertaining to the northern environment.

Respecting the impact of traffic on the caribou, the Management Plan recommends speed restrictions, road closure during peak migration

and a convoy system during the winter period. The Plan also recommends a land use plan for controlling general construction of roadside services and a 5-mile, no-hunting zone, either side of the Highway to apply to natives and non-natives alike. The questions of what environmental impact of the Highway would be acceptable, and whether mitigative measures will be effective are not addressed. Neither does the Plan resolve the issue of overhunting of caribou due to increased access ...

The government's failure to resolve these issues is partly due to the absence of any legal requirement for the government to undertake environmental impact studies, and to hold hearings for its major projects. ... The Minister of the Environment has recently confirmed that 'Since the decision to proceed [with the highway] had already been made, a formal review under the federal process concerning the project's acceptability was not possible.' Such a position suggests that the conflict of interests between the government's position [DINA] as promoter of the project and the government's position as regulator, has limited the degree of environmental study (McLeod 1978).

The rationale for development of this Plan leaves clear room for dispute as to whether DINA actually has the jurisdiction to enforce this or any management plan for the Dempster. Existing federal and territorial legislation provides the Yukon and NWT governments with statutory authority to establish regulatory mechanisms for traffic control, hunting and development alongside and within highway corridors, and allows the imposition of restrictions to carry out these mechanisms. For example, the Yukon Act (sec.46-c) gives the Commissioner-in-Council the right to maintain, control and regulate the use of roads in the Yukon Territory. The Commissioner-in-Council may also legislate necessary restrictions respecting

all public roads and their rights-of-way. This authority has been exercised by enactment of the Highways Ordinance for the Yukon. These two legislative mechanisms then, give complete jurisdictional authority over all highways in the Yukon, including their management, regulation and control of access road establishment, to the territorial government. DINA also implemented a policy in 1975 to give the Yukon government authority to control all development along remote highways, such as Dempster. This authority can be enforced through the Territorial Area Development Ordinances which authorize the territorial government to claim the highway as a "development area".

The benefit of such a designation is seen in section 4 of the Ordinance which states in part:

- (1) The Commissioner may make regulations for the orderly development of a development area respecting
  - a. the zoning of the area, including the allocation of land in the area for agricultural, residential, business, industrial, educational, public or other purposes;
  - b. the regulation or prohibition of the erection, maintenance, alteration, repair or removal of buildings;
  - e. fire protection;
  - f. animals;
  - g. the regulation or the prohibition of the discharge of guns or other firearms within a development area.

Therefore, in response to DINA's Management Plan (which really has suspect jurisdictional authority), and a commitment made at the



Lysyck Inquiry 1977, the Yukon Territorial Government and the Government of the N.W.T. formed a study group on highway, park and wildlife concerns in relation to the Dempster. Their Interim Management Plan has been completed and will be released to the public shortly.<sup>1</sup> A long-term plan will be drafted in 1982.

Highway impacts may be compounded by the construction of the Dempster Lateral, a proposed gas pipeline which approximately parallels the Highway north from Dawson to Inuvik in the Mackenzie Delta. The pipeline would carry Canadian gas from the Delta area south to Canadian markets by connecting with the proposed Alaska Highway Pipeline (Lysyck 1977). Foothills Pipe Lines (Yukon) Ltd., the proponent of the Dempster Lateral, concluded:

It is considered most likely that any restriction in access of caribou which could be related directly to the pipeline would occur only during the relatively brief period of construction. Serious conflicts are not anticipated during the operational phase of the pipeline. ... Further, it is likely that mitigative measures, such as the scheduling of construction activities outside of the migration periods can be successfully employed to avoid most interactions of the pipeline project with caribou (Foothills Pipe Lines (Yukon) Ltd. 1978a).

While many in the field agree with these general conclusions, several questions were raised at the recent Porcupine Caribou Committee meeting in Delta:

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1. After this thesis was prepared, the Interim Plan was released.

- Is there adequate information on the impact of construction and operation of a pipeline with respect to caribou behaviour?
- What about long-term management of the pipeline?
- What of the incremental effects of construction and operation of a pipeline over and above the impact from a highway?
- If information is inadequate, what kinds of studies are required? Is there enough knowledge on existing impacts without the pipeline?

While a buried gas pipeline may not cause serious impacts on the herd, incremental spin-off effects may. "Each new pipeline, road, or railroad inevitably brings with it a host of second-order human activities affecting more than just a corridor of a few hundred feet in width" (Laycock 1976). To further complicate the situation, the federal government, in a move that seems puzzling from the perspective of energy conservation, has required Foothills to design the pipeline's compressor stations for possible conversion to hydroelectric power. The intent of the requirement comes into focus in light of a proposal by the Northern Canada Power Commission (NCPC) to dam the Yukon River for hydroelectric power generation. The compressor stations represent a certain market for the power, and are said to provide a rationale to proceed with "development" of the Yukon. Surplus generating capacity could then be used to stimulate potential mining and export markets.

One of the potential stimulants for a hydroelectric development would be the guarantee of a base-load demand for power from the compressor stations along the pipeline route. If the hydroelectric development had excess capacity that could be diverted to the mining industry, then the opening of new mines would be encouraged (Lysyck 1977).

The uncertainty of the cumulative effects of these proposed projects looms large in many people's minds. Further, the rationale for these projects emphasizes DINA's continuing philosophy of opening the north for industrial development without considering possible alternatives. The scheme for converting the compressor stations to hydroelectric power may be an inefficient means of supplying power for compressor stations. Moreover, the proposed dam site is hundreds of miles from the pipeline; hence transmission lines and support stations will have to be built, further scarring the wilderness. Finally, demand for the proposed 1000 megawatt capacity of the NCPC scheme, phased through the 1980's, is now virtually non-existent. Even with increased mining requirements for hydro power, speculated to be less than 100 megawatts (Globe and Mail, January 23, 1979), much of the proposed power will have to be exported, benefitting few in the Yukon.

#### 4.2.2 Oil, Gas and Mineral Exploration

While the overall oil, gas and mineral potential of the northern Yukon presently appears fairly moderate (Mining Division, Oil and Gas Division, DINA, 1979), especially in relation to other values at stake, one cannot discount the future possibilities. As technology, prices and demands for non-renewable resources increase, the area will be under increasing developmental pressure.

The only producing mine in the northern Yukon is United Keno Hill Mines Ltd., 50 km northeast of Mayo, producing silver, lead, zinc and cadmium; Cassiar Asbestos Corporation at Clinton Creek,

80 km northwest of Dawson City, closed their operations in 1978 (DINA - Mines and Minerals Activities 1977). The most current information on mineral potential in the northern Yukon is illustrated on Figure 14. Regarding the withdrawal area, Figure 13 shows the small extent of existing claims. Most of these are owned by Aquitane Company of Canada Ltd., which is also involved in uranium exploration in the Blow River area. Much of the northern Yukon outside of the withdrawal bounds has also not been staked.

The greatest pressure for oil and gas development is in the seaward portion of the Coastal Shelf in the Beaufort Sea. In relation to the rest of the northern Yukon, this area has high oil and gas potential, hence continued interest is maintained through various permits. PetroCan and Dome are actively exploring the Beaufort area west of Herschel Island, and Imperial Oil has claims on the coastline and on Herschel Island. Imperial's evaluation work southeast of Herschel has been disappointing. However, it hopes to attain a greater understanding of the Coastal Shelf and Plains formations with these exploratory wells (Sullivan 1979).

It is feared that as offshore oil and gas development proceeds, the Coastal Plain will look attractive for construction and access sites. This could lead to increased onshore exploration of moderate to low areas, and the expansion into the interior of northern Yukon for large-scale development projects. This wave of demands is considered by many northerners and conservation groups

FIGURE 13. MINERAL CLAIMS IN THE NORTHERN  
YUKON WITHDRAWAL LANDS, 1979

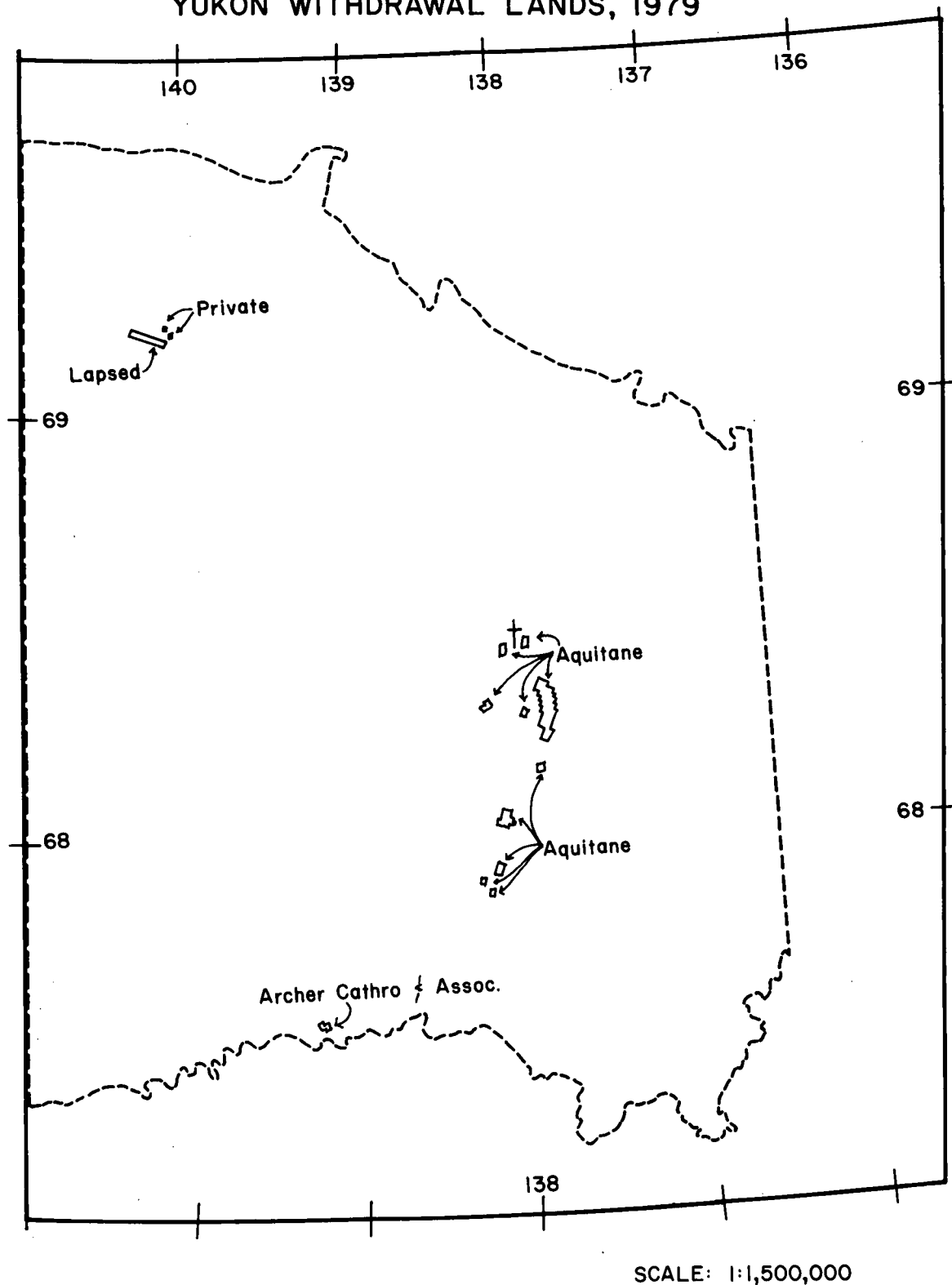


FIGURE 14

■ - Significant Deposit with Past or Present Production or reserves

X - Significant Deposit or Mineral Occurrence

Cu - Copper

W - Tungsten

Cl - Coal

Zn - Zinc

Sn - Tin

Fe - Iron

Pb - Lead

Ni - Nickel

U - Uranium

Au - Gold

Mo - Molybdenum

Areas have been classified on the basis of mineral occurrences and associated rock lithologies and ages. Boundaries of areas tend to follow rock units.

B -- Indicates favourable area for a large number of the commodities; where followed by a commodity, this indicates area is favourable for this commodity but it is at a C level for other commodities.

C -- Indicates low potential where no significant deposits are found but mineral occurrences do not occur. This may be due to a lower level of exploration in these areas or abundant overburden.

(Abstracted from the Mineral Potential Map of the Northern Yukon area, which was prepared by the Geology Section of Indian and Northern Affairs, September 11, 1978.)

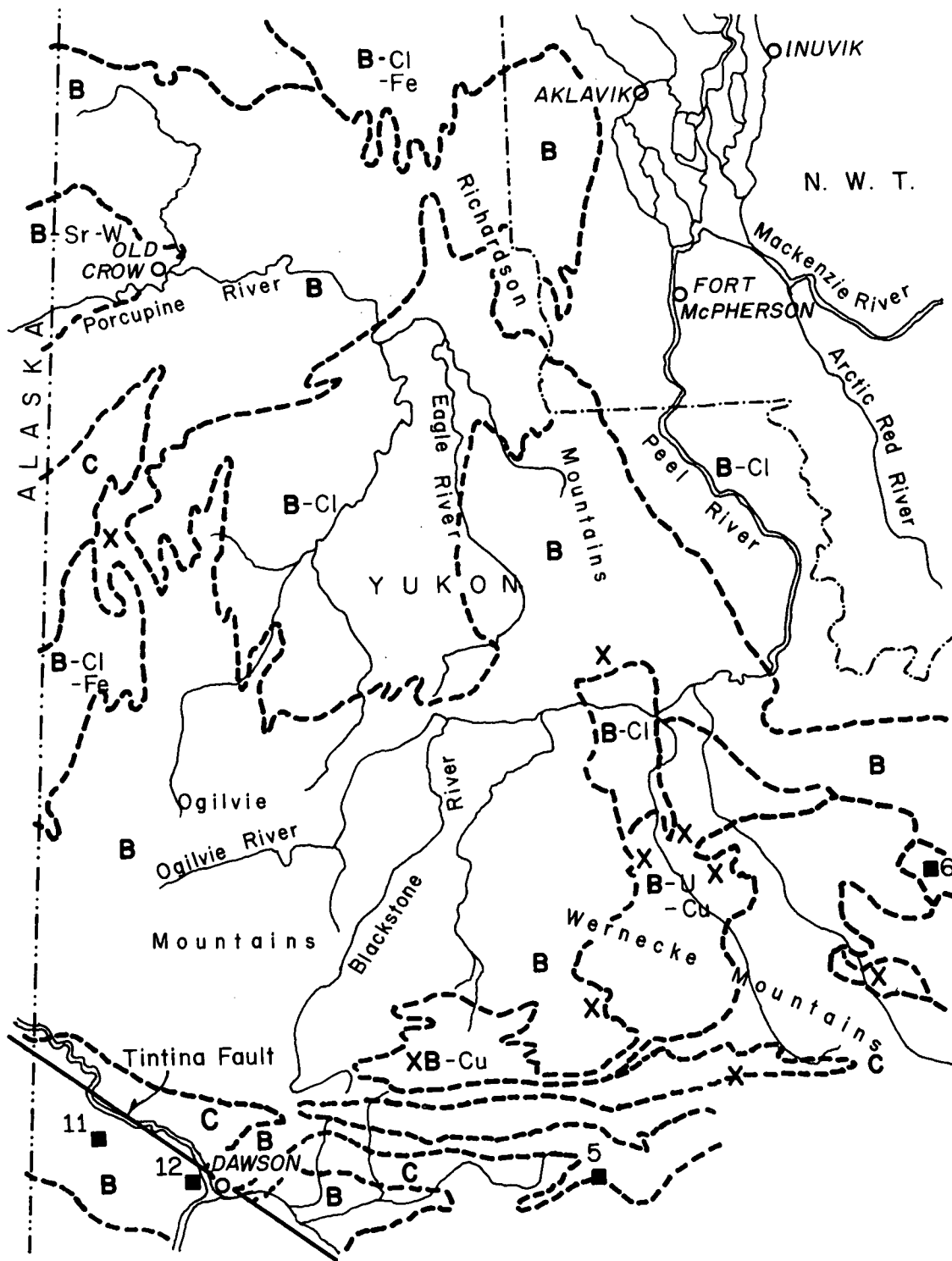
Deposits shown on Map: 5) Keno-Galena Hill (Ag-Pb)

6) Crest Iron Formation (Fe)

11) Clinton Creek (Asbestos)

12) Klondike Goldfields (Placer Au)

FIGURE 14. MINERAL POTENTIAL -  
NORTHERN YUKON, 1979



across North America, to be incompatible with competing land uses such as wilderness parks and wildlife refuges, with the latter suffering the consequences of industrial plans.

The hard-line development of oil and gas in Arctic off-shore areas is not unique. ... During the past 20 years, the federal Government has actively encouraged the multinational resource corporations to explore for and develop non-renewable resources north of the 60th parallel. Offshore drilling is simply one facet of a northern policy which was articulated by John Diefenbaker ... 20 years ago (Pimlott et al 1976).

The Old Crow Flats, although currently under a Land Use Permit moratorium, shows good prospects for oil and gas. Indeed, the Flats do have oil and gas obligations owned by Great Plains-Trindex-Noranda. This means that the government either must allow future exploration to occur, or that the claims must be bought or expropriated by the government. The denial of access to the Old Crow area since 1972, has discouraged further exploration in the northern Yukon in general as industry faces large uncertainties respecting the political climate and lease structure (Sullivan 1979).

Other moderately prospective areas include Eagle Plains and Peel Plateau. Three or four significant discoveries of oil and gas have been made in the Eagle Plains area to date, under lease to Brascan Resources. The Peel Plateau has not yielded any significant finds although the area has always been regarded as a good prospect. Aquitane is the only active company presently drilling a well close to the Peel River in this latter area.



#### 4.3 CARIBOU, RENEWABLE RESOURCES AND DEVELOPMENT PLANNING

If we assume a primary goal of conservation planning in management of the caribou and their habitat, then Hon. Len Marchand's original Press Release of July 1978 was an encouraging development. He indicated that a comprehensive approach to management should be undertaken. Elements of this include the international aspect of herd and habitat management with an "ecological unit" approach. Surely this should require the consideration of every proposed development -- industrial or recreational -- with this question foremost in mind: Will it interfere with the wildlife and their habitat? Yet the past track record of conflicting institutional and development-oriented issues (especially within DINA) does not indicate such consideration of alternatives.

In short, there is little evidence of rational development planning in the current situation in the northern Yukon, especially pertaining to conservation issues. If government policy, as stated in 1972, places priority on "a higher standard of living, quality of life and equality of opportunity for northern residents...", and "maintain[ing] and enhanc[ing] the northern environment...", surely alternative uses of the Yukon's resources must be considered. For example, after construction, hydro dams employ only a handful of people; wildlife-oriented tourism and various forms of outdoor recreation on the other hand, may well be able to provide hundreds of opportunities for outfitters, guides, wildlife managers, etc., opportunities from which native people are particularly able to

benefit. This inability of the key "land department" - DINA - to coordinate a broadly conceived management and planning effort, and to articulate sound policies and alternative scenarios for the north, has been well documented by Rees (1978). He concluded:

The government's approach has been based on the belief that, while there is only limited potential in the renewable resource base, 'a realistic assessment is that in major terms that can affect the overall wealth of Canada, the economic future of the North lies in the ground'. Accordingly, while 'priorities in the north' include commitments to 'social development' and the 'natural environment', the emphasis to date has been to 'encourage and assist strategic projects... in the development of non-renewable resources and in which the joint participation of the government and private enterprise is generally desirable'. While the requirements for balanced growth have been clearly stated, including the need for 'a rational plan for developing the territories systematically', there is nothing in the observed pattern that remotely resembles a rational planning framework... (Quotations are from Canada North 1970-1980, Chretien 1972).

## CHAPTER V

### ELEMENTS FOR AN INTERNATIONAL CONVENTION ON THE CONSERVATION AND MANAGEMENT OF THE PORCUPINE CARIBOU HERD AND ITS ECOSYSTEM

#### 5.1 EVALUATIVE FRAMEWORK

The preceding discussion of socio-economic, ecological and political issues in the northern Yukon has highlighted several central realities. These provide a basis for the following normative assumptions:

1. Conservation of the Porcupine Caribou herd and its habitat is a national and international conservation priority based on the variety of aesthetic, scientific and social values inherent in this ecosystem.
2. Since northern wilderness conservation and wildlife protection and management are a high priority for the Canadian government, planning and management of industrial development must be integrated with, and in harmony with conservation planning.
3. The traditional dependence of natives on northern resources and ethical considerations demand that natives have priority use of the resources.

In turn, these assumptions suggest an evaluative framework for analysing the 14 international conventions (see Appendix I). The principles guiding this analysis are:

#### PRINCIPLES

1. The agreement should advance conservation and enhancement of the Porcupine Caribou herd and its ecosystem as principle management objectives.
2. The agreement should recognize the aboriginal priority of use of the resources and make provisions for native involvement in caribou conservation and management planning consistent with social and scientific principles.

3. The agreement should recognize that social values and perceptions respecting wildlife and wilderness evolve over time. As such, the management framework must be consciously flexible and responsive to these changing conditions consistent with (1) and (2).

The study of the northern Yukon situation, together with the analysis of the 14 international conventions, resolved into the seven criteria stated below. Each criterion is followed by its rationale and applicability in this case study.

#### CRITERIA

##### 5.1.1 Conservation

What is the legal status of reserved lands, and to what extent is the agreement and its administrative process, capable of ensuring the protection of the wildlife and its habitat? Does the agreement provide for absolute protection of critical habitat sites? Is overall ecosystem management inherent in the management framework?

#### Rationale and Recommendation:

Conservation of the caribou herd and its habitat is a high priority of government and a guiding principle of ecosystem management. The convention should therefore commit the parties to establishing some sort of reserve or special-status lands to achieve this objective.

We should recognize, however, that while all components of the caribou's habitat require "adequate" protection, this does not necessarily mean "equal" protection for all parts of the animals' range. For example, it may be necessary to identify "critical habitat zones" devoted to exclusive use by the caribou within any reserve. The relatively restricted calving grounds would certainly be a candidate for classification as essential habitat. A workable hierarchy of zones might vary from this critical-habitat/

single-purpose category, to larger integrated-use zones where certain other development activity is permitted but controlled in light of the overall conservation objective. To be effective, any such reserve and its system of habitat zones should have some sort of formal legal status. This will prevent arbitrary changes in boundaries, permissible activities, etc., without adequate public review and political accountability. Further, the lands must be designated and managed according to ecosystem principles, including the relationships between caribou, their habitat requirements, native dependence, and other competing and compatible land uses, i.e. tourism, recreation, industrial development, etc. Critical habitat sites should be designated immediately by both countries.

Precedents for habitat protection have been set in the African Convention of 1968 and the Polar Bear Agreement of 1973. The latter Agreement specifically states that the contracting parties should "... take appropriate action to protect the ecosystem of which polar bears are a part,...", as well as critical habitat areas.

#### 5.1.2 Regulation

Is there provision within the agreement for establishment of an independent regulatory body or commission to coordinate the planning and management of the wildlife and its habitat?

#### Rationale and Recommendation:

The international nature of the management problem demands that

the convention establish a politically-independent commission vested with the authority to coordinate the implementation of the proposed agreement and pursuant cooperative research and management plans. If this commission is to have any significant authority, it must be independent of the government of the day. Neither Canada, the United States, nor state or territorial agencies alone possess the authority or financial and technical commitment to allocate harvest, coordinate research, or regulate large-scale industrial developments with international implications. Some of the principles inherent in the International Joint Commission (IJC) and fisheries commissions discussed in Appendix I provide elements of independence, authority in decision-making, coordination of planning, management and research, and flexibility to react to changing conditions and perceptions. A similar rationale supports the establishment of royal commissions to investigate various types of problems from an independent position.

The caribou convention should state that the countries agree:

- a. to implement the commission's recommendations through the enactment of domestic laws such as a Migratory Caribou Act;
- b. to give absolute decision-making authority to the commission on management of critical habitat reserves established by legislation in support of the convention;
- c. to include the commission for review and comment on any project and development planning in the caribou's range, and any future comprehensive management and planning agency established pursuant to the agreement; and
- d. to give the commission authority to review and comment on enforcement of the agreement and pursuant management plans.

### 5.1.3 Management

To what extent does the agreement, and its administrative process, allow for active management of the wildlife and its habitat (authority, funding and personnel) to implement management plans?

#### Rationale and Recommendation:

The competing array of proposals for use and development of northern Yukon lands and resources necessitates the establishment of an adaptive management plan to ensure the protection of the herd and the ecosystem of which it is a part. Indeed, as conservation of the Porcupine Caribou depends largely on maintenance of the herd's extensive ecosystem/habitat, a managerial organization capable of responding to both naturally occurring changes and external threats is a priority of any convention. Therefore, the commission should be given authority and financial resources to appoint an operational arm comprised of advisory boards and field technicians to aid in development and implementation of a comprehensive management plan.

Implementation of management policy will fail if the administrator lacks the authority over management, funding and personnel. This is recognized in the Salmon, Whaling and Fur Seal conventions which stipulate that financial and technical support be supplied by the contracting parties. Comparable authority given to the Canada/United States Salmon and Halibut commissions has proved successful in implementation of the conventions' objectives. Factors facilitating this include:

- the conventions are between two countries with a history of trust and cooperation on international problems;
- each agreement is concerned with only one resource;
- the conventions' objectives and commissions' authority are clearly defined as to the problem of rebuilding the fish stocks (as outlined in Appendix I).

A parallel situation is obvious in the proposed migratory caribou convention which is between the same two countries primarily concerned with one resource.

Criteria 2 and 3 and the associated recommendations essentially establish a two-tiered institutional mechanism as shown below:

<u>Level</u>	<u>Composition</u>	<u>Role</u>
Executive	International Migratory Caribou Commission	<ul style="list-style-type: none"><li>- Policy development</li><li>- Master planning and conceptualization</li><li>- Decision-making</li></ul>
Operational	a. Secretariate	<ul style="list-style-type: none"><li>- Implementation of policy and planning</li><li>- Coordinate research</li></ul>
	b. Advisory Boards	<ul style="list-style-type: none"><li>- Recommendations, i.e. harvest, research needs, etc.</li></ul>

The operational arm is essentially a management-oriented wing comprised of a Secretariate to act as liaison between the Advisory Boards and the Commission, and the Advisory Boards on native harvest, and scientific/technical management issues. Comparable to the IJC's authority, the "IMCC" could commission the Advisory Boards to undertake specific research and management problems. The



Advisory Boards in turn, would have the authority to call upon necessary field and financial support from the respective countries to carry out the commission's requests. The kinds of responsibilities and duties as outlined in the Salmon, Whaling and Halibut conventions and the proposed Migratory Species agreement are examples of the type of operational base suggested.

#### 5.1.4 Research

Is there provision within the agreement for on-going, coordinated research and monitoring programs for both wildlife and habitat?

#### Rationale and Recommendation:

Effective regulation and management as specified above require resources for field research and monitoring programs. Any convention should therefore commit the parties to providing the operational support for the commission. Scientific and technical personnel are required in both countries to advise the commission on ecological conditions, research needs and management options within their respective portions of the reserve system. The commission should strive to coordinate both integrated and independent research programs undertaken by the parties.

The need for research stems from many uncertainties respecting caribou and habitat management and the great potential for conflict with industrial, recreational and other activities. Scientific understanding of the relationships among caribou, their habitat,

subsistence use and conflicting land-use is poorly developed. In addition to basic research however, monitoring of management impacts is essential to provide the feedback necessary to adapt to changing ecological and social conditions. As outlined in Chapter Three, specific attention should be paid to developing an annual census, obtaining accurate harvest data from native communities, and determining how the Dempster Highway affects caribou behaviour and migration patterns, including response to highway-associated activities and barriers in general.

Several conventions stipulate research and monitoring programs. The Salmon Treaty provides for research, including such specific elements as the natural history of the salmon, spawning grounds, etc. The Fur Seals Convention coordinates research efforts towards determining the required measures for achieving the goal of maximum sustained yield. This convention emphasized research as an integral element in ascertaining the inter-relationships of fur seals and other living marine resources. Similarly, the draft Convention on the Conservation of Migratory Species of Wild Animals specifies in article V that each agreement entered into shall:

... deal with all aspects of conservation and management of the migratory species and shall, ... provide for:

- a. periodic review of the conservation status of the migratory species concerned and the identification of the factors which may be harmful to that status;
- c. research into the ecology and population dynamics of the migratory species concerned, with special regard to its migration;

- d. the exchange of information on the migratory species concerned, special regard being paid to the exchange of the results of research and of hunting and trade statistics; ...

#### 5.1.5 Native Use

To what extent does the agreement, and its administrative process, permit the pursuit of traditional activities, and involve natives in wildlife and habitat management planning?

#### Rationale and Recommendation:

Since native peoples are currently the major user of the resource, and will continue to be dependent on the caribou for some time, the convention should provide for native priority use in the pursuit of traditional activities. Native groups have stated in land claim settlement negotiations a desire for long-term involvement in wildlife and habitat management. This criterion is consistent with government policy which states that all government agencies and departments involved in planning and development of the North should:

Maintain opportunities for traditional pursuits (hunting, fishing, trapping), encouraging a shift to analogous activities (campsite supervisors, tourist guides, game and fire wardens) for native peoples, and expanding well-established programs providing cultural outlets for indigenous peoples so that they will be involved increasingly in all phases (including marketing) (DIAND 1972).

Of course native harvests should not exceed the productive capacity of the herd and its ecosystem. Moreover, the harvest must be regulated in a way that involves the users and educates them to be

aware of the impact of their activities on the herd and its habitat.<sup>1</sup> A possible solution to native priority use of caribou is through a quota system. Each community would be allocated a quota to be determined annually, which could embody age and sex restrictions on the harvestable caribou. The community could then decide whether to use the quota for subsistence or to sell it in whole or in part to sport hunters on a competitive bidding system.<sup>2</sup> Such transferable quotas may be one way of satisfying the demand for caribou by sport hunters, while conforming to the principle of native priority.

A precedent for such a system can be found in the Canadian Explanatory Declaration of the Polar Bear Agreement;

- 2(c) In the exercise of these traditional polar bear hunting rights, the local people in a settlement may authorize the selling of a polar bear permit from the sub-population quota to a non-Inuit or non-Indian hunter, but with additional restrictions providing that the hunt be conducted under the guidance of a native hunter and by using a dog team, ...

- 
1. This has been a serious problem with the Kaminuriak herd in the Northwest Territories. The communities, spread over a large area, were not aware of the individual effects of their harvests on the overall decline of the herd. When biologists presented them with reports of the declining population due to native harvests, with often conflicting advice, the natives refused to believe the reports or blamed the decline on other factors. In response to the situation, a Caribou Management Group was organized to inform the natives of the problems and design a management plan for the herd. All native communities and the biologists conducting research on the herd met last year to discuss the problem. A second meeting on management issues will take place later this year at Baker Lake. To date, the Management Group has been successful in broadening the perception of the Kaminuriak problem and hopes to reach solutions by the fall (Simmons 1979).
  2. This solution should be an option open to native peoples and not a stipulation of the convention. If the natives do not support such a solution, others should be promulgated.

The concept of a quota system is also an element in the COPE/Canadian government Agreement-in-Principle under section 14(3) (b) and (c). Reference here is to subsistence quotas as being part of the harvestable quota set by the Inuvialuit, federal and territorial governments. It should also be noted that since October 1978, subsistence use of wildlife resources is the legal priority among various consumptive uses in Alaska (Skoog 1979).

Alternative solutions include establishing percentage quotas between native and sport hunters; and setting a minimum subsistence quota for natives with sport hunters bidding on the remaining quota when such is available.

Consistent with the policy "... that the needs of the people in the North are more important than resource development and that the maintenance of ecological balance is essential ... and the heaviest emphasis in current thinking is on the needs and aspirations of the native peoples..." (DIAND 1972), the caribou convention should provide for native involvement in long-term planning and management of the caribou and their ecosystem. Indeed, the unique situation in the northern Yukon demands new and creative solutions to native long-term involvement. For example, natives could receive special training as wildlife biologists and technicians, native participation on research teams could be encouraged, and use could be made of local hunters and trappers associations in guiding programs. It is possible that wildlife-oriented tourism

and recreation will become the socially and economically most valuable use of this resource, and native peoples should therefore have priority in realizing the economic and social benefits of developing this potential.

#### 5.1.6 Other Environmental Concerns

To what extent does the agreement and its administrative process, address the question of future uses of the environment which are: (a) compatible, and (b) incompatible with the stated goals? Does the agreement provide measures to mitigate or alleviate present uses which are designated as incompatible?

#### Rationale and Recommendation:

Exploitation of, and pressure for increased exploration for oil, gas and mineral potentials, and the increasingly important tourism and recreation industry, necessitate the integration of wildlife management and habitat planning with other land uses and activities. Both compatible and incompatible developments should be analysed against the goals and objectives of the agreement, and the latter should be seen to be paramount in the area covered by the agreement. Existing land uses such as the Dempster Highway should also be examined, with provision for mitigative measures to control or alleviate adverse impacts. The convention should commit the parties to develop a comprehensive management plan. Development of all land uses and activities should be addressed in this plan to result in the 'ecodevelopment' of the northern Yukon.

The elimination or satisfactory mitigation of the adverse impacts of obstacles and disturbances which affect the caribou's migration, behaviour and critical habitats should also be addressed in the convention. Haul roads, support stations for oil and gas exploration and air traffic are but a few of the disturbances associated with the ever-increasing exploitation of northern resources. Adverse impacts are inevitable, hence the conservation of migratory caribou necessitates that these impacts be controlled, mitigated or eliminated.

Precedents for handling these concerns are found in the Salmon Treaty and the US/USSR Migratory Birds Convention. The Salmon Treaty provides for removal of obstructions to salmon migration; and the Migratory Bird Convention provides for rehabilitation and mitigation of adversely impacting activities on the birds or their environment.

The draft convention on Migratory Species also contains strong statements of a similar nature:

- b. prevent, remove, or compensate for the adverse effects of, disturbances and obstacles that seriously impede or prevent the migration of the migratory species concerned;
- c. prevent, reduce or control factors that are likely to influence unfavourably the conservation status of the migratory species concerned or prevent improvement of that status; ... (Article III (2)).

Connected with this is the need for consideration of the incremental effects of proposed projects which may have beneficial or adverse impacts on the herd and its ecosystem. As explained in Chapter Four, the Dempster is first in a list of development projects, including pipelines, hydro projects and increased mining activities, which may seriously impinge upon the welfare of the herd and its habitat. Incremental effects of proposed projects have not been addressed in previous conventions.

#### 5.1.7 Review

To what extent does the agreement provide for automatic review of the mandate, objectives and success of the management plans? Is there flexibility to permit reorientation of management objectives in light of changing needs and perceptions?

#### Rationale and Recommendation:

Review is required for feedback on the implementation and success of the management plans according to their objectives. There are numerous examples of failures in planning and management processes due to a lack of feedback as to implementation, success and needed adaptation to changing environmental and social conditions. The African convention of 1968 has a review mechanism for 5-year intervals, and the draft Migratory Species convention for at least four years. The caribou convention should be reviewed at least every five years, and more often if the contracting governments or commission state the need for such a review. The management



plan should be reviewed when necessary, upon recommendation of the advisory boards or commission. Experimentation in management and institutional arrangements should also be included. A comparative review of these approaches can then provide a stronger management framework.

CHAPTER VI

CRITIQUE OF THE DRAFT CONVENTION FOR THE CONSERVATION OF MIGRATORY  
CARIBOU AND THEIR ENVIRONMENT

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6.1 OVERVIEW

The preceding chapter has outlined numerous essential elements for an international convention on the conservation and management of the Porcupine Caribou herd and its environment. These criteria are then expressed in the form of recommendations respecting a proposed Migratory Caribou Convention between Canada and the United States. With these points in mind, we will now examine the latest draft (May 14, 1979) of a proposed Convention currently being negotiated between the two countries.

To put this analysis in perspective, a brief overview of the contents of the draft convention follows. The Convention Between the United States of America and Canada for the Conservation of Migratory Caribou and their Environment has been in the drafting stages since the Hon. Len Marchand announced the intention of discussion with the U.S. on an agreement to protect the Porcupine Caribou in July of 1978. Following consultation with the territorial governments and native communities in Canada, the Canadian draft of March 1979 was released.

This draft was discussed at a meeting in Whitehorse on April 30 - May 1, where representatives from federal and territorial governments and native organizations met with their U.S. counterparts. This meeting, together with subsequent discussions between the Canadian Wildlife Service and the U.S. Fish and Wildlife Service, resulted in a May

14 draft (Appendix II) which is discussed below. It should be noted that the May 14 draft is significantly weaker than the March version in regard to the enforceability of the basic rationale of the convention -- conservation and management of the caribou and their habitat, and native priority use of the caribou. The preamble strongly asserts the principles of conservation of the herd and habitat, aboriginal priority use and involvement in management of the caribou, and cooperative action to protect the herd, its environment and sensitive habitat sites. These principles form the basic rationale for the convention with the appearance of agreement and commitment to social, ecological and conservation objectives so often espoused by the government. Within the body of the convention, however, this commitment breaks down because operative clauses have no enforceability.

#### 6.2 CONSERVATION OF LANDS

The preamble clearly states the intent of the parties to conserve the caribou herds which "... constitute a unique natural resource of great and irreplaceable value" and to conserve their environment -- "... the environment and the habitat utilized by these caribou herds must be protected against degradation if ... [they are] to be conserved".

Following the preamble, Article II(1) rather ambiguously states the general objective of the convention:

The Parties shall conserve caribou herds and the ecosystem of which caribou are part for the long-term well-being of caribou and so as to maximize the total social benefit, ... and so that risk of irreversible change or long-term adverse effects as a result of use of caribou or their habitat is reduced to a minimum.

The first half states the laudable objective of long-term conservation of the herd and habitat. Nevertheless, a key phrase requires maximizing total social benefit. This requirement leaves the door open for development interests to assert that alternate land uses affecting the herd and/or its habitat (i.e. the ecosystem) yield the greater social benefit. Such use obviously could lead to the ultimate destruction of both. The second half is equally puzzling as to how the intent can be implemented. If it is agreed that the caribou herd truly does represent a "unique resource" of "irreplaceable value", then proposals with any risk of "irreversible change" or "long-term adverse effects" simply should not be allowed to reach fruition.

Provisions regarding the legal status of conservation areas or reserves are weaker still. The preamble states that the "continued existence" [of caribou] in large viable herds depends upon the maintenance intact of populations over large areas of land (emphasis added). Article II(7) emphasized this point by stating that "... caribou populations and habitats must be understood as ecological units without regard to political boundaries", once again implying the need for preservation of large tracts of land. The proposed convention however, fails to suggest mechanisms to reserve these lands. There is no clause which explicitly recommends that the contracting governments set aside reserves necessary to ensure the conservation of the caribou and their habitat. Further, any recommendations by the proposed Migratory Caribou Commission (established under Article III) for measures "... to ensure the conservation and enhancement of caribou habitat and the ecosystem of which caribou are a part" (Article IV(2)), are subject to the caveat:

"to the extent practicable". Who determines what is feasible or not? This discretion, presumably left to the contracting governments, once again opens the door to potential habitat degradation.

Respecting the immediate need for protection of "critical habitat" zones such as calving and staging areas, the draft contains an escape clause that renders the whole clause meaningless. Article IV(3) recognizes the need by empowering the Commission to identify such sensitive areas and to "... recommend to the Parties measures to govern the use or modification of such areas". However, these recommendations are to be implemented:

except where, in the opinion of a Party, the net benefits of compliance are appreciably outweighed by the net benefits of other competing regional or national interests (Article II(2), emphasis added).

This overriding caveat implies that some sort of economic analysis (e.g. cost/benefit) will be applied to proposed projects within the identified "sensitive habitat components" (Rees 1979). The problem, as virtually any resource economist will readily admit, is the failure of economics to adequately measure aesthetic or intangible values. If a quantifiable monetary value is the overriding criterion then, given the pressures to open up the North to industrial development and resource extraction, this caveat spells destruction of the herd and habitat.

As recommended in Chapter Five, an hierarchy of conservation lands, including prohibited uses within sensitive zones, is necessary to protect the caribou and their environment. Any such concept is

lacking from the proposed convention and represents a serious weakness. Further, Chapters Two through Five clearly substantiate the need for the planning and conservation of lands (i.e. ecosystems), not just species. The situation calls for an initiative on land use planning in the northern Yukon with conservation objectives in a central position. This emphasis is missing from the draft convention.

### 6.3. MANAGEMENT AND REGULATION

Management authority is provided for by the establishment of a Migratory Caribou Commission and the specification of its powers and duties. The Migratory Caribou Commission, established under Article III, is comprised of 10 members, 5 from each country. Native peoples from each country must be represented on the Commission. As the other members are not specified, there is the possibility of neutral bureaucrats being appointed rather than conservation and wildlife-oriented individuals. As recommended in Chapter Five, the International Joint Commission (IJC), comprised of renowned and dedicated individuals in the resource disciplines, may be a good model to follow, in conjunction with an operational arm at the management and research level.

Article III(4) provides the Commission with the powers to appoint two advisory committees - a Scientific Committee composed of specialists in caribou conservation from the scientific community, and a Subsistence Committee. Both the Commission and the advisory committees may hold public hearings. The Commission has the additional power of appearing and presenting evidence before any public body regarding the conservation of caribou and their habitat. The powers and duties

of the advisory committees are outlined in Article V. The committees are essentially concerned with advising the Commission on matters of harvest, conservation and enhancement of the ecosystem of which caribou are a part, and on the need for research and management programs.

Funding and further personnel support appear to be adequately handled in Article III(6) and (8).

The Commission's authority is set out in Article IV. The powers include recommendations on establishing the maximum allowable harvest of caribou and its allocation between parties; recommendations on measures for the long-term conservation and enhancement of caribou habitat and the ecosystem of which caribou are a part; identification of, and recommendations on the measures for the use of sensitive habitat components; and the publication of annual summary reports on actions taken by the Commission and the parties in implementation of the intent of the convention. Enforcement and monitoring of these measures and the development of any pursuant management plan is not addressed.

Nevertheless, as noted above, the recommendations of the Commission respecting allocation of harvest (Article IV(1)) and the preservation of sensitive habitat components (Article IV(3)) are to be implemented except where they provide a lesser net benefit than another proposal for the area. Recommendations on general habitat protection (Article IV(2)) and other unspecified conservation measures (Article IV(4)) are to be implemented "to the extent practicable". One might

well ask then whether the Commission has any management authority whatsoever.

Of further significance is Article II(4) which states that:

The Parties shall provide in a timely fashion to the Commission information on proposals for major activities which may beneficially or detrimentally affect the conservation of caribou and their habitat.

This may seem a step in the right direction, yet there is no recommendation that the Commission be able to review proposals early in the planning stage, and to have membership on future land use committees or similar decision-making bodies. As the Department of Indian and Northern Affairs (DINA) manages most Crown lands in the North, with clearly defined objectives towards exploration and development of northern resources, a balance requires that the Commission be involved in decisions concerning land uses within and outside of reserved lands.

Public participation by means of commentary on the Commission's recommendations is provided for under Article VI(2) and (3). An emergency clause authorizes waiver of the process of public comment in order for immediate action to be taken by the Commission (Article VI(4)). This in itself is not sufficient. The public should be provided with additional opportunities to participate in the decision-making process. For example, Article II(4) cited above should be changed to allow for public comment in advance of any commitment being made rather than as vaguely stated -- "in a timely fashion".



#### 6.4 COORDINATED RESEARCH

Article VII briefly sets out the instructions for research:

The Parties shall undertake the research necessary to meet the purposes and objectives of this Convention. To achieve these ends, the Parties may request the Scientific Committee to coordinate the cooperative undertaking of such research.

It appears that each country will undertake independent research and discuss results in the Scientific Committee, as suggested in Chapter Five of this thesis. Of concern however, is the lack of explicit mention of monitoring programs and experimental measures to tackle such existing major problems as the Dempster Highway and similar barriers. This should be clearly specified as a priority research area in Article VII. Article V(2-c) of the draft convention on the Conservation of Migratory Species contains a similar clause. The lack of specific research foci is a general problem, since the May draft does not list any research elements as did the March draft in Article VII(2a-i).

#### 6.5 NATIVE USE AND INVOLVEMENT

The principle giving recognition to aboriginal involvement in caribou conservation and management planning and to priority aboriginal use is boldly stated in the preamble by the following:

KNOWING that certain indigenous people of Alaska in the United States and aboriginal people of the Yukon and Northwest Territories in Canada depend upon caribou for their survival and existence either wholly or in part, recognizing that this dependence will continue, and convinced that such people should be involved in management of caribou;

RECOGNIZING that use of caribou by indigenous or aboriginal people for their own nutritional or other essential domestic needs should have priority over any other use and that state and territorial governments of the Parties have implemented policies to this end.

One would assume these concepts would be embodied in the text of the convention, but such is not the case. The omission of aboriginal priority use and dependency on the caribou is puzzling, especially in light of its previous inclusion in Article II(5) of the March 1979 draft -- "The Parties agree that the domestic use of caribou by indigenous people will have priority over any other use". The May draft therefore again ignores its own noble intent, and denies aboriginal peoples a legal basis for priority use. These defects will cause certain rejection of the draft convention by native organizations and will exacerbate the animosity created by government promises which subsequently are not carried to fruition.

The only opportunity for native participation is provided in the establishment of a Subsistence Committee under Article III(4) "... consisting of representatives of those people who traditionally take caribou for their own nutritional or other essential domestic needs". The duties and powers of this Committee as outlined in Article V are purely of an advisory capacity. There is no recommendation for native involvement in training programs or on research and management teams. Nor does there appear to be any attempt at tapping the intuitive knowledge held by natives concerning caribou and their habitat. While these requirements need not be specified as the articles of the convention, they should at least be recognized as

important considerations to be implemented parallel to the provisions of any convention. This point should be carefully examined with native communities and their organizations.

#### 6.6 COMPATIBLE/INCOMPATIBLE LAND USES AND ACTIVITIES

Respecting negatively impacting land uses, Article II(6) contains the clause:

The Parties shall avoid to the extent practicable terrain alteration or other activities that would significantly impede, delay or disrupt caribou herd movement or affect essential caribou behaviour, and to modify, where feasible, existing artificial features that have that effect.

Once again the protection offered by this clause is dubious due to the phrase "to the extent practicable" and "where feasible".

The concepts of compensation to natives for disturbances to the caribou and their habitat, or rehabilitation of habitat temporarily used for resource exploitation are not included. This is an important omission which should be closely examined. With the increasing pressure to exploit the North's oil, gas and mineral resources, and its hydro potential, rehabilitation of the habitat is a necessary element. So, too, is compensation to native harvesters for the potential loss of nutritional values in caribou and for habitat degradation of traditional native lands.

The convention does not explicitly deal with compatible or potentially beneficial land uses and activities other than by stating that the Commission be provided with information of proposals for such

projects (Article II(4)). As previously stressed, the changing social values and perceptions of wildlife and wilderness require consideration of all types of conservation-oriented management plans outside of the reserve areas, i.e. within the hierarchy of conservation lands. Of importance here is the social and economic values of caribou and their habitat for various forms of non-intensive recreational pursuits. There simply must be examination of this potential and inclusion of a clause to allow it to occur in the future. Linked with this must be the right of native peoples for priority bids on any involvement in this type of planning and resource use.

The convention does express an ecosystem approach to conservation, management and planning. This includes the identification of critical habitat and special protective measures over the use of these areas, (within the overriding caveat of greatest net benefit). This ecosystem approach however, must be carried a step further, and become the focus of northern Yukon land use planning. Indeed, establishment of a hierarchy of conservation lands as described in Chapter Five should be a key element in the overall planning framework. This framework must then be directly linked with the conservation and management of the Porcupine herd and its habitat. As such, the linkage should appear in the proposed convention, as for example, by a statement of agreement on establishing a land use planning framework for the area.

#### 6.7 REVIEW

The final element is the review of the mandate, objectives and success

of the convention and its management plans. The only consideration of this is found in Article X(3) which states:

At the request of either Party consultation shall be conducted with a view of convening a meeting of representatives of the two Parties to amend this convention.

As stressed in Chapter Five, a review mechanism is an essential element for providing feedback in the planning and management process. The clause as stated is not adequate, and should follow along the lines recommended in the previous chapter.

#### 6.8 CONCLUSION

In summary, the May draft Migratory Caribou Convention is unacceptable. In the general area of conservation and management of the caribou and their habitat, this draft represents a significant step backwards in comparison with earlier drafts and other conventions. The caveats of "where feasible" and "to the extent practicable" dominate the key articles respecting conservation of the herd and its ecosystem. The implied economic test in Article II(2) provides an easy out for proposals to be given the go-ahead due to their "regional and national interests". The draft convention as stated, can hardly be regarded as a sincere commitment to conservation of caribou and their habitat, claimed as "a unique natural resource of great and irreplaceable value".

On another level, this proposed convention has the potential of strengthening the perspectives for global conservation strategies, but it must be renegotiated to be acceptable and to realize that

potential. There has never been a comprehensive planning and management conservation strategy on the global scale. Support for such a common goal is nevertheless of urgent importance. The International Union for the Conservation of Nature and Natural Resources (IUCN) is currently working in conjunction with the World Wildlife Fund and the United Nations Environmental Program on a World Conservation Strategy, represented by the draft convention on Conservation of Migratory Species. The draft strategy calls for political and financial commitment to conservation principles and practices, for conservation educational programs, and for national conservation strategies. Regarding wildlife and harvest pressures, the comment was recently made that "... if we are to have a balanced relationship with wildlife, we have to accept the fact that wildlife will be exploited and we have to argue for its sustainable exploitation and the retention of habitat" (Allen 1978). It is towards these goals that conservation organizations in Canada and the United States should be oriented regarding caribou and habitat resources in northeastern Alaska, northern Yukon and northwestern Northwest Territories.

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APPENDIX I

REVIEW OF SELECTED INTERNATIONAL WILDLIFE CONVENTIONS

This appendix presents an analysis of selected international agreements currently in force for the protection and management of wildlife, including birds and marine resources. The agreements are as follows:

1. Migratory Birds Convention - 1916;
2. Convention for the Protection, Preservation and Extension of the Sockeye Salmon Fishery of the Fraser River System - 1930;
3. Convention relative to the Preservation for Fauna and Flora in their Natural State - 1933;
4. Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere - 1940;
5. International Convention for the Regulation of Whaling - 1946;
6. Convention between the United States of America and Canada for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea - 1953;
7. Interim Convention on Conservation of North Pacific Fur Seals - 1957;
8. African Convention on the Conservation of Nature and Natural Resources - 1968;
9. Convention concerning the Protection of the World Cultural and Natural Heritage - 1972;
10. Convention between the Government of the United States of America and the Government of Japan for the Protection of Migratory Birds in Danger of Extinction and their Environment - 1972;
11. Agreement on the Conservation of Polar Bears - 1973;
12. Convention between the US and the USSR concerning the Conservation of Migratory Birds and their Environment - 1976;
12. Second Revised Draft Convention on the Conservation of Migratory Species of Wild Animals with Explanatory Notes - 1978;
13. The International Joint Commission.

Each agreement is analysed within a common framework based on the principles and criteria as outlined in Chapter Five. The objective is to ascertain whether elements of current agreements are applicable to the proposed Migratory Caribou Convention. Concern is therefore focused on the substance of appropriate elements, and not on the style, wording or specific context. This analysis is not an exhaustive substantive evaluation of all the listed conventions, as such was beyond the scope of this research. The analysis is appropriate, however, in sifting out the strengths and weaknesses of the conventions towards recommending elements for inclusion in the proposed caribou convention. Table 6 provides a summary of the conventions to facilitate comparison between conventions on the seven elements.

#### 1. MIGRATORY BIRDS CONVENTION - 1916

In 1916, the U.S. and Great Britain (on behalf of Canada) signed the Migratory Birds Convention in order to provide a measure of protection for migratory game birds (waterfowl, cranes, rails, shorebirds and pigeons), migratory insectivorous birds, and migratory non-game birds. The Convention mainly addresses itself to closed hunting seasons, prohibition of the taking of nests or eggs and the export of migratory birds or their eggs. An important clause is Article VIII by which the parties undertake "... necessary measures for insuring the execution of the present Convention". In Canada, this undertaking has resulted in the Migratory Birds Convention Act, R.S. 1970,



Table 6 - Comparative Analysis of International Wildlife Agreements - Summary

Convention	Criteria		Native Use
	Conservation	Management	
1. Migratory Birds 1916	hunting prohibited within reserves - development allowed	permit system - Game officers	Yes
2. Sockeye Salmon Treaty 1930	principles of protection, preservation and enhancement of a fishery - flexible to changes in environment	via Commission and pursuant regulations - fragmented authority	No
3. Preservation of Fauna and Flora 1933	only if area is established	indirectly	Yes
4. Nature Protection 1940	only if area is established	indirectly	No
5. Regulation of Whaling 1946	managed exploitation of resource - regulations established and amended by Commission on conservation	via Commission and advisory committees	Yes, limited to certain species
6. Preservation of Halibut Fishery 1953	maximum sustained yield as a goal	according to actions taken by Commission - fragmented authority	No
7. Conservation of Fur Seals 1957	maximum sustainable productivity - levels of catch amendable	partially through a Commission	Yes, limited to subsistence users and method.

Other Environmental Concerns	Research	Regulation	Review
1. limited to pollution	no specific provision	No	No
2. removal of obstructions to migrations - consideration of pollution problems	wide scope via Commission	International Pacific Salmon Fisheries Commission	No
3. addressed in definition of	no specific provision	No	No
4. addressed in definition of reserves	agreement to cooperate on research	No	No
5. not explicit	coordination on research and monitoring via Commission	International Whaling Commission	Implied through an amendment procedure
6. not explicit	no specific provision	International Pacific Halibut Commission	No
7. not explicit	coordinated research through	North Pacific Fur Seal Commission	In amended Convention

Convention	Conservation	Management	Native Use
8. African Convention 1968	according to type of reserve established - within land use planning framework	limited authority - no funding	not explicit
9. World Cultural and Natural Heritage 1972	general policy on international protection and conservation of certain areas	yes, through the Committee	No
10. Migratory Birds US/Japan 1972	general policy on international protection and conservation of certain areas	No	Natives are exceptions to prohibition rule, for essential needs
11. Conservation of Polar Bears 1972	according to an ecosystem approach - prohibition of killing except by natives - protection of critical areas	No	limited to natives' essential needs
12. Migratory Birds US/USSR 1976	strict prohibition measures and encouragement of preserves	Yes, for habitat	limited to essential needs
13. Draft Convention of Migratory Species	strong commitment towards concluding agreements between parties and advisory committees	Yes, through the conference of the parties and advisory committees	ambiguous

Other Environmental Concerns	Research	Regulation	Review
8. limited to definition of reserves established	public education and research program to be initiated	No	After five years
9. No	coordinated research encouraged	World Heritage Committee	No
10. limited to pollution	coordinated research	No	No
11. No	coordinated research encouraged	No	No
12. pollution - rehabilitation and mitigating of adversely impacting activities	coordinated research	No	indirectly
13. removal or compensation for adverse impacts on migratory species, their conservation status and their migration	coordinated research strongly encouraged	the conference of the parties and advisory committees	at least every three years.

and pursuant Regulations amended each year, and the Migratory Birds Sanctuary Regulations amended in 1974.<sup>1</sup>

### Conservation

The general purpose is to protect migratory birds. Together, the Convention, the Act and Regulations provide specific rulings which regulate hunting methods, seasons, bag limits, the types of birds that may be hunted and exportation controls. Habitat protection was rendered less ambiguous in 1974 when the sanctuary regulations were amended. "Sections 9 and 10 now authorize the minister to issue such permits as are necessary 'to protect migratory birds or the eggs, nests or habitat of migratory birds within a migratory bird sanctuary' ... however doubt about the validity of the amendment remains" (Hunt 1979, p.39). Hunt points out that the constitutional validity of this legislation for migratory bird protection is in debate, and that a more secure status would be found in classifying bird sanctuaries as wildlife areas under the Canada Wildlife Act (Hunt 1979, p.40).

A serious deficiency from a conservation point of view is the lack of provision for acquiring land for sanctuaries or reserves.

Recognizing this weakness, section 10(1)(a) of the Canada Wildlife

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1. It should be noted that the Migratory Birds Convention has special constitutional status under section 132 of the B.N.A. Act. This section gives constitutional authority to Canada to carry out all obligations stemming from agreements made by the British government on Canada's behalf. As the Migratory Bird Convention was signed in 1916 by Britain, on behalf of Canada, the federal government has retained jurisdiction over migratory birds.

Act was enacted in 1973:

10.(1) The Governor in Council may authorize the Minister to purchase, acquire or lease any lands or interests therein for the purpose of research, conservation and interpretation in respect of

(a) migratory birds; ...

Since the Department of Indian and Northern Affairs (DINA) controls most of the land in the north as if it were a provincial government, it will no doubt be reluctant to transfer large tracts of land to the Department of the Environment (DOE) for sanctuary purposes. Indeed, such has been the case in the NWT where sanctuaries are on land leased from DINA. In the Yukon, DINA refuses to lease lands for sanctuary purposes until native land claims are settled (Allison 1977, p.256). DINA also may issue exploration and development permits within the sanctuaries as discussed below.

No explicit acknowledgement is made of the 'ecosystem concept'.

#### Management

As noted above, Article VIII of the Convention allows the parties to take the measures required to implement the Convention. The subsequent Act and Regulations have addressed the management issue through provision of game officers and authority to carry out the Regulations and Act. Funding beyond the issuance of permits and the collection of fines is not indicated. Under section 4(2)(f), the possibility of management of prescribed areas is suggested:

... the regulations may provide,

- (f) for the prohibition of the killing, capturing, taking, injuring or molesting of migratory game, migratory insectivorous or migratory non-game birds, or the taking, injuring, destruction or molestation of their nests or eggs, within any prescribed area, and for the control and management of such areas;" (emphasis added)

#### Native Use

The Convention refers only to native use of migratory non-game birds. However, native hunting is authorized by the regulations. Subsection 5(a) permits Indians and Inuit to hunt migratory game birds anywhere in Canada without a migratory game bird hunting permit. Exceptions are subsections 7 and 8 which disallow native hunting of certain migratory non-game birds within migratory bird sanctuaries without a special permit. Hunt (1979) indicates that recent court decisions have ruled that "... the act and its regulations do apply to Indians and Eskimos on or off reserves, regardless of treaty rights or claims based upon aboriginal treaty".

There is no institutional mechanism for native involvement in planning and management in any of the three pieces of legislation.

#### Other Environmental Concerns

Under the authority of Article VIII, the regulations have added section 35(1) and (2) to deal with pollution of waters frequented by migratory birds. Subject to regulations under other Acts over dumping of substances into waters, and authorization to do so for scientific purposes, this section prohibits the dumping of

oil, oil wastes or other substances harmful to migratory birds in waters or areas frequented by migratory birds.

A problem continues to exist regarding competing land uses within sanctuaries. Section 9 of the Sanctuary Regulations empowers the Minister of the Environment to issue permits for activities within migratory bird sanctuaries, subject to "... such conditions as ... are necessary to protect migratory birds or the eggs, nests or habitat of migratory birds" (section 9(3)). The agency responsible for implementing the regulations, the Canadian Wildlife Service (CWS), has stated the following policy:

Land secured primarily for preservation of migratory bird habitat may be used for other productive purposes, if they are compatible. Where such is the case, and there is local need and economic justification for it, such uses may be permitted by agreement with provinces, other government agencies, corporations or individuals (Allison 1977, p.266, emphasis added).

As Nelson (1976) has documented, the DINA has issued permits and leases for oil and gas, and mining exploration and development within migratory bird sanctuaries.

#### Research, Regulation and Review

There is no specific provision for coordinated research and monitoring programs or establishment of a regulatory commission except for what is possible through the appointment of Game Officers. Review is similarly not explicitly dealt with, although the migratory bird regulations are amended each year and the sanctuary regulations were amended in 1974. This limited degree of amendment provides some form of review.



2. CONVENTION FOR THE PROTECTION, PRESERVATION AND EXTENSION  
OF THE SOCKEYE SALMON FISHERY OF THE FRASER RIVER SYSTEM - 1930

This convention between Canada and the United States was signed in 1930 in response to the depletion of sockeye salmon in the Fraser River system. The convention in effect, established a controlled fishery that was previously non-existent, with agreement to regulate an equal catch of fish stocks by each country.

Conservation

Conservation measures, to be carried out under the authority of a Fisheries Commission, were promulgated from the principle of protection, preservation and extension of the sockeye salmon fishery. The focus then, is managed exploitation of a fishery, as is the case in other fishery conventions. Detailed investigations into the natural history of the Fraser River sockeye salmon, hatchery methods, spawning ground conditions and other related matters would provide a basis for determining whether catch should be either limited or prohibited at various times. Flexibility to respond to changing environmental conditions is built into the Commission's authority over catch limits.

Management and Regulation

The International Pacific Salmon Fisheries Commission established under Article II, is comprised of six representatives, three appointed by each federal government. The Commission is authorized to establish an advisory committee composed of five people from each country who represent various facets of the fishing industry

to comment on all regulations and recommendations made by the Commission. The Commission may also call upon an independent research staff to carry out specific studies. Koers (1973) indicates that more than 50 scientists were employed in 1970 by the Commission. Funding for any work done pursuant to the Convention is to be supplied equally by the two governments.

The Commission's authority includes managing salmon culture operations

...to that end it shall have the power to improve spawning grounds, construct and maintain hatcheries, rearing ponds and other facilities ... for the propagation of sockeye salmon in any of the waters covered by this Convention, and to stock any such waters with sockeye salmon. ... The Commission shall also have authority to recommend to the Governments .. removing or otherwise overcoming obstructions to the ascent of salmon, that may now exist or may from time to time occur, in any of the waters covered by this Convention... (Article III).

The Commission also has the authority, unlike many other fisheries organizations, to make specific decisions which are directly binding on fishermen. They are to limit or prohibit sockeye salmon fishing during specific seasons and in certain waters (Article IV), and to limit the size of meshes in fishing gear and appliances (Article V).

Annual reports and recommendations are sent to each government.

Necessary legislation to enact and enforce the Commission's recommendations and regulations following the general provisions of the Convention are to be made by each government. Each government then has the responsibility of enforcing the orders and regulations adopted by the Commission, and handing out appropriate penalties for violations (Articles VIII, IX and X). This arrangement,

typical of international agreements, unfortunately has the effect of fragmenting enforcement authority from the body that sets the orders.

#### Native Use

Native use is not addressed in the Convention.

#### Other Environmental Concerns

As noted above, Article III empowers the Commission to remove obstructions to salmon migration. This power was used in the 1940's to solve the blockage of migration at Hell's Gate in the Fraser River (Crutchfield and Pontecorvo 1969). Pollution and other forms of encroaching development are not specifically addressed. However, authority to improve spawning grounds may help to alleviate this omission. The Commission did take upon itself in the early 1960's an expansion "... to consider the pollution problems that will ensue from the inevitable growth of population and development of industry within the Fraser River watershed" (U.S. Senate Committee on Commerce 1965). The Commission has not dealt with questions of economic efficiency and overcapitalization in the fishing industry (Crutchfield and Pontecorvo 1969).

#### Research and Review

The wide scope of the Commission's authority in both research and regulation, and its scientific orientation marks an important step forward from previous conventions. Thorough research into

the natural history of the salmon, their spawning grounds, hatchery science and other concerns is an integral part of the Commission's function, and eventually has led to restoration of the sockeye runs. Explicit reference to a review of the convention or its success does not appear in the agreement, although implementation of its provisions has achieved this element of review.

### 3. CONVENTION RELATIVE TO THE PRESERVATION OF FAUNA AND FLORA IN THEIR NATURAL STATE - 1933

The theme of this convention is the protection of flora and fauna by the constitution of special parks and reserves where hunting, killing or collection of fauna and flora is prohibited. The geographic focus was Africa, with the further intent of regulating hunting and traffic in trophies in the contracting countries' territories. The contracting parties were Belgium, Egypt, India, Italy, Portugal, South Africa, Sudan, Tanzania and the U.K.

#### Conservation

The conservation of flora and fauna is directly addressed in the definition of the special areas - national parks, and strict natural reserves - which are only encouraged to be established. These areas are strictly defined as to purpose, and as to allowable and incompatible activities including hunting, nevertheless ecosystem management is not inherent in this classification scheme. The greatest degree of protection is possible in a "strict natural reserve":

... an area placed under public control, throughout which any form of hunting or fishing, any undertakings connected with forestry, agriculture, or mining, any excavations or prospecting, drilling, levelling of the ground, or construction, any work involving the alteration

of the configuration of the soil or the character of the vegetation, any act likely to harm or disturb the fauna or flora, and the introduction of any species of fauna or flora, whether indigenous or imported, wild or domesticated, shall be strictly forbidden; which it shall be forbidden to enter, traverse or camp in without special written permit from the competent authorities; and in which scientific investigations may only be undertaken by permission of those authorities (Article 2:2).

The convention addresses administrative arrangements which should be considered if lands are designated as either a national park or natural reserve. These include wildlife and habitat protection as defined by permitted uses and activities; "intermediate zoning" around the reserve or park for control of hunting (Article 4(2)); zoned areas within a party's territory, supplemental to national parks or natural reserves, where hunting, killing or capturing of fauna and flora is prohibited except by special permit (Article 7(1) and (2)); provisions for special protective status for species declared to be in urgent need for such protection (Article 8(1)); measures to regulate traffic in wildlife trophies (Article 9); and methods of hunting and capture which are prohibited (Article 10).

#### Management

Consideration is given to the establishment of necessary measures or controls to undertake the provisions in the Convention. These include permits regarding hunting and trophy export or import where allowed and personnel to regulate these activities. Article 5 contains an omnibus clause respecting establishment of the parks or reserves themselves. Mention here is made of "legislation" and

"methods of administration and control" required when setting aside these areas. This represents the most specific reference to authority, funding and personnel elements of management. In the remainder of the convention, these elements are generally merely implied.

#### Native Use

Prior hunting or other rights held by natives which have been recognized by territorial authorities are not prejudiced by the provisions contained in the Article on hunting control or licencing. Therefore natives are allowed to continue traditional hunting of animals, but no control or surveillance of their activities is intimated. Neither is there specific provision for direct native involvement in management of wildlife and habitat.

#### Other Environmental Concerns

Compatible and incompatible uses of the environment are specifically addressed in the definitions of a "national park" and "strict natural reserve". If such areas are established, it is clear what types of uses are permitted and not permitted. However, wildlife and habitat protection from incompatible uses cannot be enforced if areas are not designated under the special status. Mitigative measures for existing uses are not addressed.

#### Research, Regulation and Review

There is no explicit statement for either coordinated research and monitoring programs, formation of a regulatory body, or review of the mandate, objectives and success of the convention, nor is there a single management plan put forth.

4. CONVENTION ON NATURE PROTECTION AND WILDLIFE PRESERVATION  
IN THE WESTERN HEMISPHERE - 1940

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This convention between the United States and certain Pan-American countries was modelled after that of the 1933 convention relative to the Preservation of Fauna and Flora in their Natural State. The preamble indicates a wide scope of application. Included are extraordinary scenic areas, unique geologic formations, areas and landmarks of aesthetic, historic or scientific value, and areas characteristic of primitive conditions. Wildlife is not explicitly mentioned in the preamble, but is addressed in the body of the convention. Signatories are: the United States, Cuba, Bolivia, El Salvador, Nicaragua, Peru, The Dominican Republic, Venezuela, Ecuador, Costa Rica, Mexico, Uruguay and Brazil.

Conservation

Similar to the 1933 convention, there are provisions for establishing national parks, national reserves, nature monuments and strict wilderness reserves (Article 1). Migratory birds are given special attention. Once again, it is the responsibility of the contracting countries to "explore the possibility of establishing" these areas. There is agreement however, to adopt, or "propose such adoption", of laws and regulations respecting preservation of flora and fauna outside park or reserve boundaries, as well as laws on general preservation of "... the natural scenery, striking geological formations, and regions and natural objects of aesthetic interest or historic or scientific value" (Article V). This at least attempts to approach the issue of overall preservation of habitat and wildlife. However,

ecosystem principles incorporated in management schemes are not implied.

By way of definition, the national parks and reserves and strict wilderness reserves exclude certain forms of development and use. Articles III and IV indicate a specific commitment to this exclusion by prohibiting hunting and collection of flora and fauna in parks, the prohibition of resource exploitation for commercial profit in parks and reserves, and the inviolate nature of wilderness reserves.

#### Management

Funding and personnel are not addressed. Management authority stems from the laws and regulations passed by each country pursuant to the convention for wildlife and habitat protection. A permit system is set up to control the importation, exportation and traffic of protected flora and fauna.

#### Native Use

Unlike the 1933 convention, there is no provision for continuance of native traditional hunting rights. Hunting is generally prohibited "... except by or under the direction or control of park authorities, or for duly authorized scientific investigations" (Article III). Presumably, then, natives might be able to continue to hunt if they can secure permission from park authorities. Native hunting does not appear to be possible in strict wilderness reserves, where the inviolate nature is supreme.



#### Other Environmental Concerns

The control over competing or compatible land uses is not as strictly defined, either in the definition of the special area, or subsequent Articles, as is the case in the 1933 convention. The exception is in strict wilderness reserves which are defined to exclude motorized transportation and commercial developments. Commercial exploitation of resources in national parks and reserves is also prohibited but an exception clause may render this prohibition difficult to implement. The phrase, "... except by the competent legislative authority" is attached to the "thou shalt not alter boundaries or alienate portions of national parks" statement. In effect, if industrial or commercial pressures are strong enough, the authority may reduce the park size and thus incrementally reduce the protected habitat to the point of possibly endangering the wildlife. Mitigative measures are not addressed.

#### Research, Regulation and Review

Article VI states the agreement of parties to engage in cooperative research, and field operations. Regulation and review are not discussed.

#### 5. INTERNATIONAL CONVENTION FOR THE REGULATION OF WHALING - 1946

This convention focuses on safeguarding the future whale resource through the orderly development of the whaling industry. Entered into force in 1948, the signatories are: Argentina, Australia, Brazil, Canada, Denmark, France, Iceland, Japan, Mexico, New Zealand, Norway, Panama, South Africa, the U.S.S.R., the U.K. and the United States.

### Conservation

The explicit goal is the managed exploitation of the resource.

Detailed regulations and amendments to the convention are provided which control the killing of whale populations, designate the areas in which whaling can occur, specific size limits, etc. The authority to deal with these matters is specifically set out in Article V(1):

The Commission may amend ... the provisions of the Schedule by adopting regulations with respect to the conservation and utilization of whale resources, fixing (a) protected and unprotected species; (b) open and closed seasons; (c) open and closed waters, including the designation of sanctuary areas; (d) size limits for each species; (e) time, methods, and intensity of whaling (including the maximum catch of whales to be taken in any one season); (f) types and specifications of gear and apparatus and appliances which may be used; (g) methods of measurement; and (h) catch returns and other statistical and biological records.

It is further stated that these amendments should "provide for the conservation and optimum utilization of the whale resource".

### Management and Regulation

The convention states that each contracting government should take the necessary measures to ensure the application of the objectives and provisions of the convention. Pursuant regulations enacted by each country thereby give authority to implement the agreement's provisions.

The management function is explicitly addressed in the powers and duties of the International Whaling Commission (IWC) under Articles III, IV and V. The major responsibilities of the IWC have been to recommend amendments to the convention (Article V) and to promote scientific research (Article IV). A key weakness in the convention is the IWC's lack of authority over the allocation of catch. Further,

the IWC must regulate whaling based on blue whale units, and not on individual stocks.

The major concern of the IWC with prevention of overfishing and how to regulate the whaling industry was a debated issue. The interests of contracting governments did not coincide on this issue and consequently the IWC was not effective in substantially reducing catch limits until 1965.

The major obstacle to a more timely reduction of the catch limit was the fact that such a reduction would prevent the whaling companies from recovering their investment in modern fishing vessels. ... [further] ... the main reason for its [IWC] inability to prevent the overharvesting of the resource was the unwillingness of the whaling States, ... to accept effective conservation measures (Koers 1973, p.90-91).

Subsection 4 of Article III empowers the IWC to set up advisory committees of virtually any nature to "...perform such functions as it may authorize". Funding of the Commission and its advisory experts is to be paid by each respective contracting government. There is no specific reference to funding of research or management programs.

#### Native Use

The only reference to native hunting of whales is amendment 2 of the attached schedule which allows aborigines to kill only gray and white whales for local consumption.

#### Other Environmental Concerns

There is no evidence of clauses pertaining to other uses of the waters inhabited by whales. For example, the Migratory Bird Convention addressed the issue of dumping of oil and harmful substances into

waters frequented by migratory birds. Such is not the case here. This omission may therefore have serious implications for whale stocks like the Beluga, which calve in the restricted warm waters of the Mackenzie Delta and mouth of the Seal River in Hudson Bay. Evidence heard at the Berger Inquiry indicated that activities such as oil and gas exploration and development in these waters could lead to a major loss of calves and a future reduction in productivity of the herd. "In time, the herd would die out" (Berger 1977, Vol.1, p.65)..

#### Research and Review

Research is addressed in Article IV which empowers the IWC to promote, analyse and publish scientific research on whale stocks and whaling. Coordinated research and monitoring are suggested. Review is implied through the amendment procedure.

#### 6. CONVENTION BETWEEN THE UNITED STATES OF AMERICA AND CANADA FOR THE PRESERVATION OF THE HALIBUT FISHERY OF THE NORTHERN PACIFIC OCEAN AND BERING SEA - 1953

This 1953 convention is a revision of a 1937 convention to enable more effective conservation of the halibut fishery. The convention process actually began in the late 1800's, with several agreements having been signed.

#### Conservation

The stated goal of the convention is maximum sustained yield and maintenance of the stocks at the appropriate level. This goal has proven restrictive in terms of both control and cooperative management with other fisheries. Wilimovsky and Alverson (1971)

noted that biological factors alone should not dictate management strategies: "Most of the legal, economic, social and educational questions have not been tackled on a broad base; and, indeed, effective management must consider these non-biological areas". It has also been suggested that under certain conditions, maximum sustained yield fishing can result in fish stock depletion (Skud 1976). Further, in 1975 the Minister of the Environment, Romeo LeBlanc, indicated that this goal was in conflict with national goals of optimum utilization - "We must move away from the unworkable concept of maximum sustained yield to a concept of optimum economic yield" (Press Release, June 6, 1975, Environment Canada). Unfortunately, optimum economic yield is even more likely to deplete the stocks.

#### Management and Regulation

Article III(2) spells out fishery management objectives to be carried out by the International Pacific Halibut Commission, which is comprised of six members, three appointed by each contracting government<sup>1</sup>:

2. The Contracting Parties that for the purpose of developing the stocks of halibut of the Northern Pacific Ocean and Bering Sea to levels which will permit the maximum sustained yield from that fishery and for maintaining the stocks at those levels, the International Pacific Halibut Commission, ... may, after investigation has indicated such action to be necessary, in respect of the nationals and inhabitants and fishing vessels and boats of the United States of America and of Canada, and in respect of halibut:

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1. It should be noted that the Commission was originally established in 1923. At that time it was called the International Fisheries Commission and had a much more limited scope in terms of membership, objectives and functions.

- a. divide the Convention waters into areas;
- b. establish one or more open or closed seasons, as to each area;
- c. limit the size of the fish and the quantity of the catch to be taken from each area within any season during which fishing is allowed;
- d. during both open and closed seasons, permit, limit, regulate or prohibit, the incidental catch of halibut that may be taken, retained, possessed, or landed from each area or portion of an area, by vessels fishing for other species of fish;
- f. fix the size and character of halibut fishing appliances to be used in any area;
- g. make such regulations for the licencing and departure of vessels and for the collection of statistics of the catch of halibut as it shall find necessary to determine the condition and trend of the halibut fishery and to carry out the provisions of this Convention;
- h. close to all taking of halibut such portion or portions of an area or areas as the Commission finds to be populated by small, immature halibut and designates as nursery grounds.

A shortcoming of this convention is the lack of provision for emergency action by the Commission. A further weakness identified by Skud (1976) is the fragmentation of management and enforcement authority. As noted on p. (130) this arrangement is typical of international agreements where enforcement authority over regulations recommended by the Commission rests with federal agents specified in the enabling acts of each country for the convention. Therefore, the Commission has authority over managing the halibut stocks and the federal agents have responsibility of enforcing the regulations. This dichotomy has often led to disregard for regulations due to the belief that offenders will not be punished (Skud 1976).

Finally, with the restricted mandate of maximum sustained yield, the Commission also lacks the authority to implement updated and progressive management schemes and to deal with other issues such as over-

capitalization of the fisheries. Nevertheless, the Halibut Commission has been successful in restocking the halibut fishery. Koers (1973) suggests its success is derived from a combination of unique factors:

1. the Commission has its own independent research staff;
2. it has only two contracting parties which traditionally cooperate on international resource problems;
3. it is concerned with only one species;
4. it receives "active" support from the fishing industry;
5. the Commission's task of rebuilding the stocks of halibut in obvious danger of depletion was a non-controversial one.

#### Native Use, Other Environmental Concerns, Research and Review

These are not addressed in the convention or in the Canadian enabling Act - the Northern Pacific Halibut Fishery Convention Act, 1953.

#### 7. INTERIM CONVENTION ON CONSERVATION OF NORTH PACIFIC FUR SEALS - 1957

The governments of Canada, Japan, the U.S.S.R. and the United States agreed to conserve the fur seal resources of the North Pacific according to the principle of maximum sustained productivity.<sup>1</sup> Coordinated scientific research and the establishment of a Fur Seal Commission are key factors in this convention.

#### Conservation

Based on the goal of attaining fur seal levels which will provide the largest harvest each year, conservation measures are laid out. The principle of maximum sustained productivity is used in developing a

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1. Throughout this convention, the term maximum sustainable productivity is used instead of the more common term maximum sustained yield, which is probably what was intended. Yield to man is always a fraction of annual productivity since natural mortality also takes toll.

conservation-oriented management plan in relation to the productivity of other living marine resources of the area. This plan is itself based on coordinated scientific research programs and an element of flexibility in the Commission's determination of total harvest levels.

#### Management and Regulation

Authority and funding is given to the North Pacific Fur Seal Commission, which is comprised of one member from each country, to formulate, coordinate and conduct research programs on the North Pacific fur seals, to study the resultant data, and to recommend to the contracting governments appropriate measures to ensure that the convention's provisions are followed (Article V). A Protocol which entered into force in 1964 expanded the Commission's responsibility to include the study and pursuant recommendations on whether or not the killing, taking or hunting of seals at sea in any manner (pelagic sealing), in conjunction with land seals, could continue in certain circumstances without adversely affecting the convention's principle and objectives (amendment to Article V(2)(e)). This Protocol therefore gave the Commission review and recommendation powers over the continuance of pelagic sealing.

The Commission may also submit recommendations to the countries for measures regarding size, sex and age composition of the seasonal commercial kill, sealing methods, and any other matters relating to fur seal resources. The convention also provides for a "watchdog" official to oversee whether the convention's rules are carried out, and whether any offences are committed. It also requires the countries



to "... enact and enforce such legislation as may be necessary to guarantee the observance of this Convention and to make effective its provisions with appropriate penalties for violation thereof" (Article X).

The convention also has a unique aspect in that it has distinguished between access to the wealth of a resource and access to its harvest. Article IX states that the U.S. and the U.S.S.R. must compensate Canada and Japan for losses from the prohibition of pelagic sealing by delivering a certain number of sealskins to these two countries.

#### Native Use

Article VII addressed the question of subsistence pelagic sealing. It essentially allows subsistence native hunting constrained by the mode of transportation, weaponry and subsequent use of the seal consistent with traditional native subsistence practices. There is no quota or monitoring program indicated for native hunting.

#### Research

As previously noted, coordinated scientific research programs were recognized as being an integral part of achieving the principles of determining the necessary measures for achieving maximum sustainable productivity, and of determining the interrelationships of fur seals and other living marine resources. The research includes the following:

- a. size of each fur seal herd and its age and sex composition;
- b. natural mortality of the different age groups and recruitment of young to each age or size class at present and subsequent population levels;

- c. with regard to each of the herds, the effect upon the magnitude of recruitment of variations in the size and the age and sex composition of the annual kill;
- d. migration routes of fur seals and their wintering areas;
- e. numbers of seals from each herd found on the migration routes and in wintering areas and their ages and sexes;
- f. extent to which the food habits of fur seals affect commercial fish catches and the damage fur seals inflict on fishing gear;
- g. effectiveness of each method of sealing from the viewpoint of management and rational utilization of fur seal resources for conservation purposes;
- h. quality of sealskins by sex, age and time and method of sealing; and
- i. other subjects involved in achieving the objectives of the Convention, as determined by the Commission established under Article V, paragraph 1 (Article II, paragraph 2).

#### Other Environmental Concerns

These are not explicitly dealt with in the convention. The omnibus clause in Article V(a) which allows the Commission "... to make recommendations on any matter which relates to the fur seal resources..." may be used regarding environmental concerns. However, this mandate may not be enough to directly deal with pollution and industrial matters such as high Arctic drilling. Possibly the convention should be reviewed and altered so as to specifically handle recent development pressures.

#### Review

The convention was reviewed in 1963 and was amended according to the Protocol of 1964. Provision for further review is contained in the amended convention, based on the principle of sustainable productivity. This principle may prove somewhat limiting if authority to look into other management goals and subsequent enforcement is not considered.

8. AFRICAN CONVENTION ON THE CONSERVATION OF  
NATURE AND NATURAL RESOURCES - 1968

This convention, adopted by several African nations, including Egypt and Kenya, is an updated version of the 1933 agreement on the Preservation of Fauna and Flora in their Natural State.

Conservation and Management

The fundamental principle is "... to adopt the measures necessary to ensure conservation, utilization and development of soil, water, flora and faunal resources in accordance with scientific principles and with due regard to the best interests of the people" (Article II). Various forms of conservation areas are defined -- the strict nature reserve and national park are very similar to the 1933 definitions; a third category - special reserve - is added, which is comprised of "game reserve", "partial reserve" or "sanctuary" and "soil", "water" or "forest" reserves. The game and partial reserves are of particular significance as wildlife, habitat and other activities are all considered within an ecosystem framework:

- i. "game reserve" which shall denote an area
  - a. set aside for the conservation, management and propagation of wild animal life and the protection and management of its habitat,
  - b. within which the hunting, killing or capture of fauna shall be prohibited except by or under the direction or control of the reserve authorities;
  - c. where settlement and other human activities shall be controlled or prohibited;
- ii. "partial reserve" or "sanctuary" which shall denote an area

- a. set aside to protect characteristic wildlife and especially bird communities, or to protect particularly threatened animal or plant species and especially those listed in the Annex to this Convention together with the biotopes essential for their survival,
- b. in which all other interests and activities shall be subordinated to this end;

Article VII addresses the conservation and management of faunal resources, and places these functions within a land-use planning framework. This framework represents a more comprehensive approach to conservation of resources than previously evident in conventions.

1. The Contracting States shall ensure conservation, wise use and development of faunal resources and their environment, within the framework of land-use planning and of economic and social development. Management shall be carried out in accordance with plans based on scientific principles, and to that end the Contracting States shall: -
  - a. manage wildlife populations inside designated areas according to the objective of such areas and also manage exploitable wildlife populations outside such areas for an optimum sustained yield, compatible with and complementary to other land uses; ...

There is also provision for adopting legislation on hunting, capture and fishing of faunal resources, and for special status of protected species.

Most of the management objectives as stated are to be carried out by each contracting government, with as much coordination and cooperation with other governments as possible. "Each Contracting State shall establish, if it has not already done so, a single agency empowered to deal with all matters covered by this Convention, but, where this

### Review

There is provision in Article XXIV for specific revision of any part or the whole of the convention after five years of implementation. This is a clear break from prior agreements which either omitted or merely implied such an element.

### 9. CONVENTION CONCERNING THE PROTECTION OF THE WORLD CULTURAL AND NATURAL HERITAGE - 1972

Recognizing the importance of international participation and cooperation in safeguarding areas of cultural and natural heritage, this convention was adopted in 1972 and entered into force in 1975 under the auspices of the United Nations Educational, Scientific and Cultural Organization (UNESCO). This convention is included in the analysis because of its attempt at comprehensive conservation policy and its establishment of a World Heritage Committee, despite the fact that Canada is still not a member. (Only a few criteria are applicable.)

### Conservation and Management

This convention essentially attempts to rally support from the contracting governments for international protection and conservation of areas of cultural and natural heritage within their territories.

Areas with natural heritage are defined as:

natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view;

geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science and conservation;

natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty (Article 2).

The convention states that the governments should endeavour to adopt a general policy on conservation of cultural and natural heritage areas as being important within community functions and comprehensive planning; and that appropriate administrative, financial and technical resources should be made available for conservation programs as well as research (Article 5).

#### Research

Cooperative research for the purposes of studying and ultimately establishing areas of cultural and natural heritage is a fundamental principle of the convention.

#### Regulation

The convention establishes an Intergovernmental Committee for the Protection of the Cultural and Natural Heritage. It is popularly known as the World Heritage Committee within UNESCO. An important function of the Committee is the definition of criteria upon which areas of cultural and natural heritage may be included in the World Heritage Lists, and the decisions on whether such areas will be ultimately included.

The Committee may also lend assistance to countries involved in identifying or establishing cultural or natural heritage areas. This assistance may be for studies, provision of technical experts, training of staff, supply of equipment, loans and subsidies.

10. CONVENTION BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA  
AND THE GOVERNMENT OF JAPAN FOR THE PROTECTION OF MIGRATORY BIRDS  
IN DANGER OF EXTINCTION, AND THEIR ENVIRONMENT - 1972

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Recognizing the value of migratory birds for recreational, aesthetic, scientific and economic purposes, and the need to cooperate in the protection and management of migratory birds in danger of extinction, the United States and Japan agreed upon this convention in 1972.

Conservation

As several species of migratory birds were in danger of extinction, the convention takes a strong approach to conservation. It essentially prohibits the taking of migratory birds or their eggs and any traffic in such birds or eggs. Exceptions to this prohibition include taking for scientific or propagative purposes, for protection of person or property, during open hunting seasons, and by natives of the Trust Territory of the Pacific Islands for personal food and clothing. Special status for birds in danger of extinction, and provision of "sanctuaries for the protection and management of migratory birds" are endorsed. Article VI specifically states that the parties should attempt to preserve and enhance migratory bird habitat, especially respecting measures to prevent pollution damage, and the importation of incompatible flora and fauna. This is a significant refinement over the 1916 treaty which had no reference to habitat or management.

Management

The objectives of protection and conservation, and maintenance of populations at optimum numbers, are endorsed throughout the convention,

but steps to ensure these are not addressed. The typical clause of agreement to take necessary measures to carry out the convention's intent is included (Article VII); however there is no mandate for funding or authority in a coordinating body.

#### Native Use

Native use is allowed as an exception to the major prohibition clause, and refers to Eskimos, Indians and indigenous peoples of the Trust Territory of the Pacific Islands regarding the use of the birds for personal clothing and food.

#### Other Environmental Concerns

This area of concern is primarily discussed respecting habitat protection and management. Article III recommends establishing sanctuaries but does not indicate the nature and type of activities permitted within them. Article VI addresses damage to migratory birds and their environment:

Each Contracting Party shall endeavour to take appropriate measures to preserve and enhance the environment of birds protected under this Convention and shall:

- a. seek means to prevent damage to such birds and their environment, including, especially, damage resulting from pollution of the seas; ...

#### Research, Regulation and Review

Coordinated research is encouraged beyond the normal exchange of data and research by each country. There is no provision for a regulatory commission, and review of the convention is limited to the list of migratory birds considered in need of protection, defined in the Annex.



11. AGREEMENT ON THE CONSERVATION OF POLAR BEARS - 1973

This agreement between Canada, Denmark, Norway, the U.S.S.R. and the United States recognized an immediate need for protecting the polar bear in the Arctic Region. It primarily prohibits the hunting, killing and capturing of the polar bear, with exceptions relating to scientific study, local people using traditional methods and for conservation purposes (defined to include management by Canada).

Conservation

Conservation of polar bears and their ecosystem is addressed in the fundamental principle of the convention:

Each Contracting Party shall take appropriate action to protect the ecosystem of which polar bears are a part, with special attention to habitat components such as denning and feeding sites and migration patterns, and shall manage polar bear populations in accordance with sound conservation practices based on the best available scientific data (Article II).

This is a significant departure from past agreements, for it recognizes firstly the need for an "ecosystem" approach, and secondly for special protection of critical areas, such as denning and feeding sites.

Native Use

As indicated above, natives are permitted to continue to exercise their traditional hunting rights on polar bears, using traditional methods. These include the use of rifles, snowmobiles and small boats. The Canadian Government Explanatory Declaration explains that the Canadian Polar Bear Technical Committee recommends annual management quotas for each sub-population, including native quota allotments. There

has been extensive consultation with native organizations in Canada regarding Canadian management practices pursuant to the convention (Hunt 1979).

#### Research, Regulation and Review

Coordinated research is encouraged, beyond national research programs:

The Contracting Parties shall conduct national research programmes on polar bears, particularly research relating to the conservation and management of the species. They shall as appropriate, coordinate such research with research carried out by other Parties, consult with other Parties on the management of migrating polar bear populations, and exchange information on research and management programmes, research results and data on bears taken (Article VII).

There is no provision for a regulatory commission or review of the success of management programs and intent of the convention.

#### 12. CONVENTION BETWEEN THE U.S. AND THE U.S.S.R. CONCERNING THE CONSERVATION OF MIGRATORY BIRDS AND THEIR ENVIRONMENT - 1976

This convention represents the most recently signed international wildlife agreement with significant improvements over past conventions on the same subject. Similar to the U.S./Japan convention in form, the content is more explicit.

#### Conservation and Management

"Preservation and maintenance of stocks of migratory birds" is the stated aim. The approach is to prohibit the "taking of migratory birds, the collection of their nests and eggs and the disturbance of nesting colonies" (Article II(i)). Hunting seasons are set for both sport hunters and indigenous peoples -- the latter restricted to the use of

the birds and eggs for "nutritional and other essential needs"

(Article II(1)(c)). Habitat protection is addressed in Article IV:

1. To the extent possible, the Contracting Parties shall undertake measures necessary to protect and enhance the environment of migratory birds and to prevent and abate the pollution of detrimental alteration of that environment.

Other measures are explained in remaining sections, including the stipulation that areas of specific importance to the conservation of migratory birds (i.e. breeding and feeding areas) should be identified and ultimately protected. More generally -- conservation and environmental protection is encouraged in Article VII:

Each Contracting Party shall, to the maximum extent possible, undertake measures necessary to establish preserves, refuges, protected areas, and also facilities intended for the conservation of migratory birds and their environment, and to manage such areas so as to preserve and restore the natural ecosystems.

#### Native Use

Native hunting is addressed in Article II, sections 1(c) and 2. Native taking of migratory birds and the collection of their eggs is permitted during specific hunting seasons for nutritional and other essential needs only. The open seasons are based on the principle of preservation and maintenance of migratory bird stocks.

#### Other Environmental Concerns

These are generally addressed under the heading of habitat protection in Article IV, as indicated above. A warning system is to be established to aid in combatting environmental degradation. Cooperation for this purpose is also endorsed:

... the competent authorities of the Contracting Parties shall establish necessary procedures for such warnings and will cooperate ... in preventing, reducing or eliminating such damage to migratory birds and their environment and in providing for the rehabilitation of their habitat (Article IV(2) (a)).

This reference to rehabilitation is noteworthy in that it represents the first stated inclusion in a convention.

#### Review

Article XII states that the convention will remain in force for fifteen years, after which time it will be automatically renewed annually. As Robinson (1976) has noted:

Unlike the 1916 Treaty ... where no evaluation has occurred and there is no required or sure diplomatic forum to press implementation, the U.S./U.S.S.R. Convention renewal clause should encourage analysis and review (emphasis added).

The remaining Articles are essentially the same as those in previous agreements respecting special status to birds in danger of extinction. Again, there is no provision for a regulatory commission to ensure that the strongly-endorsed measures for conservation and enhancement of migratory birds and their habitat are achieved.

#### 13. SECOND REVISED DRAFT CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS - 1978

This convention arises from the Action Plan of the 1972 Stockholm Conference on the Human Environment. This draft by the Federal Republic of Germany will be the focus of an international conference in Bonn, June 11-23, 1979 for the purpose of adopting the convention. The draft focuses on protection of two classes of migratory species - those requiring "immediate and stringent protection", and those

selected for conservation and management under agreements between concerned parties of "Range States". "A major purpose of the Convention is seen in providing a framework for the inclusion of these agreements, which, while covering the whole of the range of the species concerned, are to deal with groups of species for maximum impact" (Munroe, March 23, 1979).

### Conservation

A strong commitment to conservation and management of migratory species, with particularly strict controls for endangered species, is evident.

For example, the contracting governments are to:

- a. conserve, and where required take action to restore, those habitats of the migratory species concerned which are of importance in restoring that species to a favourable conservation status or in maintaining it in such a status, and, wherever appropriate, establish or maintain protected areas for that species;
- b. prevent, remove, or compensate for the adverse effects of, disturbances and obstacles that seriously impede or prevent the migration of the migratory species concerned;
- c. prevent, reduce or control factors that are likely to influence unfavourably the conservation status of the migratory species concerned or prevent improvement of that status, including prohibiting the introduction of, or eliminating already introduced, exotic species; and
- d. prohibit taking of animals belonging to the migratory species concerned.

Exemptions are permitted only under exceptional circumstances which "shall not adversely affect the conservation status of the migratory species concerned and not prevent improvement of that status"

(Article III(3)). Unfortunately, this standard is not precisely defined nor are exemptions subject to review by a commission or council.

For migratory species not classified as endangered or requiring urgent protection, the convention states that agreements should be made between Range States to "... deal with all aspects of the conservation and management of the migratory species concerned and... to maintain that species in a favourable conservation status or to restore it to such a status" (Article V(1)). These include provision for research, information exchanges, monitoring programs, periodic review of conservation status, a common management plan, harvesting measures and emergency procedures when the conservation status of the species is threatened. Respecting habitat conservation, the agreements should also include provision for:

- e. conservation and, where required, restoration of the habitats of importance in maintaining a favourable conservation status, and protection of such habitats from disturbances including prohibition of the introduction of, or control of already introduced, exotic species detrimental to the migratory species;
- f. maintenance of a network of suitable habitats appropriately disposed in relation to the migration routes so that migration may always take place without difficulty;
- g. where it appears desirable, the provision of new habitats favourable to the migratory species or reintroduction of the migratory species into favourable habitats;
- h. elimination of, to the maximum extent possible, or compensation for obstacles and disturbances which hinder or impede migration;
- i. prevention, reduction or control of the release into the habitat of the migratory species of substances harmful to that migratory species; (Article V(5)).

#### Native Use

Native traditional use of migratory species is not addressed.

Nevertheless, a case might conceivably be made for subsistence hunting

as an exemption under Article III(3) for endangered species, and be under some form of control stated in Article V(5)(j). Therefore, treatise of native use of migratory species remains ambiguous.

#### Management, Regulation and Review

For species listed in Appendix I which are in need of immediate and stringent protection, Article III outlines immediate action to be implemented by each Range State without the negotiation, conclusion and ratification of formal agreements.

For species listed in Appendix II which are to be covered by agreements between Range States, each agreement is to:

- c. provide for the designation of national authorities concerned with the implementation of the Agreement; and
- d. establish appropriate common machinery which may use existing institutions, to carry out the aims of the Agreement, to monitor its effectiveness, and to prepare reports for the Conference of the Parties; (Article V(4)).

The "supreme" decision-making body however, is the Conference of the Parties, an umbrella organization advised by a Secretariat (an executive secretarial role to organize meetings, maintain liaison between countries, etc.); and a Scientific Council (a broadly-based group specializing in ecology and biology of migratory species).

The Conference of the Parties must meet at least every three years to review the implementation of the convention, subsequent agreements, and the conservation status of migratory species (Article VII).

It may also:

- c. make such provision and provide such guidance as may be necessary to enable the Scientific Council and the Secretariat to carry out their duties;
- d. receive and consider any reports presented by the Scientific Council, the Secretariat, any Party or any standing body established pursuant to an Agreement;
- f. make recommendations to the Parties for improving the effectiveness of this Convention;
- g. make recommendations to the Parties to any Agreement for improving the effectiveness of that Agreement; and
- h. decide on any additional measure that should be taken to implement the objects of this Convention (Article VII(5)).

It is not clear whether subsection (c) above may be applied to cover funding of required research and personnel. There is no explicit reference to funding in any Article of the Convention.

This draft convention has recently come under attack. The International Association of Fish and Wildlife Agencies has strongly opposed the agreement. The Association submits that:

... The Convention treats all parties as unitary states, which have exclusive authority as opposed to federal states. In federal states, including the United States and Canada, legislative power is divided between the legislature of the federation (e.g. the U.S. Congress) and legislatures of constituent units (the states and provinces).

State and federal authority would be preempted, according to the Association, through the majority vote in the Conference of the Parties (Outdoor News Bulletin, April 1979, p.3-4).

Concern was further expressed by Mr. Daniel Poole, president of the Wildlife Management Institute over costs of encouraging and assisting governments:



... in terms of disruption of long-established relationships among levels of government in any one country; ...There is uncertainty, too, about the integration of such new authority with carefully drafted agreements such as already exist for migratory birds involving Canada, Mexico, the U.S., the Soviet Union, and Japan (Outdoor News Bulletin, April 1979, p.5).

Despite these and other problems inherent in this draft as proposed, the convention does have potential for providing a framework upon which international agreements on migratory species could be negotiated.

#### 14. THE INTERNATIONAL JOINT COMMISSION (IJC)

In 1909, the Boundary Waters Treaty between Canada and the United States was signed in order to deal with the increasing number of complex inland water problems along the international boundary. The treaty contained a provision to create an International Joint Commission (IJC), "... a problem-solving institution that was not to be a mere fact-finder, ... but to be a permanent joint tribunal with final decision-making powers and equal U.S. and Canadian membership. The Members were appointed to act as a single body seeking single solutions..." (Scott, 1977, p.4).

The IJC is composed of three commissioners from each country, appointed by the respective federal governments. The Commission and its Boards must act in accordance with a joint or "common interest" and not according to national policies or politics. It has been well documented that neither the commissioners nor the two delegations collectively make a practice of imposing a selfish national interest on the decision-making of the Commission. "Indeed, it has rarely

divided at all: unanimity has been the most common outcome" (Scott 1977, p.6). The real success of the IJC has been the authority to establish "expert boards" to advise and report on the problem to the Commission.

What is uniquely important is that these Board reports are, and must be, unanimous. The I.J.C. will not allow the public servants and private consultants who serve on them also to serve their own country's cause, as they may see it. Even though most of the data, and even the recommendations may be generated in offices that are also advising national (or local) politicians, the report produced for the I.J.C. is composed by experts who are told they must attempt to 'wear two hats' - one for their own country, the other for the I.J.C. Board (Scott 1977, p.11-12).

The Commission also has authority to hold public hearings at several stages of the review process and to publish reports and recommendations on their findings. With these elements of authority and flexibility, the IJC has been able to perform a significant decision-making role in Canada/U.S. environmental relations.

Thus the I.J.C. provides a mechanism to produce impartial solutions that can be accepted by both sides. When the issue is very contentious and local passions are aroused, the I.J.C.'s greatest contribution is to provide a means of obtaining agreed and trusted technical and social data. Rarely, by the time it reports, are there facts in dispute (Lemarquand and Scott 1976, p.161).

Although final decision-making rests with the two governments, past history suggests that the IJC's recommendations are generally accepted and implemented, often through the IJC itself. Specific responsibilities and authority are vested with the IJC to, among other things, monitor, implement and enforce the agreed-upon disposition (Scott 1979).

APPENDIX II

CONVENTION BETWEEN THE UNITED STATES OF AMERICA AND CANADA FOR THE  
CONSERVATION OF MIGRATORY CARIBOU AND THEIR ENVIRONMENT

The Governments of the United States of America and Canada,

RECOGNIZING that caribou form an important part of the common heritage of mankind and that each generation of man holds the resources of the earth, including wild animals, for future generations and has an obligation to ensure that this legacy is conserved and where utilized, is used wisely;

KNOWING that certain indigenous people of Alaska in the United States and aboriginal people of the Yukon and Northwest Territories in Canada depend upon caribou for their survival and existence either wholly or in part, recognizing that this dependence will continue, and convinced that such people should be involved in management of caribou;

RECOGNIZING that use of caribou by indigenous or aboriginal people for their own nutritional and other essential domestic needs should have priority over any other use and that state and territorial governments of the Parties have implemented policies to this end;

CONSIDERING that caribou are social wild animals whose continued existence in large viable herds depends upon the maintenance intact of populations over large areas of land and that caribou in their great herds constitute a unique natural resource of great and irreplaceable value;

RECOGNIZING that specific caribou herds migrate across the international boundary between the United States and Canada and have common breeding, calving, summering, wintering, staging and feeding areas and migration routes which must be protected;

UNDERSTANDING that the environment and the habitat utilized by these caribou herds must be protected against degradation if caribou herds shared between the two countries are to be conserved;

RECOGNIZING that the Parties have made, and Canada contemplates making in the future, certain Agreements which affect caribou with their indigenous and aboriginal people with respect to the settlement of their aboriginal land or other rights;

CONVINCED that neither the United States nor Canada can by acting alone conserve these shared migratory caribou herds and their habitat and that cooperative action is essential;

DESIRING to take immediate and continuing action for the long-term conservation of migratory caribou and their environment;

HAVE AGREED AS FOLLOWS:

#### Article I

For the purpose of this Convention:

1. "Caribou" means any caribou north of 60°N which (a) regularly

migrates between the United States and Canada for the purpose of breeding, calving, rearing young, feeding, summering or wintering; or (b) constitutes the remnants of groups or herds for which there is clear evidence of historic regular migration between the United States and Canada. The term "caribou" shall connote all values and every aspect of such caribou, including their behavior as individuals and as members of groups and herds, and the behavioral and survival value of the great herds themselves.

2. "Conserve", "conserving", "conservation" and "long-term conservation" means to use, and the use of, all methods and procedures which are necessary to ensure the health and preservation of caribou, their habitats, and the ecological system of which they form a constituent element. Such methods and procedures include, but are not limited to, all activities associated with modern scientific wildlife management and land management such as research, census, monitoring, law enforcement, habitat acquisition, habitat preservation and enhancement, information and education, propagation, hunting, live trapping, and transplantation.
3. "Habitat" means the whole or any part of the ecosystem upon which the caribou depend including all air, land and water that caribou inhabit, utilize or cross at any time.
4. "Sensitive habitats" means those areas of special importance to the conservation and enhancement of caribou because of their

value for breeding, calving, rearing young, feeding, summering or wintering, staging or being located along migration routes.

5. "Take" or "taking" means to harvest, hunt, shoot, kill, trap, capture, collect and includes all activities related to such conduct.
6. "Commission" means the Commission established pursuant to Article III.

#### Article II

1. The Parties shall conserve caribou herds and the ecosystem of which caribou are a part for the long-term well-being of the caribou and so as to maximize total social benefit, particularly for those indigenous and aboriginal people who have a continuing dependance on caribou, and so that risk of irreversible change or long-term adverse effects as a result of use of caribou or their habitat is reduced to a minimum.
2. The Parties shall implement the recommendations of the Commission made pursuant to Article IV, paragraphs 1 and 3 except where, in the opinion of a Party, the net benefits of compliance are appreciably outweighed by the net benefits of other competing regional or national interests. The Parties shall implement, to the extent practicable, the recommendations of the Commission made pursuant to Article IV, paragraphs 2 and 4.

3. The Parties shall provide the Commission with all data, information, and any other assistance deemed necessary and feasible by the Parties for the Commission to perform its duties under this Convention.
4. The Parties shall provide in a timely fashion to the Commission information on proposals for major activities which may beneficially or detrimentally affect the conservation of caribou and their habitat.
5. The Parties shall refrain from taking any action for the protection of caribou that may have substantial long-term adverse effect on other wild fauna and flora.
6. The Parties shall avoid to the extent practicable terrain alteration or other activities that would significantly impede, delay or disrupt caribou herd movement or affect essential caribou behaviour, and to modify, where feasible, existing artificial features that have that effect.
7. The measures taken by the Parties to conserve caribou, their habitat and the ecosystem of which they are a part, shall be based on sound scientific principles and existing knowledge and on recognition that caribou populations and habitats must be understood as ecological units without regard to political boundaries.

Article III

1. The Parties shall establish and maintain a Migratory Caribou Commission. The Commission shall have ten members, five of whom shall be appointed by each Party. The representatives of the respective parties shall function as an integral unit in the conduct of all business before the Commission. The five representatives of each Party shall constitute a Delegation. Each Delegation shall include representation of native people who depend on caribou.
2. Each Delegation shall have one vote. A decision or recommendation of the Commission shall require the approval of both Delegations.
3. The Commission shall elect from its members a Chairman and a Vice-Chairman. The Chairman shall be elected from one Delegation and the Vice-Chairman from the other Delegation. The offices of Chairman and Vice-Chairman shall alternate annually between the Delegations, with the chairmanship assumed first by a member of the Canadian Delegation; except that where the Commission meets in the territory of one of the Parties, the Chairman shall be from that Party's delegation.
4. The Commission shall appoint two Advisory Committees to aid it in the performance of its duties under this Convention: a Scientific Committee consisting of specialists in caribou conservation from the scientific community, and a Subsistence Committee consisting



of representatives of those peoples who traditionally take caribou for their own nutritional or other essential domestic needs.

The Commission may appoint or recognize other public advisory groups as it may deem advisable.

5. The Commission may hold public meetings at such times and places as it may decide. The Commission shall provide public notice preceding those meetings.
6. The Parties shall provide the Commission with personnel and funds required by it to exercise its powers and perform its duties under this Convention.
7. The Commission may communicate with the Parties and appear and present evidence and arguments before, and make submissions to, public bodies on all matters pertaining to the conservation of caribou and their habitat.
8. The Commission shall prepare an annual budget of its anticipated expenses and submit it to each Party. Each Party shall determine and pay the expenses of its Delegation. Joint expenses incurred by the Commission and its Advisory Committees shall be paid by contributions made by the Parties. The form and proportion of the contributions shall be those approved by the Parties after the recommendation of the Commission.

9. The recommendations, public notices, and other public communications issued by the Commission shall be in the official languages of the Parties and, where the Commission is so requested by the Subsistence Committee, in the languages of the people that use the caribou.

#### Article IV

The Commission shall have the following powers and duties:

1. The Commission shall, when advisable for the conservation of caribou herds, recommend to the Parties the number of caribou that may be taken consistent with the long-term conservation of caribou and their habitat. These recommendations shall include establishing the maximum allowable take of caribou and allocating the maximum allowable take between the Parties. When advisable for the conservation of caribou, the Commission may recommend time and area taking restrictions in areas it identifies as sensitive habitats. When recommending the allocation of the take of caribou, the Commission shall take into consideration the availability, subject to sound conservation principles, of other species of wild animals.
2. The Commission shall recommend to the Parties measures to ensure the conservation and enhancement of caribou habitat and the ecosystem of which caribou are a part. These recommendations may include, but are not limited to, measures relating to habitat modification that may impede, delay or disrupt caribou movement, alter traditional use of caribou habitat, or affect caribou

behaviour patterns. These recommendations may refer to the entire habitat of caribou protected by this Convention or any portion of it.

3. The Commission shall identify sensitive habitat components requiring special protection and shall recommend to the Parties measures to govern the use or modification of such areas.
4. The Commission shall recommend to the Parties other measures it deems advisable to ensure the long-term conservation of caribou and their habitat. These recommendations may include measures restricting the harassment and harming of caribou.
5. The Commission, in carrying out its responsibilities under this Convention, shall focus its attention primarily on the Porcupine Caribou Herd and give priority to the conservation and enhancement of that herd.
6. The Commission shall prepare and publish annual summary reports on the status of caribou populations, their habitat, and the ecosystem of which they are a part; actions taken by the Commission in the discharge of its duties; and the actions taken by the Parties to implement the purpose and terms of this Convention. The Commission may prepare and publish such other reports as it deems advisable. The Commission shall make available to the public all reports, recommendations, and data collected or prepared by the Advisory Committees, and any information provided by the Parties.

#### Article V

The Advisory Committees shall have the following powers and duties:

1. The Advisory Committees shall provide advice, data or other services as directed by the Commission, and more particularly they shall
  - a) advise the Commission on all matters relating to taking needs, distribution of take, allowable take levels, and allocation of take between the Parties.
  - b) advise the Commission on all aspects of the conservation and enhancement of habitat and the ecosystems of which caribou are part.
  - c) advise the Commission on the need for research and management studies.
2. The Advisory Committees shall meet regularly to exchange information to aid them in developing their recommendations to the Commission, and may hold public meetings to consider any matter relating to their duties.

#### Article VI

When making recommendations authorized by Article IV, the Commission shall comply with the following procedures, in addition to any other procedures it may establish:

1. The Commission shall request the views of the Advisory Committees, and any other committee it may appoint or recognize;

2. The Commission shall make provision for public comments on recommendations before they are made final;
3. The Commission shall consider the advice of its Committees and the comments of the public, and other relevant data, and issue final recommendations to the Parties along with the rationale upon which they are based;
4. In an extraordinary situation requiring immediate action by the Commission, the procedure in paragraph 2 may be waived.

#### Article VII

The Parties shall undertake the research necessary to meet the purpose and objectives of this Convention. To achieve these ends, the Parties may request the Scientific Committee to coordinate the cooperative undertaking of such research.

#### Article VIII

This Convention shall in no way affect the rights of the Parties to adopt stricter domestic measures to conserve caribou or their habitat or to establish domestic measures protecting caribou not covered by this Convention.

#### Article IX

Nothing in this Convention shall conflict with any Agreements either Party has made with its indigenous peoples whether before or after the date that this Convention comes into force, with respect to the

settlement of their aboriginal, land or other rights, and the Parties agree not to take any action whatsoever which may be contrary to such Agreements without the consent of the respective Party and the indigenous peoples.

#### Article X

1. This Convention shall be ratified and the instruments of ratification exchanged as soon as possible.
2. This Convention shall enter into force on the date that the instruments of ratification are exchanged.
3. At the request of either Party consultation shall be conducted with a view to convening a meeting of representatives of the two Parties to amend this Convention.
4. Either Party may terminate this Convention by written notice to the other Party. Termination shall take effect twelve months after the other Party has received such notice.

IN WITNESS WHEREOF the undersigned, being duly authorized by their Governments, have signed this Convention.