

Gladys Lake

Ref. No.:

226

ECOLOGICAL RESERVES COLLECTION
GOVERNMENT OF BRITISH COLUMBIA
VICTORIA, B.C.
V8V 1X4

SPATSIZI PLATEAU WILDERNESS
PARK MASTER PLAN

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PLANNING AND DESIGN BRANCH
PARKS AND OUTDOOR RECREATION DIVISION
MINISTRY OF LANDS, PARKS AND HOUSING

Gladys Lake

ER

June, 1980

ACKNOWLEDGEMENTS

This Master Plan is the result of a co-operative effort by Provincial Parks Planning and Management Staff in both the Skeena Region and Headquarters offices.

The planning team directly responsible for the preparation of this Master Plan includes Rick Heathman (Master Planner, Skeena Region), Bob Dalziel (Systems Planner, Skeena Region), and Gil Scott (Master Planner, Headquarters).

Roger Norrish and Herb Green offered guidance concerning park management practices and Bryan Price contributed input with respect to planning policies and procedures.

Those portions of the plan that deal with the Fish and Wildlife Resources of the park were carefully reviewed by Greg Jones, Grant Hazelwood (Biologists), and Fish and Wildlife Branch staff of the Ministry of Environment, Smithers. A great deal of the recreation resource information was documented by Park Ranger Al Poulsen during his several seasons of patrolling the park.

A MASTER PLAN FOR
SPATSIZI PLATEAU
WILDERNESS PARK

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Foreword

The Spatsizi Plateau Wilderness Park, encompassing approximately 576,000 hectares, is one of the largest and most diverse parks in the province. The Master Plan is intended to indicate the goals sought to be achieved by this park, and to provide some guidelines for pursuing these goals. The plan is based on information available at this time. As conditions change and new information becomes available, it may become necessary to modify some of the policies stated in this plan.

I am confident that this Master Plan will serve as a valuable reference point that will assist in the management of this park for the enjoyment and inspiration of both present and future generations.


James R. Chabot, Minister
Lands, Parks and Housing

August 1, 1980.

Date

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SUMMARY

Spatsizi Plateau Wilderness Park was established to ensure that wilderness values found therein remain intact; to ensure that the values associated with the wildlife are retained; and to perpetuate the splendid recreation opportunities offered by this outstanding area of Northwestern British Columbia.

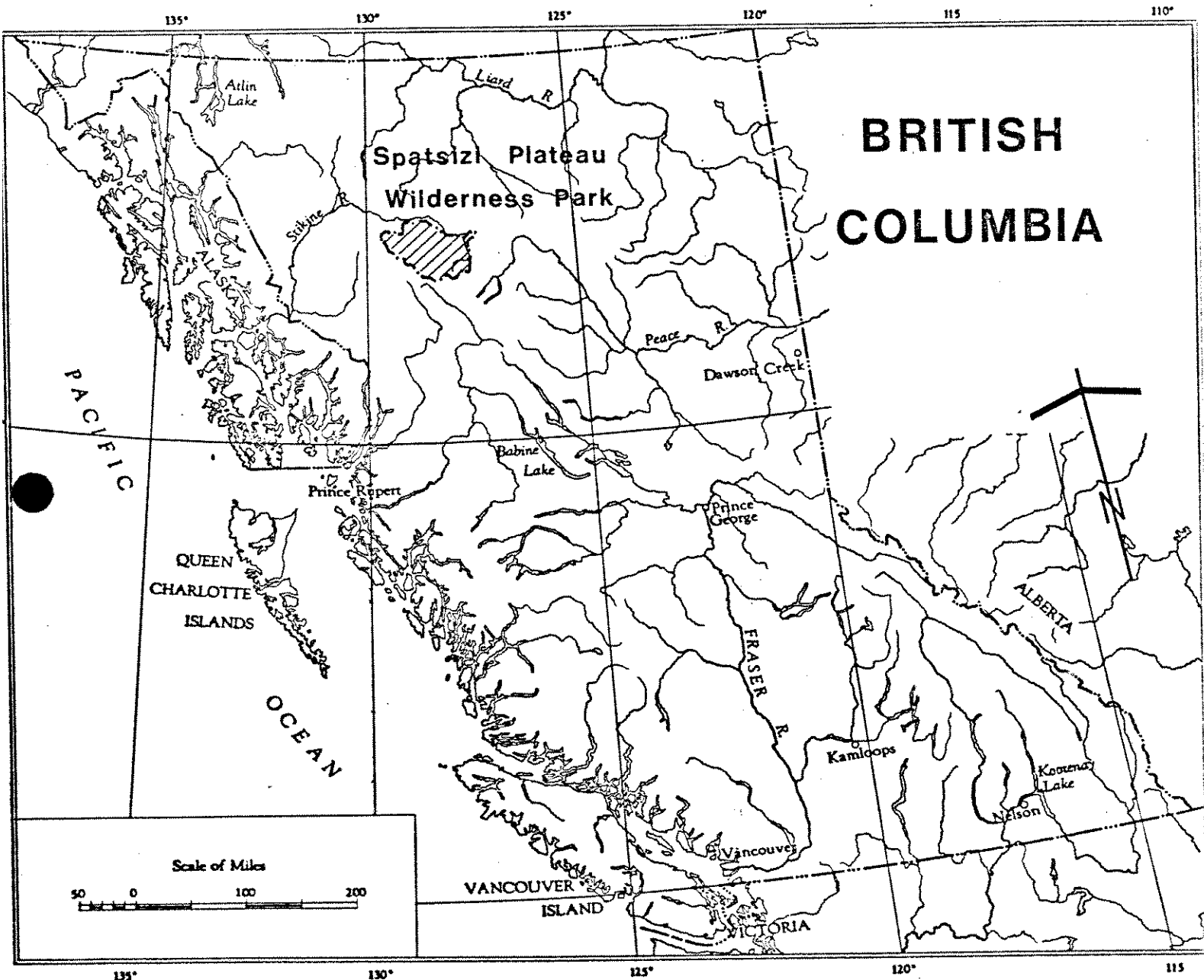
The Parks and Outdoor Recreation Division intent within Spatsizi Park is to conserve wilderness landscapes and natural processes while providing for quality, dispersed, low impact recreation opportunities within those landscapes.

The *Conservation Goal* within the park is to conserve representative examples of the Skeena Mountains and Stikine Plateau Natural Landscapes by protecting the natural features found therein from deleterious influences.

The *Recreation Goal* is to provide a variety of dispersed back-country recreation opportunities within a wilderness environment including skiing, snowshoeing, hiking, canoeing or rafting, horse travel, camping, climbing, fishing, nature study, photography and hunting, all within the limits of the conservation objective.

The entire park is zoned Wilderness according to the Provincial Park zoning system.

The major management effort will be to ensure that intrinsic natural values of the park are protected through dispersion of recreational use.



PARK LOCATION MAP

A. INTRODUCTION

1. BACKGROUND

Spatsizi Plateau Wilderness Park, situated in northwestern British Columbia at the headwaters of the Stikine River, makes significant contributions to the natural heritage of the Provincial park system. Encompassing lands in both the Skeena Mountains and the Yukon-Stikine Plateau, the park is characterized by high alpine plateaus, rugged mountains and sub-alpine forests and bogs. As a vast remote wilderness, with great habitat diversity, the park supports a variety of animal species at significant population levels.

Established by Order-in-Council No. 3756 on December 3, 1975, Spatsizi Park consists of approximately 675,000 hectares of land between the elevations of 975 and 2,500 meters and is located approximately 50 kilometers east of the Stewart-Cassiar Highway.

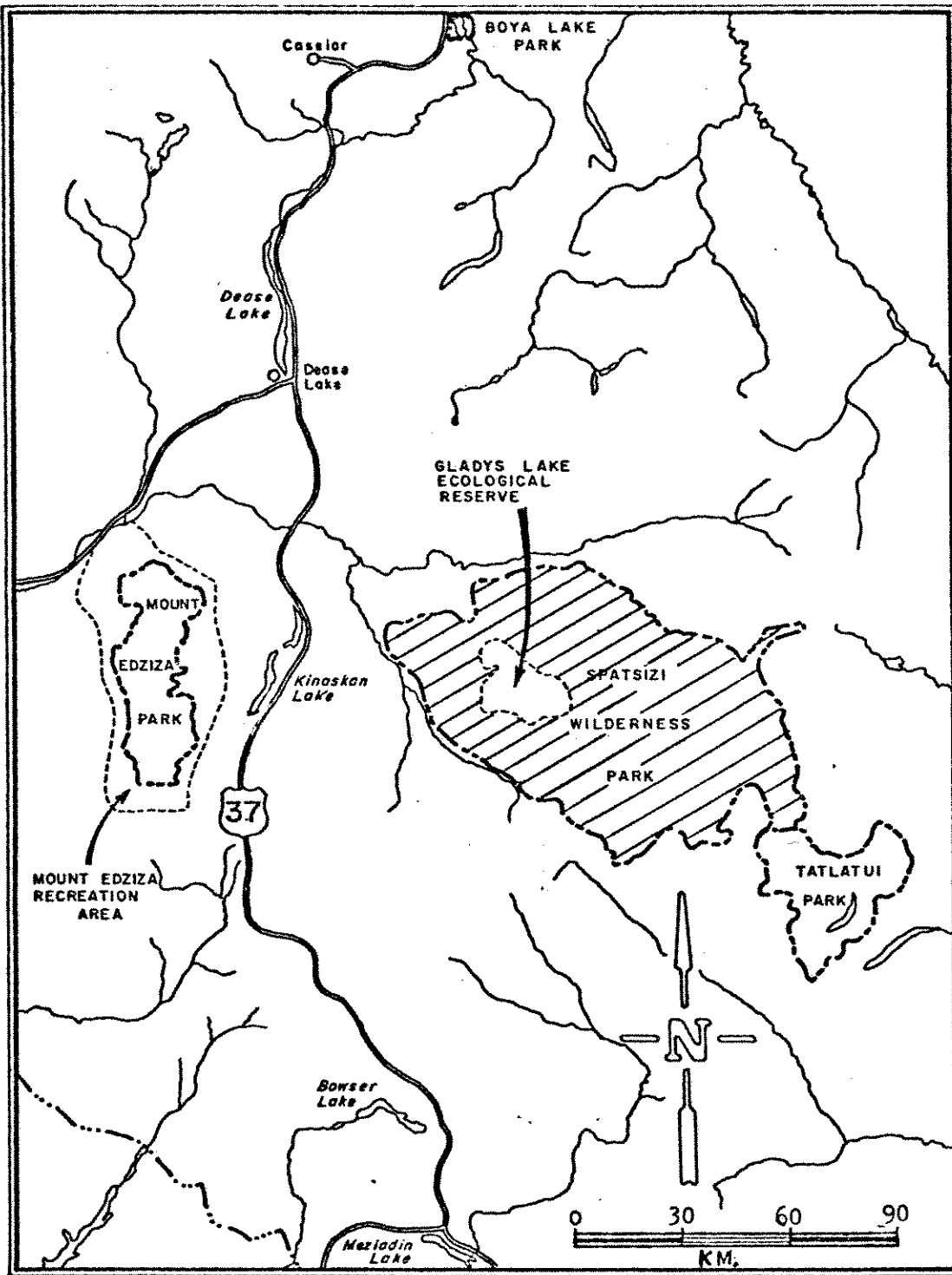
Access to the park is primarily by aircraft, however, horses and riverboats are occasionally used.

Park administration is carried out through Lakelse Park District, at Terrace, and seasonal staff are stationed within the park at Cold Fish Lake.

Up to the present time, recreational facilities have not been developed within the park by the Parks and Outdoor Recreation Division. Cabins, trails and primitive campsites were established by guides and outfitters prior to the land being designated as a park. Cabin developments are situated at Cold Fish Lake, Hyland Post and the Spatsizi-Stikine River confluence.

Two other large natural area parks are situated in the same vicinity as Spatsizi. Tatlatui Park, adjoining Spatsizi to the southeast, represents the easterly portion of the Skeena Mountains with watersheds draining into the Arctic Ocean. Mount Edziza Park, to the west,

REGIONAL SETTING



in the Klastine Plateau area, contains superlative volcanic features. All three parks offer opportunities for dispersed recreational use in a natural environment.

2. DEMAND

Present recreational use levels are low and most use is concerned with the wildlife and fishery resources. Park use is generally limited to those activities associated with the summer and fall seasons. Statistical evidence has not been gathered, to date, which gives an accurate indication of existing use levels, however, it has been estimated that between 200 to 300 people visit the park annually.

Trends in North America indicate growth in the popularity of recreational guided tours for wildlife and scenic viewing, photography and experience with nature. In this Province, growth in river rafting and guided wildlife viewing expeditions has been identified. Potential for package tours for winter ski touring and for summer recreational guiding based out of northern communities has been identified by the B.C. Guide Outfitter's Association and local Chambers of Commerce. Due to the nature and size of Spatsizi it is possible that the park may become popular for such activities.

3. PLAN PURPOSES

The primary purpose of this Master Plan is to identify Park Goals and to present management guidelines for their achievement.

This plan will briefly examine biophysical features within the park, define management issues which need resolution, define policy where appropriate, and outline need for further study and planning.

It has become apparent that use in Spatsizi Park is increasing and diversifying and that this diversity is resulting in competition between various groups for utilization of the park resources in differing ways.

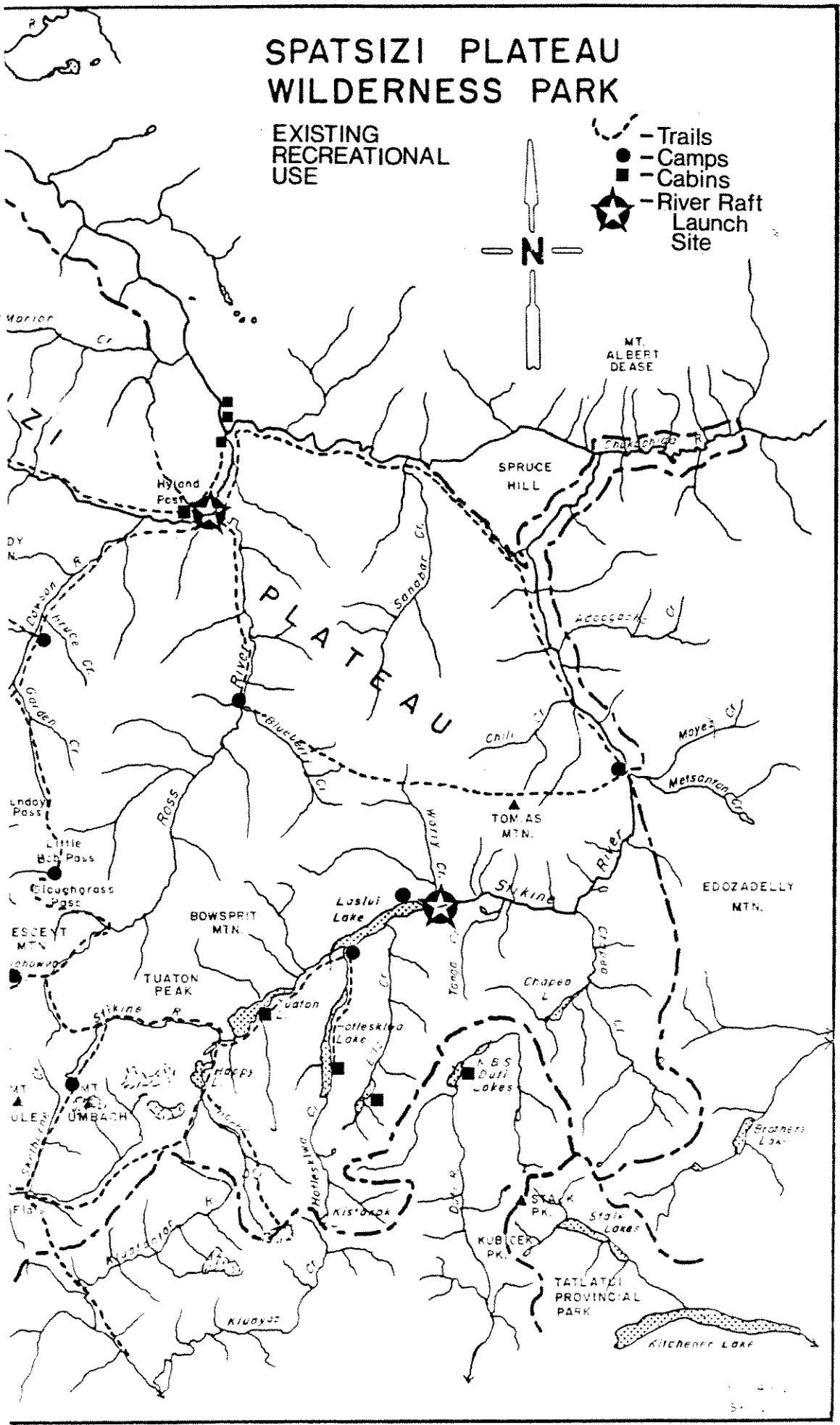
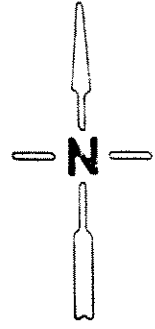
This plan commences with the premise that the Order-in-Council establishing Spatsizi Park is a clear indicator of Government policy and gives direct guidance to management of recreational and natural resources.

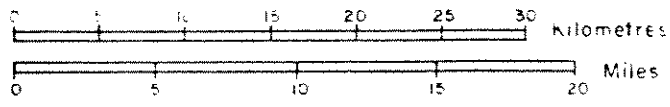
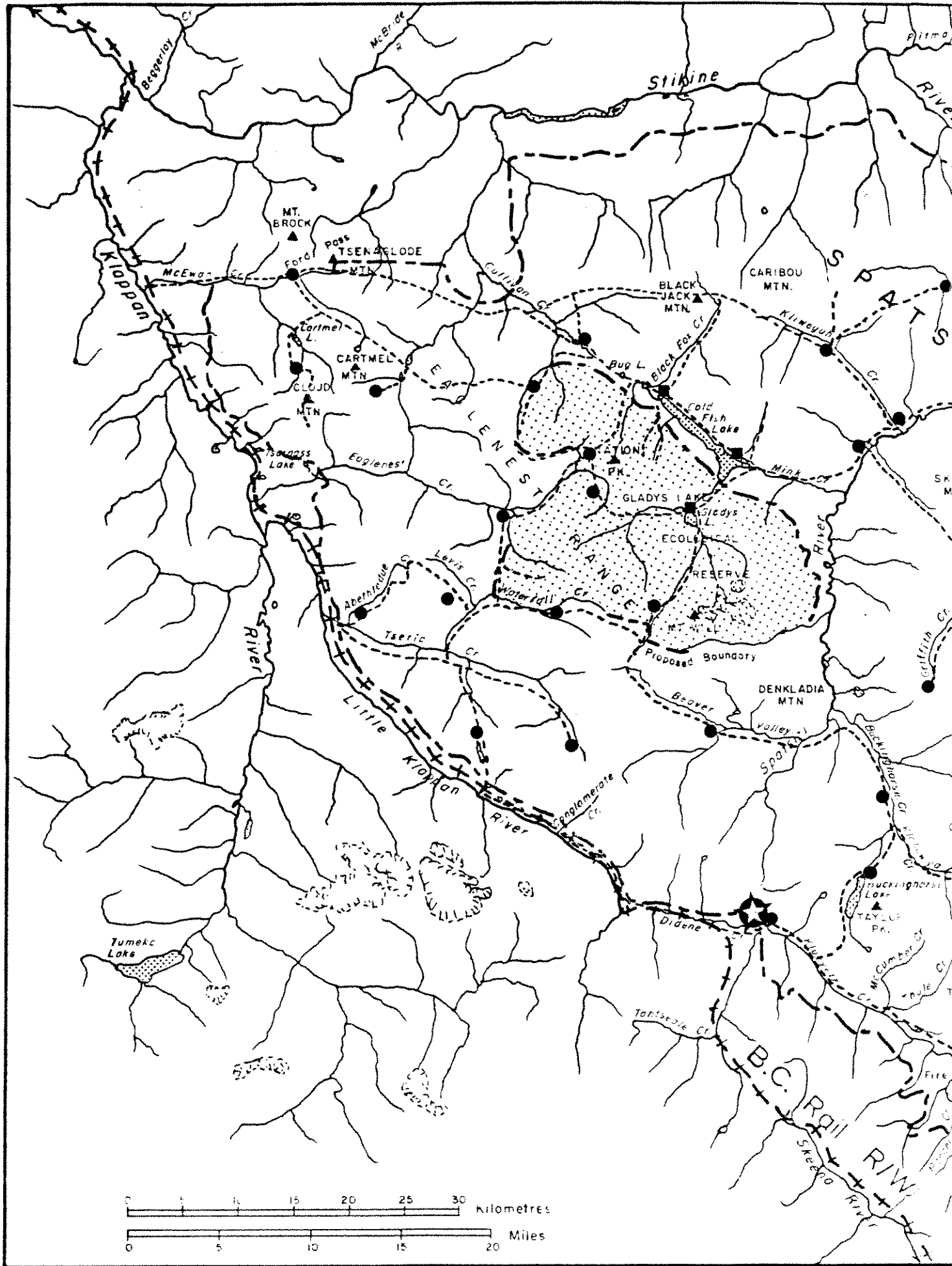
However, planning for park management is a dynamic process requiring continuing research and inventory and this plan will therefore be formally reviewed every five years to reflect changing circumstances:

SPATSZI PLATEAU WILDERNESS PARK

EXISTING
RECREATIONAL
USE

- Trails
- Camps
- Cabins
- River Raft Launch Site





B. PARK GOALS

Spatsizi Plateau Wilderness Park was established to protect its inherent natural features and processes, and to provide recreational opportunities for the public. As in park systems throughout the world, management of this park must attempt to reconcile the incompatibilities of recreation and preservation. That is, a degree of recreational impact must be accepted on the natural environment, since modern man, by his very presence within a natural environment, causes some disturbance and influence. Determining the acceptable degree of impact, or type and scale of recreational use, permitted is the focal point of master planning.

In the case of Spatsizi, the Order-in-Council establishing the park determines the degree of recreational impact with its statement that, "The area will be maintained as a wilderness landscape in which natural communities are preserved intact and the progressions of the natural systems may proceed without alteration. Hunting and fishing, within sustained yield limits, is permissible. Recreational use of the area shall be limited to activities which do not detract from or disturb the wilderness experience sought by visitors. These uses include: fishing, hunting, hiking, climbing, camping, horse travel and nature study".

The intent of this Order-in-Council is clear - recreational use will be provided in the park and the types of recreational use are specifically defined.

It is, therefore the goal of the Parks and Outdoor Recreation Division within Spatsizi Plateau Wilderness Park to conserve wilderness landscapes and natural processes while providing for quality, dispersed, low impact, recreation opportunities within those landscapes.

This will require control and distribution of various uses in the park to minimize their impacts upon each other and to maintain the wilderness atmosphere and environment.

The relationship of the outstanding natural values and recreation opportunities of Spatsizi Park to the Goals of the Division is outlined in the following paragraphs. (See Appendix I).

1. Conservation Goal

Spatsizi Plateau Wilderness Park with its exceptional and diverse natural environment plays a significant role in conserving examples of the Stikine Plateau and the Skeena Mountain landscapes of British Columbia (See Appendix II). The *plateau landscape* is represented in the northeasterly half of the park by broad flaring valleys, rolling table uplands and vast expanses of alpine vegetation. The *mountain landscape* is represented in the southwesterly portion of the park by more rugged mountains of the Eaglenest Range with incised valleys and amphitheatre-shaped cirque basins. Throughout Spatsizi, game animal populations have historically been large and major features of the park are the ungulate populations such as moose, sheep, goats and, particularly, caribou.

It is the primary goal of the Parks and Outdoor Recreation Division, within Spatsizi Park, to conserve representative examples of the Skeena Mountains and Stikine Plateau Natural Landscapes by protecting the natural features and processes found therein from deleterious influences.

Deleterious influences are defined as those forces which may arrest the perpetuity of biological or geological features within the park or cause destruction of the wilderness atmosphere.

2. Recreation Goals

The outstanding opportunities for river rafting, canoeing, hiking and wildlife viewing in an undisturbed wilderness environment will be recognized in recreation goals for Spatsizi Plateau Wilderness Park. Recognition will be granted to the historic use of the park area by hunting parties. Hunting, however, will only be permissible within conservative harvest limits.

It is therefore the recreation goal for the park to provide a variety of dispersed backcountry recreation opportunities within a wilderness environment including hiking, canoeing or rafting, horse travel, camping, climbing, fishing, nature study, skiing, photography and hunting, all within the limits of the foregoing Conservation goal.

3. Scientific Study Subordinate Goal

Since the management of such a vast and complex natural area requires knowledge of the processes therein, *it will be a subordinate but major goal of the Division to encourage scientific study in the biological and earth sciences to gain knowledge required to realize better management practices within the Park.*

C. PARK RESOURCES STATEMENT

The vast natural landscape and large wildlife populations are the resources primarily responsible for the establishment of Spatsizi Park. The following is a brief description of indigenous biological, geologic and climatic factors which compose and influence this landscape.

1. Natural History

a. Climate and Vegetation

The climatic and vegetative characteristics are best described using the Biogeoclimatic Zoning System devised by Dr. V.J. Krajina summarized in Appendix III. Those zones represented within the park include Alpine Tundra (A), Spruce-Willow-Birch (SWB) and Boreal White and Black Spruce (BWBS). The Alpine Tundra zone covers the greatest portion of the park with some rock barrens at higher elevations. The other two zones encompass forested areas that are restricted to river valleys at lower elevations.

The western portion of the park receives more moisture both in winter and summer than the eastern area. Using snowpacks as an indicator, the Eaglenest Mountains in the west are estimated to receive 150 to 200 centimetres of snow, while the Hyland Post area in the east averages about 30 to 50 centimetres annually. Winters are long and cold with an average temperature of -20°C . and summers are cool with temperatures rarely rising to 24°C .

b. Physiography

Two of Canada's five major physiographic components, the Canadian Cordillera and the Interior Plains, are represented in British Columbia. Spatsizi lies within the Cordillera region and contains specific *Natural Landscapes* that represent the characteristics of the region. In Spatsizi the *Skeena Mountain Landscape* is represented by the Eaglenest



PHYSIOGRAPHIC CHARACTERISTICS OF SPATSIZI PLATEAU WILDERNESS PARK

Mountain Range in the west and the *Stikine Plateau Landscape* is represented by Spatsizi Plateau in the east.

Skeena Mountains - Eaglenest Range:

The southwestern portion of the park consists of folded sedimentary rocks of the Upper Jurassic and Lower Cretaceous ages, 63 to 150 million years ago, (see Appendix III). The elevation averages between 900 and 2130 metres with the highest peak being Mr. Will at 2500 metres. Almost all of the Skeena Mountains were covered by the Pleistocene ice sheet which rounded the ridges and summits below 1830 metres in elevation. The remaining peaks and high ridges present a serrated and jagged profile caused by intense alpine glaciation. The mountain valleys have been modified by valley glaciers that left tarns and hanging valleys between the peaks and low lands.

The northeastern limits of the Skeena Mountains (Eaglenest Range) form a transition zone from the folded mountain landscape to the gently sloping upland area of Spatsizi Plateau.

Spatsizi Plateau:

The northeastern area of the park consists of "Wide, drift-filled valleys and open, gently rolling upland surfaces" (Holland). The surface is underlain by sedimentary rocks including sandstone, shale, conglomerate and minor coal of the Upper Cretaceous and Paleocene ages (58 to 100 million years ago). The plateau itself is at an elevation ranging between 1670 and 1820 metres with the major river valleys at about 1060 metres. During the Pleistocene period the plateau was covered by a veneer of glacial drift which remains to this day.

c. Wildlife

The variety and population of mammals, fish and birds clearly indicates that significant wildlife values are represented within the park. During the past several years these resources have been studied

by biologists in order to understand the habits, interactions and abundance of various species. Several reports have resulted from these studies and are listed in the bibliography.

Ungulate species include Osborn caribou, mountain goat, stone sheep and moose. Significant predator species are grizzly bear, wolf and black bear. The estimated populations in 1979 are as follows:

Caribou	3,000
Mountain Goat	600
Stone Sheep	500
Moose	1,000
Grizzly Bear	100 ¹⁰⁰⁻⁵⁰
Wolf	100
Black Bear	100

(Source: Based on counts carried out by Parks and Outdoor Recreation Division and Ministry of Environment Staff.)

The lands within the park have an excellent capability for supporting wild ungulates. The large rainshadow area of the Plateau itself forms perhaps the most significant wintering area in the province for Osborn caribou and provides excellent winter habitat for stone sheep and mountain goat. The Gladys Lake Ecological Reserve was established for the protection of a population of stone sheep in the Eaglenest Range.

Relationships between species, especially predator-prey relationships, warrant considerable study in order to better understand population dynamics.

Important fish species represented in the Park are rainbow trout, dolly varden char, mountain whitefish, lake trout, arctic grayling, longnose sucker and burbot. An interesting fact is that fish representing

both Arctic and Pacific drainages are found within the park even though all watercourses drain to the Pacific.

Anadromous fish from the Pacific cannot migrate into the park due to impassable canyons on the Stikine River.

Game fish are abundant offering quality angling experiences, however, fish are generally not large in size.

One hundred and forty-nine species of birds have been identified within Spatsizi Park. The location is such that coastal, continental, northern and southern birds are represented. The range of landscape features enables high elevation, alpine tundra and boreal forest birds all to be present within the park boundaries.

2. Cultural History

Most cultural influences in the Spatsizi area have occurred within the past thirty years.

Prior to white man's first arrival, the local Indians apparently used the area for hunting, fishing and trapping on a seasonal basis from their village at Caribou Hide. During the late 1920's this Indian community suffered several disease epidemics and in 1930 moved to Metsantan Lake where they stayed until 1948 when Tommy Walker built a camp at Cold Fish Lake. They then left their Metsantan Lake Village and took up summer residence at Cold Fish Lake and winter residence at Hyland Post and worked for Tommy Walker as hunting guides and outfitters until 1968.

The first white men to attempt settlement in the area were the Hyland Brothers in the early 1920's. They established Hyland Post on the Spatsizi River as a centre for trade with Indian trappers but abandoned it a few years later. The next white man to come to this area was a Provincial Government Surveyor, P.M. Monckton, in 1935 (Lau, 1971). He explored the Upper Stikine River and was the first to

document the natural features of the area.

The greatest increase in human activity within Spatsizi was from 1948 to 1968 when Tommy Walker operated a guide/outfitting operation. During this time Walker established a highly successful big game hunting program that attracted sportsmen from as far as Europe. Realizing the potential for depletion of the wildlife, Walker approached the University of British Columbia and Dr. Ian McTaggart-Cowan in 1954 concerning the need for research on wildlife populations in the area. The government was also approached concerning the possibility of establishing a park or wildlife reserve in the area.

In the early 1960's proposals for railroad links to the northern portions of the Province for resource development projects generated further concern for the status of wildlife in the Spatsizi Plateau region. The first formal Wilderness Park proposal was developed in 1962 and 1963 and resulted in the establishment of a reserve in 1964.

Although 1968 was to be Tommy Walker's last year conducting the guiding operation, the seeds for what was to become Spatsizi Plateau Wilderness Park had been sown. After selling his interests in Spatsizi he continued to press for special status for the area.

Prior to the establishment of the Park in 1975, a great deal of discussion occurred between the public, Crown agencies and private enterprise concerning the future of the upper Stikine River watershed. During this time several public interest groups were exerting pressure for park establishment. The Environment and Land Use Committee became involved since the issues concerned a wide variety of resource matters including wildlife preservation, hunting, resource development and access.

The development of the B.C. Rail right-of-way in 1972 had a major impact by allowing easier access to the plateau. A review of the

issues culminated in 1975 with the E.L.U.C. recommendation that a Class "A" Park be established over the area concurrent with the establishment of an Ecological Reserve in the Gladys Lake portion of the Eaglenest Range.

Since 1975 public interest groups have pressured for the closure of the park to hunting. In order to further understand the wildlife resources of the area, Parks and Fish and Wildlife Biologists conducted a census of indigenous fish and wildlife resources and released a report in 1977. Soon after, quotas were set for guide/outfitter hunting operations and a limited entry system was established for resident hunters.

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Locate this
report*

D. ZONING

The concept for zoning Provincial Parks and Recreation Areas may be visualized as a continuum with maximum attention given to recreation facility provision and limited resource consideration at one end and maximum resource protection and limited recreation facility provision at the other end. Sub-dividing this continuum, three primary levels of zoning for the Provincial Park system have been defined: Development, Natural Environment and Wilderness. The criteria involved in delineating these zones are summarized in Appendix IV. Spatsizi Plateau Wilderness Park is to be managed toward the maximum resource protection and limited recreation facility end of this continuum and is therefore zoned Wilderness over the entire Park area.

As specific management plans are developed for the park, various sub-zones will be delineated in order to deal with wildlife management, recreation management, facility development and other administrative issues.

E. PARK MANAGEMENT

Spatsizi Wilderness Park will be operated under a concept of conservation based management. Management will ensure that natural processes will play the dominant role in the park and that natural resources are conserved. A principal factor is that an active management program is required in order to regularly monitor both the resource and the recreator, to determine the impacts resultant from use and to direct use to achieve park goals.

Management of facilities will be minimal as site improvements will be limited to those which ensure public safety and protect park resources. Examples of management actions may be the provision of rustic campsites, temporary closure of specific trails or campsites in order to minimize environmental impact, or complete or partial closure of an area to public use. The intensity of management will depend upon the impact of use on the park resources.

1. Resource Management

a. Land and Water Management

Objective:

To achieve and protect an adequate land base to ensure park goals are met in perpetuity.

Management Action:

- . Land will be managed according to the Park Act and regulations.
- . Park boundaries will be reviewed with attention given to encompassing intact bio-physical units and traditional recreational patterns. In areas where more appropriate bio-physical units than presently exist are defined and where resource conflicts can be resolved, the boundaries will be amended accordingly.
- . Private inholdings will be acquired, where feasible, over time.

- . The impacts of recreational use on the land resource will be monitored in order to determine the environmental and social carrying capacity. In the event that impacts of use at campsites or trails approach deleterious levels the Division will restructure use to reduce impacts.
- . The Order-in-Council establishing Spatsizi gives consideration to a transportation corridor through the park; it is the position of the Parks and Outdoor Recreation Division that intensive study be undertaken of any access proposal in order to avoid any extraneous influences which may jeopardize park values.
- . The National Second Century Fund purchased the lands at Cold Fish Lake known as District Lot 6686, Cassiar District, and leased them to the Provincial Government. The cabins on site, except "Tommy Walker Cabin", have been purchased by the Parks and Outdoor Recreation Division. The property will be managed as part of the park and the buildings used as the Park Administration Centre.
- . The Parks and Outdoor Recreation Division will cooperate in the management of Gladys Lake Ecological Reserve which is surrounded by Spatsizi Park.

b. Wildlife Management

Objective:

To ensure the conservation and perpetuation of wildlife populations and habitat.

Management Action:

- . The development of a comprehensive wildlife policy requires continuous statistical input from census data, research, and harvest monitoring. The Division, in concert with the Fish and Wildlife Branch will conduct periodic surveys to monitor

population levels of various park fauna.

- . Hunting will be permitted in the park in accordance with Provincial Hunting Regulations prepared jointly by Fish and Wildlife Branch and Parks and Outdoor Recreation Division.
- . Hunting will be governed by biological data gathered jointly by Parks and Fish and Wildlife personnel.
- . Hunting will operate under a quota and limited entry system for all ungulate species with harvests at conservative levels.
- . Conservative harvest levels will be established annually and will reflect fluctuating population levels.
- . As research and surveys continue, more complex limited entry and quota systems, closures or other strategies may be used to regulate the annual harvest.
- . Specific areas may be designated as "closed to hunting" for allocated time periods, or in perpetuity, in order to assist research or respond to other forms of recreational use.
- . Scientific research will be encouraged when it does not interfere with park goals.
- . In the event that critical population imbalances occur, due to predator-prey, habitat, climatic, or other influences, and if such imbalances impose serious threat to any faunal, or floral, component of the park, the Parks and Outdoor Recreation Division may prescribe management actions to ensure no significant components of the park environment are diminished or destroyed.
- . Trapping will be administered according to Parks and Outdoor Recreation Division policy.

c. Fisheries Management

Objective:

Fisheries management will be directed toward provision of quality fishing experiences while ensuring conservation of existing populations.

Management Action:

- . The fish populations will be surveyed periodically to monitor population trends.
- . Specific regulations may be developed in response to population changes to achieve the management objective.
- . Regulations will be formulated jointly by Fish and Wildlife Branch and Parks and Outdoor Recreation Division.

d. Vegetation Management

Objective:

To ensure conservation of native vegetative associations and successions.

Management Action:

- . Grazing of domestic animals will be limited to horses only, as permitted by the terms and conditions stated in a Park Use Permit. Where grazing is permitted it will be monitored in order to determine impact.
- . Firewood supply areas may be designated and monitored at heavily used camping areas.
- . A fire management plan will be developed for the park recognizing that wildfire has significant influences in natural processes and in certain circumstances may be beneficial or harmful.

2. Visitor Management

a. Access

Objective:

To control the types of recreational access in order to ensure quality wilderness experiences are not impaired.

Management Action:

- Continuation of the present variety of access modes - horse-back, aircraft, foot and boat - will be encouraged to provide dispersion of recreational use.
- Use of combustion engines for recreational purposes will generally be prohibited.
- Outboard motors will be restricted to limited use by Park staff and persons holding Park Use Permits.
- No restrictions to aircraft landings will be implemented at this time, however, selective restrictions may be imposed in the future as a means to control use, by Federal Regulation, if conflicts with wildlife values or other recreational activities develop.

b. Visitor Activities

Objective:

To provide opportunities for dispersed recreational use and guided recreational activities.

Management Action:

- Dispersed recreational use will include such activities as camping, hiking, horse travel, skiing, canoeing and river travel, viewing, hunting, fishing and photography.
- Commercial recreational guiding is recognized as a valuable service within the park and appropriate activities will be authorized under Park Use Permit according to Division policy.

- . A recreational guiding plan may be formulated if significant conflicts arise between recreational activities.
- . Should use conflicts become apparent, strict limitations and controls over park use and visitation may be implemented. All park users may be required to pre-register their intended activities and destinations through a central office to ensure that all use is dispersed over space and time.

c. Facility Development

Objective:

To limit recreational facility development to that which is required to protect the environment, ensure public safety and provide a minimum level of visitor services.

Management Action:

- . Trails and primitive campsites will be the primary developments provided within the park. Present trails and campsites will form the basis of this system and existing use patterns will be recognized.
- . In the event that specific areas are degraded, use will be restructured to reduce impacts.
- . Commercial guiding operators, under Park Use Permit, will be permitted to establish facilities which effect reasonable comfort to clientele.
- . The cabins at Cold Fish Lake camp will be maintained by Parks Division and limited, supervised, use of them for "non-commercial" recreation purposes will be permitted.

d. Interpretation and Information

Objective:

This program will be developed to provide for public understanding of the natural environment for which the Park was

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established, and of park ethics and management practices.

Management Action:

- Off-site delivery will occur through interpretive staff, brochures, and audio-visual programs.
- Operators of any commercial recreation activity within the Park may be encouraged to deliver portions of the program to their clientele.

RECREATION AND CONSERVATION GOALS FOR B.C. PROVINCIAL PARKS

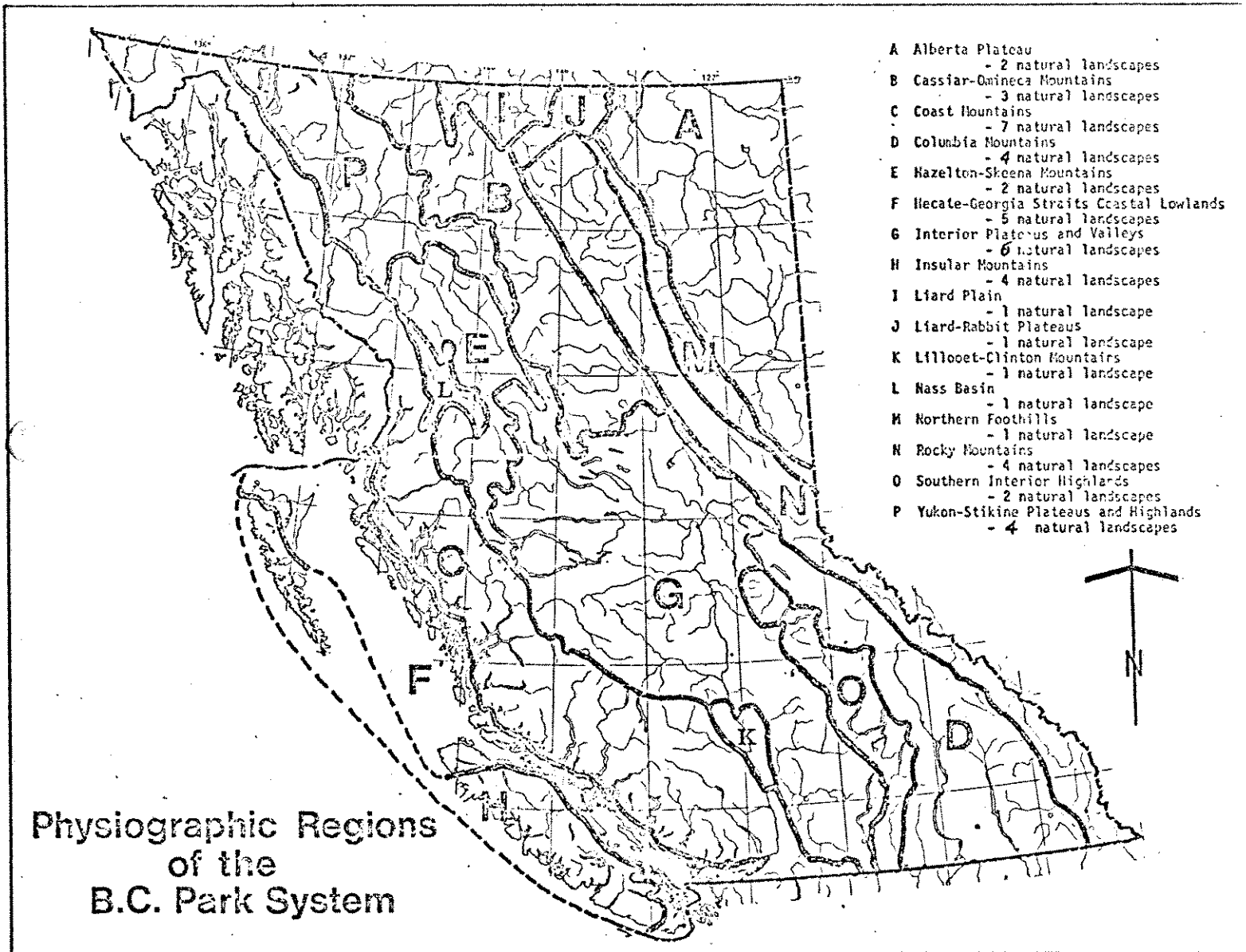
The Parks and Outdoor Recreation Division of the Ministry of Lands, Parks and Housing is responsible for a park and recreation system that provides a variety of opportunities and experiences for the recreational, educational, inspirational and social benefit of the public. In order to fulfill this responsibility goals have been established by the Division covering the provision of recreational opportunities and the conservation of natural and cultural resources.

The goals for recreation are to provide opportunities for boating, camping, day use activities, dispersed and winter recreation within Parks and Recreation Areas.

The goals for conservation are to ensure that representative samples of British Columbia's natural landscapes, special natural features and historical resources are included within the Parks and Recreation Area system. In addition, the Division will participate with other agencies in the conservation of natural, historic and scenic values outside the Park System.

Public information and education services relating to both recreation and conservation are integral to the park goal program.

APPENDIX II



BIOGEOCLIMATIC FORMATION		BIOGEOCLIMATIC REGION		BIOGEOCLIMATIC ZONE		BIOGEOCLIMATIC SUBZONE	
Name and Symbol	Climate after Köppen	Name and symbol	Climate after Köppen	Name and symbol	Climate (abbreviation after Köppen)	Symbol	Major cause
I. Alpine (A)	E	1. Alpine (A)	E	(1) Alpine Tundra	ET alpine tundra: annual total precipitation variable, 70-280 cm (28-110")	ATx (maritime)	heavy cover and longer duration of snow, very short vegetative season, water easily available
						ATy (continental)	lighter cover and shorter duration of snow, longer vegetative season, water shortage may take place
II. Microthermal Coniferous Forest (MCF)	D	2. Pacific Coastal Subalpine Forest (PCSF)	Dfc	(2) Mountain Hemlock (MH)	microthermal subalpine with heavy snow cover over unfrozen ground; winter not severe; annual total ppt: 178-432 cm (70-170"); number of months above 10°C: 1-4	MHx	lower elevations of the zone, shorter duration of snow, longer vegetative season, closed forest stands
						MHy	higher elevations of the zone, longer duration of snow, shorter vegetative season, forest parkland
		3. Canadian Cordilleran Subalpine Forest (CCSF)	Dfc	(3) Engelmann Spruce - Subalpine Fir (ESSF)	ESSFm	49-53°N	α (lower elevations) β (upper elevations)
					ESSFs	53-57°10'N	α (lower elevations) β (upper elevations)
				(4) Spruce - Willow - Birch (SWB) (mainly white and less black spruce in lowest elevations)	SVBx (with spruce)	57°10'-70°N	lower elevations
					SVBβ (almost only willow and birch)		upper elevations
		4. Canadian Boreal Forest (CBF)	Dfc	(5) Boreal White and Black Spruce (BWBS)	BWBSa (ATMP: 25-35 cm) BWBSb (ATMP: 35-128 cm)	Note: Great quantities of glacial outwash sediments along Peace, Nelson and Liard Rivers develop a special edaphic effect, originally termed as "Peace River Aspen - White Spruce Parkland"	
				(6) Sub-Boreal Spruce (SBS)		tentative variations only: α, β, γ, δ, ε, ζ, η and hardly m and s	
				5. Canadian Cordilleran Montane Forest (CCMF)	Dfb	(7) Cariboo Aspen - Lodgepole Pine (CALP)	CALPdf(=m) CALPs
		(8) Interior Western Hemlock (IWH)	IWHa			annual total ppt: 56-81 cm (22-31")	
IWHb	annual total ppt: 89-170 cm (35-67")						
(9) Interior Douglas-fir (IDF)	IDFa	annual total ppt: 36-48 cm (14-19")					
	IDFb	annual total ppt: 48-56 cm (19-22")					
III. Semiarid Cold Steppe (SCS)	BSk	6. Cordilleran Cold Steppe and Savanna Forest (CCSSF)	BSk (and the driest Dfb, Dsb (and Dsa))	(10) Ponderosa Pine - Bunchgrass (PPBG)	continental cold semiarid to microthermal continental sub-humid with summer warm; annual total ppt: 19-36 cm (7.4-14")	PPBGa	annual total ppt: 19-25 cm (7.4-10")
						PPBGb	annual total ppt: 25-36 cm (10-14")
IV. Mesothermal (M)	C	7. Pacific Coastal Mesothermal Forest (PCMF)	Cb	(11) Coastal Douglas-fir (CDF)	Csb (and the driest Cfb) mesothermal marine subhumid to humid with dry summer; annual total ppt: 66-152 cm (26-60")	CDFa	annual total ppt: 66-102 cm (26-40")
						CDFb	annual total ppt: 102-152 cm (40-60")
				(12) Coastal Western Hemlock (CWH)	Cfb (and the mildest Dfb) mesothermal equable (marine) humid rainy; annual total ppt: (112-)165-665 cm [(44-)165-262"]	CWHa	annual total ppt: (112-)165-280 cm [(44-)165-110"]
						CWHb	annual total ppt: 280-665 cm (110-262")

Variations of biogeoclimatic zones are indicated by the following letters: drier (limits specialized for each zone); x (closer to the Pacific Ocean) wetter (limits specialized for each zone); y (further from the Pacific Ocean) (meridional) - southern; α - in lower elevations; β - in upper elevations

Source: Ecological Reserves in B.C.

REVISED SEPTEMBER 1978

APPENDIX IV

GEOLOGIC TIME SCALE		
Era	Period	Approximate Number of Years Ago*
Cenozoic.	Quaternary. Recent. Pleistocene (Ice Age).	Last 10,000 10,000 to 1,000,000
	Tertiary. Pliocene. Miocene. Oligocene. Eocene. Paleocene.	(Millions) 1 to 13 13 to 25 25 to 36 36 to 58 58 to 63
Mesozoic.	Cretaceous. Jurassic. Triassic.	63 to 135 135 to 181 181 to 230
Palaeozoic.	Permian. Pennsylvanian and Mississippian. Devonian. Silurian. Ordovician. Cambrian.	230 to 280 280 to 345 345 to 405 405 to 425 425 to 500 500 to 600
Proterozoic.	Keweenawan. Huronian.	600 to 2,000
Archæan.	Temiskaming. Keewatin.	2,000 to 4,800

* Science, April 14, 1961, p. 1111.

APPENDIX V

Primary Zoning System

ZONE	OBJECTIVES	MANAGEMENT GUIDELINES	FACILITIES/ACTIVITIES
Development	To provide for a variety of facility-oriented recreational opportunities.	<ul style="list-style-type: none"> -oriented toward maintaining high quality recreation and interpretive experience. -intensive management may be required to ensure that high quality recreation and interpretive opportunities are maintained. -special design consideration generally required. -intensity of developments and standard of facilities are variable and will relate to the objectives for the Park. -private motorized vehicles may be restricted. 	<ul style="list-style-type: none"> -intensive recreational facilities such as auto campgrounds, cabins, lodges, picnic areas, beach and swimming areas, nature houses, information buildings, dc hill ski facilities, walk-in campgrounds -ancillary facilities such as parking, sanitation, picnic tables, restaurants, may be included in this zone.
Natural Environment	To provide for intermediate levels of outdoor recreational opportunities/use in a natural setting.	<ul style="list-style-type: none"> -management will be oriented toward maintenance or restoration of the natural environment. -visitor access may be restricted to preserve the recreational experience or to limit impact on the area. -designation of transportation modes may be necessary to avoid potential conflicts. (e.g. horse trails, cycle paths, hiking trails) -private motorized vehicles may be permitted. -intensity of management and development will be consistent with moderate levels of recreational use. -visitor support facilities will be limited, and directed toward providing for public safety and minimizing user impact. 	<ul style="list-style-type: none"> -Development and use are consistent with the maintenance of natural conditions. Activities consistent with this zone would be: hiking, camping, canoeing, kayaking, snowshoeing, cross country skiing, nature observation, horse back riding, picnicking, swimming, fishing, interpretation programs. -minimal facilities such as trails, shelters, hikers' campsites, portages, horse corrals, observation blinds, may be developed to compliment these activities but the emphasis of the development will be toward public safety rather than the encouragement of more intensive levels of use. -visitor facilities will be of a primitive nature.
Wilderness	<ul style="list-style-type: none"> -To protect and preserve landscapes and resource processes. -To provide for low levels of recreational use in an environment where natural processes occur with a minimum of human interference. 	<ul style="list-style-type: none"> -oriented toward the protection and preservation of the area's atmosphere, environment or ecology, while optimizing recreational opportunities associated with the "wilderness experience". -unstructured visitor mobility. -visitor support facilities will not be provided, except where absolutely necessary to provide for public safety or minimizing user impact. -transportation limited to foot access, and non-motorized boats. -horse travel may be restricted. 	<ul style="list-style-type: none"> -only minimal primitive facilities would be developed consistent with low intensity uses. Activities consistent with this zone include: camping, hiking/mountaineering, canoeing, kayaking, cross country skiing and snowshoeing, fishing, nature observation.

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