GREATER KLUANE REGIONAL LAND USE PLAN

AUGUST, 1991

Revised June, 1992

Canada

Yukon Government

N O T E

REGARDING

M A P F O L I O

Due to financial and time constraints, the Map Folio has not been included in this revised copy of the Greater Kluane Regional Land Use Plan. Please refer to the Map Folio in the copy of the Plan which was released in August 1991 or contact the Department of Renewable Resources at 667-5905 for copies of the maps.

N O T E

REGARDING

TABLE 4, SUMMARY OF RECOMMENDATIONS (Pages 93-99)

This table is a preliminary indication of responsibilities for implementation. Implementation of the recommendations will be clarified in greater detail in the Implementation Strategy which will be prepared following approval of the Greater Kluane Regional Land Use Plan.

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PART 1: THE NATURE OF REGIONAL PLANNING

1.1 INTRODUCTION

"Kluane" is the Southern Tutchone term meaning "Place for Fishing" or "Many Fish" and the name of the lake from which the Greater Kluane Planning Region takes its name. This document is a land use plan for the region, an area covering some 66,000 square kilometers of the southern Yukon (Map 1). It includes in its borders the 22,000 square kilometer Kluane National Park Reserve. Its boundaries are the Alaska-Yukon border to the west and southwest, the British Columbia-Yukon border to the south, Kusawa Lake to the east, and the Nisling River to the north. The region includes portions of the traditional territories of three participating Yukon First Nations: Kluane, Champagne and Aishihik, and White River. The Kluane National Park Reserve has been included in the planning region in order to address its relationship and significant influence on the surrounding area. However, there are no specific recommendations dealing with park management and resources as it is managed under the National Parks Act.

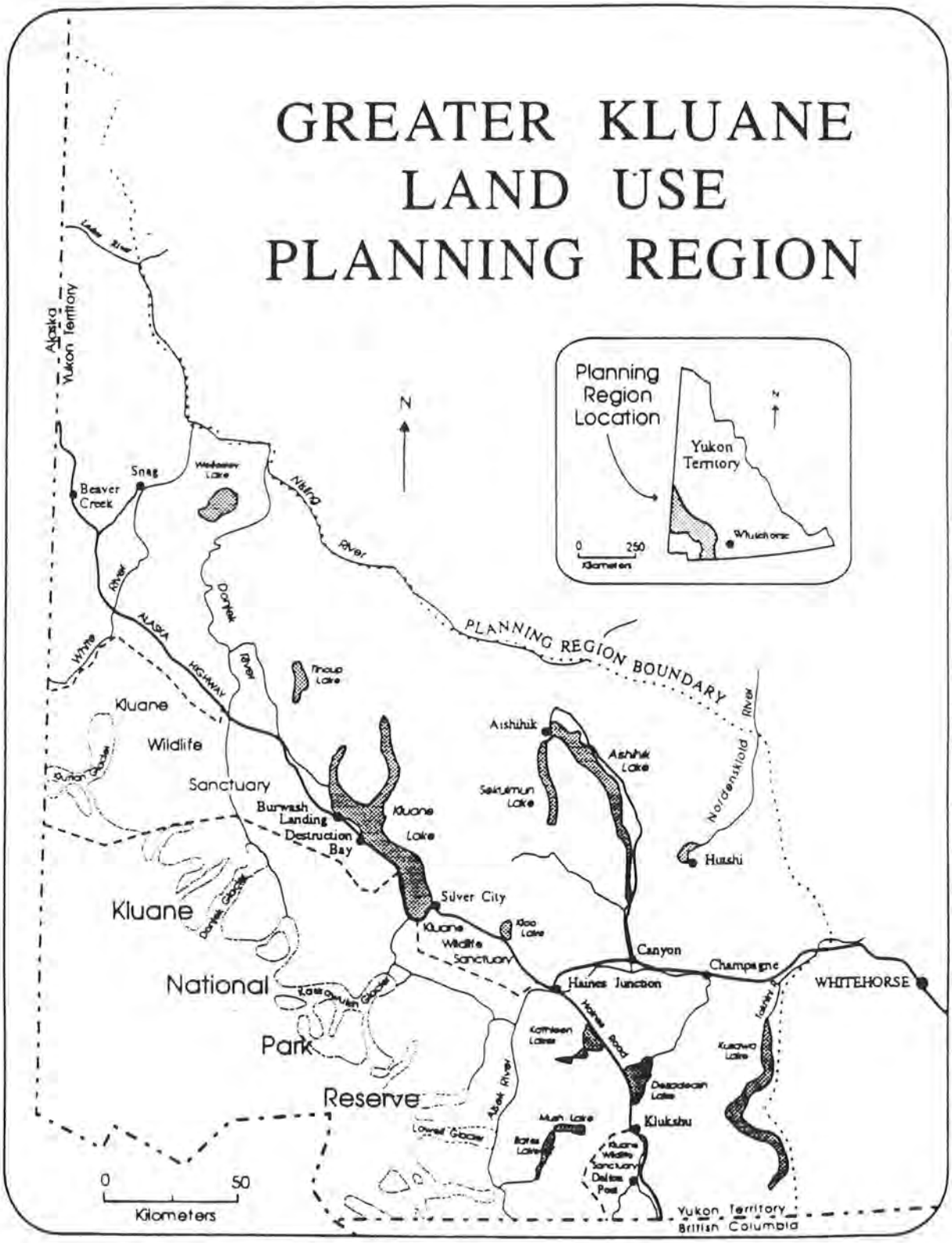
The plan describes the ways in which land is used in the region, outlines the concerns of residents about land use in the future, identifies current and possible future land use problems, and charts a course of action towards sound land and resource management.

The region is noted for its dramatic and diverse landscapes, from the massive St. Elias Mountains in the west to the broad valleys of the south, and the rolling highlands of the Kluane Plateau to the north. The region contains the highest mountains in Canada, the largest non-polar ice field in the world, the greatest variety of large mammals north of the 60th parallel, and globally significant wildlife habitats. There are two major watersheds: the Yukon, draining northwest into the Bering Sea, and the Alsek, draining south into the Pacific. Dramatic forces have moulded the landscape--mountain building, volcanoes, glacial surges, and major drainage reversals; the region is one of the most seismically active in North America.

The long history of native people in this region is very much the story of adaptation to a landscape that was frequently modified by these processes. The region's lakes--Kluane, Kloo, Aishihik, Kusawa, and Dezadeash--are key natural areas that have attracted and continue to support human settlement and activity. The area is rich in archaeological and historic features.

For untold generations, the region has been home to the Tutchone, Tlingit, and Tanana peoples. For the last 125 years, it has become home to non-Indians as well. In that time change has been rapid. Fur trading, mining, big game hunting, and tourism were introduced; highway transport replaced trail networks and water transportation as the major means of communication. While new developments brought some opportunities for the inhabitants, they also conflicted with the Indian way of life and their extensive use of the land.

Just over half of Greater Kluane's population of 1,000 is of non-Indian ancestry, and has been drawn into the region for a variety of reasons. Some are drawn by the natural environment and the inherent attraction of the place, others by its relative isolation and the high degree of personal independence often associated with wilderness environments; to others, Greater Kluane provides not only a home but opportunities for diverse economic ventures.


GREATER KLUANE
LAND USE
PLANNING REGION
Planning Region Location
Yukon Territory
Whitehorse
0 250
Kilometers
N
Alaska
Yukon Territory
Beaver Creek
Snag
Nisling River
PLANNING REGION BOUNDARY
ALASKA HIGHWAY
White River
Donjek River
Kluane Wildlife Sanctuary
Kluane National Park Reserve
Burwash Landing
Destruction Bay
Kluane Lake
Aishihik
Aishihik Lake
Sekulmun Lake
Nordenskiold River
Haines Junction
Canyon
Champagne
WHITEHORSE
Silver City
Kloo Lake
Kathleen Lake
Dezadeash Lake
Kluane Lake
Kluskshu
Mush Lake
Bates Lake
Dalton Post
Alsek River
0 50
Kilometers
Yukon Territory
British Columbia

MAP 1

A number of factors influence the degree of land use conflict evident in the region. There is a growing awareness of the need for environmental protection at a time when demands for industrial minerals and energy are increasing; improved transportation and communication have made its recreation opportunities more accessible to tourists and other Yukoners, putting new pressures on the region's sensitive resources. The centralization of population in Whitehorse, growing from 28 percent in 1951 to 64 percent of the Yukon total in 1986, tends to dominate the small region of 1,000 people. Anticipating the effects of these pressures, identifying appropriate actions to respond to them, and protecting the unique, ecologically vital landscape is what this document strives to accomplish.

1.2 DESCRIPTION OF REGIONAL PLANNING

Role of the Planning Process

The need for planning generally lies in the argument that sensible management of land and resource use is important to the maintenance of the quality of life in the broadest sense, and that anticipating problems is far less costly and more efficient than dealing with unintended effects when they arise.

The planning process has five closely related roles:

1. To identify social, cultural, and economic opportunities and conservation requirements, and to propose a course of action to achieve them.

2. To anticipate and resolve land use problems.

3. To provide a forum for public involvement in the management of a region.

4. To address the potential for accumulated impacts from development.

5. To provide guidance for project review processes.

How We Proceeded

The first step was to develop broad goals to guide the planning process. This was done by the Policy Advisory Committee (consisting of a representative of the federal government, the Council for Yukon Indians, and the Government of Yukon) and approved by the Ministers and the Chair of the Council for Yukon Indians (Figure 1 illustrates the structure of the planning process). Land management concerns were then identified in a number of public meetings held by the Regional Planning Commission. Background information was analyzed and draft recommendations were presented to the public and government agencies for comment. Those recommendations have been reviewed and refined and are presented in this document with supporting background information.

Why Plan for the Greater Kluane Region?

Beyond the argument that sound management of land and resource use makes good sense, there are a number of issues that make Greater Kluane a priority region for land use planning. There has been rapid and accelerating change over the past 80 years, including mining, highway and hydroelectric development, establishment of a national park reserve, tourism, and a proposed natural gas pipeline. The original inhabitants of the region--the Tutchone, Tlingit, and Tanana peoples--have had their way of life greatly modified by the type and pace of development and have seldom received benefits from developments within their traditional territories.

While events of the past were a factor in selecting Greater Kluane as a planning region, current issues and opportunities were also

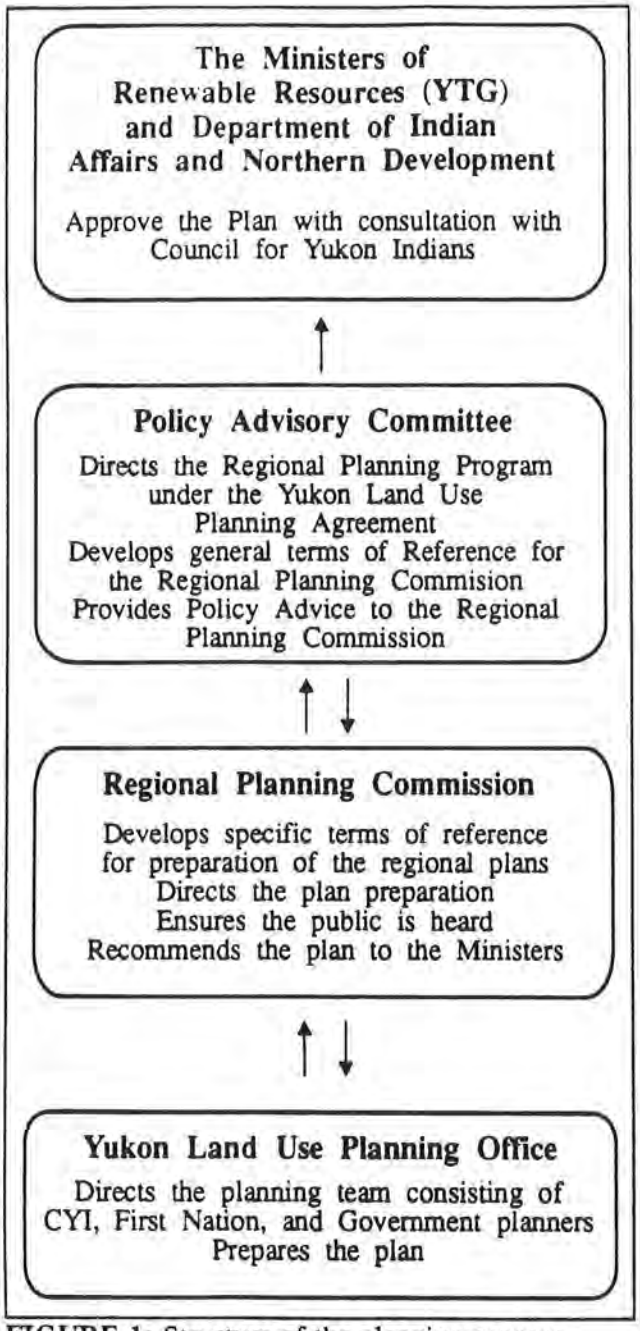


FIGURE 1: Structure of the planning process.

important. There was a recognition that the presence of the national park reserve and the remarkable beauty of the region presented opportunities that could benefit the region's people if the land was properly managed. Interest in two major mining developments and the construction of a natural gas pipeline are seen as having the potential to create positive economic growth, as well as severe negative environmental impacts. Wildlife populations have come under stress as the region became more accessible. Highly diverse forms of land and resource use--wildlife harvesting, mining, tourism, forestry, and agriculture--are increasingly in conflict.

The land regulation structure in the north is sectoral, inefficient, and not appropriate for dealing with highly integrated land use questions. Land use activity in the Yukon has traditionally been governed by a loose, often ad hoc, approach to environmental concerns. No less than 25 different pieces of legislation (acts of parliament or sets of regulations), as well as a number of special cabinet directives, set out the rules and management responsibilities of the federal government in the north and in the planning region.

Despite the complexity of the current management regime, and the confusion it creates, a number of common themes and understandings are beginning to emerge in the territory. The notion of the Yukon as a frontier is no longer widely held by residents. The historically exploitive approach to land use and resource development is being replaced by a greater awareness and sensitivity to the value of a high quality natural environment. A more integrated approach to management is being instituted. Implementation of the Environmental Assessment Review Process (EARP) is now interpreted as a legislative policy requirement. Further refinement of EARP will be implemented under the Development Assessment Process (DAP), to be established as part of a final land claims agreement. Equally as important is the demand from all sectors of the population for more involvement and more responsibility in the resource decision-making process.

Perhaps most importantly, the region's First Nations' leaders and people have demonstrated

Perhaps most importantly, the region's First Nations' leaders and people have demonstrated an interest in working cooperatively to plan the protection and wise use of the region's resources in order to bring social and economic benefits to their people.

What Planning Can Accomplish

Yukon land use planning is not a legislated process; its recommendations are not legally binding on any of the parties who participated in the process. However, once the plan is endorsed by government and First Nations, it is expected to provide clear guidelines for land and resource use in the region.

The plan is important in identifying the various interests and issues in the region and emphasizes the relationship between a wide range of land and resource uses. By bringing the public and various parties with land use interests together, a planning process builds consensus regarding the desirable future. A land use plan is essentially a blueprint to guide land use in the future.

There is a strong link between Yukon land use planning and First Nations' Comprehensive Land Claims in the Yukon. The Umbrella Final Agreement identifies various mechanisms for land and resource management including the Development Assessment Process, local Renewable Resource Councils, and commitments to ongoing planning. The Land Use Planning Commission recognizes their importance in carrying out the recommendations in this plan. It is expected that the Greater Kluane Regional Land Use Plan will serve as a guide for these processes.

Culture and Planning

The concept that land is a commodity was introduced with the arrival of Euro-Americans in the Yukon at the turn of the century. The commodity view sees land as property to be parcelled out and owned, separable from its environmental context. This notion is contrary to the traditional views of indigenous peoples, who see themselves as being "of the land." The relatively recent focus on ecology and the interrelationships between all parts of the environment is a promising starting point for reconciling these differing cultural views of land. Cross-cultural land use planning must recognize these differing cultural perspectives and build on the shared values in order to develop a plan relevant to current regional issues.

There are also marked perceptual differences as to what planning is all about. Planning can be defined as the process of organizing in order to accomplish a goal; thus all people, all individuals, and all societies plan. However, the scale and level of formality varies greatly. To native people, the annual round of land-based activity requires planning, and, although it is a consultative process, it is far less formal than most regional planning processes undertaken in Canada today. For many indigenous people, planning is synonymous with action, whereas in industrialized society like southern Canada's planning is often a long, highly formal process preceding action. In developing the Greater Kluane Plan, both cultural perspectives on land and planning were acknowledged as equally important. Community meetings and utilization of local land use information along with formal scientific information were integral parts of the planning process.

Planning and Scale

Planning can occur at various scales ranging from communities to whole nations. The scale of planning is related to the scale on which problems are identified or occur. Planning at the community scale often fails to address the management of resources on which community health in the broadest sense depends.

The region also lies in a much wider context--the nation and the globe. This is especially

seen in the north where events fashioning and shaping communities and regions have come from the outside. In the Yukon, the Klondike Gold Rush, highway construction, large-scale mining, and tourism are all external events that have drastically transformed the region.

PART 2: OVERVIEW OF THE REGION

2.1 NATURAL ENVIRONMENT

The natural and physical character of the region provides important possibilities for, and constraints on, life and development. Animal and fish resources, natural hazards, accessibility, and potential for mineral, hydro power, agriculture, forestry, and tourist development are all dependent on the nature and form of the physical environment. The land has supported human life for at least 8,000 years. The region's mineral deposits attracted people to the region in substantial numbers, and its rugged mountains, broad and dramatic valleys, and scenic lakes and rivers have become the basis for a vital and expanding tourist industry.

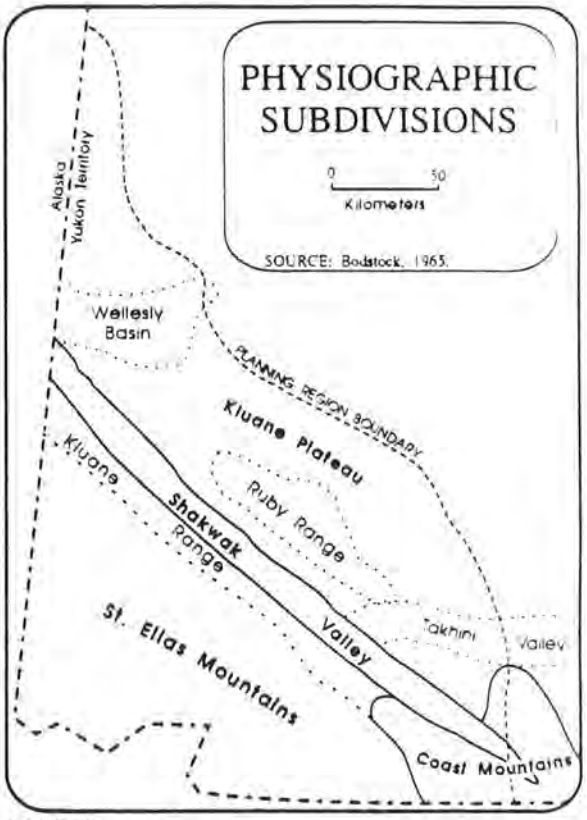
The Physical Landscape

Processes that mould the region's landscape can best be described as cataclysmic. Indian legends and myths recount dramatic drainage reversals, glacial surges, and volcanic eruptions long before modern physical scientists interpreted the scene.

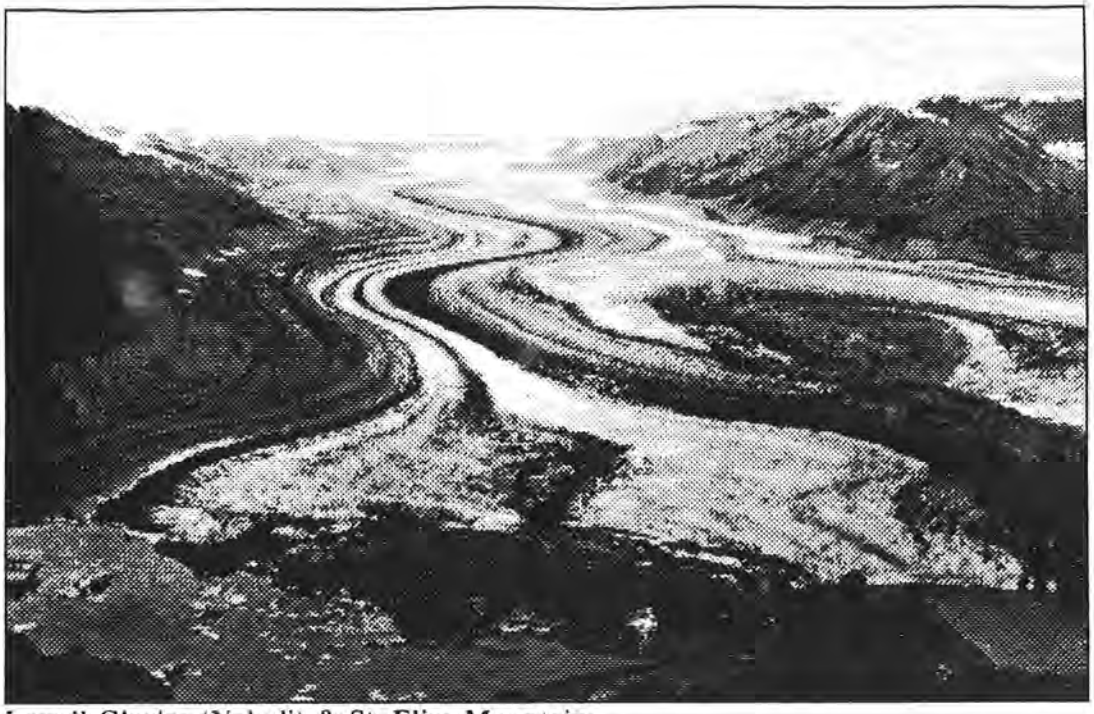
Geological Structure and Drainage

In a geological sense the Greater Kluane Region is very young. Tectonic movement (along the Shakwak Trench) and igneous activity are responsible for the region's mountainous character. These same processes are responsible for the mineralization that attracts such interest in the area. Mountain-forming is continuing, while ice and water further modify the landscape. The dominant physical features, which display a southeast to northwest alignment, are the St. Elias Mountains, the Kluane Ranges, the Shakwak Valley (containing Kluane Lake), the Coast Mountains, and the Kluane Plateau (see Map 2).

The massive and spectacular St. Elias and Kluane Mountains contain numerous high peaks including Mount Logan, the highest mountain in Canada, and the largest non-polar ice field in the world. Vegetation on the mountain slopes is in distinct zones according to elevation: montane forest, subalpine, and alpine. Vegetation within these zones varies according to bedrock and soil types, exposure of slopes to the sun, and the length of the snow-free period. These dramatic variations in climate, elevation, and vegetation create a range of wildlife habitats which support diverse and abundant wildlife populations. The glaciers of the St. Elias Mountains are the primary source of water for the region's major rivers and their tributaries: the Alsek River, which flows to the Pacific Ocean, and the Yukon River, which flows to the Bering Sea.



MAP 2



Lowell Glacier (Naludi) & St. Elias Mountains

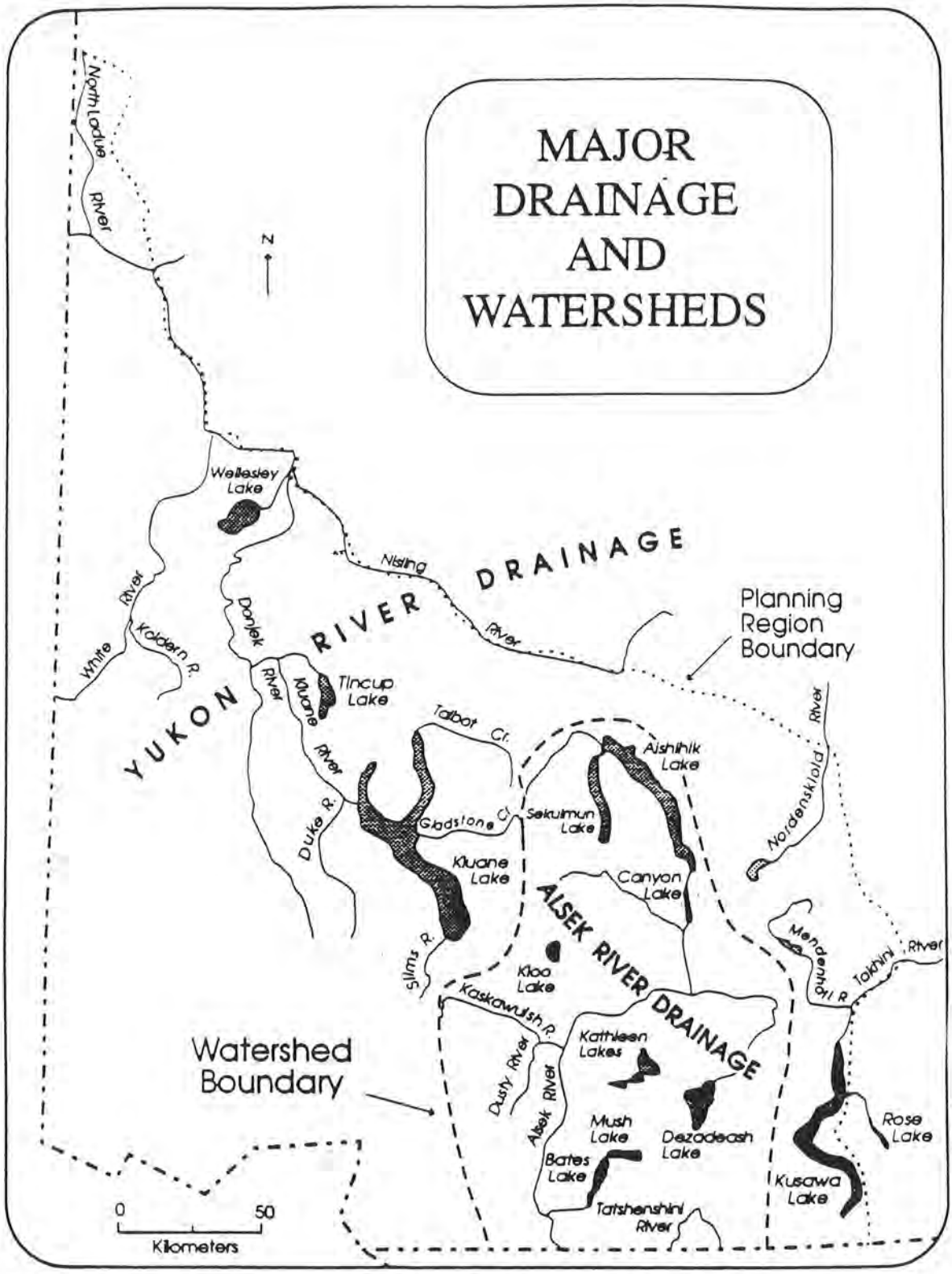
The Kluane Plateau is characterized by large, rolling hills with elevations to 900 meters in the Ruby Range and broad valleys which are drained by the Dezadeash, Takhini, Nisling, Nordenskiold, and Aishihik Rivers. The large lakes within the Plateau--Aishihik, Sekulmun, and Wellesley--are prominent landscape features. As well, there are a number of smaller upland lakes: Tincup, Gladstone, Ittlemit, Long, Moraine, and Taye.

The Shakwak Trench parallels the spectacular Front Ranges of the St. Elias Mountains and contains major portions of the Alaska and Haines highway corridors from Dezadeash Lake to Beaver Creek. Glacier-fed rivers which drain the Front Ranges have been identified as flood hazard areas. The Trench contains both Dezadeash and Kluane Lakes.

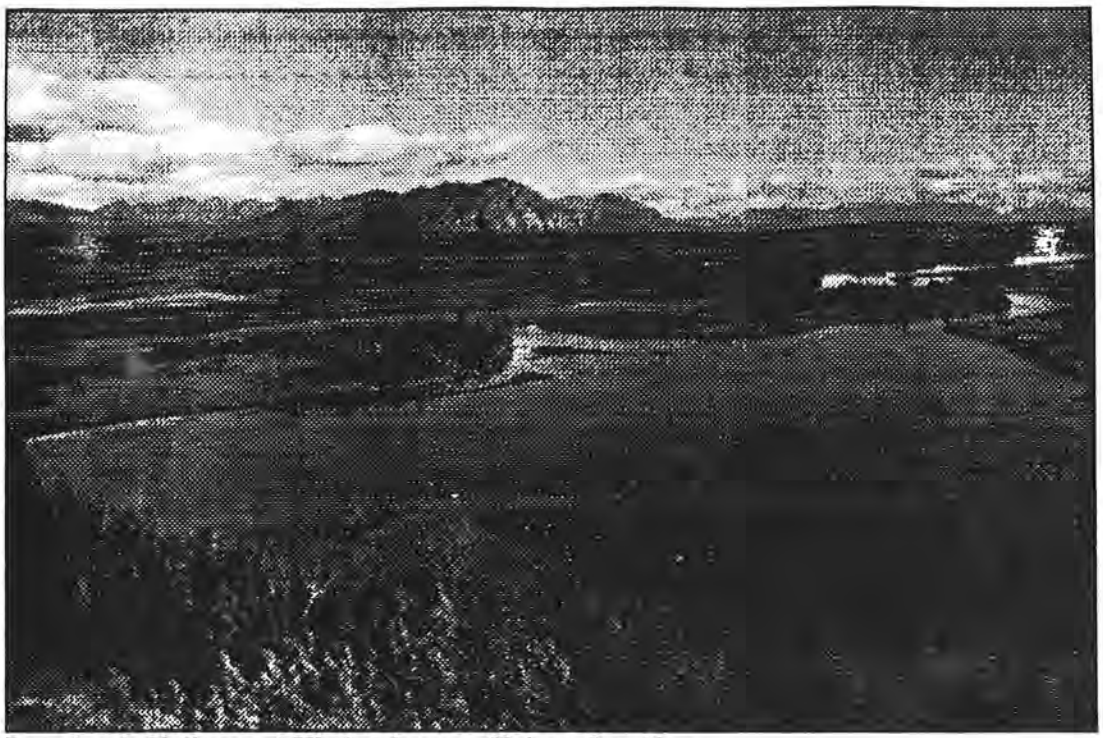
The Coastal Mountains are located to the south of Kluane Plateau. These steep, rugged mountains rise to an elevation of 2,200 meters and are drained by the Dezadeash, Kathleen, Tatshenshini, Klukshu, and Takhini Rivers. The Kusawa, Klukshu, Frederick, Six Mile, and Jo Jo Lakes and the Tatshenshini River Canyon are important landscape features. As well, there are numerous unnamed alpine lakes.

The Kluane Plateau and Coast Mountains are divided by the Dezadeash and Takhini valleys and what was formerly glacial Lake Champagne. This broad valley forms the major east-west arm of the north Alaska Highway.

The drainage pattern of the region (see Map 3) is linked to its glacial history. During the last glaciation--10,000 years ago--a huge lake occupied the present Takhini and Dezadeash valleys and there is historical evidence to suggest that glacial lake formation could again impact on the planning region. The most recent occurrence was in the middle of the last century when the Lowell Glacier surged across


MAJOR DRAINAGE AND WATERSHEDS
N
North Ladue River
White River
Koldern R.
Donjek River
Wellesley Lake
Nisling River
YUKON RIVER DRAINAGE
Planning Region Boundary
Kluane River
Tincup Lake
Talbot Cr.
Aishihik Lake
Nordenskiold River
Duke R.
Gladstone Cr.
Sekulmun Lake
Kluane Lake
Canyon Lake
ALSEK RIVER DRAINAGE
Slims R.
Kloo Lake
Mendenhall R.
Takhini River
Kaskawulsh R.
Kathleen Lakes
Dusty River
Alsek River
Mush Lake
Dezadeash Lake
Rose Lake
Bates Lake
Kusawa Lake
Tatshenshini River
Watershed Boundary
0
50
Kilometers

MAP 3



Dezadeash Valley and Wetlands near Haines Junction

the Alsek River valley creating Alsek Lake. Surveyed beach elevations along the Alsek River indicate that at its highest elevation the present location of Haines Junction would have been 55 meters below water and 15 kilometers of highway would have been inundated. Recent studies suggest that there is a 50 percent probability of lake formation associated with the surging of Lowell Glacier within the next 50 years, but that Haines Junction lies above the probable flood limit. Such a lake would take several years to form and would allow time for an evaluation of the effects of inundation.

The geologic record also shows that the surface elevation of Kluane Lake has changed considerably during the last 10,000 years. During most of this time, Kluane Lake was smaller and its surface elevation was about 12 meters lower than present. It drained southward via the Kaskawulsh River into the Alsek River system.

The Kaskawulsh Glacier advanced across the valley at its terminus about 2,500 years ago. Outwash gravels accumulated in the valley south of the glacier and reversed the gradient of the Slims River. This reversal blocked the former outlet of Kluane Lake and raised its level. The raised lake overflowed northward and cut the present Kluane River outlet into the Yukon River system.

In 1989, the Kaskawulsh River again captured the drainage of its glacier and intercepted the flow into the Slims River and Kluane Lake. This caused an approximate two meter drop in the level of Kluane Lake. This interception was short-lived and the Slims River is once again receiving the melt waters of the Kaskawulsh Glacier. If the Slims River does not continue to be resupplied by the Kaskawulsh Glacier, Kluane Lake's water supply will stay reduced and the lake level may continue to drop.

The rugged and dynamic topography combines with severe climate to limit the possibilities for life, settlement, and transportation. In the past, the river valleys provided routes through diverse terrain, directing and limiting the possibilities for human activity. Traditional land use followed a north-south pattern, linking the coast with the interior of the Yukon (see Folio: Historic and Archaeological Resources map). It is only in the past 50 years that highway construction in the Takhini and Dezadeash Valley and the Shakwak Trench has transformed regional movement patterns into an east-west alignment.

Terrain Hazards

The area is the most seismically active in Canada, with both earthquake activity and a limited threat of volcanic activity. The hazards of seismic activity, glacial surges, and associated drainage reversals are compounded by proximity to one of the world's major mountain environments. Landslides, slope instability, major micro-climate shifts, and large river discharge fluctuations are characteristic of much of the region, particularly within the St. Elias and Kluane Mountain ranges. These dynamic natural processes should not be regarded as historic events; rather, they are ongoing processes that impose major constraints on development.

Climate, Soils, and Vegetation

The region's climate ranges from the subarctic to continental, marked by cold winters and warm, dry summers. The high peaks of the St. Elias Mountains intercept most of the moisture-laden air masses moving from the Pacific Ocean inland. Coastal sites receive in excess of 3,000 millimeters of precipitation a year, while the leeward side of the St. Elias Mountains can receive less than 300 millimeters per year (for example, Burwash Landing).

Mean annual temperatures are low, ranging from -3 at Haines Junction to -7 in the Snag area. The frost-free period of the region is short. For example, the range in Haines Junction is from 16 to 86 days. Low mean annual temperatures are responsible for the presence and distribution of permafrost in the region. The region is in the zone of discontinuous permafrost (excepting the continuous permafrost of the St. Elias ice fields) and varies from scattered permafrost zones in the southern portions to widespread distribution in the northwest. Permafrost occurs where a thick, organic layer insulates the soil. Conversely, fire plays an important role in eliminating the organic layer and allowing the ground to thaw.

The southern portion of the region was glaciated by the last ice advance, 10,000 years ago. The northwest portion of the region has never been glaciated. Upland areas of the glaciated zone contain a mix of fine- and coarse-grained morainal deposits, while soils in the unglaciated portion have been weathered from bedrock over a period of at least 300 million years.

Typical fluvial deposits are silts over sand and gravels. The Dezadeash and Takhini River valleys are covered by deep fine-textured lake bottom sediments (deposited in glacial Lake Champagne) interspersed with, and sometimes covered by, glaciofluvial outwash (usually sand and gravels). There is an extensive outwash plain west of Haines Junction. Valley bottom soil deposits in the glaciated areas are a mixture of glacial landforms modified by stream flows.

The mountainous nature of the Greater Kluane Region means that subalpine and alpine vegetation covers a huge portion of the region in areas above 1,100 meters. The St. Elias Mountains, which comprise approximately 20 percent of the region, are largely unvegetated. Subalpine tundra is typically composed of willow, shrub birch, and sedge meadows.

Thorsen Bay - Kluane Lake & Front Ranges

Alpine tundra is largely sedge meadows and tussock fields with lichens colonizing exposed rock. Silt-textured material from outwash plains in the Slims and Donjek River valleys is redeposited by wind to the north and northeast shores of Kluane Lake. Grasslands occur on these silt deposits and on dry, steep south-facing slopes or salt-affected meadows throughout the region. Wetland vegetation (sedges) occurs in scattered pockets throughout the region. Sedge meadows are associated with, and interspersed by, willow and buck brush. Two of the most significant wetlands are located at the outlet of Kluane Lake and in the Jarvis River valley north of Kloo Lake.

Climate, soil conditions, and topographic relief are major constraints on forestry and agriculture in the region. Nowhere in the region are the conventionally acceptable climatic requirements for grain production or field crops met.

The low productivity of the region's forests is a reflection of climate and topography. Forests are confined to river valleys below 1,100 meters. The most common tree species are white spruce, black spruce, and aspen. White spruce occupy well-drained sites throughout the region on both glacial and fluvial landforms. Black spruce is only common north of Kluane Lake where it occurs on valley floors in association with permafrost conditions. Trembling aspen is found in pure stands on well-drained sites at moderate elevations and on south-facing slopes. Less common tree species include lodgepole pine, alpine fir, and balsam poplar.

Fish and Wildlife

The numerous waterbodies and rivers, and the diverse physical environments of the Greater Kluane Region support a variety of fish and wildlife populations. Fourteen (14) species of large mammals, including ungulates and carnivores, inhabit the region. This represents

the highest diversity in the world north of the 60th parallel. At least 20 species of small mammals occur, several at either the northern or southern limit of their distribution. Some 118 species of birds are known to nest in the Greater Kluane Region, including uncommon or rare species such as peregrine falcons, gyrfalcons, bald and golden eagles, trumpeter swans, and great grey owls. The region falls on a major migration route and thousands of migrating ducks, geese and swans use its wetlands as resting points. They are concentrated on Kluane Lake in the spring and on Wellesley Lake in the fall. In summer waterfowl are dispersed widely throughout the region, but in relatively low numbers.

The lakes and rivers of the region provide habitat for a diversity of aquatic populations. Typically, northern fish populations in regions such as Greater Kluane grow slowly and are sensitive to changes in water temperature, oxygen levels, and nutrient status.

The Alsek and Yukon River systems contain freshwater and anadromous fish. Freshwater fish found in rivers and lakes of the planning region include northern pike, whitefish, rainbow trout, arctic grayling, lake trout, burbot, and inconnu. Anadromous fish (which spend part of their life cycle in salt water) found in the region include chinook, sockeye, coho, and chum salmon.

The variety of terrain and vegetation types in Greater Kluane is reflected in the diversity and abundance of wildlife populations. Moose, caribou, and Dall sheep are the most common ungulates.

The planning region has populations of a full range of boreal forest animals including wolf, coyote, red fox, wolverine, lynx, grizzly, and black bears.

Elk and bison are both re-introduced species in the Yukon. In the Greater Kluane Region, elk are located in two areas: the Takhini River valley, and the Hutshi Lake/Nordenskiold River valley.

Formal recorded data on fish and wildlife is incomplete. The knowledge of local residents has been valuable in filling some of the gaps in this formal data and is playing an increasingly important role in management decisions and priorities.

Significance of the Natural Environment

It is readily apparent that the natural environment of the region has had a significant impact on human life; it provides both opportunities and severe limitations. The range of possibilities is limited by climatic constraints, rugged terrain, and natural hazards. Thus, although Greater Kluane is a large region, the actual amount of land available for human use, habitation, and economic activity is severely restricted.

2.2 HUMAN HISTORY

Human Response to Environment

Human occupancy of the Greater Kluane Region goes back at least 8,000 years. When the first non-Indians entered the White River area 115 years ago, the pattern of occupancy had already been through several cultural phases. At that time the region was occupied by Tutchone, Tanana, and Tlingit people.

Pre-Contact

There are many theories and beliefs about the origin of the region's inhabitants. Views range from the possibility that ancestors of today's Yukon Indian people crossed a land bridge from Siberia to Alaska to the belief that they were born into the land by the Creator. Evidence has been uncovered at various archaeological sites in the Greater Kluane Planning Region which has been used to describe four cultural phases defined on the basis of changes in technology and subsistence

life styles. This information, although incomplete, provides the basis for an understanding of the pre-contact history of Indian people in the region. Additional study will undoubtedly improve knowledge of the region and its early people.

The earliest site identified--at Canyon Creek--dates to over 8,000 years ago. This site reflects the characteristics of the "Little Arm" cultural phase. Research indicates that small bands of nomadic people were primarily dependent on herds of barren ground caribou and bison that roamed the area at that time. They had stone tool technology, producing composite tools using small blades or microblades.

Sites of the following phase, that of the Taye Lake cultural group, are recognized by the appearance of a new stone tool technology, characterized by the production of large side-notched and stemmed spear and arrow points. The people of this cultural tradition are presumed to be related to Athapaskan-speaking Indians from Alaska and to have entered what is present day Yukon from the northwest. By the beginning of this phase, forests had expanded into the region and sites reflect an adaptation to the new conditions. Several large sites associated with this culture have been uncovered, suggesting that people returned seasonally to certain camps over a period of many years. The land use pattern closely resembles that of Tutchone people in the post-contact period, generally involving summer residence along rivers to exploit fish; fall hunting of sheep, caribou, and moose in upland areas; winter hunting and trapping in valleys, and fishing on lakes; and spring beaver hunting and fishing.

The Taye Lake Culture was superseded by the Aishihik Culture, which flourished in the area from about 1,300 to 200 years before present, possibly in response to the decline of bison in the southwest Yukon and the onset of neoglaciation in the St. Elias Mountains. The distribution of sites of the Aishihik phase suggests predominantly small, mobile groups of people pursuing their seasonal round over large areas. The use of native copper to fashion tools and ornaments was an important technological step taken during this period.

The Bennett Lake cultural group takes the historical record of Yukon people into the present century. Although it shared many of the characteristics of the Aishihik Culture, this group acquired European trade goods and began constructing cabin villages which were occupied at least seasonally. A somewhat greater emphasis on trapping furbearing animals characterizes the evolving traditional life style of this period.

The dynamic pre-contact history of Indian people is one of adaptation to the changing natural environment of the region. Life was nomadic as families and individuals hunted, trapped, collected plants and berries, and fished in many areas. They moved from place to place according to the seasons and availability of resources. In this way, Indian people were able to obtain what they needed from the land and water.

Variations in the patterns of activities depended on the availability of salmon, freshwater fish, waterfowl, and game. Some areas attracted people from other places in the region because of the abundance of certain species. For example, people from the Klukshu/Neskatahin area were known as the "Fish People" because of their heavy reliance on salmon. Other tribes travelled long distances to harvest salmon at these places. In other parts of the region, hunting was a main harvesting activity because of the availability of moose, caribou, and other game.

The extensive trail network in the Greater Kluane Region reflects the extent to which people travelled, ranging over wide areas and utilizing the many river valleys. Trails not only connected the harvesting area and

campsites, but were also used as trade and barter routes.

The trade and barter system has always been a way of life for the coastal and interior people. Trading was originally developed because of the different natural resources available in two very different coastal and inland ecosystems. The Coastal Tlingit traded such items as fish and seal grease, seaweed baskets, dried clams, cedar chests, and medicinal roots. The Tutchone, in turn, provided products such as furs, sinew, tanned moose and caribou hides, raw copper and obsidian, as well as ochre and lichen used by the Chilkats to dye their blankets.

Between 1830 and 1880, Russians trading on the coast were prevented by the Tlingits from having direct contact with the interior peoples. Instead, the Coastal Tlingits acted as intermediaries, bringing such items as kettles, iron knives, axes, traps, guns, flour, sugar, and tea into the southwest Yukon. Trade primarily occurred at Neskatahin, although the Tlingit went as far north as the White River and Fort Selkirk to exchange goods.

Trade within the region occurred between people travelling from Aishihik along the Donjek River and the Upper Tanana and Han people from the White River area. Furs and native copper from the White River region were brought back and, in turn, bartered to the Chilkats. When Southern Tutchone traded in the Donjek River area, Northern Tutchone would come from Fort Selkirk. At other times, Southern Tutchone would travel to Selkirk. Tagish and Inland Tlingits would visit their trading partners in the areas of Wellesley Lake and Carmacks and along the Pelly Rivers.

The trade system between the Tlingit and interior peoples, and amongst the Interior Athapaskans themselves, was an important factor in shaping land use and patterns of activity. Acquiring products for trade, hunting, drying, and caching food essentially occurred along trade routes, and was an integral part of the life style of the Indian people of the region.

The close relationship that Indian people have with the land developed a strong cultural tradition of respect for the environment. In a pre-literate society, landscape information was shared orally and was encoded in the form of myths, place names, and mental maps. Knowledge of the habits and habitats of animal species and strong navigational skills were taught and learned in this way. This detailed knowledge and respect for the land and its resources was a necessary survival tool for the Indian people.

Post-Contact

Interest in the Yukon became world-wide when news of the Klondike gold discovery reached the outside world in 1898. In the next few years, 60,000 people entered the Yukon. Although the Greater Kluane Region was not a primary destination, the gold rush irrevocably changed the Yukon and set the stage for further development in the Greater Kluane Region. During the gold rush, Jack Dalton established a pack horse trail over the Chilkat Pass along an important Indian trading route. This trail was the access route for about 1,500 miners who entered the region en route to the Klondike. After 1900, with the Klondike Gold Rush winding down, mining interest began to turn to the area around Kluane Lake.

The discovery of gold by Skookum Jim and Tagish Charlie on Ruby Creek in 1903, and other discoveries on Burwash Creek in 1904, brought a large influx of prospectors to the region, and, by the end of the year, 2,000 claims had been staked. Bullion City, at the mouth of Bullion Creek, and tent cities on Sheep and Ruby Creeks and at Kloo Lake, initially served as mining communities. However, as the focus of activity shifted, Burwash Landing and Silver City emerged as the biggest settlements in the region. Low productivity from placer mining led to the

collapse of the initial rush, with the non-Indian population falling from about 1,200 in 1904 to 40 in 1906. Mining proved to be a sporadic activity characterized by boom-bust cycles, with resurgences in activity in the region associated with the Chisana Alaska Gold Rush of 1913-14 and the discovery of gold on Squaw Creek near Dalton Post in 1927-28. By 1940, only Bullion, Sheep, and Burwash Creeks continued to be worked.

Sport hunting began to assume importance in the region, following the Kluane and Chisana gold rushes, when miners and packers returning to the towns reported an abundance of Dall sheep, valued by trophy hunters for the unusual size of their horns. By 1919, the White River area had become known as the best place on the continent to hunt this species. The big game industry flourished in the 1920s. Its success depended, in large part, on the skills and knowledge of local Indian guides, who found guiding an ideal complement to their trapping and traditional harvesting activities.

Old Indian travel routes facilitated access to the region and from the earliest times prospectors and traders relied on the Indian population for information about land and routeways. New settlements grew up and mining and other forms of part-time employment supplemented the seasonal round of activities. Despite the increasing emphasis on industrial development in this period, the pattern of land use and occupancy did not change much. Hunting was still the dominant way of obtaining food. Trapping was the dominant and most constant component of the region's cash economy and supplied important government revenues.

Some changes that were introduced had far-reaching implications for land use. Most notable of these were the Yukon Quartz and Placer Mining Acts and the Territorial Lands Act. These gave miners the right to stake and work mineral claims wherever they wanted in the Yukon and exempted them from the requirements of land use regulations. This legislation institutionalized the concept that renewable resource values were not as important as non-renewable resource extraction.

The Highway

Transformation of the region has been especially marked over the past 50 years. Completion of the Alaska Highway in 1942 brought rapid all-weather transportation to the region, facilitating access from the south. The impacts of the highway were profound. The influx of military and civilian personnel during the intensive period of highway construction resulted in overuse and depletion of game populations. In response to overhunting, the 26,000 square kilometer Kluane Game Sanctuary was established in 1943.

The creation of the sanctuary placed restrictions on hunting and trapping that particularly affected the people who had traditionally used areas within it. Furthermore, the establishment of the British Columbia-Yukon border restricted Indian people living in Dalton Post and Neskatahin from hunting in their traditional area in British Columbia. As a result, many families moved to Champagne and Klukshu. Low fur prices in 1942 prompted many families to abandon commercial trapping for the first time.

Traditional patterns of settlement changed and land use was modified as people moved to new communities along the highway, including Haines Junction and Beaver Creek. The highway did not extend to Indian communities, such as Hutshi and Aishihik, and government services were only available in the new highway settlements. In particular, the requirement for mandatory schooling forced the movement of Indian people to highway settlements.

New government regulations dealing with the allocation and transfer of trapping rights eroded traditional ties to the land, accelerated the

movement to the highway communities, and increased dependence on government assistance programs in the highway settlements. New highway communities provided seasonal employment opportunities which supplemented income from subsistence and land-based activities.

Ultimately, the region's settlement system changed from one that had been dispersed through the valleys and around the major lakes to one that was strung along the highway. By the late 1940s, although traditional activities were still carried on, only a few families lived away from the new communities, spent entire winters on traplines, or engaged in extensive summer meat hunts.

The highway has been strongly associated with development in the region over the past 50 years, facilitating larger scale, more sophisticated mining exploration and making the region increasingly accessible to tourists and recreationists, including those from Whitehorse. The result has been an increase in the use of the natural resources in the region for hunting, fishing, and sight-seeing, and has made a substantial contribution to the economic base of the highway communities. The presence of the Alaska Highway, the establishment of the Kluane National Park Reserve in 1973, the quality of the scenery, and its proximity to Whitehorse have made the region the most prosperous outside the territorial capital.

Recent Human History

Historical transformations within the region should be viewed as a complex layering of experiences, rather than the displacement of old ways by new. The cultural and economic landscape found in the region reflects the interaction of the global cash economy and the persistence of the traditional ways.

Indian dependence on the land, although affected by historical events, continues to be an important element of the region's culture and heritage. Seasonal camps and old Indian trails are still part of the living settlement pattern of the region. Tourism and mining are, and will likely continue to be, mainstays of the region's economy. At the same time, the resurgence of Indian culture and the impending settlement of land claims creates new opportunities for growth in the region.

Population, Income, and Employment

The population of the region is approximately 1,000 people, 75 percent of whom live in the highway communities. Population statistics are not overly reliable (and are sometimes contradictory), but a fair estimate is that some 45 percent of the population is of Indian ancestry. Haines Junction is by far the largest community and there is an increasing trend towards concentration of population in this community. This is a reflection of its proximity to Kluane National Park Reserve, greater service base and employment opportunities, provision of tourist services, and nodal position at the junction of the Haines and Alaska Highways. In terms of population growth, the region has grown at a rate faster than the Yukon as a whole, an annual rate of 2.6 percent, compared with 2 percent for the territory (see Figure 2).

This picture of growth is somewhat misleading. A large proportion of First Nation members live in Whitehorse and would probably return to the region if employment opportunities increased. Population turnover rates are high and 51 percent of the population lived in other locations at the time of the last census. Studies of population mobility indicated that the high turnover rate was largely confined to the non-Indian population. This high mobility is partly a reflection of the type of employment available in the region (government and seasonal opportunities in tourism and mining).

There is no clear forecast of population trends. At present rates, growth would be nominal.

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A lack of significant projected growth in the region does not mean major growth will not take place. A number of externally driven factors, including mine development at Wellgreen or Windy Craggy, construction of the Alaska Highway pipeline, and an increased recognition of the Kluane National Park Reserve and the region as a destination for wilderness tourism could result in growth of the region's population. A key question is whether communities have infrastructure capable of dealing with major growth, should it occur.

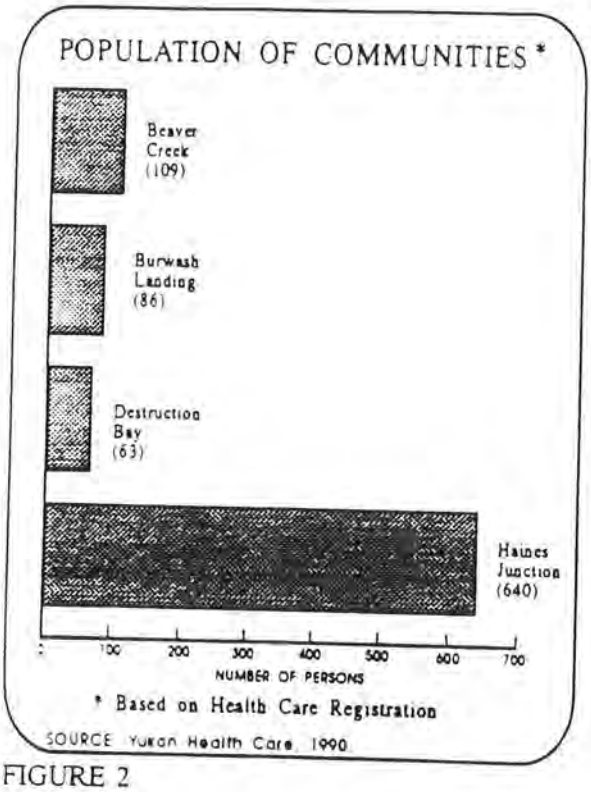


FIGURE 2

The economic base of northern communities is very complex, involving seasonal employment, trapping income, wild food harvests, and transfer payments, and does not readily lend itself to conventional economic base analysis. Studies have demonstrated dramatic seasonal shifts in the economy of the Alaska Highway communities as tourism and highway maintenance projects ended with the onset of winter. Despite this, Haines Junction has one of the lowest economic dependency ratios in the Yukon, and one of the most stable economic bases.

While seasonal expansion and contraction of the regional wage economy results in a migratory flow of labour, economic activity for much of the Indian population is also highly seasonal and, by conventional standards, highly informal. Harvesting wild food is only now being recognized as an important contributor to the economy and an asset in achieving self sufficiency.

No formal data exist depicting employment effort in wild food harvests; these data are omitted from the breakdown of community employment. The economy pursued by many Indians consists of a mix of seasonal wage employment and wildlife harvesting. Woodcutting and Indian handicraft production are also important to the people of the region. The significance of wild food harvests in the region should not be underestimated. Harvesting of fish and game is also important to non-Indian residents of the region, a reflection of rural values and a means of supplementing store-bought food. Beyond this, country food is very important from the standpoint of taste, nutrition, and social cohesion.

2.3 CONTEMPORARY LAND AND RESOURCE USE

The competition for land that exists in the region today reflects traditional and historic patterns of land use. Since contact between Indian and non-Indians in the latter part of the 19th century, economic value of resources has played an increasing role in determining the relative importance of different land uses.

The relatively new concern for the social, cultural, and environmental impacts of

use is complex, because the many possible uses within a sector have a corresponding range of impacts on uses within other sectors. For example, grazing as a land use will have one type of impact on wildlife if the lease is fenced and a quite different impact if it is not fenced. This part of the plan will outline the major land and resource interests, and identify types of conflicts and areas of common interest between different land users.

From a sectoral standpoint there are several broad land and resource uses in the Greater Kluane Region. These include fish and wildlife harvesting, tourism, recreation, mining, forestry, agriculture and grazing, transportation, and settlement. The majority of land uses on this list are renewable resource oriented. Mining is a major non-renewable resource use in the region. Transportation facilities and settlement locations are a special case in that they both determine the way that resources are used and, at the same time, are influenced by resource development choices.

It is important to realize that land and resource users have different degrees of interest in more than one sector. For example, a placer miner in the region is probably a hunter at some time and a tourist at others. Similarly, First Nations may engage in traditional wild food harvests and also be involved in mining and businesses. The points at which many interests coincide in the region are the environment and the economy. These two forces are often perceived to be exclusive of each other, but recognizing interdependence tends to reduce the conflict and emphasize common goals.

Three groups of people are involved in wildlife harvesting in the Greater Kluane Region: First Nations, who have a traditional aboriginal claim to wildlife; residents, who have a history of wildlife use that emphasizes the recreational side of hunting; and non-resident hunters, who also constitute the clientele for big game outfitting in the Greater Kluane Region. Besides outfitting, the other explicitly commercial harvester of wildlife is the fur trapper.

A similar list of users for the fish resource includes the Indian and domestic food fisheries, the commercial fishery, and the sport and commercial sport fisheries. Both lists show a pattern of traditional, recreational, and economic use of the resource. They also illustrate the way that the economic and recreational dimension of these activities are related. The overlap between traditional, recreational, and economic interests in the use of fish and wildlife has the effect of intensifying the conflicts between the user groups and of making conventional economic analysis inadequate for assessing the relative worth of different resource uses. At the same time, all users of the fish and wildlife of the region recognize their common interest in preserving the natural environment; specifically, the important wildlife habitat of the region.

Tourism is another sector where concern for the natural environment and economics are entwined. It is the preservation of a highly visible economic activity which attempts to balance wilderness values while facilitating their use.

Fish and wildlife are important tourist resources, both from the viewpoint of consumption by fish and wildlife harvesters and viewing by tourists. The same person can be part of many kinds of tourism activity at different times on the same trip. It is difficult, therefore, to target one type of tourist who uses one facet of the natural resource as more desirable than another. Conflict between tourism-oriented land uses and other sectors usually begins where the integrity of the environment is threatened.

Mining has a long history in the Greater Kluane Region. Its requirements for access and local, intense development often place mining activity at odds with renewable

resource users and proponents of environmental protection. The privileged position that mining has enjoyed relative to other land uses through the Placer and Quartz Mining Acts has led to opposition from other sectors concerned with environmental protection necessary to support their interests.

At the moment, there are no hardrock mines in production in the region, although at least two projects, the Wellgreen and Canalask sites, may go ahead if energy requirements can be met (see Mining Sector). The land use conflicts associated with mining are often focused on access construction as well as specific mining techniques and environmental considerations. The economic benefits from mining are perceived to outweigh the potential negative impacts of the activity as it is the one economic activity in the region that holds the promise for significant numbers of year-round jobs for relatively long periods of time. These considerations mean that mining will remain an important land use option in the Greater Kluane Region.

Other sectors competing for land--forestry, agriculture, and grazing--do not have the social significance or the economic power of the three sectors described to this point. The lower profile of these sectors is related in part to the weak natural base that each has in the region. Forestry potential is limited for many uses due to the harsh climate and long regrowth period. Opportunities for agriculture are also limited by climate to a very narrow range of crops. Compared to agriculture, grazing possibilities are more varied in the region, but the best areas, primarily sedge meadows and willow communities, are found only in scattered pockets.

These sectors exhibit the same characteristic of fish and wildlife use in that land is largely used for these purposes as a substitute for using money to meet some need. Domestic woodcutting is a non-monetary method of acquiring energy. Gardening and greenhousing supplement fresh food requirements, while grazing provides feed for horses.

Woodcutting and grazing uses are important to a wide spectrum of the region's residents. These sectors have a demonstrated economic record in the region. Agriculture in the region is small scale. Local gardeners successfully produce a range of vegetables important to individual households and, to a very limited extent, for sale.

Forests have a special role in maintaining the integrity of ecosystems and have an importance that is greater than their value for processed forest products. The role of forests as a component of wilderness, as habitat for wildlife, as a regulator of drainage, and in prevention of erosion make forests the resource that contributes to the health of all renewable resource uses.

The region's environmental wholeness is central to the region's character. Land and resource uses that alter or are perceived to alter the wilderness nature of the region will be in conflict with fundamental regional interests. Creating conditions for sound land and resource use involves recognizing the primary importance of environmental considerations and in ensuring that proposed land uses either complement or have minimal impact on the environment.

From examination of the natural environment and historical development processes in the planning region, three major considerations, which should guide decisions about future land use, can be identified:

1. Extensions to infrastructure generate major changes in both the physical environment and, ultimately, the human environment.

2. Hazards restrict land use.

3. The natural environment (landscape, wildlife) is the basis of most sustained human activity in the region, be it native harvesting or tourism. The ability of this environment to absorb modifications or change should be a major factor in determining appropriate land use.

2.4 THE FUTURE

Apart from addressing current problems, planning is concerned with anticipating change, identifying possible problems and opportunities, and developing strategies to deal with them. An understanding of possible future development is essential to the preparation of a plan for the Greater Kluane Region.

Predicting the future in the Yukon is perhaps more difficult than elsewhere, because change in the territory has historically been driven by external events. Broad possibilities for Greater Kluane include:

1. The future will be like the recent past. Population projections for Greater Kluane suggest that nothing will change much in the future; growth will be slow and intermittent with continued high population turnover rates. This ignores the fact that growth in the Yukon is driven from outside and that the reasons there are land use problems in the territory are because growth takes place rapidly and because in the past there was virtually no planning process in place to manage this change.

2. Mining will increase. An increase in mining could result in population growth, economic benefits, and demands for social and community development. In addition, mining development will add pressure on fish and wildlife populations and the environment.

3. The Alaska Highway pipeline will be built. A major consideration within the planning region is the potential construction of the Yukon portion of the Alaska Natural Gas Transportation System (Foothills Pipeline). This would result in short-term employment opportunities and potential long-term environmental impacts. The availability of energy would have a significant influence on future development within the region.

4. Tourism will increase. The flow of tourists into the region is a function both of the attractiveness and promotion of the region, and conditions external to the region. An aging population, uncertainty regarding global travel, and the international image of Kluane National Park Reserve are all factors that could increase tourism in the region.

The extreme case is that a combination of events could occur in a relatively narrow timeframe, placing enormous pressures on the region.

2.5 DEVELOPING A PLAN

The foregoing analysis provides an understanding of the various processes that have moulded present patterns of land use, along with a sense of the nature of land use conflicts--real, potential, and perceived--in the region. Development of goals and principles to guide the formulation of a land use plan for Greater Kluane must consider the physical limitations on resource use and human activity in the region and the perspectives of the region's population.

Regional Perspectives

During the preparation of the Greater Kluane Regional Plan, a great deal of discussion took place about the land and resource issues of greatest concern in the region. Both the Indian and non-Indian populations of the region have been affected by change over the past century--but in different ways. For the Indian population, the problem has been that of dealing with new land uses and attitudes towards resources that often had an adverse impact on their way of life. For the non-

Indian population, the problem has often been one of maintaining viability in an uncertain and often volatile economic environment.

Yukon Indians have a strong attachment to the land and a perspective on land and land use that differs somewhat from the Euro-American tradition. However, to depict this view as one that opposes growth or development is false. Over the past 90 years, they have seen their land transformed by industrial society and their way of life eroded as competition increased for land and resources within their traditional territories. They have a strong interest in maintaining their heritage, in revitalizing their culture, in ensuring development will not have an adverse effect on the land base, and in being able to share benefits from economic growth in the region.

Equally, to depict the non-Indian component of the population as solely interested in industrial-type development opportunities is not appropriate. For many, residence in the Greater Kluane Region is a life style choice; it is home, and they have a vested interest in the quality of the physical environment. To those in the region with a primary interest in economic well-being--and this cuts across all sectors of the population--the central question is one of maintaining a livelihood in an economic system characterized by relatively high transportation costs and seasonal employment.

Many of the issues identified in the Greater Kluane Region are common to other parts of the Yukon. The need to recognize the value of traditional Indian land uses and subsistence harvesting, for example, is an issue throughout the territory. Other, more site specific, issues were based on different perceptions or concerns about a given area in the planning region.

One of the major objectives of this planning exercise is to bring together the full range of perspectives and ideas on future land use and resource development. In doing so, the intent of this plan is to provide guidance for a wide range of cultural, social, and economic opportunities.

Planning Goals and Principles

Goals and principles to guide the planning process have their roots in accepted attitudes towards the environment and the concerns and interests of the region's population. A concern of interest to all parties is maintenance and enhancement of environmental quality. This is seen in the federal Green Plan, in the Yukon Economic Strategy, and in the territorial government's promotion of sustainable development and initiatives to develop environmental legislation (Yukon Environment Act), as well as in concerns expressed by residents of the region regarding quality of the environment. Of equal concern is that long-term economic opportunities exist in the region and that developments introduced to the region bring regional benefits. These two views are not incompatible. Scenic and wilderness qualities are important components of tourism potential in Greater Kluane; maintenance of wildlife populations is basic to the well-being of the Indian and non-Indian population of the region.

Development of resources or infrastructure to facilitate development must therefore be guided by the following goals:

1. Commitment to balanced and sustainable development.

2. Recognition of Indian values and perceptions toward land use and resource development.

3. Promotion and protection of heritage resources.

4. Promotion of employment opportunities for residents of the region.

3. Promotion and protection of heritage resources.

4. Promotion of employment opportunities for residents of the region.

5. Enhancement of quality of life.

To achieve these objectives, the following principles guide the plan:

1. The plan and subsequent resource management decisions must provide for cultural, economic, and social development based on both renewable and non-renewable resources; future resource developments must be shown to be economically feasible, environmentally sound, and socially acceptable.

2. Resource management decisions must reflect the importance of traditional Indian resource use.

3. Areas of outstanding ecological, biological, cultural, and physical significance must be fully recognized and given appropriate protection.

4. Local people should receive, to the fullest extent possible, the most direct economic and social benefits from resource use in the Greater Kluane Region.

5. Local and traditional resource users must have the opportunity to participate fully in resource management and policy decisions which affect the region.

Broad Issues and Concerns

The following broad issues and concerns have been identified during this process:

1. Although the Greater Kluane Planning Region covers a large area, the very rugged landscape and associated terrain hazards forces the concentration of settlement activities on a limited amount of land, increasing the potential for land use conflict.

2. Easily accessible areas are especially stressed. As in all regions, resources in the Greater Kluane Region are not uniformly distributed. The result is strong pressure by many different users being concentrated in a few locations.

3. A number of different land users with different goals use the same resources. Different user groups compete for fish and wildlife harvests, both increasing stress on their habitats and populations, and creating friction between groups harvesting wildlife.

4. The land base and way of life of the Indian population of the region have been transformed by government policies and activities associated with the wage economy, causing social and economic hardships.

5. Development in the region has traditionally been driven by forces external to the Yukon. Currently, there is the prospect that new mines, tourism expansion, or pipeline construction could place further stresses on the region at the same time as they provide opportunities for economic and social development.

General Recommendations

1. Maintenance and enhancement of the region's high quality natural environment is recognized as a prime objective of this plan and a factor that affects all aspects of the economic, social, and cultural well-being of the residents of the region. Any developments proposed within the region must be carefully considered to ensure their compatibility with this important goal.

2. A new, more responsive, timely, and proactive management and decision-making system should be established within the region. That system must provide clear

responsibilities for decision-making for residents of the region. The continuing requirements for planning and local involvement in processes such as EARP/DAP and local Renewable Resource Councils should be recognized as the basis for this system.

3. Population projections for the region indicate only slow to moderate growth, but there is potential for rapidly accelerated growth as a result of major resource or construction projects in the region. The feasibility and timing of these projects is determined in large part by external market forces. Potential growth from resource development should be accommodated in existing communities in a manner that respects the social and cultural values of the impacted community. In anticipation of this future growth, the capability of community services and infrastructure to meet new demands should be assessed.

4. Any new development along the region's major highways should be located in designated areas in order to prevent ribbon development and, in doing so, to protect the visual quality of the corridors.

5. During the planning process, a great deal of land use information about the planning region was collected. There are still gaps in that data related to fish and wildlife, heritage resources, mineralization, and demographic statistics that are vital to the sound management of the region. It is critical that the collection of this data continue and that it be maintained in a manner that ensures it is current, complete, and accessible to decision-makers and those charged with the responsibility of monitoring the implementation and effectiveness of land use management in the region.

PART 3: SECTOR ANALYSIS AND RECOMMENDATIONS

Although the material presented in this section is on a sector-by-sector basis for ease of reference, a number of the issues, objectives, and recommendations cross over or apply to more than one sector. For example, the issue of protection of the natural environment applies to recreation and tourism use, and is also critically important in maintaining healthy fish and wildlife populations. Activities such as forestry, agriculture, or expansion of the regional infrastructure in turn affect activities in other sectors. The land and resources of the region are the foundation of a cultural heritage thousands of years old. This part of the plan attempts to identify some of the complex relationships among the sectors.

3.1 HERITAGE

Background

There are number of ways to view heritage. One is as the living core of a culture, essential to its well-being and survival; another is as a resource of interest to tourists. Within the Kluane Region it plays both roles. Given the experience of the last 80 years, as the human landscape has been transformed, the region's Indian people see the preservation of their heritage as essential to their survival and future well-being. Language, placenames, traditional camps, trails, and gravesites are not museum pieces, but an integral and vital component of living culture. It is centrally important to them that there is no further erosion of their culture and thus an objective of this land use plan is the protection and promotion of heritage resources.

Cultural or heritage resources are the things (such as artifacts and archival documents) and places (such as historic and archaeological sites) that we use to learn about and interpret any region's history. These artifacts and sites provide the information as well as the focus for telling the stories that are important components of a people's culture. In the Kluane Region it is known that people hunted bison thousands of years ago and that trade in copper and obsidian long preceded European contact. Elders recall stories of late nineteenth century seasonal trading expeditions of Coastal Tlingits inland to southwest Yukon. The settlements of Neskatahin, Aishihik, Champagne, and Hutshi were important trading centres, as were Snag (Hi Tel Chac), Canyon City, Coffee Creek, Nisling, Klotassin, and Sourdough. Direct trade with the Tlingit occurred as far inland as the White River and Copper City (Ghur Schu Mun). The network of trails throughout the region reflects seasonal patterns of nomadic people and the extent to which Tutchone travelled and traded amongst themselves and with people from places such as Carmacks and Selkirk.

A mid-nineteenth century battle between different native groups, near the outlet of Dezadeash Lake, resulted in the massacre of a number of Neskatahin people. This area remains firmly entrenched as an important historic site in the minds of local native people. Twentieth century stories about favoured hunting sites provide an opportunity to tell of big game guiding and hunting in the Kluane Region, and its one-time importance in the local Indian economy. The four villages in the Wellesley Lake (Taku Mun) area, which existed before the highway was built in 1942, are still related in stories and remain important to people in the northern part of the planning region. More recent sites provide a focus for telling the stories of the construction of the Alaska and Haines Highways, and the establishment of Kluane National Park Reserve.

The subject of heritage presents distinct challenges and opportunities to land use planners that transcends resource protection. Opportunities to develop heritage-related interpretive projects, businesses, and visitor facilities hold the promise of an expanded tourism industry in the Kluane Region.

Explanation of Place Names Map

The map on page 27 presents 28 names in the southern Ruby Range between Sekulmun (Tthchal Man) and Kluane Lake (Lu'an Man) which have an Indian name as well as an "official" name on the 1:250,000 topographic map sheets.

Southern Tutchone names used in this example would appear to fall into two main categories: (a) places which identify resource locations such as a place to set a fishtrap, or a place from which to obtain flat rocks for skin scrapers or ochre for use in making red dye; and (b) places which describe landmarks for guiding one through the landscape such as a "pass that widens then narrows" (12th July Creek) or the "creek running between two mountains" (Gladstone Creek). Little Waves and Big Waves Mountain reflects an aboriginal understanding of the dynamic nature of the landscape in the Cultus Bay vicinity where the former glacial Kluane Lake has left raised beaches resembling "waves."

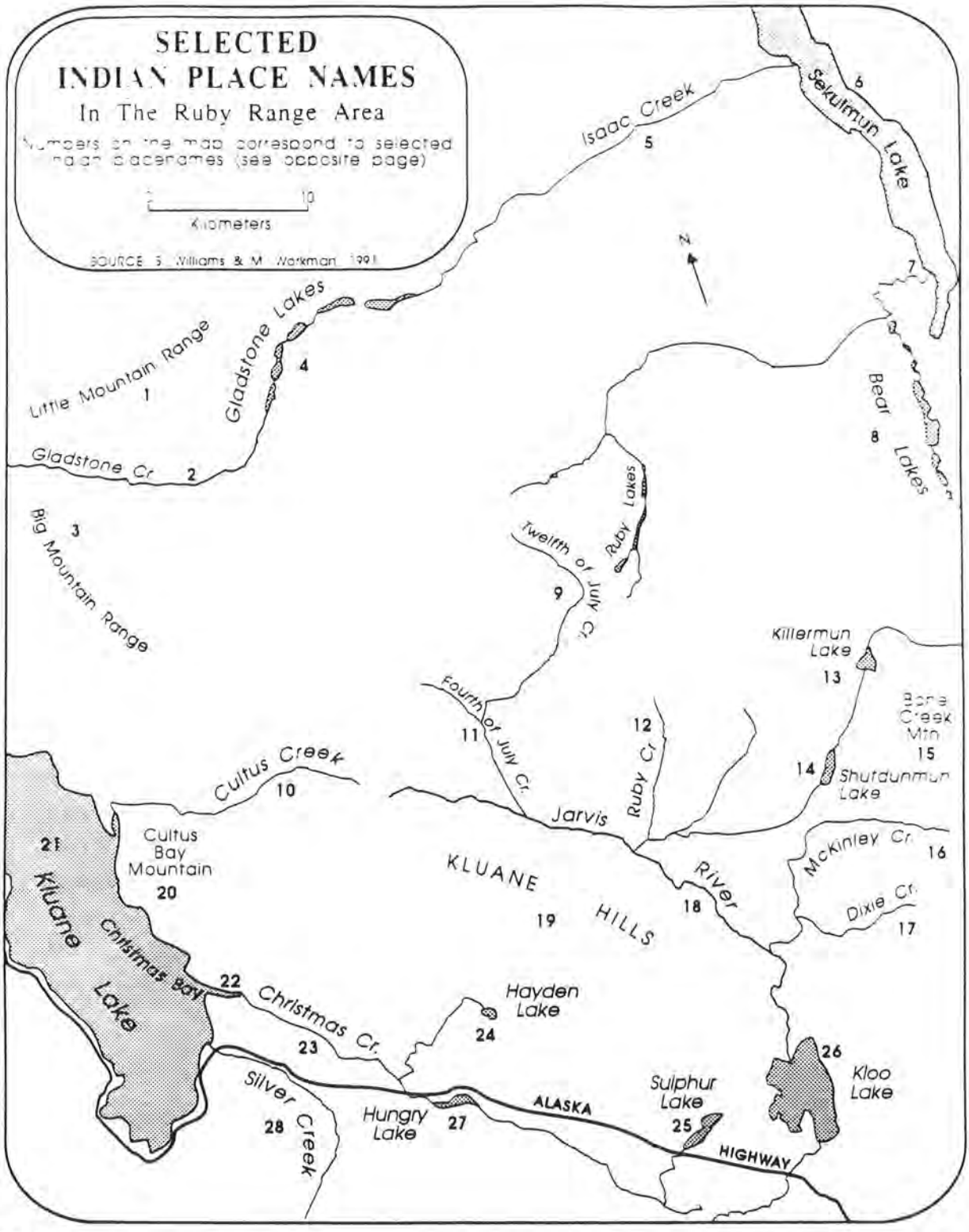
Later travellers (prospectors, policemen) registered official names for these places which, in the case of the Ruby Range area, largely reflect recent events such as the short-lived, early 19th century gold rush history. Dates upon which claims were first staked on various creeks and people associated with staking (4th July, 12th July, Christmas and Hayden) feature prominently in this area. Whilst attempts have been made more recently to include Southern Tutchone names on "official" maps (Kloo and Kluane), often the origin on the name was lost in the transcription (for example, Sekulmun) resulting in a name completely foreign to Indian people in the region.

Tutchone people had names for all the geographical features they used (creeks, mountains, lakes, rivers)--often more than one name--but rarely ever named a place after a person. These names explain more about the relationship of Indian people to the land than almost any written record. At a time when the Tutchone language is spoken by few young people, place names can be learned from elders and passed on, thereby assisting in the retention of tradition and culture. They also add a richness of understanding to all people living in or travelling through the region.

Heritage Resources

Prehistoric sites are those that predate the arrival of non-Indian people into the region. They are recognized by the things or artifacts found at them. Most commonly, these are stone tools, the by-products of stone tool making and use, and animal bone from past subsistence activities. Prehistoric sites in the Kluane Region may also feature structures such as hunting blinds, caribou fences, or house structures. Based on the region's lengthy record of human occupation, prehistoric sites are likely the most abundant type of heritage site.

The region's prehistoric sites are of interest to a wide audience, including the public, professional archaeologists, and Yukon First Nations. For the latter group, these sites provide information about the history of their own people and other First Nations. Prehistoric sites tell of the life styles of people, where they camped, what they ate, what tools they used, and who they were related to. Some of the Yukon's more important archaeological sites are in the Greater Kluane Region. Data from sites in the Aishihik area has provided archaeologists with the south Yukon's chronological sequence of human occupation. Two important prehistoric trade materials are also found in the Kluane Region: copper and obsidian from this area were traded great distances across the western subartic in prehistoric times.


SELECTED
INDIAN PLACE NAMES
In The Ruby Range Area
Numbers on the map correspond to selected
Indian placenames (see opposite page)
10
Kilometers
SOURCE: S. Williams & M. Workman 1991
N
Isaac Creek
5
Sekulmun Lake
6
7
Bear Lakes
8
Gladstone Lakes
4
Little Mountain Range
1
Gladstone Cr.
2
3
Big Mountain Range
Twelfth of July Cr.
9
Ruby Lakes
Killermun Lake
13
Fourth of July Cr.
11
12
Ruby Cr.
Jarvis
14
Shutdunmun Lake
15
16
McKinley Cr.
Dixie Cr.
17
River
18
KLUANE
19
HILLS
Cultus Creek
10
Cultus Bay Mountain
20
21
Kluane Lake
Christmas Bay
22
Christmas Cr.
23
Hayden Lake
24
Hungry Lake
27
Silver Creek
28
ALASKA
HIGHWAY
Sulphur Lake
25
26
Kloo Lake

MAP 3

MAP 3 EXPLANATION

	ENGLISH NAME (with map number)	INDIAN NAME	INDIAN TRANSLATION
1	Little [illegible] Range	Tavāna Dhāl	The little waves mountain
2	Gladstone Creek	Tthey̨ Chù	The creek running between two mountains
3	Big Mountain Range	Tayān Shaw Dhāl	The big waves mountain
4	Gladstone Lakes	Tthey̨ Mān	Lakes between two mountains
5	Isaac Creek	Tthey̨ Chùa	Small creek running out between two mountains
6	Sekulmun Lake	Tthechāl Mān	A flat stone scraper Lake
7	Creek that runs from Ruby Lakes into Sekulmun Lake	Tthela Shaw Chù Dashe	When the little flint creek joins the big one
8	Bear Lakes	Shar Łū Mān	The bear fish lakes
9	Twelth of July Creek	Chādan	Pass that narrows and then widens
10	Cultus Creek	Tlàt Kwäshāw	The big deep creek
11	Fourth of July Creek	Łu Ghą Nji	At the fish place
12	Ruby Creek	Dhāl Nighą̄ Chù	Close mountain creek
13	Killermun Lake	(Dizāna Mān	The muskrat lake
14	Shutdunmun Lake	Ätsį̀ Mān	My Grandfather's Lake
15	Bone Creek Mountain	Dhāla Nàdät'ū	Sharp pointed mountain
16	McKinley Creek	Tthe Tth'ū (Neetl'et Chù)	Rocks falling from high mountain
17	Dixie Creek	Ayitthe Chù	Steep mountain creek
18	Jarvis River	Tsigra Chùa	Little ochre mountain
19	Kluane Hills	Tthe Shäw A'an	Big rocks place
20	Cultus Bay Mountain	Tayan Gha Dhāl	Small waves mountain
21	Kluane Lake	Łu'ān Mān	The fish place lake
22	Christmas Bay	Äghàtth'ān	Shoulderblade bone
23	Christmas Creek	Äghàtth'ān Chùa	Shoulderblade bone creek
24	Hayden Lake	Ätth'at Kwäshāw (Tats'at Mān)	Big sucker fish lake
25	Sulphur Lake	Kwät'äw Mān	Lilly Pad Lake
26	Kloo Lake	K'ùa Mān	A place where you set a fish trap
27	Hungry Lake	Äghàtth'ān Mān	The shoulderblade bone lake
28	Silver Creek	Mān Chètį'aya Chù	Where the lake branches off

Historic period sites refer to those cultural artifacts and edifices built after 1880. According to the Yukon Heritage Branch, sites must be more than 45 years old to qualify as a historic site. More sources of information exist for identifying and interpreting historic sites than prehistoric ones. These sources include historical documents and photographs; local oral history; material remains such as cabins, caches, and other structures; and garbage middens. Unlike prehistoric archaeological sites, which are recognized by the things found at them, historic period sites need not be recognized by the presence of artifacts or structures because we have these other sources of information.

The region's historic sites record the history of the exploration, settlement, and development of the region by non-Indian people. They also reveal the history of Indian occupancy and land use. Many structures such as the Canyon Creek bridge, the Silver City cabins, trading posts, and homesteads are considered worthy of preservation because they represent local historical events; for example, the construction of the Kluane Wagon Road and the Kluane Gold Rush. These sites also have a high interpretive value and provide an opportunity to inform visitors about the region's past.

Historic native sites would include such places as graves, named landscape features, old campsites and cabins, important resource areas, points of historical interest, and trails and travel routes. These sites are of particularly high symbolic value to Yukon First Nations because of the physical and spiritual connection to their history. Protection and preservation of heritage sites are vital if First Nations' cultural activities are to be maintained and enhanced. First Nations feel that being able to use their homeland for traditional subsistence and recreational activities remains an important part of their cultural heritage. The Champagne and Aishihik First Nations, for example, considers their historic travel and trading trails an important part of their cultural identity and life style. These important heritage resources warrant designation and protection with clear management responsibilities for First Nations' people.

Resource Management Concerns

Programs for the management of the region's heritage resources are just being established now with the development of the Government of Yukon's Historic Resources Act, the finalization of the Yukon Comprehensive Land Claims Umbrella Final Agreement, and the development of the Land Claims' First Nations' Final Agreements. These legislative documents will clarify the ownership of and responsibility for the region's heritage resources. Under the Land Claims agreement, First Nations will manage heritage sites found on settlement lands.

The first step in the resource management process is resource identification. The existing documentary information on the locations of the region's heritage sites has limitations that must be recognized. The Yukon Government's heritage sites information records for the Greater Kluane Region include some 29 historic period sites and scores of prehistoric archaeological sites (Gotthardt, 1989; Yukon Heritage Branch: Archaeological Site Files, Yukon Heritage Inventory Files). Within the eastern Kluane area, major clusters of prehistoric sites are recognized at the northwest ends of Aishihik and Sekulmun Lakes, at Canyon area on the lower Aishihik River, at Taye Lake outlet, at the mouth of Gladstone Creek on Kluane Lake, at Kluane Lake outlet and Brooks Arm (little Arm), in the Champagne-Dezadeash River area, in the Kusawa Lake area, and in the Hutshi area. While some recent site inventory work has occurred, the known distribution of the region's prehistoric archaeological sites reflects past researchers' interests and efforts, rather than resource management concerns. There are numerous potentially important parts of the

Kluane Region that have not been adequately surveyed for prehistoric sites.

The Yukon Government's historic site records are limited in their content, rather than geographical, coverage. To date, the Yukon Heritage Sites Inventory, which is the Heritage Branch's major information file on historic period sites, has only recognized sites with buildings as heritage resources. For the eastern Kluane region, these files list Silver City and the region's major Indian settlements (Aishihik, Burwash Landing, Canyon, Champagne, Neskatahin, Hutshi, Kloo Lake, and Klukshu) as historic sites. The oral history of many of these important sites has yet to be recorded. Less popular or less permanent native historic sites, gravesites, and sacred sites are not identified as heritage resources. Similarly, important landscape features, such as the hills around Klukshu that have native clan history attached to them and the region's old Indian trails, currently are not identified in the Heritage Sites Inventory.

The Canadian Parks Service's knowledge of heritage sites within Kluane National Park Reserve is also limited. A major cluster of historic gold rush sites and an important obsidian source location have been identified in the park. Park staff, however, have acknowledged that there has been inadequate documentation of prehistoric sites and native historic sites, such as trapping cabins, within Kluane National Park Reserve (Burnip and Priess, Kluane National Park Reserve Resource Description and Analysis, 1987).

The Council for Yukon Indians' Land Claims files feature information on many native sites in the Kluane Region. While extensive in its coverage, this database also has its limitations, as the historical time depth of many of the sites and places it records are inadequately documented, and the full story of the place is not available in documentary form. The locational data on the sites in these files is also not accurate enough for land use planning purposes. Although we can now identify some parts of the Kluane Region as being heritage sensitive, we cannot dismiss others as not being so.

While site identification is an important component of the heritage resource management process, it is not the only one. Site significance and sensitivity must also be considered. Site sensitivity refers to the impact on a site of neighbouring or on-site development. Some types of highly sensitive sites, such as gravesites and sacred sites, must be withdrawn from all types of development. Others, such as Silver City, may be suitable for compatible development or enhancement. Similarly, not all sites are worthy of preservation; some smaller prehistoric sites could be studied prior to land uses taking place. The presence of a heritage site does not preclude use of an area. It all depends on the types of land use being allowed and the value of the heritage site in question. Many heritage sites can continue to be used, as they have been for thousands of years, as traditional camping places, which can be a low impact type of land use.

Two important heritage sites are being threatened due to lack of proper management: Silver City and Dalton Post. Silver City was established in the 1903 Kluane Gold Rush and later became a transfer point between the water route across Kluane Lake and the Kluane Wagon Road. This became the site for a fox farm and later a big game guiding enterprise. In the 1930s, Silver City included a Royal Canadian Mounted Police post and a trading post. In 1942, Silver City operated as a camp for highway construction.

There are a number of buildings at Silver City remaining from the early mining and fur trading period. Unfortunately, the structures are being destroyed because of lack of maintenance or impacted by the intermittent floods that frequent this site. The structures

Dalton Post (Shaw 'She) on the Tatshenshini River

on the site will be lost unless proper management efforts are made.

The Dalton Post site (Shaw'she) represents important aspects of both Indian and non-Indian heritage in the region and is threatened by unregulated land use. The Champagne and Aishihik First Nations consider this village site important to their cultural identity and are pursuing establishment of a management regime for the site through the Yukon Land Claims' Agreement.

The heritage resource management process is a long way from knowing the location and significance of all of the region's heritage sites. The resident community, however, can provide valuable input into the recognition of heritage-sensitive areas in the Greater Kluane Region. They can help determine regional site significance. Local knowledge is an untapped information source that can help fill the information gaps that currently limit land use managers' (for example, Yukon Territorial Government, Canadian Parks Service, or First Nations) ability to manage and interpret the region's heritage resources.

Existing heritage interpretive programs in the Kluane area do not reflect the depth and breadth of the region's human history. Kluane National Park Reserve interpretive programs and Yukon Department of Tourism Development's interpretive signage until recently have provided little information on the region's native history or on native heritage resources. Where such programs included information on Indian culture, they generally addressed such a theme in the past tense and did not recognize contemporary Indian life styles. Efforts to rectify past deficiencies are now being made.

Silver City on Kluane Lake

Results of research of the region's prehistoric sites are also inadequately reported to the local community and few people understand how these sites relate to native history. Aboriginal place names could provide another important historical element of great interpretive value. For example, the Southern Tutchone name for the Lowell Glacier, Naludi, translates as "fish stop." The place name relates to the past surges of the Lowell Glacier which blocked salmon from migrating up the Alsek River. Until recently, government authorities have ignored these place names and imposed topographic names that do not reflect local long-term usage by First Nations' people. Since 1986, the toponymic program has begun to rectify this issue.

The recently passed YTG Historic Resources Act and the Land Claims Agreement will introduce changes to heritage site preservation and interpretation in the Kluane Region. The territorial legislation will provide protection to all formally "designated" historic sites. Most importantly, the Act requires site assessment work in development areas for which there is inadequate heritage site information. The Act, as well as the Land Claims' provisions, gives complete protection to highly sensitive sites such as native gravesites. Under the territorial legislation, Yukon First Nations, like other members of the public, can recommend their sites, whether they be on or off settlement lands, for designation as protected historic resources. The Act recognizes oral history as a valid form of historical research and information. Different heritage preservation values should thus be recognized in the Kluane Region.

The Heritage Subagreement of the Yukon Comprehensive Land Claims' Umbrella Final Agreement establishes the priorities for heritage site protection and interpretation in the Kluane Region. This agreement notes that the heritage resources of Yukon Indian people are underdeveloped relative to non-Indian heritage resources. It states that this imbalance must be

corrected and government program resources shall give priority to the development and management of Heritage Resources of Yukon Indian People (Section 13.4.1). The Umbrella Agreement also clarifies the issue of heritage site ownership. First Nations shall own all sites on their settlement lands. Their interest in the sites and artifacts related to their history and culture that are found off settlement lands is also recognized. The Land Claims' Agreement gives priority as well to the use of aboriginal place names.

Issues

1. Jurisdiction over and interests in the region's heritage sites are inadequately recognized at the present time. Site ownership and management responsibilities need to be addressed in order to ensure that the region's heritage sites are adequately recognized and protected.

2. Despite the fact that the great majority of the region's heritage sites relate to the history of Yukon First Nations, Indian values and interests have not been adequately recognized in past territorial and federal heritage resource management efforts.

3. There is inadequate documentation of heritage site locations in the Kluane Region, as well as limited assessment of which sites are most sensitive to development impacts.

4. Because much of the region's Indian history, including the story of the region's heritage sites, is unwritten, and those members of the community who know this history are elderly, there is an urgent need to conduct oral history research with First Nations' Elders.

5. The region's native gravesites are known to be extremely sensitive to development, yet have not been adequately documented so they can be protected.

6. The sites of Silver City and Dalton Post (Shaw'she) are known to be extremely vulnerable to impact from unregulated land uses and are currently experiencing considerable pressure.

7. Heritage resource information, which has the potential to enhance tourism, is presently inadequately interpreted.

8. Indian history is inadequately represented and often erroneously presented in heritage interpretation in the Kluane Region.

9. Aboriginal place names are an important component of the region's history. They have often been ignored by government agencies in charge of official place names, who have instead substituted place names foreign to or of little relation to the region's Indian history.

Objectives

To ensure a fair and balanced interpretation of the region's history, using both oral and written forms of documentation.

To ensure that heritage sites (archaeological and historic) are protected and preserved in a manner consistent with the cultural values of the residents of the region.

To ensure that all heritage resources of the region are managed in a manner so as to heighten local resident and visitor awareness of the region's cultural development.

Recommendations

1. Support should be given for the completion and implementation of legislation which will determine ownership and management responsibilities for the region's heritage sites. The recently passed Yukon Historic Resources Act, as well as the forthcoming Yukon Comprehensive Land Claims Umbrella and First Nations Final Agreements and the proposed federal

Archaeological Heritage Protection Act, will clarify the issues of jurisdiction over and interests in the region's heritage sites.

2. All heritage resource management schemes should recognize native heritage values and First Nations' interests in the region's native heritage sites to ensure native heritage values are reflected. First Nations should be consulted about what types of places in their traditional territory they consider to be historically significant and worthy of preservation. These would include sacred sites, trails and landscape features with history attached to them, as well as the more obvious sites such as old campsites, cabins, and graves. Some places, such as trails and historically important landscape features, may warrant special management areas for protection.

3. Efforts of the Yukon Heritage Branch, the Federal Department of Communications and the Canadian Parks Service to consult with the area's First Nations in the development of heritage resource management policies and programs should be encouraged and supported.

4. Given that it is impossible to document all the region's heritage sites, priority for further heritage research should be given to those types of sites that are most sensitive and to those areas where heritage sites are most poorly known. Other site documentation should occur as the need arises; that is, when development is proposed.

5. Oral history research with First Nations' Elders, concerning the region's history and heritage sites, should be given the highest priority. Research with respect to places which have not been commonly used in recent years, such as Kluane National Park Reserve, should be conducted as soon as possible.

6. Support should be given for a program which will inventory native burial site locations in the Greater Kluane Region, and record their history. This will require oral history research with First Nations' Elders.

7. Steps should be taken to ensure the preservation of the historically important buildings at Silver City. Support should be given to the process of developing a management plan for the Dalton Post (Shaw'she) site.

8. Greater heritage resource interpretation is required to enhance regional tourism programs. Indian history interpretive projects should be given a priority in the Kluane Region. Any tourism development strategies adopted for the region should include programs designed to foster awareness and understanding of Indian heritage resources and culture.

9. First Nations should be involved in the process of public interpretation of their history in order to ensure accuracy and authenticity. First Nations should be given special consideration for any management and interpretive opportunities related to native heritage sites and trails.

10. Support should be given for aboriginal place names documentation. This will require assessment of existing aboriginal place names data, for the collection of more names, for the process of requesting official place names changes, and for signage and translation of the region's aboriginal place names.

3.2 SETTLEMENT AND COTTAGING

Background

Important early settlements were located at the fishing sites of Neskatahin, Klukshu, Hutshi, Kloo Lake, and Aishihik. Several villages also served as trading centres: for example, Canyon City, Champagne (Sha Dhala), Burwash Landing and Snag (Hi Tel Chac). Other settlements included Little Scotty Creek, Sourdough, Wellesley Lake, and Duke Meadows. Although most of these locations are no longer used as permanent settlements, Indian people still have a strong spiritual link to them.

The first significant change in settlement patterns during the historic years resulted from the Kluane gold mining period of 1903 to 1904. Silver City was established as the transportation terminus for the wagon road from Whitehorse and tent cities, such as Bullion Creek, came into existence in the early 1900s. The boom was short-lived and within a few years the mining population dropped, marking the first of many population fluctuations that have occurred in the region over the past 90 years. The most recent mini-gold rush occurred in 1975-76 when high gold prices brought a wave of prospectors to the Burwash area.

The construction of the Alaska Highway in 1942 was the most significant influence on regional settlement in historic times. The communities of Haines Junction (Dakwakada), Destruction Bay, and Beaver Creek were originally founded as work camps during the construction period and later became administrative and commercial centres. As the new communities grew, many of the traditional Indian villages lost population to the emerging highway settlements.

This chapter provides information on the existing communities, on the future developments that may affect community growth, and sets out direction for accommodating future settlement growth. This chapter addresses both permanent residential settlement and seasonal cottaging.

Population

The Village of Haines Junction is the only incorporated community in the region. There are three unincorporated communities--Burwash Landing, Destruction Bay, and Beaver Creek--as well as many small settlements dispersed throughout the region, some seasonal and some permanent (Table 1). They include Kusawa, Mendenhall, Canyon, Kloo Lake, Champagne, Dezadeash, Klukshu, Aishihik, Snag, Scotty Creek, Kluane Lake, Neskatahin, and the south end of Kluane Lake.

Population growth over the past 10 years has been at a rate of about 2.6 percent per year, slightly higher than the 2 percent growth rate for the Yukon. Assuming that the rate of increase remains constant at 2.6 percent, the population of the region can be projected to be approximately 1,500 by the year 2000.

Most of the regional population growth has occurred in Haines Junction, while the other communities have shown varying patterns of growth and decline. The steady increase at Haines Junction is likely related to the growing role of this community as a regional service centre, tourist commercial node, and administrative centre. A major factor is the presence of the park interpretive centre, and administration and maintenance staff of the Kluane National Park Reserve. There are 44 employees working for Parks Canada in Haines Junction. In addition, the presence of the park stimulates business in Haines Junction, adding to the demands for land and community services.

There are a number of factors that may influence the population growth rate over the next five to 10 years. They include proposed

TABLE 1: Population Distribution, 1990

COMMUNITY	POPULATION 1990	PERCENT OF REGION 1990 (rounded)
Haines Junction	640	57
Destruction Bay	63	5.6
Burwash Landing	66	5.9
Beaver Creek	109	9.7
Community Population subtotal	878	78
Rural areas (estimated)	250	22
TOTAL REGION	1,128	100

SOURCE: YTG Bureau of Statistics (1990), and YTG Health Services Branch.

mine developments, the potential natural gas pipeline, increased tourism, and Bill C-31.

Both Windy Craggy and Wellgreen mines each propose a work force of approximately 400 employees. Both mining developments could locate a portion of the work force in Haines Junction, subject to discussion with the Government of Yukon and the village. There are no plans to locate employees in Burwash or Destruction Bay, although there may be pressure for various types of land in the event that the Wellgreen mine goes into operation. Due to low metal prices and other factors, development of the mines is not considered to be imminent.

Delay in the development of Wellgreen is due in part to lack of an adequate source of power for the smelter. The Alaska Highway Gas Pipeline may offer the best potential to meet this requirement. Current information indicates the completion of the gas pipeline is unlikely to occur within this decade. If both the pipeline and the Wellgreen project proceed, there is potential for major impacts on population and settlement structure of the region.

Reinstatement of non-status Indians through the Government of Canada's Bill C-31 has resulted in some First Nation members returning to the region. Although the impacts in terms of population growth are far from clear, it is anticipated that this, in combination with the settlement of land claims, may result in growth of the region's population.

Anticipated increases in wilderness tourism are expected to result in a gradual increase in population as this service sector expands.

Community Services and Infrastructure

The potential developments outlined above could result in significant demands on community services and infrastructure and land for residential purposes. In order to assess the readiness of communities to accommodate growth, it is necessary to assess the existing community services--water, sewer, schools, and developable land.

There are various types of water and sewage systems in the four communities as shown in Table 2.

TABLE 2: Community Water and Sewer Systems

COMMUNITY	WATER SYSTEM TYPE	SEWAGE SYSTEM TYPE
Haines Junction	Community water system on recently upgraded well Indian village being connected	Sewage Lagoon
Destruction Bay	Individual wells	Some houses connected to Sewage Lagoon. Future development will be on-site sewage
Burwash Landing	Wells, small piped systems, and some water delivery	None - sewage hauled to Destruction Bay
Beaver Creek	Well	Septic fields and pump out

SOURCE: YTG Community & Transportation Services, 1991.

Haines Junction is the only community in the region with a water and sewer system sufficient to accommodate any growth. Canyon Creek does not have a local water supply other than creek water, and trucks water from Haines Junction. This leaves the settlement without a water supply for fire protection.

The entire region is dependent on ground water for community supplies. There is a need therefore to ensure that contaminants do not enter the ground and pollute water sources. Agricultural uses, placer and hard rock mining, and hydroelectric development have the potential to impact water supplies if development takes place without adequate assessment.

There are 24 known garbage dumps dispersed throughout the region. The proliferation of dumps, their design and management can create conflicts with bears and other adverse environmental impacts. Policy and strategy for solid waste management is being addressed by the Advisory Committee on Waste, established by the Government of Yukon.

There are three schools in the region: grades kindergarten to 12 in Haines Junction, an elementary school in Beaver Creek, and the Kluane Lake School serving Destruction Bay and Burwash Landing. The Beaver Creek and Kluane schools could accommodate additional students, whereas Haines Junction could absorb only a limited expansion in the high school grades.

Rural Residential

The Yukon Government's Lands Branch is responsible for disposal and management of Commissioner's lands, and has the mandate for provision of land for rural residential subdivisions. The Yukon government does not accept individual applications for rural residential land. Although there is limited developed land available in Destruction Bay and Beaver Creek, if there is a demand identified and locally supported, the Government of Yukon will place land on the market.

The Government of Yukon is responsible for land surrounding the communities (Block Land Transfers) and land transferred to YTG for

various uses such as agricultural or residential development. The remaining land is under Federal jurisdiction. The federal government policy on rural residential disposition is to accept applications on an individual basis. However, only those applications that are beyond 30 kilometers from larger communities, such as Haines Junction, are given consideration. Under the current policy, rural residential use can be approved adjacent to smaller communities such as Beaver Creek, Destruction Bay, and Burwash Landing. However, these dispositions could impose high servicing costs and threaten the viability of these settlements. Haines Junction could also be negatively impacted if significant rural residential development is allowed 30 kilometers from the village. In the absence of provisions for taxation of rural developments, the communities often provide services for a population that does not contribute to the municipal tax base. In addition, if rural residential development occurs within the highway corridor, there could be a negative impact on the wilderness character of the region.

Cottaging

Prior to 1975, cottage lots were provided through the federal government on an individual application basis. Land claim negotiations made the continuation of this impractical and a subdivision approach was adopted that developed approximately 800 lots in the greater Whitehorse area. There is recognition from the Commission, as well as the residents of the area, that the pattern of cottage development that occurred in the Whitehorse area could cause significant negative impacts if repeated in the region. These could include a deterioration of water quality, degraded fish habitat, restricted lakeshore access, and diminished wilderness resource values.

In 1986, the responsibility for the provision of cottage lots was delegated to the Government of Yukon. Lakeshore developments took place on selected lakes in the Yukon, including Pine Lake (Si Mun) in the Kluane Region. Located approximately six kilometers from the Village of Haines Junction, Pine Lake was developed for cottaging in 1989. Nine cottage lots were sold on the north shore, primarily to local residents. A second phase remains to be developed. However, the location of this development, so close to the Village, raises the issue of whether the lots will encourage year-round residential use rather than the seasonal use they were intended for. A long-term leasing system may have encouraged seasonal rather than permanent use and the element of speculation in land ownership may have been averted.

The Kluane Region is fortunate in having seven major lakes--Kluane, Dezadeash, Aishihik, Wellesley, Kloo, Sekulmun, and Kusawa--as well as a number of smaller lakes. However, shoreline areas suitable for either seasonal or year-round residential uses are limited. The accessible lakes are well utilized by the public for recreational, subsistence, and, in the case of Kluane Lake, residential use. The shoreline areas are also areas of high value for other resources. The sites that have physical characteristics suitable for development are often the same areas with high wildlife and heritage values or significant existing public use. Along some shorelines (for example, west shore of Kluane Lake), terrain hazards restrict cottage lot development.

Because no spot applications are accepted for cottage lots in the Yukon, projecting demand is difficult. However, it is estimated there is considerable demand for cottage lots throughout the Yukon, as well as in the Kluane Region. Indicators of the demand include the high number of applications for the Pine Lake lottery, and the submissions by the Village of Haines Junction in support of future cottage lot development.

It has been recognized for some time that a policy is required for the development of cottage lots to address a number of issues, including location of lots along river and lake shorelines and the relationship with other resource uses. Currently there is no policy in place that provides direction on the type of lake suitable for development or the approaches required to assess the other competing resource values.

Issues

1. Preservation of the wilderness and scenic values of the region is an issue. Scattered and/or strip rural residential development may negatively affect the wilderness character of the region.

2. Cottage lot development is particularly contentious in the region, because it has the potential to affect highly valued lakeshores and create pressures for further development in remote areas. In addition, if the lots are improperly designed or sited, adjacent water may be polluted, fish habitat impacted, and lakeshore access diminished.

3. Major mining development could have significant impacts on existing communities unless settlement and service requirements are carefully planned. In particular, the pressure to extend services to fringe rural development may burden the economy of small communities.

4. There is a need for long-term protection of community water supplies.

5. The Kluane region is subject to active geological processes, resulting in many areas of hazardous terrain. Concern has been raised regarding the lack of policy to manage development proposed in areas with terrain hazards.

Objectives

To strengthen the communities economically and socially.

To provide opportunities for people to live and work in healthy communities.

To preserve the wilderness areas surrounding the communities.

Recommendations

1. Rural residential - Development should take place only in limited planned area either within the communities or on land immediately adjacent to the communities. Where the land needed for development is adjacent to a community, the land should be transferred to Yukon, included within the community boundaries, and regulated through local jurisdiction.

2. Taxation policies should be re-examined to provide equity distribution of infrastructure costs (community facilities, roads, power, schools, etc.), based on a user-pay concept.

3. Cottaging - The maintenance of public shorelines and the limiting of access into the hinterland are seen as a key to protecting the wilderness character of the region and opportunities for public recreation. Prior to the planning and disposition of any new cottage lots within the region, a cottage lot policy is required. This policy should be prepared in the broader context of a policy on Wilderness Resource Use (see Outdoor Recreation and Tourism) with full public consultation, and should address the needs of other resource users, protection of shorelines, water quality, fish and wildlife habitat, and public access.

4. Solid waste disposal - Long-term waste management strategies and policy should include guidelines for the closure,

rehabilitation, and future disposition of garbage dumps and waste sites.

5. Community water supply - All communities within the planning region should identify and establish guidelines for the protection of both surface and ground water sources important to the community subject to the provisions of existing legislation. These water sources should be identified along with means for their protection during the community planning process.

6. Policies should be developed to deal with regulations and development approvals in hazardous areas as identified in the terrain hazard mapping prepared for this plan.

7. Until such regulations are implemented, all applications for land should be assessed for terrain hazards and management provisions established that will ensure public safety.

3.3 TRANSPORTATION AND COMMUNICATIONS

Background

The extensive system of early trading and travel trails from the Pacific coast to the Kluane interior predate the modern highway system by centuries. These old overland routes provide the key to understanding the history of traditional land use and settlement patterns and served as a base for the early entry and settlement of Euro-Americans in the region. Contemporary highways such as the Haines Road largely follow traditional trails.

The first modern road in the planning region dates from the early 1900s with the construction of the Kluane Wagon Road. This road ran from Whitehorse to Steamboat (Mendenhall) Landing and from Silver City to the head of Kluane Lake. The Alaska Highway was built during World War II.

The region is well-served by the North Alaska Highway and Haines Road (Shakwak Highway) which connects its major communities to Whitehorse, and to Fairbanks, Anchorage, and Haines, Alaska.

The federal government is responsible for the funding, engineering, construction, and maintenance of these two highways. Reconstruction of the Haines Road, carried out under the Shakwak Agreement between the governments of the United States and Canada, is largely complete. Only small sections of the Alaska Highway are rebuilt to date and, although there is a great deal of work to do, Public Works Canada is able only to provide very general estimates of the work required.

Maintenance of the Alaska Highway and Haines Road is conducted by the Yukon Government under an agreement between the governments of Yukon and Canada. Significant reductions in federal funding over the last several years has resulted in highway maintenance problems.

Another problem associated with upgrading the highway is the mapping and reservation of suitable sources of granular resources (earth, gravel, and rock). Public Works Canada estimates that an average of 60,000 cubic meters of common excavation material and 15,000 cubic meters of crushed granular material is required per kilometer of road rebuilt. Crushed material sources are needed at 10 to 20 kilometer distances and lengthy haul distances add significantly to the cost of road construction or maintenance.

Secondary access roads have also been constructed to provide public access for recreation or in support of a specific development project. The Kusawa Lake road provides summer recreation access. Access to the Aishihik Dam hydro project is provided by the Aishihik Road. This road is also quite heavily used by hunters and anglers and for a wide range of recreational and traditional uses. Roads into Snag and Dalton Post, which receive only summer maintenance, are also heavily used.

Many resource roads have been constructed in the region by individuals or companies to access a valued resource such as placer or quartz finds, or wood harvesting areas. All resource roads require a land use permit for construction, although roads constructed on mining claims are not subject to land use permits. The Yukon Government offers funding for resource roads through the Resource Transportation Access Program (RTAP). Although some 70 percent of recent applications for funding have been from the mining sector, funding assistance is also available for airstrips, boat docks, and road upgrading in support of tourism, forestry, and other sectors. After abandonment, many of these resource roads are used by local residents and others for back country access. There are currently no regulations regarding the

abandonment or permanent closing of these roads.

The present system of dealing with back country access often leads to land use or environmental conflict. Unplanned or uncontrolled access has increased hunting and fishing pressure in certain areas of the region to the point where fish and wildlife populations are threatened. Poorly planned or conducted construction over sensitive terrain (for example, the Burwash Uplands) has caused environmental damage that could have been greatly reduced or avoided. An approach to back country access planning, which takes a long-term view of the impacts of not only the construction of a road but the eventual use of the road by the public, could greatly reduce these difficulties. There is potential for new back country roads to have significant positive effects, such as dispersing hunting and fishing pressure and opening new opportunities for recreation and economic development. To achieve those positive results will require close cooperation between all resource users and managers.

Air transport is an important aspect of the region's communication system. The need for an additional emergency airstrip at Koidern or Bear Flats is recognized. Private airstrips, associated with resource access, are plentiful in the region, but there is no systematic record of either location or status.

Reliable communications are essential for the safety of Yukoners and visitors, as well as a necessary requirement for economic development. Currently, there are 10 microwave repeater sites in the region and three radio broadcast transmitters. The microwave repeaters service the region, as well as providing necessary links to the Alaskan communications system.

The NorthwesTel construction program to 1995 includes property for a new microwave radio repeater site at Canyon Creek, with an access from the Alaska Highway to the radio building and cable facilities to the dwellings. This project is scheduled for 1991. While not specifically mentioned in NorthwesTel's 1990 five year capital plan, other possible projects could include communications to the settlement at Champagne and to Aishihik Lake.

Issues

1. The poor quality of the Alaska Highway, particularly the North Alaska Highway from Jarvis Creek to the Alaska border, is an important issue. The main obstacle to improving the Alaska Highway is the question of who should pay for the upgrading.

2. In order to make repairs to the Alaska Highway, borrow pit reserves are required. Issues surrounding these reserves include possible visual and environmental impacts along the highway corridor and protection of essential gravel sites from alternative development. Land dispositions in areas of critical importance for the highway right-of-way, such as stream confluences, mountain passes, and alluvial fans, will severely restrict transportation routing options.

3. The visual management of the highway corridors of the planning region is of concern. Improper management of corridor elements, such as signage, access development, borrow pit development and abandonment, and commercial and industrial development, can negatively affect the wilderness quality of the highway corridor and, more generally, detract from the experience of tourists who travel the highway.

4. There are several concerns with resource road development and later management of resource oriented access in the region, including the following:

(a) Environmental
- erosion of steep banks and silting of streams, which negatively impacts fish and fish habitat;
- disturbance or destruction of wildlife and wildlife habitat; and
- disruption and/or destruction of rare plant communities.

(b) Safety
- route selection to avoid or minimize terrain hazards; and
- stream crossings, appropriate use of bridges and culverts.

(c) Increased public access
- access to formerly inaccessible areas for hunting, wood cutting, wilderness tourism, and recreation.

(d) Road abandonment
- lack of criteria and policy for road abandonment.

5. The traditional Indian travel and trading trails played a vital role in the history and exploration of the region. In addition to their cultural importance, they are also important from an outdoor recreation and tourism perspective, leading to some of the region's more beautiful and unspoiled country. Many of these routes are still visible on the land and kept open by use. Others are difficult to locate or obliterated by road construction. Careful management and protection of the major old Indian trails is required.

6. Proliferation of utility corridors (hydro lines, pipelines, etc.) is not desirable because of their potential to degrade the high environmental values of the region.

Objectives

To ensure that transportation infrastructure is of a standard capable of facilitating rather than impeding economic growth in the region.

To ensure that the ability to access resources by road is balanced with maintaining a high quality natural environment in the region and the demand for improved back country access.

Recommendations

1. The Government of Canada should pursue the completion of the upgrading of the North Alaska Highway and increase current levels of funding to ensure the highway is maintained at appropriate national safety standards.

2. There is a need to establish a proactive approach to the management of access roads in the region. Existing access should be reviewed in terms of its impacts on the natural environment and requirements for resource and recreation access. Management options such as upgrading, hunting or access restrictions, or abandonment should be considered. New access roads should be designed to serve multiple use purposes.

3. The development of additional viewing spots, highway pulloffs with adequate facilities, or access roads to camping or picnicking areas along the Alaska Highway corridor should be encouraged and include full community consultation. Designs should complement not only the natural and aesthetic features of the area, but provide opportunities for heritage and natural feature interpretation.

4. Options for the management of highway signage should be considered in view of the need to preserve the scenic viewscapes of the highway corridors.

5. Funding for resource road construction or upgrading should be allocated only to those projects which have received a thorough review under Resource Transportation Access Program (RTAP) guidelines or through the comprehensive

Development Assessment Process (DAP) to be implemented under the Yukon First Nations Land Claims Agreement. As part of the review process, consideration should be given to the future abandonment of proposed roads or their permanent role in the overall transportation and access system.

6. A formally designated system of major heritage trails should be established within the region and officially recognized as heritage routes. Land use guidelines should be developed for their recognition and protection, with full involvement of Yukon First Nations and other interested parties.

7. An inventory of sand and gravel resources in the highway corridors of the region should be completed to identify and protect long-term supplies for highway construction and maintenance, communities, commercial operators, and the public. Local residents should be given the opportunity to contribute information and participate in this work.

8. All abandoned sand and gravel sites should be reclaimed with the goal of restoring the natural landscape.

9. An additional emergency airstrip between Burwash Landing and Beaver Creek is required. The Aviation and Marine Branch should identify a site, in consultation with local residents, to meet this need and ensure that it is reserved from future dispositions. The Branch should define the priority and timeframe for construction of this facility.

10. Wherever possible, utility corridors (combining pipeline, communication, and power corridors) should be established as a means of consolidating routings, thereby reducing the overall requirements for land and lessening negative impacts on the environment. The potential for utility corridors to accommodate multiple uses should be recognized. For example, in isolated areas, corridors should remain open for horse grazing.

11. All reasonable efforts should be made to minimize the number of access roads into wilderness areas for construction of future communications infrastructure.

12. All reasonable efforts should be made to keep communications installations as visibly unobtrusive as possible within the bounds of existing safety regulations.

3.4 ENERGY

Background

Energy needs for the region are met by a variety of sources including wood, oil, and electricity. Wood has been the traditional source of energy and wood stoves are used by residents of many communities for much of their heating. Wood accounts for 20 percent of the region's energy consumption, although consumption varies somewhat from community to community. There is a need to identify and protect a long-term fuel wood supply in the region in support of these local demands. Imported southern oil is currently the most heavily used energy source in the region. It is used primarily for the generation of electricity, as well as for home and business heating.

Electrical power for heat and light comes from either the power grid originating at the Aishihik Dam or from diesel-powered generators within the community. A number of rural residents, highway lodges, and other businesses generate their own power, normally with gasoline or diesel generators, and are not connected to the overall energy grid or transmission system within the region. The Kluane Region uses only 1.1 percent of the total electricity generated in the Yukon, or about 4 percent of the output of the Aishihik Plant.

Given the region's small and widely dispersed population, its energy supply is adequate (although dependence on imported oil is somewhat expensive). However, the energy infrastructure is inadequate to meet demands from expanded industrial activity, such as the Wellgreen or Windy Craggy developments, which would require a total of some 40 megawatts of power.

The demand for energy in the Kluane Region, and in the territory as a whole, is geared to economic development. As discussed elsewhere in this document, control of the territorial economy is largely subject to outside forces, such as world economic and market conditions. This is particularly true of the mining industry, which is by far the largest single power consumer in the Yukon.

The Yukon-wide electrical delivery system is currently at its limit. New capacity must be added to the system immediately to meet current levels of demand and to provide for the requirements of potential new development. In response to this need, the Yukon Energy Corporation (YEC) released a five year strategic plan in 1990 laying out the principles and practices that will control the expansion of power capacity. This blueprint for energy development endorsed the objectives of financial responsibility, environmental responsibility, reduced dependency on diesel-generated electricity, development of comprehensive demand side management, and stable and predictable long-term electrical rates. Risk management strategies include the principle that project-related power needs must be paid for by the benefiting development.

The strategic plan projects that the Whitehorse/Aishihik/Faro (WAF) system will require 16 megawatts of new capacity by the end of the 1990s. Filling the projected energy demand within the stated objective of environmental responsibility is a priority of the plan. YEC endorses hydroelectric generation as the most effective method in the long term, and specifically endorses small-scale hydro developments as the best option on the WAF grid.

Small-scale microhydro plants are mentioned in the YEC strategy as a method of meeting the objectives of environmental responsibility and providing the communities with other than diesel-generated electricity. The strategic plan mentions private microhydro developments with the option of selling any excess capacity into the power grid. Putting these principles into practice could mean small hydro developments to supply Burwash Landing and

Destruction Bay. This approach, based on the principle that smaller is better, will require careful consideration to determine the impact of multiple small projects and transmission lines. Other small-scale and alternative energy sources, such as wind, solar, and thermal energy generation, have the potential to meet at least a portion of the region's current and future energy requirements.

The objective of managing demand for electricity by encouraging conservation and reducing peak load is environmentally responsible and has the effect of creating new capacity. The effectiveness of this option is not discussed quantitatively in the plan, but benefits include reductions in peak generation requirements and reduction of average consumption.

Projections for future energy consumption in the Kluane Region have not been completed to any degree of detail or reliability. At the present time, two mineral properties, the Wellgreen site, north of Burwash Landing, and the proposed Windy Craggy mine, located in British Columbia, are at the pre-feasibility stage of development and represent a potential 40 megawatt increase in energy demand for the region.

The current electrical system in the Yukon could not supply this demand. The Windy Craggy development plans call for on-site generation of power. Wellgreen, which has a larger power need, is looking at several options including the use of natural gas or coal-fired thermal generation.

A major consideration within the planning region is the potential construction of the Yukon portion of the Alaska Natural Gas Transportation System (Foothills Pipeline). The routing of the 40 meter wide corridor will roughly parallel the Alaska Highway and would extend approximately 370 kilometers through the Greater Kluane Planning Region. Haines Junction is the only community in the Kluane Region that could viably tap into the Foothills pipeline.

There are potentially large environmental impacts associated with a major pipeline project of this nature. Permafrost soils, major river crossings (the White, Donjek, and Duke among others), and a 6.5 kilometer crossing of Kluane Lake are a few of the conditions that such a project would have to overcome.

Although there are no concrete proposals for new hydro development within the planning region, a number of projects identified as potential future options could have significant land use impacts in the area. The first of these options would entail upgrading the Aishihik Power Plant by increasing the size of the catchment basin. Various scenarios have been suggested to accomplish this upgrading. All would require construction of new dam facilities and significant manipulation of stream flows or total diversion of some watercourses.

There has been continuing controversy over the operation of the Aishihik Lake Dam and the impact of fluctuating water levels on the lake's fishery and on rates of shoreline erosion and canal leakage at Otter Falls. Dissatisfaction with the whole development process for Aishihik has sensitized the public to the potential environmental impacts of energy projects. Further investigation of the effects of winter draw-down on the recruitment rates of lake trout, whitefish, and cisco will be undertaken on Aishihik Lake by YTG Renewable Resources (Fisheries) in the summer of 1991.

A second option involves the construction of dams on both Rose and Primrose Lakes to provide water through a penstock installation (diversion tunnel) to a 30 megawatt generating plant which would be built on Kusawa Lake.

Other options have had even more limited preliminary examination and should be considered only as examples. These include

potential dam sites on the Yukon River which could have an impact on the White River watershed. There are also proposed sites on the White, Donjek, Alsek, and Kluane Rivers.

It is anticipated that in the foreseeable future small communities will continue to rely on diesel generation. Although no coal deposits suitable or extensive enough to be used for thermal power generation have been found within the region, the Division deposit, 20 kilometers southwest of Braeburn, to the east of the planning region, has some future potential.

Issues

1. Energy development and potential impacts on the environment are a major concern in the region. Concerns with the future energy production and supply system include both the immediate impacts from construction and development, and the long-term operation of existing and new facilities.

2. While numerous small energy projects dispersed throughout the region could lessen the need for major new energy development, there is a concern regarding the environmental impacts of a number of small microhydro developments, including impacts on fish.

3. The Yukon Energy Corporation's stated user-pay policy for new, large industrial developments, such as Wellgreen, makes energy supply a critical element in development in the region.

4. Preservation of long-term fuel wood sources close to the communities is a concern in the region.

Objectives

To promote energy conservation programs and policies.

To ensure that energy requirements for the region are met in an environmentally responsible manner.

To ensure that the residents of the region have a voice in the development of future energy projects.

Recommendations

1. The Commission endorses the YEC's initiative of a Yukon energy strategy, however, there is a need to look at a longer time period. The Commission strongly recommends an open public process for implementing the strategy.

2. Energy conservation should be encouraged as the most environmentally friendly way to manage the energy needs of the future.

3. The Commission suggests that detailed investigation be undertaken to determine the impacts of the Aishihik project on surrounding lands and waters. This environmental assessment should be carried out in connection with review of the water licence and should address remedial measures to deal with past and current impacts on fish and wildlife populations and habitats, water quality, and shoreline stability. The assessment should also identify and suggest ways of reducing potential future impacts and provide clear guidelines for future reviews and licensing of such projects.

4. All major energy projects should undergo a more comprehensive and effective review than is currently in place to determine the potential environmental impacts of the project and to prescribe effective measures to mitigate those impacts as required through either the Environmental Assessment Review Process (EARP) or the Development Assessment Process (DAP).

5. As an alternative to large-scale hydro power development projects and a means of limiting the impacts of power projects on the environment, smaller scale options, such as microhydro generation, and "alternative" power sources, such as wind, solar, or thermal energy based on potential sources of natural gas (Alaska Highway Gas Pipeline), are preferred. The ability of these sources to meet local and community needs should be investigated and should undergo an environmental review that compares their impacts to larger scale power development options.

6. Priority should be given to the use of forest resources for energy rather than a wood supply for large-scale pulpwood or sawmill operations (see Forest Resources).

3.5 WATER RESOURCES

Background

Water is an essential element in the region's ecology and an important natural resource. The high quality water resources of the region provide fish and wildlife habitats and water sources for communities. They have a long history as transportation and trade routes, have been utilized for hydroelectric power generation, are widely used for recreation and by the placer mining industry, and are an important part of the region's wilderness character.

As both the Yukon and Alsek river systems have their headwaters in the Yukon and British Columbia and flow through Alaska, joint and international agreements are required to manage water resource use and the salmon fishery in these systems.

The Yukon River Basin Study, initiated in 1980, under an agreement between Canada, the Yukon, and British Columbia, was designed to undertake research and to develop a framework for water resource planning. Water metering stations were evaluated in the Kluane region under the agreement as a means to measure water flows in order to assess flood hazards and hydroelectric development potential. To evaluate the potential effects of water resource use and to improve the knowledge of fisheries resources, water quality studies were also undertaken.

It was observed that in arctic and subarctic regions dissolved oxygen concentrations become depressed under winter ice conditions. Studies indicated that the initial depression of dissolved oxygen occurs more rapidly than previously expected and that concentration of dissolved oxygen may be reduced to levels which restrict fish populations. Lake outflow areas where ice is late to form and first to leave have been noted as areas of high productivity for fish. It is also noted that the discharge of sewage or disturbance of stream beds during fall and winter could accentuate the depression of dissolved oxygen and have harmful effects on biological communities. Wildlife information was also collected on species most dependent on aquatic and shoreline habitats. The studies indicated that the flood plains of major valleys are the most important units for the survival of many species including aquatic and semi-aquatic furbearers, waterfowl, songbirds, shorebirds, and several raptors such as bald eagles and osprey. Other raptors, upland game birds, and several big game species such as grizzly and black bear, moose, and woodland caribou, make seasonal use of shoreline areas that may be critical to their survival.

The Study Committee recommended that the parties enter into a formal agreement to co-ordinate ongoing planning and management activities. In 1991, in response to this recommendation, the Agreement Respecting Water Resource Management and Information Exchange in the Yukon and Alsek River Basins was signed by Canada, the Yukon and British Columbia.

The federal government is responsible for water management in the Yukon. The Northern Inland Waters Act, 1972, provides for the conservation, development and utilization of water resources in the Yukon and provides for the establishment of a Water Board to licence water use and the disposal of waste in water.

The Yukon Government anticipates increased responsibility for water management through devolution and proposes to develop regulations dealing with effluent discharge, municipal and private sewage, and water resource protection, as well as general water quality and treatment under its Environment Act.

Issues

1. There is a concern that the high quality water resource of the region be recognized as an essential element in the region's ecology and that it be given the highest priority for protection in all resource management decisions.

2. Protection of community water supplies.

3. Management of flood hazards (see Settlement-Energy).

Objectives

To highlight the importance of water to the ecology of the region.

To ensure the maintenance of water quality.

Recommendations

1. Water allocation and land management decisions should recognize the maintenance of fish and wildlife habitats as being of primary importance in the region.

Related recommendations are also found in the Energy, Settlement and Cottaging, and Agriculture sections of this plan.

3.6 SUBSISTENCE

Background

Subsistence pursuits continue to be an integral part of the traditional and modern life styles of the region's Indian people. To understand subsistence, it must be recognized as having many components, including the harvesting, processing, distribution, and exchange of local resources such as fish, game, plants, berries, and timber, primarily for domestic consumption. It is also closely associated with such activities as trapping, commercial fishing, and handicraft production, which produce items for sale as well as exchange.

Indian subsistence is identified as a social and economic system of production and distribution, property rights and land tenure, households and extended families, mutual obligations and sharing, and is guided by traditional laws, customs, and cultural beliefs. The maintenance of a subsistence life style and access to the resources required to support that life style is a legally recognized aboriginal right held by Yukon Indian people.

Other Yukoners have a recognized interest in subsistence resource use as a life style choice. This should not be confused with the cultural significance of Indian subsistence and the aboriginal right of Indian people to the subsistence use of resources.

The merger of subsistence and cash income is complex and varies from one household and community to the next. Practically every Indian household in the Kluane Region relies on both subsistence activities and cash income. The essence of the subsistence-based Indian economy lies in its function as an integrating system of cultural and economic relationships.

Subsistence has proven to be a remarkably resilient system. First Nations have accommodated to dramatic changes, yet continue to rely on subsistence not only as a means of economic production, but also as a strong part of their culture and heritage. There are, however, threats to this system that urgently need to be addressed. One is the increasing competition from other resource users and impacts on habitat. Others are social and economic programs and policies imposed on First Nation communities which have resulted in reduced subsistence activity and production and, in turn, negatively affected the social well-being of Indian people in the region. Current subsistence activity is well below historical levels and below the potential of many sub-regions to support such use.

Issues

1. Yukon Indian subsistence is a wide-ranging social, cultural and economic system that is broader than the mandate of any individual government department or agency. An interdisciplinary and interagency approach to subsistence has been absent from government in the past.

2. The resources required to support subsistence activities are under increasing pressure from competing, incompatible land, water, and resource uses such as mining, tourism, and agriculture, as well as by non-Indian and non-resident harvesting activities.

3. First Nations have had little involvement and control of programs and information dealing with subsistence resource use and have viewed such initiatives with suspicion. Resulting programs and policies have often been based on a misunderstanding of the activity and importance of subsistence, weakening the system rather than reinforcing it.

Subsistence Hunting and the Sharing of Game is Important to Indian Families Within the Region

Objectives

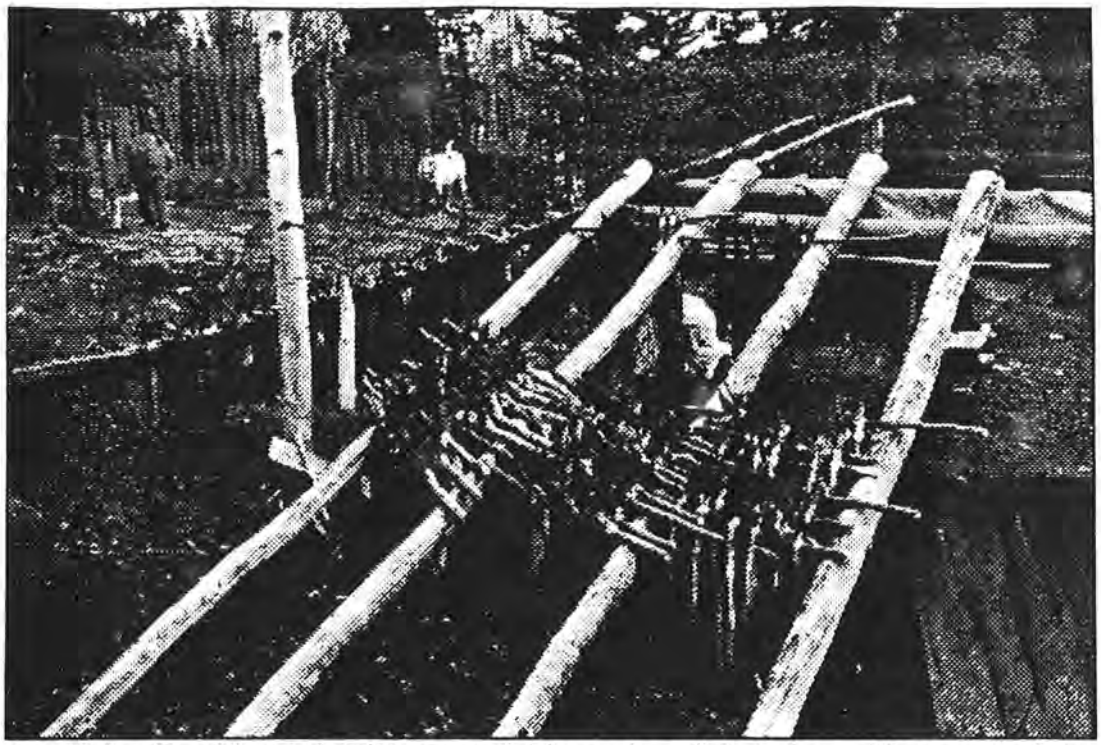
Land use and resource management decisions in the Kluane Region must recognize the importance of local Indian subsistence activities.

Recommendations

1. Cooperative research and management programs between government, First Nations, and subsistence participants in the Kluane Region should be established to promote an accurate understanding of subsistence systems and resource requirements.

2. Governments should develop land and resource management policies, in conjunction with First Nations, that acknowledge subsistence, not merely as an activity, but as a coherent system of many interrelated components. This includes the formal recognition of the rights, interests, cultural values, and economic benefits of subsistence resources harvesters in the review of land use applications and in social and environmental impact assessments.

3. Non-Indian subsistence should be recognized as a separate activity requiring distinct policies, and not be subsumed under Indian subsistence.



Combining Traditional Subsistence Activities such as fish drying, with Aspects of the Wage Economy like Wilderness Guiding and Outfitting, Strengthens Cultural Ties to the Land and its Resources

4. Government should adopt an inter-departmental approach to subsistence to ensure that the effects of its socio-economic, as well as land and resource management programs, policies, and regulations are more clearly recognized and are of more benefit to subsistence resource users.

5. Information and data on subsistence for public policy purposes should be obtained on a cooperative basis, with the informed consent of subsistence participants, and be consistent with principles agreed to through a Land Claim Settlement.

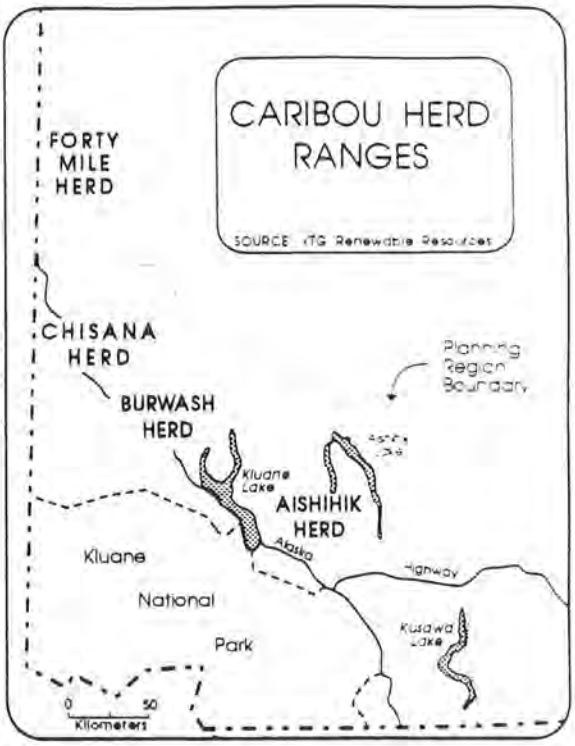
3.7 WILDLIFE RESOURCES

Background

Wildlife is a key part of the character of the Kluane Region. The wide variety of terrain, landforms, and vegetation, and marked variations in climate produce a great diversity of habitat types in the region. Fourteen species of large mammals--including ungulates and carnivores--inhabit the region, a higher diversity than anywhere else in the world north of the 60th parallel. At least 20 species of small mammals occur, several at either the northern or southern limit of their distribution. Over 150 species of birds have been identified in the region, representing over 70 percent of all bird species occurring annually in the Yukon. The most recent status of selected wildlife populations in the planning area is shown in Table 3.

Moose, caribou, and Dall sheep are the most common of the seven species of ungulates found in the region. Although widely distributed throughout the region, moose populations have declined significantly in the eastern portion. Dall sheep inhabit most mountainous areas with about 50 percent of the total Yukon population in the region. One barren ground caribou herd (Fortymile) and three woodland caribou herds (Burwash, Aishihik, and Chisana) range within the region (see Map 4). The populations of the Burwash and Aishihik herds are at an all-time low. The reason for the low population figures is not established. The Fortymile herd is slowly recovering from a major decline from half a million animals in the early 1900s to a low of 5,000 animals in 1974.

Mountain goats are uncommon in the Yukon, but over 50 percent of the total population is found in the planning region, primarily in southeast Kluane National Park Reserve and the southern portion of the Kluane Wildlife Sanctuary. Mule deer are recent immigrants



MAP 4

to the Yukon and are frequently seen in the Takhini River valley.

Elk and bison both are reintroduced species in the Yukon. In the Kluane Region, elk occupy two areas--the Takhini River valley and the Hutshi Lake/Nordenskiold River valley (see Map 5). Elk abundance has changed little since their introduction in 1950, but it is suspected that their numbers are too low to absorb years of high natural mortality. The planning region has populations of a full range of predators usually found in the boreal forest. The abundance of wolf, coyote, red fox, wolverine, and lynx is tied closely to that of their prey. Grizzly bear, primarily a herbivore, is of particular significance, with about 10 percent of the Canadian grizzly bear population in the region. Based on estimated habitat suitability, the forested region of the Ruby Range and the southeast St. Elias Mountains (Kluane Wildlife Sanctuary) should contain the highest density of black bears in the Kluane Region.

TABLE 3: Status of Wildlife Populations in the Kluane Region

SPECIES	POPULATION *	POPULATION TREND
MOOSE	5,900	Increasing in GMZ 7 Decreasing - Kluane Range to the Sifton Range Undocumented - north of Kluane Lake to Wellesley Lake
WOODLAND CARIBOU		
Aishihik Herd	1,500 (1982 est.), 785 (1991)	Local residents believe these herds have been declining for a number of years. The extent of the decline has only recently been confirmed by government surveys and management steps have been taken to reduce harvests.
Burwash Herd	400 (1982 est.), 143 (1991)	
Chisana Herd **	1660 (1990 est.)	
BARREN GROUND CARIBOU		
Fortymile Herd **	22,766 (1990 est.)	Increasing slowly
SHEEP	11,600	Local residents question the total number indicated for sheep populations in the region. Based on local experience, residents indicate significant decline in sheep populations in some parts of the region (e.g., north Kluane Lake). Government surveys differ from these opinions and indicate stable sheep populations. Further sharing of information and co-ordinated study would improve understanding of the sheep population.
MOUNTAIN GOAT	1,160	Undocumented
GRIZZLY BEAR	1,000	The current level of survey information is not adequate to predict trends in this population. Based on the number of encounters and sightings of bears by local residents, their opinion is that grizzly bears are increasing.
DUCKS (breeding)	10,000	Stable
TRUMPETER SWAN	1,000	Increasing

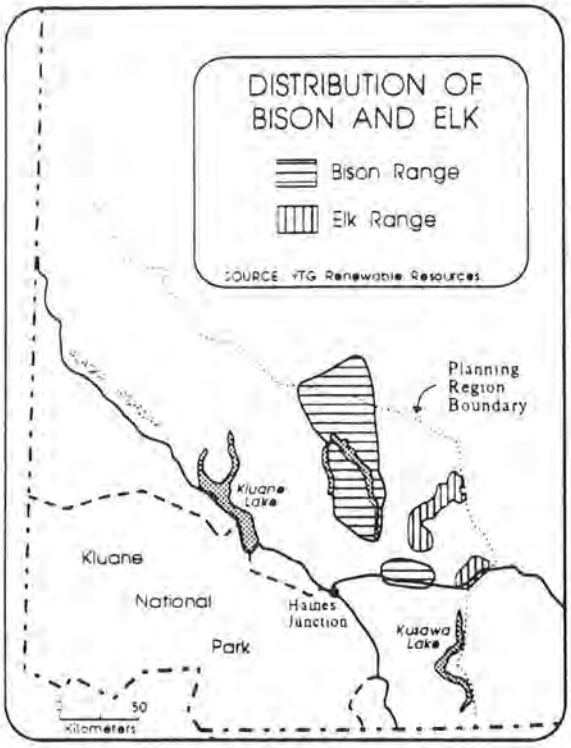
NOTE: The prediction of wildlife population trends and filling of gaps in scientific knowledge can be enhanced through increased use of local knowledge.

* All population figures are estimated.

** The Chisana and Fortymile caribou herds range mainly in Alaska and population estimates are courtesy of the Alaska Department of Fish and Game.

SOURCE: YTG Renewable Resources

Grouse and ptarmigan, raptors, and waterfowl are the most thoroughly documented birds of the planning region. Seven species of grouse (including three ptarmigan species) inhabit the region. Although known breeding habitats for sharp-tailed grouse are limited in number, they do occur throughout the planning region.



MAP 5

Golden eagle densities in the Coast Mountains and Kluane Range are among the highest recorded in North America, indicating the international significance of this habitat. Gyrfalcon nest at moderate densities throughout the mountainous areas of the planning region, nowhere reaching the high densities of the North Slope. Peregrine falcons, listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as endangered, are still slowly recovering from the major declines of the 1960s and '70s. The Donjek and White River valleys have been recolonized by peregrines and currently support a low density. Although neither bald eagles nor osprey are abundant in the region, the central portion has the highest density. Within the region, the Shakwak Trench is a major migration route for waterfowl. Migrating birds use the many wetlands within the trench in the spring and fall. In particular, the outlet of Kluane Lake is rated as nationally significant by the Yukon Waterfowl Technical Committee for its use by thousands of ducks, geese, and swans in spring.

Relative to other areas of the Yukon, few ducks breed in the Kluane Region. The planning region is second only to the southeast Yukon for breeding Trumpeter swans, which are listed by COSEWIC as threatened. Swans tend to be widely dispersed in low numbers over suitable breeding habitat, however, one area of concentration is the Wellesley Lake basin.

Three groups of people are involved in wildlife harvesting in the Kluane Region. Traditionally and currently, First Nations rely on wildlife for several distinct reasons: wildlife provides a food source of high nutritional value, and the by- products provide materials for clothing, implements, and crafts, as well as for spiritual and ceremonial purposes. Equally important, however, the harvest and use of wildlife is essential to the survival and vitality of First Nations' culture. First Nations wildlife rights are protected in law and recognized in their land claim. Resident hunters also rely on wild game for food and recreation, while non-resident hunters constitute the clientele for big game outfitters in the Kluane Region.

Moose, caribou, and sheep are the main species hunted for food by Indian people. Other important food species include gopher, snowshoe hare, waterfowl, and game birds, although, over the past 50 years, dependence on wild food has been modified by the introduction of a wage economy.

Harvesting of game by non-Indian residents of the region and the Yukon is also significant, a reflection of rural values and a means of

augmenting store-bought food. The value of wildlife to people in the region cannot be overstated.

The wildlife species of particular importance to the outfitting industry in the region are Dall sheep, caribou, and grizzly bear. Figure 3 shows that guided non-resident hunters account for 66 percent of sheep harvested, 62 percent of caribou, and 57 percent of grizzly bear--significantly higher percentages than taken by resident hunters. These figures are similar to the rest of the Yukon with the exception of caribou. Caribou kills by non-residents are much higher in the region than for the Yukon as a whole, where non-residents account for less than half (47 percent) of the total harvest.

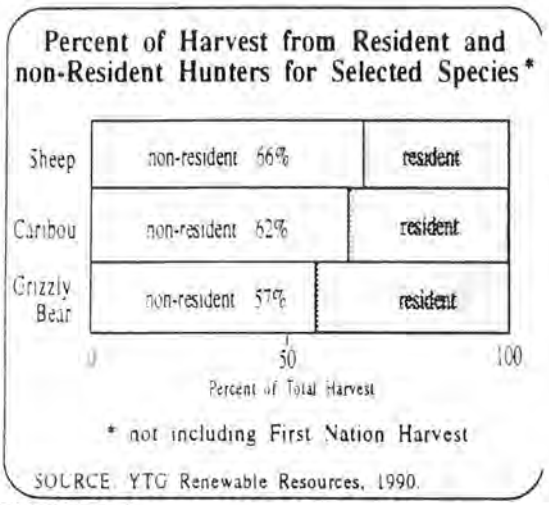
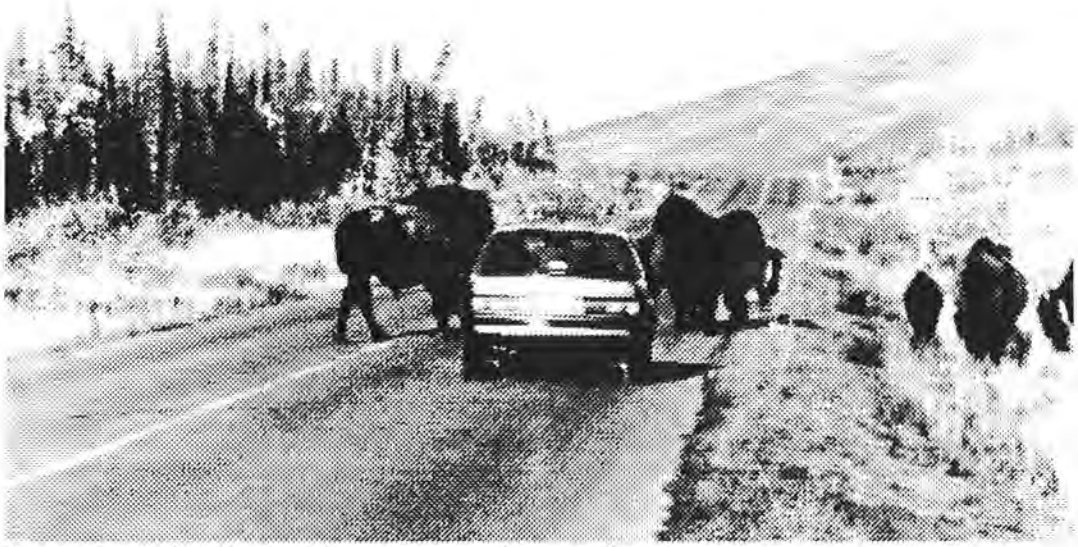


FIGURE 3

Of the 68 trapping concessions in the Kluane Region, 58 are held by Indian people. Three are group trapping areas, two of which are held for trapping by elders from the Kluane and Champagne First Nations. There are also three government-held trapping areas around Haines Junction, Champagne, and Silver City, which are maintained to reduce conflict in populated areas and may be trapped in special circumstances. The number of active trappers fluctuates somewhat. In 1987-88 there were 133; in 1988-89 only 97.

Pressures on wildlife are increasing and competition for game animals is heavily concentrated close to communities, the highway corridor, and accessible back country areas. Present day competition for wildlife resources revolves around hunting and trapping and non-consumptive uses, such as wildlife viewing. The Kluane Region, due to the relative ease of access to remote areas, offers some of the best opportunities for wildlife viewing in the Yukon. Within the region, Sheep Mountain, Aishihik Lake, and Kusawa Lake all have high capability for wildlife viewing or high wildlife values. Pickhandle Lakes are identified in the Strategic Plan for Wildlife Viewing in Yukon as having significant potential for waterfowl interpretation. Ease of access has also resulted in increased hunting use within portions of the planning region and has undoubtedly led, at least in part, to the population declines being seen in some species.

Indian systems of management rely on an intimate knowledge of wildlife built over generations of day-to-day dependence on wildlife resources. These systems find new forms of expression in provisions for self-government, allocation quotas, and local Renewable Resource Councils under a Yukon Land Claims Settlement. Government management systems, on the other hand, have been based on the collection of scientific facts and statistics and have not always adequately recognized First Nations information. Government policy and regulatory processes, which have waited for scientific proofs and rationale, are now becoming more responsive to the real needs for management by incorporating local knowledge. For example, Indian residents have long warned of the population decline of the caribou in the Aishihik and Kluane Lake areas. Recently, wildlife surveys have documented critically low populations, and action has been taken to limit harvests. Clearly, there is a great potential benefit from incorporating the traditional knowledge of the region's Indian



Bison along the Alaska Highway near Canyon Creek

people with the scientific knowledge of government wildlife managers.

Bison have been reintroduced into the region in an effort to establish a free-roaming herd. The transplant has been successful in terms of reproduction of the herd. However, there are a number of management issues regarding the bison. Approximately 15 bison from the herd of 130 animals have moved into the Aishihik area and along the Alaska Highway. While this offers viewing opportunities for tourists, the bison cause a traffic hazard. In addition, the bison have damaged fences and local people believe the bison compete for grazing lands and force other animals out of the area. More research and discussion with local residents will be required to determine the relationship between bison and other wildlife in the area. In the future, any such introductions of new or reintroduced species will require more local involvement in the necessary management decisions. The result could produce more responsive management decisions that would better serve people with concerns and an interest in wildlife.

The area presently known as the Kluane Wildlife Sanctuary was traditionally used by Tutchone people long before it was designated a game sanctuary in the early 1940s. It has always been considered an important wildlife area for Dall sheep, grizzly bear, moose, caribou, and mountain goats. While the legal right for Indian people to hunt and fish in the sanctuary has been firmly established, this right has never been fully exercised. By limiting their harvesting activities, Indian people have effectively managed the area for wildlife production over time. Today, the Kluane Wildlife Sanctuary is considered a seed area for wildlife.

In comparison, mineral exploration and development have been allowed to continue within the Kluane Wildlife Sanctuary without adequate provisions for environmental protection. Key habitat areas for sheep,

caribou, and moose in the Burwash Uplands and Wellgreen area have already been affected. Currently, there are no limitations to access development by mining exploration companies on mineral claims in the wildlife sanctuary. This not only raises serious concerns over the future viability of local wildlife populations, but also contradicts the intent of creating a "wildlife sanctuary" in the first place.

While the Kluane Wildlife Sanctuary is a major area for wildlife, there are key habitats throughout the region. Areas with significant wildlife values are shown on the Wildlife map (see map folder). Key habitats are areas which wildlife use for critical, seasonal life functions (for example, ungulate winter ranges, waterfowl nesting and staging areas, mineral licks). Protection of key wildlife habitat is essential to maintain healthy populations. In order to ensure the maintenance of key habitat areas, they require protection from all development or alternatively mitigation of the impacts of activities. While mitigation measures in response to one or two developments may be successful, it is important to realize that the cumulative effects of development cannot always be mitigated.

Issues

1. Populations of several species including moose, caribou, and sheep are low and declining in the region. The causes of the declines are not completely documented, but are likely due to high harvest pressure combined with high levels of predation. Low populations result in conflict among different user groups, reduced success in developing wildlife viewing opportunities, and reduced recognition of the importance of key habitat protection.

2. Access construction creates disturbance that continues for years after the original purpose of the road is gone. The most common impact of road access on wildlife is overhunting. The problems associated with access are discussed in Transportation and Communications.

3. There is a concern regarding the need for a fair and equitable harvest allocation for local and traditional users. Resource allocation reflects social and economic priorities. The interests of consumptive users (traditional harvest, commercial guided hunting, resident hunters) and non-consumptive users (wildlife viewing) must be weighed in allocation decisions. First Nations have an aboriginal right to harvest wildlife that is protected by law and recognized in their land claim. Resident hunters are also heir to a hunting tradition. Big game outfitters provide hunting opportunities for non-residents. The role of wildlife viewing in support of tourism is increasingly recognized and may affect resource availability for consumptive use.

4. There are concerns over the achievement of sustainable harvests. High harvest pressure, conflict over harvest allocation, and relatively slow population recovery rates dictate the need for intensive management of harvest levels to maintain populations in the region.

5. Although in the recent past there has been an increase in local consultation, there is inadequate integration of local and traditional knowledge with scientific information. This integration of information is a basic requirement for management.

6. Habitat degradation and destruction is due primarily to land and resource development. Impacts of development include displacement from home ranges, direct destruction of habitat, restriction of movement, and fragmentation of range. Land alienations reduce the size of trapping and outfitting concessions and may, depending on the activities associated with the land use, eliminate the most productive and accessible wildlife habitats.

7. Disturbance of wildlife through increased proximity to humans is an issue in the region.

An increase in human presence in an area creates problems of keeping animal/human incidents to a minimum (for example, bears and garbage, or wolves and domestic livestock).

8. Disturbance of key habitats generally has greater impacts on populations than disturbance of other habitats. The tools of appropriate habitat management are mitigation of the impact of an activity, or, in critical cases, outright prohibition of an activity.

9. The information on key wildlife areas within the region is incomplete.

Objectives

To maintain and enhance the diversity and abundance of wildlife populations through the maintenance of sufficient high quality habitat and the implementation of wildlife management programs that reflect both Indian and non-Indian knowledge.

To meet the needs of all wildlife users and recognize the importance of traditional wildlife.

Recommendations

1. Wildlife management efforts in the region should focus on restoring low populations to levels compatible with habitat capability.

2. There should be greater participation of Yukon First Nations and local residents in wildlife management. The principles outlined in the Land Claims Umbrella Final Agreement, that will lead to the establishment of local Renewable Resource Councils, will improve that involvement. In the interim, prior to Final Land Claims Agreements, government, First Nations, and local residents should begin discussions on ways to improve local involvement in decision-making. In order to ensure that the mechanisms established to improve local involvement in management are effective and meaningful, a full range of management options or mechanisms must be available for consideration. Those options should include control of access into the back country, the changing of the dates of harvesting seasons, establishment of quota systems where harvesting pressure is high, and closures of areas to hunting.

3. Work to identify key wildlife habitat and the appropriate level of protection for these should continue. This work, and further wildlife management studies conducted in the region, should involve local residents and First Nations, as well as territorial and National Park managers, and people who directly rely on the resources, such as guides and trappers, in order to ensure that the design of studies and field programs, as well as the preparation and communication of reports, best reflects local knowledge and understanding of wildlife issues.

4. Key habitat areas should be designated where special management provisions are required to protect and manage wildlife habitats. Outside these designated areas, habitat should be managed through the review of all applications for land and the establishment of appropriate terms and conditions to preserve the habitat values.

5. The Commission supports work underway by the Yukon Department of Renewable Resources to develop standard terms and conditions to ensure wildlife interests are considered in the review and construction of road developments. This important work should continue and will provide industry with a clear understanding of wildlife management requirements prior to beginning developments.

6. The potential for wildlife viewing to enhance tourism opportunities is recognized. The establishment of 0.5 kilometer no-hunting corridors to protect populations

along the Alaska Highway and Haines Road and the reintroduction of depleted species (for example, sheep to Pickhandle Mountain) is recommended.

3.8 FISH RESOURCES

Background

The Kluane Region has a diverse fisheries resource, with anadromous (going from the sea up rivers to spawn) and freshwater stocks present throughout the Alsek and Yukon River systems.

Three species of salmon--chinook, sockeye, and coho--are found in the Alsek drainage. Kokanee (landlocked sockeye salmon) is a rare species found only in Frederick, Kathleen, and Sockeye Lakes. The Tatshenshini River and its tributaries are migration routes for Pacific salmon and provide spawning, rearing, and overwintering habitat. Important spawning locations include Neskatahin and Klukshu Lakes for sockeye salmon, and the Klukshu, Blanchard, and Takhanne Rivers for chinook salmon. Chum and chinook salmon are found in the Yukon River drainage. Chum salmon spawn in the Kluane River and its tributaries, Kluane Lake, and the Nisling and White Rivers. Chinook salmon occur in both the Takhini and Nordenskiold drainages, and spawning sites are documented on the Takhini.

A number of species of freshwater fish are also found in tributaries of the Alsek and Yukon River systems. These include northern pike, whitefish, rainbow trout, arctic grayling, lake trout, and burbot. A population of rare "Squanga"-type whitefish is found in Dezadeash Lake, along with lake whitefish.

There are five fisheries within the region: Indian food, sport anglers, commercial sport anglers, commercial, and domestic.

The Indian food fishery is widely distributed because people fish wherever they camp or stay to trap and hunt. Almost all fish-bearing waters receive some level of subsistence use. As in the past, families and individuals consistently return to certain areas, focusing on various species of fish at certain times of the year. Fish are harvested by setting nets, gaffing salmon, using fish traps, and applying modern methods.

Throughout the region there are numerous traditional harvesting sites which continue to be of great importance to the Indian food fishery. These sites include Neskatahin and Klukshu, and the Nordenskiold and Tatshenshini Rivers, as well as sites on Kusawa, Sekulmun, Wellesley, Dezadeash, Aishihik, Kluane, and Hutshi Lakes. Other areas of importance are in the Pickhandle Lake/Koidern River area.

The Tatshenshini salmon provided a base for a relatively large population at Neskatahin and Klukshu for thousands of years, attracting people from throughout the region for the only sockeye runs in the Yukon. The fishery is of continuing importance to the Tutchone and Tlingit people, especially at Klukshu. In recent years, the early sockeye run, upon which most of the Indian food and sport fishing pressure is exerted, has experienced a serious decline, possibly due to overfishing by Alaskan and foreign commercial fisherman, loss of habitat, disruption of migration patterns, or some combination of these factors.

Sport fishing is defined as the use of a rod or line with hook to capture fish. Both anadromous and freshwater species are sport fished.

Chinook, sockeye, and coho are fished on the Tatshenshini, Blanchard, and Takhanne Rivers from June to October. Dalton Post is the most popular sockeye salmon angling location in the region. Chinook is sport fished on the Takhini River. Concerns with overfishing of chinook have prompted total sport fishing closure during the spawning period. Sport fishing of salmon in the White and Donjek Rivers is negligible.

The Little Klukshu and Upper Nordenskiold Rivers and the Dezadeash River system are no

longer utilized by salmon. These areas have been alienated by beaver dams and glaciers.

The planning area offers resident and non-resident anglers a wide variety of freshwater fishing opportunities. Lake trout, arctic grayling, and northern pike are the most popular species. Sport fishing activity is highest from June through August.

Accessibility generally dictates fishing pressure. Areas receiving high use include Kluane, Aishihik, Dezadeash, Kusawa, and Pine Lakes, and the Takhini, Kathleen, Koidern, and Jarvis Rivers. The Kathleen River, in particular, is heavily sport fished for rainbow trout. Other lakes generally utilized for remote sport fishing include Dog Pack, Frederick, Jo-Jo, Long, Sekulmun, Teepee, Tincup, Tchawsahmon, Toshingerman, and Stevens Lakes. Resident anglers ice fish on Kloo, Kluane, Pine, and Rainbow Lakes.

Commercial sport fishing involves guide operators who cater to highway traffic on accessible lakes, usually from a highway lodge, and guide operators who offer aerial or boat access trips to remote lakes or streams.

A commercial sport fishing outfitter is located on the Tatshenshini River, downstream from Dalton Post. This operation targets chinook salmon within the Tatshenshini, Blanchard, and Takhanne Rivers in July. A Haines Road lodge within the vicinity of Dezadeash Lake also targets salmon fishing at Dalton Post and provides guided fishing excursions to lakes in the area, including the Kluane National Park Reserve. Commercial fly-in fishing operations are also located on Wellesley, Kluane, Long, Tincup, and Dog Pack Lakes. Special gear and catch restrictions apply on Wellesley Lake to conserve trophy lake trout.

Clients must obtain sport fishing licences and, therefore, adhere to catch limits and fisheries' regulations. However, there are no acts or regulations by which fish camp operators can apply for exclusive or preferred use of the lake on which they are located, or for certain rights to the fish resource of that lake. As well, resource assessments are not required to determine the capability of the lakes, and lake quotas are not applied to these kinds of operations.

Commercial fishing is defined as harvesting fish for sale, trade, or barter. Domestic fishing is defined as fishing for personal or family consumption. The licence is distinct from an Indian food fishery licence which authorizes an Indian to fish solely for food. Gill netting is the primary method used for commercial or domestic fishing, however, there is some use of burbot "set" lines.

Commercial fishing in the study area is restricted to Kluane Lake. Lake trout is the targeted species, although catches of whitefish and burbot are common.

Commercial and domestic quotas are combined. Holders of either of these licences must cease fishing once the quota for the lake is taken commercially.

Issues

1. A number of the region's lakes and rivers sustain more than one user group. These users, either singly or in combination, may exert more than sustainable pressure on the fish resource. For example, increasing use of remote upland lakes for commercial sport fishing purposes raises the issue of allocation between wilderness resource users.

2. Accessibility generally dictates fishing pressure. At present, the lakes and rivers receiving the greatest amount of use have road access. New road access and unregulated development activities in previously remote areas could lead to increased fishing pressure or development that may negatively impact the fisheries resource.

3. It is believed that the species composition of certain lakes is changing. On Kluane Lake, for example, lake trout are sought by the commercial and domestic fishery, anglers, and Indian food fishery. Coarse fish populations, such as suckers and whitefish, appear to be growing. This situation may be attributed to increased harvesting of trout and a lesser interest in coarse fish which, in the past, were of particular interest to Indian people for dog food.

4. Intensive sport fishing pressure at Dalton Post, in combination with other recreational activities, has effectively displaced Indian use of this old village site.

5. Discharged sediment from operating placer mines may have had negative impacts on fish habitat and populations within the Jarvis River/Kloo Lake system. Discussion to date of impacts from sediments originating from placer operations on fisheries resource values has largely focused on the potential for impacts on the receiving streams. Concern remains regarding the potential for negative impacts on fish habitat and populations downstream of the receiving waters.

6. The existing and proposed energy developments in the Kluane Region have the potential to negatively affect fish populations and habitat. The various waterways which have been identified for potential development include the Aishihik and Sekulmun basins, and Rose and Primrose Lakes, as well as the Yukon, White, Donjek, and Kluane Rivers (refer to Sector 3.4, Energy, for more detail).

7. The potential for shoreline developments to disturb or alter fish habitat or migration patterns is a concern in the region.

8. It appears that there may be potential for salmon enhancement on the Little Klukshu, Upper Nordenskiold (Hutshi Lakes), and Dezadeash Rivers. The restoration and reintroduction of salmon populations could greatly increase the harvesting opportunities for all user groups.

9. Incomplete or unreliable data make fisheries management decisions difficult. Good information is required to effectively manage the resource.

Objectives

To ensure effective management and sustainable use of the fisheries resources of the Kluane Region.

Recommendations

1. In consultation with local residents and First Nations, government should establish a policy dealing with the use and management of shoreline areas within the planning region. The policy must address requirements for aquatic habitat protection.

2. The Commission recommends that a comprehensive fisheries allocation policy be developed in consultation with local residents and First Nations. The policy should address the capability of lakes to sustain fishing pressure and the allocation of the fisheries resource between users; it should be completed prior to issuing any permits, leases, or titles for land to be used for fishing or wilderness lodges. The policy should determine the nature and capacity of the fishery to support such uses.

3. The Commission recognizes the lack of available information from which to derive such a policy and recommends that detailed fisheries information be collected as soon as possible. Continued efforts to utilize local knowledge in developing recommendations are supported.

4. Government should investigate the potential for enhancement of formerly important, traditional salmon fisheries on the Little Klukshu, Upper Nordenskiold, and

Dezadeash Rivers. This work, which could include rebuilding or reintroduction of salmon populations to their habitat, should be carried out in close consultation with local residents with knowledge of the fishery. The enhancement and rehabilitation of existing salmon fisheries should be a priority for management within the region.

5. Throughout the planning region, identification and protection of spawning sites should be a priority for management. A full range of protective measures to safeguard both the spawning habitats and populations should be considered by managers. Harvesting should be closely monitored at these sites and consideration should be given to closing these areas to fishing during critical spawning periods.

6. The impact of the fluctuating water levels of Aishihik Lake should be monitored and studied. Mitigating measures may be necessary to reduce the impact of changing water levels on fish habitats.

7. While the new Yukon Fisheries Protection Authorization (YFPA) will affect study results examining the issue of downstream impacts of placer sediments on fisheries in the Yukon, the Kluane Planning Region should be assessed for any unique characteristics that warrant special consideration.

8. A fish study should be completed on the Alsek River system to determine the reasons for the low returns on the early sockeye salmon run.

3.9 FOREST RESOURCES

Background

The forests of the region play an important role in the overall ecology of the area and provide a range of biological and socio-economic benefits. They support a wide range of game and non-game animals and, by regulating drainage and stabilizing river channels, maintain water quality and fish habitats. The relatively undisturbed character of the region's forests also contributes to its wilderness character. In these ways, forests continue to play a key role in sustaining traditional harvesting activities as well as providing opportunities for recreation and wilderness tourism.

Seventy-six percent of the region's land base is non-forested. Of the portion that is forested, 83 percent is rated as having low productivity. These stands are scattered throughout the region in low-lying areas and adjoining uplands, and provide important habitats as well as sources of fuel wood. There are relatively large areas of low-productivity sites with stands of mature timber. At present, these stands could support increased harvesting, especially for fuel wood and chipping material.

The relatively small areas of good (1 percent) and medium (3 percent) forest productivity are scattered in low-lying areas and river valleys, particularly the Dezadeash, Takhini, Nisling, Nordenskiold, and White. Most of these better lands are in the northern part of the region around Beaver Creek. Stands in these areas have potential uses as saw logs, fuel wood, or pulpwood.

Despite generally low growth rates and timber volumes per unit area, forest resources play a number of important roles in the region. Fuel wood is an important energy source for the region's communities, particularly Burwash Landing and Haines Junction, offsetting the high costs of fuel oil or electrical heating.

Fuel wood harvesting also provides a continuing source of employment and income for several local commercial harvesters. Relatively easy access and an abundance of fuel wood along the north Alaska Highway spreads harvesting over a large area. Land within a 10 kilometer radius around Haines Junction is reserved specifically for the use of local residents for fuel wood and other personal uses.

As of 1989, there were four sawmills in the Greater Kluane Planning Region: two in the Haines Junction district, and two in the Beaver Creek area. They generally operated on a custom basis, filling specific orders for local residents of the region. The Champagne and Aishihik First Nations own and operate a chipper mill, utilizing waste wood from the community's truss plant and wood from the Canyon Creek burn.

The region has relatively low lightning strike occurrence and low harvesting pressure. As a result, there are large volumes of mature timber, particularly between Dezadeash Lake and Haines Junction, and north of Mile 1118 on the east side of the Alaska Highway. This raises concerns over the region's susceptibility to large forest fires. A direct relationship between relatively low moose, caribou, and sheep populations and the presence of large areas of old growth spruce forest has been observed. Prescribed burns have been suggested as a means of improving habitat, however, such a causal relationship has not been clearly demonstrated.

There has been discussion of expanded commercial logging operations in the region by private interests. Large-scale pulpwood or saw log harvesting has the potential to compromise the key objectives of maintaining a healthy forest base for habitat protection and for soil and water conservation. In addition, the scattered nature of the stands, their low productivity, and the long time required to grow new forests, combined with a lack of

local markets and great distances to existing markets, make large-scale commercial harvesting economically impractical.

Issues

1. Potential impact from timber harvesting on fish and wildlife habitats, water quality, and scenic and wilderness resources.

2. Protection and management of accessible sources of fuel wood and saw logs for local communities.

3. The need for local involvement in decisions about the use and management of local resources.

Objectives

Management and maintenance of forests in the interest of the ecology and environment of the Kluane Region.

Utilization of timber to satisfy local and Yukon needs, to the extent that this is compatible with an overall goal of conservation.

Recommendations

1. Forest harvesting should be carried out on a sustainable basis with priority given to meeting the fuel wood and small-scale saw log needs of the regional and greater Yukon markets.

2. Protection of wildlife and wilderness values should be given priority over large-scale harvesting based on export markets.

3. Forest management plans should be required prior to any significant increase in harvesting. Plans should address the need for silviculture, soil and water conservation, and forest fire management; ensure adequate protection of fish and wildlife habitats; and maintain scenic and wilderness resource values.

4. When future demand for fuel wood requires special management, community woodlots should be established to ensure accessible supplies for local residents.

5. Single-use applications for land within highly and moderately productive areas should be reviewed for their impact on the forest resource base.

6. Government should develop a fire management plan for the Kluane Region in close cooperation with First Nations and other residents of the region. The plan should give consideration to the use of controlled burns for habitat enhancement.

3.10 AGRICULTURE

Background

Small-scale cultivation and gardening have been successfully practised in the Kluane region for many years, although no large-scale commercial farming operations are found today. Before the Second World War, the Kluane Region had little role in Yukon agriculture, which was concentrated in the major river valleys close to the Klondike gold fields. In 1943, however, an agricultural research substation was established at Mile 1019, just outside of Haines Junction, which provided information on Yukon agriculture for the next 27 years.

The lessons of the Mile 1019 Experimental Farm are unclear, but provide a summary of the problems of agriculture in the Yukon, as well as the regional problem with this activity. On the capability side, data from the substation show that oats and barley matured successfully for seven consecutive years from 1952, a remarkable achievement given the poor agricultural climate of the region (Can. Dept. of Agriculture, 1965). The problem with such data is that they do not take into account the high capital cost of the experimental techniques used to deal with low soil moisture, productivity, and harsh climatic conditions. Given the high costs of inputs such as fertilizer, the costs of irrigation (both monetary and potential salinization of soil), and the distance to markets, agriculture will remain a minor component of the regional economy.

The minimum amount of precipitation required to support crop production is generally recognized to be between 305 and 381 millimeters. On average, Haines Junction receives 293 millimeters of precipitation during the growing season and Aishihik 256 millimeters.

Compared to the upper Yukon River valley or the Klondike River valley, the Takhini and Dezadeash river valleys, identified as the most suitable in the region for agricultural development, experience significantly lower summer temperatures. Cereal crop production requires at least 1000 growing degree days above 5 degrees Celsius. The average for Haines Junction is about half the number of days required to successfully produce cereal grains under natural conditions. These conditions, combined with the rugged topography of the region, pose significant physical constraints to agriculture.

Pursuing agriculture (or not) in the Kluane Region involves evaluation of the possible impacts of the activity on other factors in the region. Key factors are the potential impacts of agriculture on wilderness values, wildlife populations, habitat, and heritage. Fringe development around communities tends to create pressure for municipal services and scattered development places great strain on resources to meet infrastructure requirements.

The land in the region most capable for agriculture, as measured by the Canada Land Inventory classification, is in the Takhini and Dezadeash River valleys. The land is rated Class 5, the lowest rating that is considered arable agricultural land, with the major restriction being climate. Much of the land in the Takhini and Dezadeash valleys is identified as highly and moderately significant wildlife habitat for elk and muskrat. Currently, approximately 300 hectares in the region are devoted to agriculture.

It is difficult to quantify the demand for agricultural land in the region, but analysis of the agricultural land applications received by the Yukon government since 1982 indicates low demand. Only a small percentage of all agricultural applications for the Yukon came from the Kluane Region. The bulk of land applications in the region are for the Takhini and Dezadeash valleys immediately adjacent to the Alaska Highway. The pattern of agriculture in the region is part-time operations

financed by non-agricultural work. It is probable that this "life style" approach is the only feasible option for agriculture in the region.

Large-scale (over 10 hectares), commercially-oriented farming operations are not viewed as economically viable or environmentally acceptable within the region. However, small-scale ventures, such as market gardening, may be acceptable on a limited land base and within close proximity to communities. For those pursuing the benefits of a "rural life style," a form of planned rural residential disposition would be preferable to scattered, unplanned agricultural land dispositions where provision of public infrastructure would be costly.

Issues

1. There is the potential for agricultural development to conflict with wildlife resources. The potential loss of wildlife habitat to agriculture is a concern in the planning area, especially as the best agricultural areas also provide some of the most productive wildlife habitats. Changes in hydrology, related to irrigation, may degrade fish or waterfowl habitat. Drainage from fertilized fields has the potential to change the nutrient status of adjacent water bodies.

Agricultural activities may attract wildlife, especially predators such as bear and wolves, but also ungulates such as moose and mule deer. Such conflicts typically lead to the destruction of the intruding animal.

2. Agricultural development will alter the wilderness values of the region and has the potential to restrict access to the back country for trapping and recreation.

3. Important archaeological sites are located on potentially productive bottom land along rivers. Agricultural development may destroy or disturb such sites unless mitigative procedures are in place.

4. The current practice of spot applications for land is seen to be used more for the establishment of unplanned rural residential holdings than for creating viable farm enterprises.

5. Development outside municipal boundaries inevitably leads to pressure to extend services such as power, road maintenance, and school busing. Equitable taxation arrangements for the provision of municipal-type services for areas outside of village boundaries are a concern in the region and the territory.

6. The introduction of game farming and fur farming in the region may compromise wildlife populations through the transmission of diseases, parasites, or crossbreeding of wild and indigenous stocks. This is a vital concern in the region.

Objectives

The priority in the Kluane Region is to maintain and protect the outstanding diversity of wildlife populations, wildlife habitats, and wilderness opportunities. Development of agriculture should be subordinate to this priority.

That agriculture remain as a life style option for the region's residents within a rational and equitable land disposition system for rural residential and agricultural land.

Recommendations

1. Large-scale commercial agricultural operations (parcel sizes greater than 10 hectares) should not be established within the planning area with the following exception: expansion beyond the 10 hectare maximum to existing farming operations in the Takhini River valley may be considered, providing those farms have demonstrated agricultural viability.

2. The current practice of spot applications for agricultural land should be immediately discontinued in the planning region.

3. As an alternative to the spot application process, planned agricultural areas could be investigated within the Takhini-Dezadeash area to determine whether the soil and climate is conducive to the type of intended agricultural activities. Any detailed planning process designed to evaluate and identify suitable areas for agricultural use must involve input from local residents and First Nations. The process must clearly demonstrate that other priority resource values are protected. For example, wetlands, critical wildlife habitat (including game corridors) forest land, archaeological and heritage sites, and back country access for recreational and traditional Indian harvesting must be protected.

4. In order to effectively deal with the question of providing municipal services to agricultural development areas, the Yukon Government is encouraged to confer directly with the Village of Haines Junction and the Association of Yukon Communities in designing effective taxation arrangements. These arrangements must ensure that development occurring outside of current municipal boundaries does not cause a drain on existing municipal services and budgets.

5. In recognition of the significant wildlife values in the Kluane National Park and Wildlife Sanctuary, and because of the potential impacts on wildlife and wildlife habitat, game farming should not be established in the region. Instead, a natural habitat zone should be created within the Kluane Region to provide a buffer between areas where game farming may be permitted, and the areas of high wildlife value in Kluane. This restriction may be reassessed following review of the Yukon's game farming policy, and greater experience and knowledge of game farming in the Yukon.

3.9 GRAZING

Background

Europeans introduced horses into the Kluane Region in the 1890s. Since that time, horses have been widely used for hunting, guiding, and travelling. They are the most important domestic grazing animal in the region, with pack horses providing the most appropriate means of transport and access to the back country. Grazing lands have an important economic dimension in support of big game and wilderness outfitting industries in the region. However, grazing capabilities are limited, largely confined to the lower, wetter areas (sedge meadows, willow/buckbrush) or areas with fire history. In 1989, there were 20 grazing leases, totalling 5,040 hectares, in the planning region. The leases range in size from 56 to 906 hectares. An additional 7,600 hectares of land is under application for grazing leases and there is also a considerable amount of free range grazing within the region. The 1987 agricultural census indicated approximately 440 horses and 29 head of cattle in the region. Most of the horses in the survey belonged to game and wilderness outfitters and to First Nations people. Grazing (based on estimated feed costs for 440 horses) contributes between $114,000 and $343,000 to the regional economy.

Prior to 1987, grazing lease agreements between the Government of Canada and the animal owner stipulated the general character of the grazing regime, but "adequate containment" of animals on leases was not required. However in 1987, a grazing policy administered by the Yukon Departments of Community and Transportation Services and Renewable Resources specified adequate containment of animals as a condition of the lease. In the same year the Highways Act was changed to make it an offence for uncontrolled animals to range within 33 meters of the highway centre line. The thrust of both the grazing policy and the Highways Act amendment was to make the animal owner, rather than the highway user, liable if a vehicle accidentally struck a domestic animal.

The need for containment radically changed the character of grazing in the region and the Yukon. Lease terms were increased to a maximum of 30 years to facilitate financing arrangements to cover the cost of fencing. Proper management of the grazing area is critical for confined animals to ensure that adequate forage is available to support them within the lease boundary. Fencing of the grazing area constrains multiple use of the area. Access for other uses is permitted, but, at the same time, fences restrict free movement across the lease. Generally, they change the perception of wilderness and foster a sense of ownership on the part of the lease holder. The Pounds Act was established to monitor and enforce the containment requirements on leased areas and to ensure that proper stocking rates were being followed. At the present time, no pound areas have been designated in the region.

Management of grazing lands is further complicated by the issue of jurisdiction over land. Most of the land in the Yukon is under federal jurisdiction. Prior to the issuance of grazing rights by the Yukon Government, land must first be transferred from the federal government, a process that can take in excess of six months. Although there is support within YTG for issuance of a lesser form of tenure than a lease for certain applications, a shorter term permit or license of occupation can only be issued on Commissioner's land. Both governments have been reluctant to support numerous spot land transfers for this type of short-term purpose. The mechanisms available to properly manage grazing lands, particularly the options for tenure, are closely related to jurisdiction.

There is no requirement for fencing in the back country although the "adequate containment" rule still applies. The area that

Supplemental Feeding is Often Required to Support Horses in the Region

the animals graze must demonstrate natural containment features such as river or lake barriers, high surrounding ridges, or, if the lease is isolated enough, sheer distance from traffic corridors. Back country leases must also demonstrate sufficient carrying capacity and good grazing management practices to meet the requirements of the grazing policy.

The 1987 policy stipulated that the carrying capacity of the lease (the number of domestic animals that can use the lease and leave adequate forage for wildlife) be calculated based on site inspections and forage sampling. The policy made no attempt to define minimum acceptable carrying capacities.

Range improvements are not explicitly dealt with in the policy. However, lease holders are required to submit written proposals for improvements to the Territorial Lands Branch. An approach to range improvement is currently being considered by Government of Yukon agencies which specifies the types of range improvements that may be allowed. The policy also allows for community held and managed grazing leases, but does not specify the types of management structures that may be acceptable for such areas.

Issues

1. A major issue is the appropriate amount of land to be devoted to grazing in the region, recognizing legitimate demand and the limited suitability of the land base. The amount of land required for grazing varies with the productivity of the vegetation being grazed.

2. The region's productivity for grazing is generally low. The demand for the limited grazing lands available is high near the communities and the highway corridor. Larger tracts of land are required to support animals where the productivity is low and this increases the competition between domestic animals and wildlife.

3. Long-term tenure arrangements are perceived to complicate multiple-use management and to tie up the limited land resources in the region. Multiple-use management of land, although it is a stated principle of the current grazing policy, is complicated by the containment requirement of the policy. Fencing is the most visible structure of grazing lease tenure and gives the impression of a form of exclusive tenure--one that excludes multiple use. Concern is expressed that grazing activity and fences will negatively affect:
(a) wildlife movement, wildlife habitat, and increased competition between wildlife and horses for scarce natural forage;
(b) the overall wilderness character of the region; and
(c) traditional or outdoor recreational activities.

4. Free range grazing that is not accommodated in the current grazing policy has a long and successful history in the region and can be a positive means of meeting the need for grazing lands in the back country.

5. The competition for limited grazing lands from reintroduced or exotic species requires careful management and full consultation with residents of the region.

Objectives

To provide grazing land in support of traditional, recreational, and commercial tourism uses while minimizing the environmental, recreational, or cultural impacts of grazing.

The development of multiple-use management strategies to allow access to grazing land and to encourage a wide variety of activities on grazing land.

To ensure adequate containment of animals in highway corridors while minimizing the impact of grazing structures on the wilderness character of the region.

Recommendations

1. The granting of long-term grazing leases should be discontinued in the region. Shorter-term permits or licences, issued for periods of not more than five (5) years, are preferred.

2. The grazing policy should be reassessed to address the issues of range improvement and the relationship of fencing costs to shorter term tenure options.

3. The government approach to grazing land management should allow for range improvement on sites where this type of management is deemed to be appropriate.

4. Locally managed and jointly used pastures should be investigated as an alternative to individual grazing areas.

5. Methods for setting a minimum acceptable carrying capacity for grazing leases should be cooperatively developed in consultation with government, Yukon First Nations, and local horse breeders.

6. Open range grazing should be allowed under permit in areas where the grazed animals will not be a safety hazard along the highways. The fencing of grazing areas in the back country, away from highways, should only be permitted to restrict the movement of grazing animals to ensure adequate management of the grazing area.

7. Grazing areas along designated trails should be identified and left available for public grazing on an informal basis, and should not be alienated for other purposes (see Heritage, Tourism and Outdoor Recreation).

8. Prior to any introduction of exotic or non-indigenous wildlife species (elk, bison, etc.), there must be thorough study and local consultation.

3.12 OUTDOOR RECREATION AND TOURISM

Background

The outdoor recreation and tourism sectors rely on a common resource base consisting of a spectacular range of natural features, a wide diversity of wildlife habitats, and a rich cultural heritage.

There are a number of groups who use the region for tourism and recreation: tourists, who primarily pass through the region en route to Alaska; destination tourists from outside the Yukon; and Yukon and local recreationists.

Highway travellers number approximately 170,000 annually and constitute the majority of the visitors to the region. Although highway travel is significant, only 84,000 stop in the region for much more than gas and groceries. Tourists spend minimal time in the region, with the average length of stay 1.1 days for bus travellers and 1.8 days for passengers arriving in the Yukon by air. Highway travellers passing through the region spend most of their time in Alaska.

While in the region, the highway traveller is sightseeing. The view from the highway is an important feature, as are interpretive centres and historic sites and museums.

The destination travellers are a much smaller segment of the visitors, comprising about 1,000 in 1988. Most arrive by air and spend about 10 to 12 days in the region. Primary market origins include the U.S. West Coast and Europe. The destination traveller represents a high market return for the region: 1,000 visitors generated about $2.3 million in tourism revenues in 1988. In contrast, about 78,000 highway traveller parties (approximately 155,000 to 170,000 visitors) generated about $8.4 million in tourism revenues (Department of Tourism, Kluane Region Development Plan).

The wilderness destination traveller comes to the region for white water activities, fishing, big game hunting, climbing, and guided back country trips. The non-consumptive activities have potential for growth. Currently, the most established wilderness activities are rafting on the Tatshenshini River, climbing or skiing trips into Mount Logan, and big game hunts into the back country.

The Yukon Environment Act (1991) makes provision for the adoption of wilderness management plans. Once further studies identify areas with significant wilderness recreation value, protection could be provided under this legislation.

The region is also extensively used by local and Yukon recreationists. The most important recreational activities for Yukon visitors and local recreationists are fishing, camping, and hiking.

Popular recreation areas include Kusawa Lake, Takhini River, Pine Lake, Dezadeash Lake, Dalton Post, Million Dollar Falls, Tatshenshini River, Kluane Lake, the Burwash Uplands, Koidern River, Snag Creek, Small Lake, and various areas within Kluane National Park Reserve.

The concept of recreation is broadly based. It is generally recognized to include activities which bring refreshment and renewal to mind, body, and spirit. For many people, this means exercise and adventure, snowmobiling, cross-country skiing, fishing, hunting, hiking, horseback riding, canoeing, berry picking, and camping. For most Indian people, the pursuit of outdoor recreation activities is often a part of their intimate relationship with the land and the water and include traditional fish and wildlife harvesting and gathering in their region. The "recreation" element of these activities may be considered stronger today than historically, but most Indians still rely on the meat, fish, berries and waterfowl to

Significant Numbers of Tourists Pass Through the Region

supplement their purchased food supplies. The old Indian villages and campsites, such as Kluane, Wellesley, and Aishihik Lakes, while no longer supporting permanent populations, are still very much alive and are often visited by families who once lived in these areas.

One of the most significant areas for all recreation users is the part of the region west of the Alaska Highway and the Haines Road. It encompasses the Kluane Wildlife Sanctuary and the Kluane National Park Reserve, an area currently marketed by the Canadian Parks Service as "Yukon's premier accessible wilderness area." The Kluane Ranges front for the massive St. Elias Mountains, where the highest peak in Canada (Mount Logan) is located. Extensive ice fields and numerous valley glaciers plunge eastward and northward through the Kluane Ranges. These magnificent ranges, ice fields, valley glaciers, braided streams, alpine lakes, and an assortment of unusual geological and geomorphic features, in addition to diverse flora and fauna, provide a strong magnet for those seeking a wilderness recreation experience. Kluane National Park Reserve includes a significant number of natural features and the potential to become a world class destination area.

All the travellers entering the region by vehicle pass through spectacular viewscapes. The route from Whitehorse to Haines Junction passes through the historic village of Champagne and the gold rush site at Canyon Creek. The Kusawa and Aishihik Lake roads provide access into wilderness areas, and a range of recreational opportunities including

Back Country Tourism has Potential for Expansion in the Region

canoeing, hiking, fishing, backpacking, and wildlife hunting and viewing. The Haines Road provides a vital link with the northwest corner of British Columbia and the port city of Haines, Alaska. It is within the Kluane National Park Reserve. There are several hiking trails beginning at the highway and fishing, canoeing, and camping are available within the park. The popular Mush-Bates and Cottonwood trails, as well as Kathleen Lake, are accessed from the Haines Road. Outside the park, the Dezadeash Lake and River system, and the recreational opportunities on the Kathleen and Tatshenshini Rivers attract increasing numbers of recreationists and tourists. The Haines Road summit in British Columbia also provides excellent access to cross-country skiing and snowmobiling and attracts many Yukon recreationists who pass through the region on the way to the summit.

The Alaska Highway, from Haines Junction, passes along the front ranges of the Coastal Mountains and skirts the edge of Kluane Lake. This is one of the most scenic routes in the Yukon, and possibly one of the most scenic in Canada. The highway passes the historic McIntosh Lodge, where visitors can access the park, en route to the Alsek River. Kloo Lake, the site of an old Indian village, can be viewed in the distance from the highway as the traveller approaches Kluane Lake. Silver City, an early gold rush site at the head of Kluane Lake, features historic buildings. The Sheep Mountain Interpretive Centre and the Kluane Museum of Natural History at Burwash Landing are popular stops for tourists. Beaver

Creek is the last community before the highway leaves Canada.

Although it has remarkable cultural and historic features, currently there is a lack of interpretation of the resources that make the region unique. Interpretation is a cultural process involving our perception of the land, its natural resources, and its people. The scientific view of geology, plants, or wildlife may not always coincide with the oral traditions of the people whose ancestors lived in the region for thousands of years. There could be a much greater merging of these two perspectives than currently occurs. While the geographic splendour of the Kluane area attracts many visitors, an understanding of the human experience in this landscape can allow visitors to come to terms with Kluane as they see, hear, feel, and learn about it.

There are numerous opportunities for heritage interpretation which could be important in fostering an understanding of Indian and non-Indian use of the region. Carefully developed and managed interpretation of the human, as well as the geographic history, could be a considerable attraction for tourists visiting the region.

Until recently, heritage interpretation concentrated on the gold rush era, ignoring the Indian heritage. First Nations are eager to participate in the development of interpretive facilities and programs that would strengthen the public's knowledge of their use and occupancy of their homeland.

Another area that is currently lacking in the region is an integrated approach to the development of access roads and trails in the region. The degree of available access greatly influences the type and amount of use an area receives. Highway sites, such as Silver City, receive heavy use from highway visitors, whereas less accessible areas, such as Kusawa Lake, receive significant resident recreational use. Resource roads are sometimes developed without consideration of the impacts on the wilderness resource, while areas that could benefit from upgrading of existing road and trail access remain unavailable to the visitors travelling through the region.

There are few attractions along the region's highways that encourage travellers to extend their visits. The highway corridors lack adequate pulloffs and interpretive signage, while the existing pulloffs do not have the necessary sanitary facilities.

Commercial tourist use is the most visible and widespread economic activity in the region. All communities provide tourist services including accommodation, gasoline, food, and souvenirs. There are 22 commercial highway facilities with 550 units and 375 recreational vehicle sites. The commercial sector is augmented by nine Government of Yukon campgrounds and two recreational day use sites at Kusawa Lake and Otter Falls. There are a number of hunting, fishing, and wilderness outfitters. Commercial tourist facilities are largely concentrated in Haines Junction and constitute the major economic base of the community. Other commercial nodes include Champagne, Canyon, Burwash Landing, Destruction Bay, and Beaver Creek. Highway commercial activities are also located along the highway between nodes. Should this trend continue, the scenic corridors could be severely compromised and the tourism industry impacted.

Kluane has the potential to become a world class destination area which takes advantage of the exceptional scenic, wilderness, and cultural resources and offers related outdoor recreational and educational opportunities. There is significant market potential to attract more tourists seeking a wilderness destination. At the same time, this potential can be complemented by creating or improving opportunities to better serve highway travellers and encourage them to stay longer in the region. Realizing and taking advantage of this

potential will require the development and improvement of products and services for these markets. An effort will be required to make the shift to adventure tourism although that shift is not expected to replace the highway tourism market. Local residents, and especially First Nations, have expressed strong interest in tourism-related businesses and possess many of the skills necessary to be successful as the market changes from recreational vehicle traffic to destination tourism. Furthermore, adventure tourism activities are complementary to the traditional life styles and subsistence pursuits of the local people.

Issues

1. There is a concern that the expansion of tourism and recreational land use may conflict with the preservation and maintenance of natural, cultural, and heritage features and values in the region.

2. Although there was not a great deal of discussion regarding the potential impact of increased wilderness tourism on the region's resources and the life style of its residents, it was clearly a concern. Concerns were also expressed about the relatively large allocation of game to non-residents and the potential impact of guided commercial sport fishing on the limited carrying capacity of the region's lakes. Concerns were expressed that training and economic assistance be available to local residents so that they can benefit from development opportunities.

3. Visual disturbances can alter people's perception of wilderness. Visual disturbances from mining, forestry, and access roads may affect the tourism and recreation sectors which rely heavily on maintaining the wilderness resource.

4. There is a need to balance the scenic values and integrity of the highway corridor with the need to maintain high quality commercial tourism facilities.

5. There is a need to provide back country access for tourists and recreationists, while recognizing that access into wilderness and high recreational areas is both an opportunity and constraint. A delicate balance is required between improving access to the region and maintaining high quality wilderness resources.

6. The northern portion of the Alaska Highway is badly in need of repair. This constitutes a severe impediment to highway tourist development. It is a problem that can seriously damage the region's image as a world class tourist destination.

7. Limited pullouts and inadequate facilities at existing pullouts lead to misuse of unregulated areas (for example, gravel pits) and create a negative impression of the region.

8. There are inadequate recreational developments to support of the growing interest in back country wilderness pursuits (for example, package tours, trail rides, etc.).

9. Old Indian trails could be destroyed or needlessly impacted unless properly identified and managed.

Objectives

To preserve and protect the wilderness character of the region on which the outdoor recreation and tourism sectors rely.

To highlight the importance of accurately reflecting the cultural and historical diversity of the region in any interpretive initiative.

To ensure that communities are able to take advantage of economic opportunities associated with outdoor recreation and tourism, and that benefits flow to the local people.

Recommendations

1. Establishing the Kluane Region as a destination area for tourism should be considered one of the highest priorities for the plan. Steps should be taken to support destination tourism, subject to the principles set out in this plan.

2. In maintaining the wilderness character of the region, the visual quality of the highway corridor must be considered in the review of all land use proposals. New highway commercial development should be supported only within commercial nodes and existing communities. New commercial nodes may be designated following full public consultation and with consideration of the scenic viewscapes and the wilderness values of the region.

3. Tourism development strategies adopted for the region should include programs to foster awareness and understanding of Indian heritage resources and provide for the full involvement of, and a clear role in decision-making for, local residents. Government initiatives that address the need to improve the delivery of outdoor recreation services and/or introduce interpretive programs (highway signage and/or interpretive facilities) should be carried out in close consultation with First Nations and local interests.

4. The traditional Indian trails and routes should be properly managed and tourism opportunities for local interests which focus on the traditional trail systems ought to be encouraged.

5. Land dispositions and uses related to wilderness recreation purposes for hiking, hunting, fishing, skiing, canoeing, snowmobiling, wildlife viewing, and other back country activities should meet the following guidelines:

(a) The development must be sensitive to the area's natural resources and cultural history.

(b) The area must be capable of sustaining the proposed recreation use and associated facilities.

(c) Proximity and compatibility of new and existing uses must be considered. This may require maintenance of sufficient separation between uses in order to retain the wilderness aspects which the operation is promoting.

(d) If access is essential, there should be minimal impact of important resources and subsistence activities. New, single-purpose access roads are not encouraged.

(e) Areas surrounding lakes and along rivers should generally remain in a natural state. Developments permitted near shorelines should be carefully planned to ensure preservation of environmental and wilderness qualities (see Settlement and Cottaging, Fish Resources).

6. Tourism should be supported through the following initiatives, subject to public consultation and management studies:

(a) Development of trail networks, easily accessible from the Alaska Highway.

(b) Encouragement of locally developed and operated tourism enterprises, consistent with the overall approach in this plan.

(c) Support for the tourist industry in terms of appropriate marketing and training.

(d) Development of a "pack in/pack out" educational and promotional package for the region.

(e) Government should place an emphasis on the development of locally operated commercial wilderness enterprises.

7. In order to provide sound management of wilderness resources over the long term, a policy is required to address management and tenure of commercial wilderness operations and related developments. This policy should address the guidelines set out above and complement the lakeshore guidelines proposed under Settlement and Cottaging.

8. High priority should be given to the establishment of a quality system of interpretive sites and rest stops throughout the region to serve highway travellers. These sites should be developed in consultation with First Nations and local interests.

3.13 MINING

Background

The planning region has a long history of placer and hardrock mining activity and has the potential to contribute significantly to the region's economy.

Approximately 38 creeks are documented gold producers. Of these, eight placer operations are currently in operation. The most significant production has been from the Moosehorn-Swamp Creek camp in the northwest part of the planning area and the Fourth of July-Gladstone Creek camp on the east side of Kluane Lake. In 1988, production from these areas was 5,583 and 1,075 coarse ounces, respectively. Four other placer operations paid royalties on 171 coarse ounces. In 1988, production in the planning region represented 3.3 percent of the Yukon total.

There are 270 mineral occurrences presently inventoried within the planning region. This information, together with geological mapping, suggests a number of areas with relatively high potential for the discovery of economic mineral occurrences. The best demonstrated hardrock potential seems to lie in the Kluane Ranges southwest of the Denali Fault (Shakwak Trench). The geological formations of this area contain known deposits of copper, nickel, and platinum group elements (including unusually high proportions of rhodium) with the potential to be economic. Large deposits of copper, cobalt, and gold, similar to the Windy Craggy deposit, may also be found in the Kluane Ranges. There is also significant potential for lode gold deposits throughout the planning region, although no potentially economic deposits are yet known.

There has been no hardrock production since the 1973 shut-down of the Wellgreen underground operation. However, new interest in the property has been spurred by encouraging findings of platinum, palladium, and other platinum group minerals which supplement the nickel-copper ore. A 1989 pre-feasibility study indicated reserve adequate to support 13 years of operation of a 10,000 tonnes per day open pit mine. The pre-feasibility studies suggest that the low grade ores will require a mill and on-site refinement to produce a high grade nickel-copper matte for shipment. A smelter is currently the proposed refinement process. An important aspect of this development, and a significant constraint, is the projected power requirement of approximately 20 megawatts for the entire process.

The Canalask deposit on the east bank of the White River contains approximately 400,000 tonnes of high grade nickel. Its development is directly linked to Wellgreen because it is only economically feasible if its concentrate can be refined at an established facility.

The Division deposit, located about 20 kilometers southwest of Braeburn on the Klondike Highway, has potential reserves of some 2.5 million tonnes of low volatility bituminous B and C coal. It would provide a possible source of metallurgical coal for the proposed Wellgreen smelter, as well as a potential thermal power source.

The mining industry is a potentially strong and positive option for strengthening and diversifying the economy of the planning region. However, placer and hardrock mining prospects overlap areas with high renewable resource values, particularly within the Kluane Ranges and Wildlife Sanctuary. This indicates a need to give special attention to environmental management.

The current system of environmental management in the Yukon is changing rapidly and dramatically. In order to protect a wide range of environmental values, all aspects of mining exploration and development work will require careful evaluation under the evolving Development Assessment Process for the

Proposed Wellgreen Mine Site within Kluane Wildlife Sanctuary

Yukon. There is a need for close cooperation between industry, government, First Nations, and the public in the development of this system to foster understanding and a stable regulatory system where the rules are clear to everyone. If the region is to realize its full potential, based on the development of both renewable and non-renewable resources, such a system must allow for orderly exploration, development, and abandonment of mining claims.

Issues

1. Mining activity in the Yukon has traditionally been governed or regulated by a very loose, often ad hoc, approach to environmental concerns. The 1906 Yukon Placer Mining and the 1924 Yukon Quartz Mining Acts provide a system for the disposition of placer and mineral rights, but do not adequately deal with environmental management of mining activity on mineral claims.

2. There is concern that exploration activities, such as the development of all-weather access roads, and the use of techniques, such as mechanical trenching, will negatively impact wildlife habitat, traditional land uses, and recreation and wilderness tourism areas.

3. The mining industry cannot easily predict the location of economic mineral deposits. As such, it requires access to as much land as possible in order to carry out effective exploration programs. The maintenance of access to lands for staking and exploration is a key issue to the industry.

4. There is a lack of policy to address the abandonment of hardrock mines. The establishment of procedures and standards for mine abandonment, including provision for security deposits, are seen as an essential component for resource management.

5. Similarly, there are concerns over the lack of policy to address abandonment of placer activities, particularly as they affect clean-up of waste. The Guidelines for the Design and Construction of Stream Channels of Yukon Placer Mined Streams, prepared by the Placer Implementation Review Committee, addresses the reclamation of stream channels but does not establish requirements for the reclamation of other aspects of placer mining operations.

The Clean-up of Old Placer Mining Operations is an Issue in the Planning Region

Objectives

It is intended that clear standards and procedures for the environmental management of all phases of mining activity be established to provide a positive operating environment for the industry.

Recommendations

1. The Commission recognizes the work of the recently formed Yukon Mineral Advisory Committee, which has been formed to advise the Minister of Indian Affairs and Northern Development on revisions to the current mineral management regime in the Yukon. It is recommended that an initial step in the development of a new approach to the environmental management of mining activity should be amendments to the appropriate legislation. Specifically, these are required at the earliest possible date to ensure that environmental conditions can be applied to mining claims.

2. The use of low-impact mineral exploration methods, such as prospecting, geological, geophysical, and geochemical surveys, winter roads, hand trenching, and helicopter-supported drilling should be supported in the Schedule of Assessment Credits and encouraged throughout the planning region. In areas identified as having special management requirements, these exploration methods should be mandatory (see Wildlife). Government should attempt to identify areas requiring special management proactively in areas of current or anticipated mining or exploration activity, in order to provide industry with a clear understanding of operating requirements.

3. Any proposal for the permanent withdrawal of an area from mining should include an assessment of mineral potential and give consideration to the long-term

some of the most biologically productive and unique habitats had been deleted. These included the Klutlan Glacier; the Wolverine Plateau; the St. Claire and Generc watersheds; the Donjek and White Rivers; Koidern, Pickhandle, and Teepee Lakes; the Burwash Uplands; and the Tatshenshini and Klukshu Rivers. In response to these concerns, the Minister of Indian Affairs and Northern Development stated that the proclamation was preliminary and that a final decision would be made pending further geological surveys and land claim negotiations.

In 1980, the park reserve received international recognition with the establishment of a World Heritage Trust Site covering the Kluane National Park Reserve and the Wrangell-St. Elias National Park in Alaska. The sanctuary area was not included in this designation as legislative protection is required for designation as a World Heritage Site.

As a result of the creation of the park and sanctuary, Tutchone people were displaced from a large part of their traditional territory. They are seeking resolution of outstanding aboriginal rights in their land claims negotiations through partnerships in economic development and land and resource management. Given the priority and sensitivity of these negotiations, it is beyond the ability of this planning process to address land management issues in the Kluane Game Sanctuary (renamed the Kluane Wildlife Sanctuary in 1982) in a conclusive manner.

Resource Values and Use

Areas near glaciers are normally of great biological diversity and productivity and this is true for the Kluane Wildlife Sanctuary. Extreme variations in elevation, the dispersal of highly mineralized glacial silts by wind and water, and the variety of elevation and maritime-influenced micro-climates combine to create a wide diversity of plant and animal habitats (see Wildlife).

The sanctuary is also recognized as having some of the most favourable geology in the Yukon for the exploration and discovery of economic mineral deposits, particularly within the formations underlying the Kluane Ranges (see Mineral Resources).

The sanctuary comprises three discontinuous parts--north, central, and south--each section separated by the Kluane National Park Reserve. The north area is recognized for its significant mountain goat, caribou, grizzly bear, and sheep populations and unique habitats, such as the fragile alpine tundra areas of the Burwash Uplands and the periglacial forest of the Klutlan Glacier. The forested area of the glacier is noted for its abundant and diverse wildlife populations which include raptors, woodland caribou, and grizzly bear. The scenic slopes of the Kluane (Front) Ranges provide a spectacular backdrop to Kluane Lake.

Prior to the establishment of the sanctuary, the northern portion had become famous for big game outfitting during the 1920s. It is increasingly recognized for its non-consumptive wilderness tourism opportunities, such as wildlife viewing, hiking, and horseback riding. Sightseeing flights from Burwash Landing and Beaver Creek into the park and sanctuary are growing in popularity for tourists travelling the Alaska Highway. Both the Yukon Government and the Canadian Parks Service have expressed an interest in pursuing park development in the area of the Klutlan Glacier.

Hardrock mining activity at Quill Creek (Wellgreen) and on the Burwash Uplands has raised concerns regarding the environmental management and long term use of the north sanctuary. On the Burwash Uplands, unregulated road construction and trenching in permafrost areas has disfigured a scenic alpine meadow with high recreational and wildlife values. Exploration activities have also negatively impacted the scenery of the Wellgreen area. There are concerns regarding

the potential for longer term accumulated impacts from mineral and associated infrastructure developments, such as tailings ponds, a refinery and power generation.

The central portion of the sanctuary comprises the eastern slopes of the Kluane Ranges between Kluane Lake and Haines Junction (Dakwakada) and has a history of mineral exploration. It includes Mt. Archibald, Mt. Decolei (Naday Gan), and Mt. Caimes. The area also provides accessible examples of glaciers and glacial activity including flood plains, an ice cave, glacial lake beaches and sand dunes, and supports a viable grizzly bear population.

The Jarvis River, which drains much of this area as well as the south western slopes of the Ruby Range, flows through this section of the sanctuary and into the park reserve. The area is used by local residents for snowmobiling, cross country skiing, hiking, camping, fishing, and wildlife viewing. A recent planning study undertaken by the Yukon Government and the Canadian Parks Service has explored opportunities for an interpretive centre and improved public access to the park through the lower Dezadeash River valley on the southern boundary of this portion of the sanctuary.

Within the southern portion of the sanctuary, the Tatshenshini River is a significant landscape feature. It supports one of the most important and accessible sources of anadromous fish in the Yukon, including the only sockeye and coho salmon fishery aside from the largely inaccessible runs on the Porcupine River. It also supports the most intensive native food fishery (on its tributary the Klukshu River) and the most significant sport fishery for salmon in the territory. The salmon also attract and support a high density of grizzly bears.

The Tatshenshini River flows from its headwaters in British Columbia, through a series of scenic canyons within the Yukon, then passes again through British Columbia and into Alaska. The river and this portion of the sanctuary is widely recognized for its cultural, recreational, and wilderness values and is under increasing pressure from river rafters, kayakers, sportsfishers, and campers. The upper section of the river, which contains class 3 and 4 rapids, is used by increasing numbers of rafters and kayakers. The white water rafting trip to Dry Bay in Alaska is now attracting international destination travellers. The area has also been the site of long-standing, though limited, placer and quartz mining activity. Within the sanctuary, access to the river is limited by the canyon, forcing a concentration of use at the ancient Indian village of Shaw'She (Dalton Post).

Resource management concerns are focused on the immediate land use conflicts at Shaw'She and the longer term interest to protect the wilderness character and destination tourism value of the area from the perceived impacts of placer mining and developments related to mining.

Issues

1. It is a matter of importance to the Southern Tutchone people that the plan recognize their cultural heritage in the Kluane National Park Reserve and the Kluane Wildlife Sanctuary and that the plan does not prejudice sensitive land claim negotiations in these areas.

2. There is concern and agreement that current environmental management mechanisms and policies do not adequately protect the high quality wildlife, recreation, scenic, and wilderness resource values of the Kluane Wildlife Sanctuary. The Burwash Uplands and the Tatshenshini River are given as examples of areas requiring immediate attention to management and protection.

3. The limited access at Shaw'She (Dalton Post) creates serious land use conflicts. Intensive use of this site by sportfishers, river

3. The limited access at Shaw'She (Dalton Post) creates serious land use conflicts. Intensive use of this site by sportfishers, river rafters, kayakers, and campers is responsible for the deterioration of this traditional fishing village and heritage site.

4. There is a concern that placer and hardrock mining poses a threat to the wilderness character, salmon fishery, and tourist destination value of the Tatshenshini River. Increasing use of the river for commercial rafting and the proposal to develop a mine at Windy Craggy, involving a bridge over the Tatshenshini River in British Columbia, has focused the attention of environmentalists from the Yukon and worldwide who call for protection of the river.

5. The impact of mining exploration activity on the fragile environment of the Burwash Uplands has raised concerns regarding protection of this area and the need for immediate changes to legislation to facilitate its management (see Mining, Recommendation 1).

6. The prospect of a large mineral development at Wellgreen and surrounding areas raises the broader issues of conservation and development. Some people are concerned that large-scale mine development and associated infrastructure may negatively affect the region's air and water quality and the life styles enjoyed by its residents. Others feel the natural environment of the sanctuary warrants complete protection from development as proposed in the original parks designation and cite its value as a wilderness area in light of environmental impacts worldwide from population growth and development. Others support mining provided it is adequately regulated to manage all phases of development, from exploration to abandonment, in order to provide employment opportunities and economic development in the region.

Objectives

To protect areas of special natural resource and heritage interest for the long-term benefit of present and future generations.

To ensure that further consideration of resource management issues is given to the three areas of the Kluane Wildlife Sanctuary following land claim negotiations.

Recommendations

1. Prior to the completion of First Nation final land claim agreements, the entire Kluane Wildlife Sanctuary should be recognized as an area requiring special management (see Mining, Recommendation 2). No new single-purpose exploration roads should be allowed. Roads required for mineral exploration and development should only be considered when they serve multiple-use purposes or when exploration results indicate the presence of economic mineral reserves. A proposal for road development to an area with economic mineral reserves should only receive approval if long-term social and economic benefits can be demonstrated and any negative environmental impacts from the proposal can be mitigated to a level acceptable to residents of the region and the Yukon.

2. The southern portion of the sanctuary, excluding those settlement lands agreed to in the Champagne and Aishihik final land claims agreement, should be managed as a park. A park management plan should be developed jointly with the Champagne and Aishihik First Nations which addresses the protection of the wilderness character of the Tatshenshini River. The management plan should also address multiple issues related to the Indian food fishery; sport fishing; the regulation of recreational use of the area; the protection, interpretation and

management of heritage resources; and mining.

3. In order to protect the heritage values at Shaw'She (Dalton Post), interim measures, including no camping and restricted vehicular traffic, should be implemented prior to finalizing the Champagne and Aishihik First Nations' land claim agreement.

4. A mine abandonment plan should be required for the current mining operation on the Burwash Uplands, including a security deposit to ensure that the existing exploration road is reclaimed to a satisfactory level.

5. Following the completion of First Nations final agreements affecting the north sanctuary, more detailed planning should be undertaken to identify special requirements for management.

6. Following completion of First Nations final agreements affecting the central sanctuary, consideration should be given to the need to reconsider the national park reserve boundary in light of final land selections, as well as wildlife, tourism and recreation, and mineral resource management requirements.

7. Given the extraordinary wildlife, recreation, and wilderness tourism values within the Kluane Wildlife Sanctuary and their growing importance to the region's economy, special management arrangements, including prohibitions from mineral staking, exploration, and development, should be considered as an option in more detailed planning processes for specific areas within the three sections of the sanctuary, following completion of land claims negotiations.

Any proposal for the permanent withdrawal of an area from mining should include an assessment of mineral potential and give consideration to the long-term social, economic, and environmental benefits of conservation or development options.

PART 5: APPROVAL, IMPLEMENTATION AND REVIEW

The process for final approval and implementation of the Kluane Plan is illustrated in Figure 4. A number of essential components of the process are highlighted and explained in further detail in this section. They include the approval, implementation, monitoring, and review of the plan.

The plan reflects the best understanding of land and resource issues in the region to date and suggests a course of action to deal with them. The regional planning process has provided an opportunity for local people to provide policy direction and advice to government agencies having responsibility for land and resource management. It is intended that the plan and its recommendations, once approved, will be used by government agencies, industry, First Nations, and the public to guide the land use and management processes in place within the region.

The details of how this plan will be used or implemented will require strong statements of commitment that reflect understanding and agreement between the parties involved in developing the plan, including the public.

APPROVAL

The Greater Kluane Land Use Plan has been developed through an open public process with the joint involvement of the federal and territorial governments and First Nations. In order to implement the recommendations developed under this plan, endorsement by all three parties is required. The final draft plan will be forwarded from the Greater Kluane Planning Commission to the federal Minister of Indian Affairs and Northern Development, the territorial Minister of Renewable Resources, and the Chair of the Council for Yukon Indians for their review and approval.

At the same time as review and approval of the plan proceeds, the document will also be circulated to the public for their information. At this point in the process, the Kluane Commission ceases to be the focus of public response or comment on the document. It is expected that public response to the document, if directed to government and First Nations, would be considered in their review and approval of the plan.

The Commission recommends that a joint public statement announcing the approval of the plan be issued within six months of the date of transmittal of the document from the Commission.

IMPLEMENTATION

Following final coordinated approval of the plan, a jointly prepared implementation strategy is expected to be issued. This strategy will in effect be the official response and indication of how the plan would be put in effect. It is expected that Government and First Nations will carry out the action necessary to implement this plan within their areas of responsibility.

The Regional Planning Commission recommends that a coordinating committee be formed, with representation from the two governments and First Nations, and given the responsibility to prepare the implementation strategy.

A summary of recommendations and a preliminary indication of the agency responsible for implementing each recommendation is included in this section. More detailed direction regarding implementation of the plan should be set out in the implementation strategy. The strategy should identify specific agency responsibilities, as well as costs and timing for implementing the plan recommendations.

The plan is expected to be implemented through current and new policies and programs, legislative changes, and, in some cases, further studies. Policy review and development would include preparation of a wilderness policy, shoreline guidelines, and review of the grazing policy; legislative changes would be required to ensure stronger environmental regulation of mining and development activities; current programs would be expected to use the plan's recommendations in the review of land use applications. Further study would be required to deal with the management requirements in areas such as the Kluane Wildlife Sanctuary.

The Commission recommends that the detailed implementation strategy be prepared and issued publicly within three months of approval of the final plan.

MONITORING

There is a requirement for ongoing assessment and evaluation of the effectiveness and appropriateness of the plan. The parties involved in the preparation of this plan have a stake in ensuring its effectiveness. This includes not only governments and First Nations, but the public as well. There is a need to ensure that processes established for the ongoing assessment of the plan includes the public and provides opportunities for their input and involvement.

REVIEW

As issues and the understanding of the region change, the Kluane plan can be expected to require review and amendment. There must be continued commitment to ensuring that the process for reviewing or changing land and resource management direction and priorities in the future is open and public.

The coordinating committee, consisting of the three parties involved in the preparation of this plan, should meet to discuss the need to review the plan within one year of the signing of the first Band Final Agreement in the region. Regular formal review of the plan should be undertaken no less than once every five years. More frequent formal reviews may be undertaken depending on changing circumstances within the region, with the agreement of the parties to the process.

In keeping with the open public process established to complete the plan, the process for reviewing or amending the plan should be open to all parties, individuals, and agencies with an interest in the region. The responsibility for carrying out the amendment and plan review process should rest with the coordinating committee proposed above. The approval of amendments would be at the discretion of Ministers and affected First Nations.

Table 4 provides a summary of the recommendations contained in this plan, indicates the party or parties responsible for their implementation, and, in some cases, specific agency responsibilities are identified.

Six types of recommendations have been identified: policy, policy study, priority, program, planning study, and legislative change.

Recommendations that are referred to as policy are intended to provide policy direction to agencies with jurisdiction for management. These recommendations will not normally have an implementation cost associated with them.

Policy studies refer to areas where study is required to develop a policy. The lead and participating agencies are identified. Some cost would be associated with these recommendations.

Priority indicates that a recommendation is suggested a priority for the agency noted in the summary or that the recommendation is a fundamental part of this plan. Priority

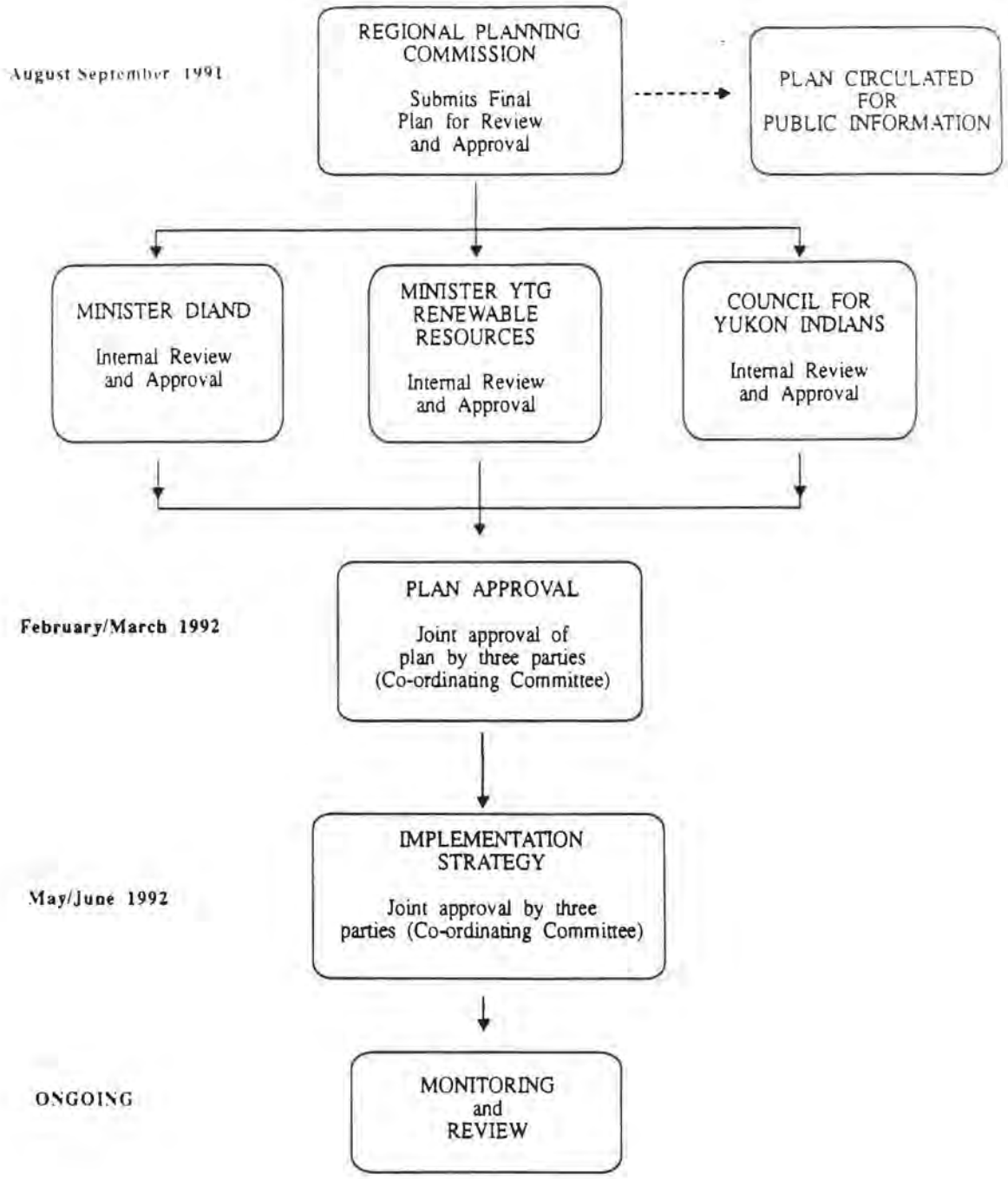


FIGURE 4: Structure of Approval, Review, and Implementation Process

recommendations may require re-evaluation of current program priorities by the lead agency noted.

Recommendations that suggest agencies undertake specific actions under existing programs are noted as such. These program recommendations will normally have costs associated with them and it will be necessary to seek new sources of funding.

Further planning studies have been recommended where more detailed resource analysis is required. These will require the participation of all parties to the regional planning process and require funding.

Recommendations suggesting legislative change have also been made.

TABLE 4: Summary of Recommendations

RECOMMENDATION TYPE	DESCRIPTION	IMPLEMENTING AGENCY
HERITAGE		
1. priority	-support for completion and implementation of legislation to determine ownership and management responsibilities for heritage sites.	FIRST NATIONS YUKON/CANADA
2. policy	-heritage management processes should ensure native heritage values are reflected.	YUKON/HERITAGE REN. RES. CANADA/CPS
3. policy	-government agencies should consult with First Nations in the development of heritage management policies and programs.	YUKON/ FIRST NATIONS
4. priority	-priority for heritage research should be given to most sensitive and least known sites.	" "
5. priority	-oral history research priority.	" "

6. program	-inventory of burial sites.	FIRST NATIONS YUKON
7. priority	-preservation of Silver City; management plan for Dalton Post	YUKON/HERITAGE REN.RES.
8. priority	-Indian history interpretation a priority in regional tourist programs.	YUKON FIRST NATIONS
9. policy	-First Nations involvement in interpretation of Indian history.	FIRST NATIONS YUKON
10. program	-support for aboriginal place names documentation.	YUKON/HERITAGE FIRST NATIONS
SETTLEMENT		
1. policy	-rural residential in planned areas adjacent to communities.	YUKON/C&TS
2. policy	-incorporate user-pay policy into community taxation policy.	
3. policy study	-develop cottage lot policy.	YUKON/C&TS REN.RES.
4. policy	-waste management strategies should include guidelines for closure, rehabilitation and future disposition.	YUKON/C&TS
5. policy	-communities should develop guidelines for the protection of water sources.	YUKON/C&TS COMMUNITIES
6. policy study	-develop management policy for hazardous areas.	CANADA/NAP
7. policy	-prior to policy development land applications should be assessed for terrain hazards.	YUKON/CANADA FIRST NATIONS
TRANSPORTATION AND COMMUNICATION		
1. policy	-upgrading of North Alaska Highway.	CANADA
2. policy	-integrated approach to resource road development.	YUKON
3. policy recommendation	-additional highway pulloffs for viewing and interpretation.	YUKON/TOURISM C&TS
4. policy study	-consider options for highway signage to preserve scenic viewscapes.	YUKON/TOURISM
5. policy	-funding for road development tied to environmental review.	YUKON/C&TS

social, economic, and environmental benefits of conservation or development options. Areas requiring further study to determine appropriate means of protection and management are addressed in Section 4.

4. Completion of a hardrock mine abandonment policy, currently being developed by the Northern Affairs Program, DIAND in cooperation with the Yukon government, should specify standards and procedures for mine abandonment and should be given high and urgent priority. On an interim basis and until such time as a mine abandonment policy is in place, new hardrock mining proposals should receive approvals based on formal abandonment agreements.

5. A policy should be developed to address the abandonment of land-based placer activities, including waste removal, which are not addressed by the guidelines for stream reconstruction developed by the Placer Implementation Review Committee.

6. The Commission notes that the Arctic Environment Strategy (AES) provides funds for the clean-up of abandoned waste on federal crown land and recommends that clean-up of old placer mining sites be made a priority, including those on Squaw, Arch, and Beaver Creeks.

7. Mine abandonment policies should require progressive reclamation of areas affected by mining activities through all stages of the mining operation, including exploration and development.

8. Legislation should be strengthened to ensure that security deposits can be required in conjunction with abandonment plans. Security deposits should be required for mineral developments where there is evidence of potential long-term environmental risk.

9. Government agencies with legislated responsibility for resource management should examine all current and potential future funding and incentive programs for mineral exploration and development to ensure that financial benefits are strictly tied to strong commitments and requirements for environmental protection.

PART 4: AREAS REQUIRING FURTHER STUDY

There are a number of areas within the Kluane planning region where the combination of resource values and use pressures suggest the need for area specific recommendations. These include the Kluane Wildlife Sanctuary, Kusawa Lake, the Ruby Range, Wellesley Lake, and the Dezadeash Lake and River system.

The pressures apparent in the Kluane Wildlife Sanctuary, discussed below, have received relatively greater attention during the preparation of this plan and require resolution as a high priority. In view of the ongoing land claim negotiations, it has not been possible to address area specific management issues in a conclusive manner. However, interim and mitigating measures have been recommended and processes proposed to resolve outstanding issues in the sanctuary following First Nations' final agreements.

Other areas within the region, while not receiving the same attention as the sanctuary, are also the centre of land use issues that will require resolution. Issues relate to the level of development or protection suitable for these areas as well as the conflicts between various resource uses, including recreation, fish and wildlife harvesting, mining, and tourism. In order to resolve the resource conflicts and provide clear direction for the future use of these areas, there should be a more detailed level of integrated management discussion than has been possible under this regional plan.

Options for more detailed management include further planning or, alternatively, less formal approaches, such as development of policy and management guidelines for these areas. In carrying out this more detailed level, the responsible agencies should consider the overall direction given in the Greater Kluane Regional Land Use Plan and policies and programs recommended in the plan, as well the provisions of existing legislation, such as the Yukon Environment Act and established park planning processes.

Kluane Wildlife Sanctuary

Background

The Kluane National Park Reserve was initially withdrawn from development in 1942 by federal Order in Council. In 1943, the Yukon Territorial Council created the Kluane Game Sanctuary, covering the same territory, for the purpose of conserving game. This effectively withdrew 26,235 square kilometers of land from all hunting and trapping activities. Revisions to boundaries were first made in 1944 to exclude land thought to be more valuable for mineral development and as a concession to big game outfitters who had been established in the sanctuary for some years (see Map 1 for park reserve and sanctuary boundaries).

The designation of the park reserve and sanctuary occurred without consultation with the Tutchone people of the area whose principle means of livelihood had depended largely on those traditional lands for hunting and trapping. This resulted in considerable hardship and bitterness amongst the aboriginal people of Kluane, Klukshu, Shaw'She (Dalton Post), and Champagne (Sha Dhala).

The announcement of the present day Kluane National Park Reserve was delayed until 1972, mainly because of known mineral occurrences in parts of the park reserve. It was not until 1976, with the proclamation of the Kluane National Park Reserve under the National Parks Act, that Tutchone hunting and trapping rights were restored. In addition, through a Supreme Court appeal in 1982, it was also recognized that Indian people had a traditional right to hunt and trap on lands which had become part of the Kluane Game Sanctuary.

When the park reserve boundary was proclaimed in 1976, concerns were raised that

6. policy	-establish system of designated heritage trails.	YUKON/HERITAGE FIRST NATIONS
7. program	-identify sand and gravel for highway, communities, commercial, and public.	YUKON/CANADA
8. policy/program	-reclaim abandoned sand and gravel sites.	YUKON/CANADA
9. policy	-establish emergency airstrip between Burwash and Beaver Creek.	YUKON
10. policy	-consolidate development of infrastructure in corridors to allow other uses.	YUKON/CANADA
11. policy	-minimize access roads into wilderness.	YUKON/CANADA FIRST NATIONS
12. policy	-minimize visual impacts of commercial facilities.	YUKON/C&TS
ENERGY		
1. policy	-open public process for implementing YEC energy strategy.	YUKON ENERGY CORP.
2. policy	-energy conservation encouraged.	YUKON
3. program	-detailed investigation of Aishhik hydroelectric project.	YUKON/CANADA FIRST NATIONS
4. policy	-support for environmental reviews.	YUKON/CANADA FIRST NATIONS
5. policy	-smaller scale and "alternative" power sources should be considered.	YUKON
6. policy	-priority given to the use of forests for fuel wood over large scale pulpwood and sawmilling operations.	YUKON/CANADA
WATER		
1. policy	-water allocation and land management decisions recognize primary need to maintain fish and wildlife habitats.	YUKON/CANADA
SUBSISTENCE		
1. programs	-establish cooperative (First Nations/government) programs to develop understanding of subsistence systems and resource requirements.	FIRST NATIONS YUKON
2. policy	-subsistence should be recognized as an integrated system.	YUKON/CANADA

3. policy	-government should adopt an interdepartmental approach to the management of subsistence.	" "
4. policy	-non-Indian subsistence should be recognized as a separate activity requiring distinct policies.	" "
5. policy	-data for subsistence policy purposes should be obtained on a cooperative basis.	FIRST NATIONS YUKON/CANADA

WILDLIFE

1. policy	-management efforts should focus on restoring low wildlife populations.	YUKON
2. policy	-greater Indian and local participation in wildlife management processes.	YUKON/CANADA FIRST NATIONS
3. program	-support for program to identify key wildlife habitat areas.	YUKON
4. policy	-key habitat areas should be designated when special management provisions are required.	YUKON
5. program	-support for program to develop standard terms and conditions for habitat protection.	" "
6. policy	-establish 0.5 kilometer no-hunting corridor along Alaska and Haines Highways.	" "

FISH

1. policy study	-develop policy to address management of shorelines.	YUKON/C&TS REN.RES./DIAND FIRST NATIONS
2. policy study	-develop fisheries allocation policy based on capability of lakes to sustain fishing pressure.	YUKON/REN. RES.
3. priority	-program of information collection utilizing local knowledge.	YUKON/ REN. RES., CANADA/DFO
4. study	-investigate potential for salmon fisheries enhancement.	CANADA/DFO
5. priority	-protection of spawning sites a management priority.	YUKON, REN. RES., CANADA/DFO
6. program	-monitoring to assess impact of fluctuating water levels on fish.	YUKON/REN. RES. YEC
7. study	-IRC study to address stream linkage issue in region.	YUKON/REN. RES. CANADA/EMR
8. study	-study to determine reasons for low early sockeye run on Alsek River.	CANADA/DFO

FOREST

1. policy	-forest harvesting to be carried out on a sustainable basis with priority to meeting local and Yukon needs.	YUKON/CANADA
2. policy	-protection of timber harvesting over timber harvesting for export.	YUKON/REN. RES. CANADA UNTIL DEVOLUTION
3. policy	-forest management plans required prior to increased harvesting.	" "
4. policy	-community woodlots if and when needed.	" "
5. policy	-single-use applications for land on high and medium forest production lands should be reviewed for impact on forest resource base.	" "
6. program	-government should develop a fire management plan and give consideration to use of controlled burns for habitat enhancement.	" "

AGRICULTURE

1. policy	-maximum agricultural parcel 10 hectares; exemption for Takhini River valley.	YUKON/CANADA
2. policy	-discontinue disposition by spot application.	YUKON/C&TS
3. policy/study	-disposition of lands for agriculture should be in planned areas only, identify suitable areas.	YUKON/C&TS REN. RES.
4. program	-review taxation requirements to ensure agricultural development does not unfairly drain community budgets.	YUKON/C&TS
5. policy	-no game farming.	YUKON/REN.RES.

GRAZING

1. policy	-no issuance of long-term grazing leases; short-term leases and permits preferred.	YUKON/C&TS REN. RES.
2. policy study	-reassess grazing policy to address relationship of tenure to fencing cost requirements and range improvements.	YUKON/REN.RES.
3. policy	-grazing policy should allow for range improvements.	" "
4. policy study	-consider locally managed pastures as alternative to individual grazing areas.	" "

5. policy study	-determine methods of establishing carrying capacity standards.	" "
6. policy	-open-range grazing should be considered as an option in back country areas.	YUKON/REN.RES. C&TS
7. policy	-grazing areas along designated trails should be designated and left available for public grazing on an informal basis.	YUKON FIRST NATIONS
8. policy	-study and consultation required prior to introduction of non-indigenous species.	YUKON/REN.RES.
OUTDOOR REC/TOURISM		
1. policy/programs	-establishing Kluane Region as tourist destination as priority.	YUKON/TOURISM COMMUNITIES
2. policy	-maintain wilderness character of region and visual quality of highway corridor.	YUKON/CANADA FIRST NATIONS
3. program	-tourism development strategies should include programs to foster understanding of Indian heritage.	YUKON/HERITAGE FIRST NATIONS
4. program	-support for locally developed tourism initiatives which focus on traditional trail systems.	YUKON/TOURISM HERITAGE FIRST NATIONS
5. policy	-guidelines for wilderness recreation development.	YUKON/TOURISM REN.RES/CANADA NAP/FIRST NATIONS
6. program	-support for wilderness tourism specified.	YUKON/TOURISM
7. policy study	-to direct and coordinate use of wilderness resources.	YUKON/REN.RES. CANADA/NAP
8. program	-establishment of adequate highway pulloffs and facilities.	YUKON/C&TS TOURISM/REN.RES.
MINING		
1. legislative change	-to ensure land use regulations can be applied to mineral claims.	CANADA
2. policy	-low impact mineral exploration techniques encouraged throughout the region and supported through Schedule of Assessment Credits.	CANADA
3. policy	-any proposal for permanent withdrawal of an area from mining should include an assessment of mineral potential.	" "

4. policy	-development of a mine abandonment policy is a priority.	" "
5. policy	-development of a placer mine abandonment policy which addresses land based activities and waste removal.	" "
6. program	-apply Arctic Environmental Strategy to placer waste clean up.	" "
7. policy	-abandonment policies should require progressive reclamation at all stages of development.	" "
8. legislative change	-to ensure that security deposits can be required in conjunction with abandonment plans.	" "
9. policy	-government agencies with responsibility for resource management should be involved in the review of mineral incentive funding programs.	CANADA/YUKON
KLUANE WILDLIFE SANCTUARY		
1. policy	-prior to completion of land claim agreements, and prior to further study, the Kluane Wildlife Sanctuary should be recognized as an area requiring special management (see Mining Recommendation 2).	CANADA
2. policy/planning study	-the southern part of the sanctuary, excluding the land selections agreed to in the Champagne and Aishihik First Nations land claim agreement, should be managed as a park.	CANADA/YUKON FIRST NATIONS
3. policy	-interm measures should be taken at Shaw'She (Dalton Post) to protect heritage values.	YUKON/CANADA FIRST NATIONS
4. policy	-a mine abandonment plan should be required for the mining operation on the Burwash Uplands.	CANADA
5. planning study	-more detailed planning should be undertaken in the north sanctuary following completion of First Nations final land claim agreements.	CANADA/YUKON FIRST NATION
6. policy	-consideration should be given to the need for further study in the central section of the Kluane Wildlife Sanctuary.	CANADA (Parks Canada)/ YUKON FIRST NATIONS
7. policy	-prohibitions from staking should be considered as an option in areas of the three sections of the sanctuary as needed to adequately manage resource values.	CANADA/ YUKON FIRST NATIONS

RESEARCH REPORTS PREPARED UNDER THE GREATER KLUANE LAND USE PLANNING PROGRAM

1. Agriculture in the Champagne and Aishihik Traditional Territory, Don Stone, 1990.

2. Agriculture and Grazing, Greater Kluane Planning Region, J. MacPherson and A. Hodgson, November, 1989.

3. Background Report on Wildlife, Yukon Renewable Resources, December 1989.

4. Communications Infrastructure, Esse Human Resources, 1989.

5. Demography and Development Trends in the Kluane Region 1976 to 1988, D.R. Carruthers and Associates, April 1988.

6. Energy Baseline Information Kluane Region, David Nairne & Associates Ltd., October, 1989.

7. Fisheries Research, Northern Biomes Ltd., March 1989.

8. Grazing Potential for Selected Areas in the Greater Kluane Planning Region, Yukon Renewable Resources, Agriculture Canada, Western Rangeland Consultants, 1989.

9. Greater Kluane Mineral Inventory-Phase II: A Review of Potential Mine Development In the Greater Kluane Study Area During the Period May, 1989 to May, 1984, Archer Cathro and Associates (1981) Ltd., May 1989.

10. Issues and Terms of Reference.

11. Kluane Terrain Hazard Mapping Study, Phase I Report, Thurber Consultants Ltd., July 1989.

12. Kluane Terrain Hazards Mapping Study, Final Report, Thurber Consultants Ltd., October 1989.

13. Land and Resource Concerns Pertaining to Economic Development, Read and Associates, May 1990.

14. Lands, Settlement and Municipal Infrastructure Report, Community and Transportation Services, Lands Branch, March 1990.

15. Resident Recreation Survey.
Yukon Renewable Resources. March 1990.

16. Recreation Sector Report.
Yukon Renewable Resources. 1989.

17. Sector Report on Transportation.
Yukon Community and Transportation Services. Transportation and Capital Development Branch February. 1990.

18. Some Important Wildlife Areas in the Champagne Aishihik Traditional Territory.
Kent Jingfors Consulting. May 1990.

19. Summary of Comments--Greater Kluane Land Use Plan.
Yukon Land Use Planning Office. 1989.

20. Summary of Historic and Prehistoric Resources in the Kluane Planning Region (Revised).
R.M. Gottardt. 1989.

21. The Forest Resource in the Greater Kluane Land Use Planning Area, Yukon Territory - A Preliminary Report.
Christine Boyd, INAC Forest Resources, December 1989.

22. Wetlands Research in the Kluane Region - An Assessment of Waterfowl Habitat and the Distribution of Waterfowl in the Kluane Planning Region.
Canadian Wildlife Service, June 1989.

MAP FOLIO

The maps contained in this folio have been produced as a general overview of the land use patterns and resource values in the Greater Kluane Planning Region. They are derived from more detailed mapping and descriptive information collected during the preparation of this plan. As such, they should be used in conjunction with the written material in this document to provide the reader with a general picture of the region. They should not be used as the basis for detailed analysis of area specific land use issues. The short map abstracts that follow illustrate the research material and more detailed mapping upon which these maps are based and which should be referred to for specific land and resource management questions. When examined in combination, the generalized maps point out a number of key relationships, such as the modern influence of the Alaska Highway on land use and development, and the traditional relationships between travel routes and trails and wildlife habitats. In this regard, the maps are designed to provide a general feel for the region and not extensive knowledge about it.

Wildlife

The map is based on original research conducted by the YTG Department of Renewable Resources for the Greater Kluane Planning Commission. The research identified critical and significant habitat areas on the basis of their importance for various species at different seasons of the year. The original mapping produced under that research project was at a scale of 1:250 000. The map presented in this folio is a much generalized interpretation of that data. It is not meant to be used to indicate area specific sensitivity or habitat significance. It does, however, provide an indication of the overall character of the planning region in terms of its importance to wildlife and the quality of the habitats present.

Historic and Archaeological Resources

This map provides an indication of the type of historic and archaeological information that is available for the region. The report map has been prepared from research and mapping carried out by a number of individuals and agencies and summarized by the YTG Heritage Branch. The map is not meant to be the definitive statement on the heritage resources of the region; not all known trails are mapped, nor are all sites that may be under specific land claims discussion. It is meant, however, to emphasize the fact that the region has had a long and intricate human history. It is well-travelled, well-settled, and well-known by the Indian people as a homeland thousands of years old. A great deal of additional work will be required in order to fill the gaps in knowledge suggested by this map.

Mineral Potential and Activity

This map provides an indication of those areas in the Greater Kluane Planning Region with known mineral potential and current or historic mining and mineral exploration activity. It is based on the review of research on the geology of the area and on the inventory of known mineral occurrences in the region. The generalized presentation of this information (scale 1:1 000 000) limits its use to general discussions of potential and projected future mining activity.

Existing Land Use Pattern

This map indicates the pattern of certain types of land use and development in the region. It is based on file and map research completed by land managers in the federal and territorial governments. The land uses shown normally require some sort of land tenure agreement with government in order to occur and are therefore relatively simple to map. The limitation to this type of mapping is that it

does not account for the many informal land use activities occurring in the region, such as back country recreation by individuals, or the extensive patterns of traditional Indian use. The patterns of use shown indicate the significant influence of the Alaska Highway on the development of tourism and recreation facilities, and upon both agriculture and mining which benefit from highway access. The number of commercial wilderness operations mapped also indicate a high level of interest and use of the area's resources.

Forest Productivity

The forest resources of much of the Kluane Planning Region were inventoried and mapped at the same time as this plan was being prepared. Those inventories represent the most complete and up-to-date information on the region's forests. The generalized forest productivity map was prepared from original 1:50 000 digital inventory maps supplied by Forest Resources (NAP) and shows the scattered pattern of forest resources within the planning region.