

CONSENSUS REPORT

for the

Herrick Creek Local Resource Use Plan

Final Draft - January 1995



Submitted by: _____

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1. FOREWARD

This *Consensus Report* is the end product of two and one-half years of meetings and negotiations amongst the members of the Herrick Creek Local Resource Use planning team.

The report outlines recommendations for land use and resource management on Crown Provincial Forest. The recommendations were developed using existing information on resources and values in the planning area. A shared decision making consensus based process was used with facilitation provided primarily by staff of the British Columbia Forest Service.

The resource management guidelines in this report were developed prior to the release of the *Forest Practices Code*. *Forest Practices Code* legislation, rules and standards take precedence in directing resource development, in terms of setting a minimum standard of practice. Where the Local Resource Use Plan guideline is more stringent, then that guideline will apply.

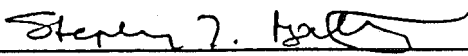
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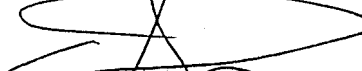
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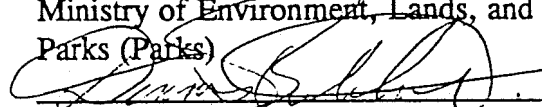
Members of the Herrick Creek Local Resource Use planning team have negotiated in good faith to produce this draft *Consensus Report*. The signature below indicate a commitment to the consensus achieved.

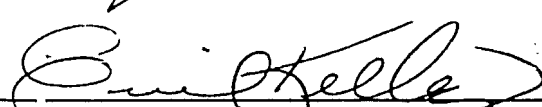

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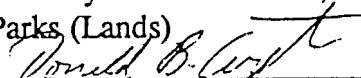

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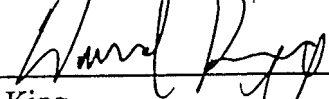

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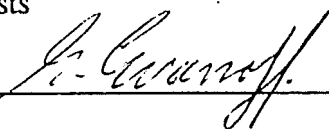

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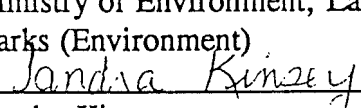

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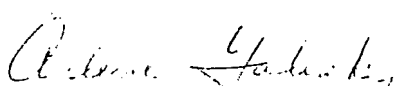

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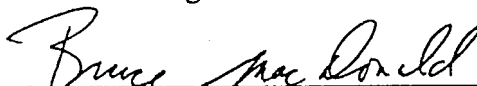

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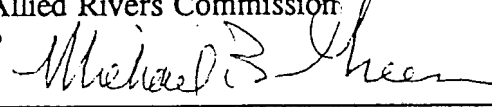

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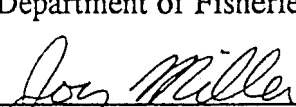

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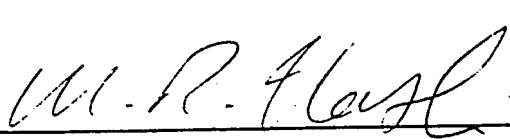

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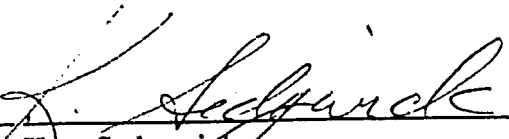

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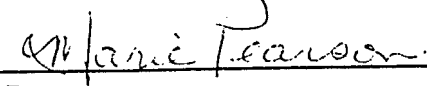

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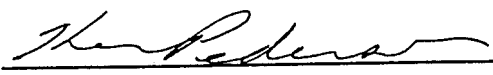

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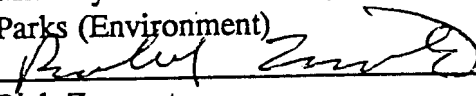

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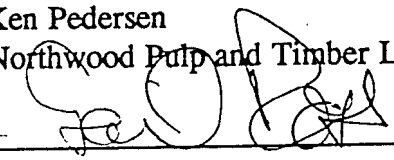

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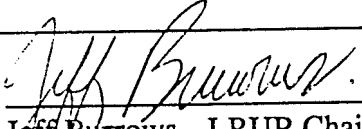

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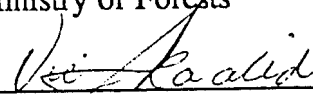

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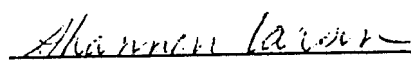

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3. ACKNOWLEDGEMENTS

A number of guest speakers contributed to the planning process and their input was appreciated by the planning team. Speakers included:

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The planning team also acknowledges the participation of Rosslyn Case, Ben Cook and Frank Drougel.

4. EXECUTIVE SUMMARY

Herrick Creek is an isolated and relatively undeveloped watershed in Prince George Forest District. It is located approximately 120 kilometres northeast of the City of Prince George. Herrick Creek is a tributary of the McGregor River, which in turn flows into the Fraser River.

Resource values identified during the planning process include water, fish and wildlife populations and habitat, recreation opportunities and related scenic landscapes, old growth forest, commercial timber, forest soils and Native archaeological and cultural values.

The planning team began its deliberations in November 1991 with the purpose of preparing a Local Resource Use Plan that would address forest land use and resource management issues in the planning area. The planning team used a shared decision making, consensus process facilitated by staff of Prince George Forest District. A consultant was hired on one occasion to facilitate a resource unit designation workshop.

Highlights of the planning team's recommendations include:

- i) The planning area was divided into 11 Resource Units of 3 main types:
 - **Reserves** comprising 64% of the total area and 24% of the operable timber volume.
 - **Special Management Areas** comprising 12% of the total area and 24% of the operable timber volume.
 - **Commodity Emphasis Forest** comprising 24% of the total area and 52% of the operable timber volume.

The Provincial Old Growth Strategy was the main impetus in initiating the Herrick Creek Local Resource Use Plan. The 3 types of Resource Units mentioned above are consistent with strategies recommended in the report: "*An Old Growth Strategy for British Columbia.*"

EXECUTIVE SUMMARY

ii) Other highlights include:

- creation of a landscape linkage along the entire north and northwest length of the Rocky Mountains in the planning area, and connecting Monkman Provincial Park to Kakwa Recreation Area.
- maintenance of wildlife corridors at crucial places across the mainstream Herrick Valley through the establishment of Forest Ecosystem Networks.
- maintenance of Riparian Management Areas.
- designation of a non-mechanized alpine recreation area.
- proposals to the Protected Area Strategy for Divide Lakes, Knudsen Lake and an extension to Monkman Provincial Park.
- recognition of traditional uses of the valley including commercial guiding and trapping.
- special attention to soil erosion and terrain stability in areas of extensive lacustrine soil types.
- special resource guidelines that protect wildlife habitat and old growth forest attributes:
 - maximum 60 hectare block size
 - maximum forest cover to forest cover distances within blocks of 450 metres
- commitment to developing a visual landscape management plan.
- commitment to annual monitoring with planning team involvement.

5. INTRODUCTION

i) Why a Local Resource Use Plan for Herrick Creek?

A guide/outfitter operating in the Herrick took concerns about proposed logging to a local environmental group, the Nechako Environmental Coalition. This group submitted proposals for protecting the Herrick to the *Old Growth Strategy Project* and *Parks and Wilderness for the 90's*. These processes did not recommend any deferral on development but it was suggested that a local planning process be initiated to consider the values in the area. Shortly after, Prince George Forest District was directed to initiate a Local Resource Use Plan that would consider old growth forest and wildlife habitat values.

ii) Description of Area

Herrick Creek is located in east-central British Columbia about 120 kilometres northeast of the City of Prince George. Water from the Herrick drains eventually into the Pacific Ocean by way of the McGregor and Fraser Rivers.

A small portion (1000 hectares) of the area in the vicinity of Arctic Lake is on the east side of the Continental Divide and water flows into the Parsnip River and eventually into the Arctic Ocean. This area was part of a larger Protected Area proposal (Divide Lakes) and, as such, was included as part of the planning area.

The total size of the planning area is 186,618 hectares and can be seen on Map 1.

The main valley of the Herrick lies between the Hart and Dezaiko Ranges of the Rocky Mountains. The area falls within the Hart Ranges Ecosection of the Sub-Boreal Mountains Ecoregion. The Hart Ranges Ecosection includes the Rocky Mountain ranges from the McGregor drainage northward to the Ospika River, the McGregor Plateau and also part of the Rocky Mountain Trench. It is mountainous but not rugged in that it was largely glaciated during the recent glaciation epoch (100,000 to 10,000 years before present) and by previous glacial events.

INTRODUCTION

The climate of the Hart Range Ecosection which includes the Herrick Creek watershed can be broadly described as being cool and wet. It is strongly influenced by the area's mountainous (although mostly subdued) relief and the interplay of Pacific, continental and Arctic air masses. The lack of intercepting mountains to the west allows moist Pacific air masses to flow unimpeded into the Hart Ranges. Orthographic uplifting and lifting caused by Arctic air masses, especially in winter, result in the heaviest precipitation and greatest snow fall in the Omineca/Peace Region. As there are no long term weather stations in the Hart Ranges, both temperature and precipitation are estimated based on measurements that are available. In the valleys annual precipitation is 800 - 1000 millimetres with about half coming as snow while at treeline it is about 1500 - 2000 millimetres with approximately 60% as snow. Snow comes to the mountains in October and typically lingers to late June. The precipitation is relatively evenly distributed throughout the year although June and mid-winter are wettest and April and September the driest. There are several snow survey stations in the Hart Ranges with 6 in or near the Herrick. Snow pack by late April in the valleys is usually 1.5 - 2 metres but it can reach 4 metres. The mean annual temperature is estimated at about 0 degrees Celsius in the valleys. Mean July temperatures are 12 - 15 degrees with temperatures over 25 degrees being unusual. The mean January temperature is -10 to -15 degrees Celsius but temperatures lower than -40 degrees are not uncommon. In winter temperatures at treeline are frequently warmer than in the valleys as the colder air settles into the valleys and is often overrun by warmer Pacific air. Because of the precipitation and low temperatures, stand destroying fires are very infrequent even though lightning and thunder storms in summer are common. When fires do occur they are almost entirely restricted to southerly exposures.

Biogeoclimatic (BGC) zones in the area include the Sub-Boreal Spruce (SBS), Engelmann Spruce-Subalpine Fir (ESSF), and Alpine Tundra (AT). Table 1 summarizes the BGC classification in the planning area.

Table 1 - Herrick Creek Biogeoclimatic Classification

BGC Zone	Location	Elevation Range (metres)	Climate	Subzones Present
Sub-Boreal Spruce (SBS)	Central Interior of B.C. - Montane forest	Valley bottoms to 1100-1300	Continental, long, cold snowy winters, warm moist short summers	SBSvk
Engelmann Spruce-Subalpine Fir (ESSF)	Occurs above SBS and below AT in Rocky Mountains	900-1900	Continental, long cold snowy winters and short cool growing seasons	ESSFwk
Alpine Tundra (AT)	High mountains in northeast B.C.	Above 1900	Cold, windy and snowy. Short growing season, low temperatures and short frost free period.	AT/ESSFwc

The SBS zone occurs generally in lower elevation rolling country with upland coniferous forest dominating the landscape. Hybrid White spruce/Engelmann spruce and Subalpine fir are the dominant climax tree species. Herrick Creek is within the SBSvk, the wettest and coolest subzone of the SBS. The zone is typified by extensive areas of mature climax forest and infrequent stand destroying fires.

The ESSF zone occurs above the SBS and below the AT zones. The ESSF includes continuous forest at its lower and middle elevations and subalpine parkland at its upper elevation. In the subalpine parkland, clumps of trees occur together with areas of heath, meadow and grassland. The clumps of trees occur primarily in microsites that do not accumulate snow. Engelmann spruce and Subalpine fir are the dominant climax tree species in the ESSF. Spruce, which is typically the longer lived species, usually dominates the canopy of mature stands at lower elevations of the ESSF; Subalpine fir is most abundant in the understory. At high elevations of the zone and in some wetter areas, Subalpine fir frequently dominates the forest canopy. One subzone of the ESSF occurs in the Herrick, the wet cool ESSF (ESSFwk).

The AT zone is found above the ESSF. The zone is, by definition, treeless, but tree species are common at lower elevations, although in stunted or krummholz form. Alpine vegetation, where present, is dominated by low shrubs, herbs, bryophytes and lichens. Much of the alpine is the domain of rock, ice and snow.

iii) Planning Process

The planning process included the following steps:

- Preliminary Organization
 - create planning team
 - develop Terms of Reference
 - development of options and recommendation of strategy for spruce beetle problem
- Information Collection
 - Government agency inventories
 - presentations by planning team members
 - GIS data base
- Resource Unit Designation
 - 2 day workshop to zone planning area
- Resource Management Goals & Objectives
 - preliminary goals and objectives set by resource committees

- Resource Management Guidelines - guidelines to achieve the goals and objectives were developed by a working group and finalized by the planning team
- Consensus Report Preparation - public consultation and Government managers' review

Remaining steps include:

- Timber Supply Analysis
- Draft Plan approval
- Preparation of Final Local Resource Use Plan
- Implementation and Monitoring

The recommendations in this report fall into two main categories:

- Land Use - Resource Unit designation

An Old Growth Strategy for British Columbia set three broad management objectives to achieve old growth conservation:

- Reserves
- Special Management
- Commodity Emphasis

The eleven resource units designated in the planning area are consistent with the Old Growth Strategy.

- Reserves - Resource Units 1-6
- Special Management - Resource Units 7-10
- Commodity Emphasis - Resource Unit 11

- Resource Management

Goals, objectives and guidelines were developed for the management of:

- fisheries/water
- wildlife
- recreation
- old growth
- soils
- timber

Goals are the ultimate end(s) that resource management strives to attain in the planning area.

Objectives are more specific aims within each Goal and are generally measurable.

Guidelines are the tools or strategies used to achieve the Objectives.

iv) Herrick Field Trip

Several members of the planning team went on a field trip to the area in August, 1993. Their base camp was located at map reference 414113, National Topographic Series 93I/2 - Ovington Creek. A list of plant and animal species observed during that field trip can be seen in Appendix 1.

6. RESOURCES AND VALUES IN THE PLANNING AREA

This section presents general information on important resources and values identified by planning team members.

i) Fish

The streams of the Herrick watershed make a significant contribution to the production of Chinook salmon stocks in the upper Fraser River basin. The estimated spawning population of Chinook salmon in the Herrick mainstem and its tributaries is approximately 2500. It is thought overall estimates are low due to survey difficulties caused by the high turbidity in the system. There is a considerable area of apparently unused spawning and rearing habitat which possibly could be utilized for greater Chinook salmon productivity.

Resident sport fish include rainbow trout, bull trout and mountain whitefish. In the Parsnip drainage, Arctic Lake also has kokanee and lake trout.

Large tributaries of the Herrick which are used by sport fish and/or salmon include Cargill, Captain, James, Fontoniko, Muller, Spakwaniko, Framstead, Ovington, and North Herrick Creeks.

The many side channels, seasonally flooded areas and smaller tributaries also have significant fisheries values, as they provide good to excellent rearing habitat for all juvenile fish species present in the watersheds.

The well being of the fisheries resource in the Herrick and Arctic Lake watersheds is dependent on the maintenance of stream structure, high quality water, and productive rearing habitat.

ii) Water

Herrick Creek is a tributary to the McGregor River and is within the Fraser River basin. Although the McGregor watershed is only 1-2% of the Fraser River basin area, it provides 10-12% of the flow of the Fraser as measured at Mission. There is no domestic or industrial water consumption from the Herrick or Arctic Lake watersheds but maintenance of water quality is important for downstream users, recreational users, fish and some wildlife populations.

RESOURCES AND VALUES IN THE PLANNING AREA

A reserve pursuant to Section 12 of the *Land Act* exists over that portion of the watershed below the 760 metre contour of elevation. This reserve is on the behalf of B.C. Hydro and is for flood reservoir purposes. The "McGregor Diversion" project was discussed by the planning team and it was agreed that it was outside the Terms of Reference for a Local Resource Use Plan. It is expected a full Environmental Review Process would be required in the event the project was ever re-considered.

iii) Wildlife

The Herrick watershed receives relatively high precipitation year round with very large amounts of snow. The vegetation, while not particularly diverse, is thick and abundant. These features make the area suitable habitat for a somewhat restricted group of wildlife such as mountain caribou, red-backed vole, grizzly bear, blue grouse, wolverine and marten. As a result of the climate and associated vegetation, it is not a good area for such species as moose, black bear, ruffed grouse, lynx, fisher or garter snakes although all are present in low numbers.

- Ungulates

Ungulates found in the Herrick include moose, mule and white-tail deer, elk, mountain caribou, mountain goat and bighorn sheep. Four of the seven species (elk, sheep and deer species) occur largely as incidentals due to unsuitable habitat with too much snow being the limiting factor. Mountain caribou primarily use the upper elevations of the ESSF and may depend on arboreal lichens for food for seven to eight months of the year. These lichens are most abundant in higher elevation old growth forest. The moose while dispersed in the summer, are largely restricted to riparian habitats in the lower parts of the Herrick in winter.

- Carnivores

Large carnivores include gray wolf, black bear, and grizzly bear. Coyotes and lynx are scarce due to deep winter snows and scarcity of favoured prey species.

RESOURCES AND VALUES IN THE PLANNING AREA

- Furbearers

Furbearers that occur in the area include black bear, coyote, wolves, red squirrel, wolverine, beaver, otter, mink, muskrat, marten, ermine, and least and long-tailed weasels. The abundance of lynx, fisher, striped skunk, and red fox are low due to unsuitable habitat and climate, and scarcity of prey species.

- Birds

There are about 30 resident species which include chickadees, ravens, woodpeckers, owls, jays and grouse. About 50 migrating species nest in the Herrick watershed and include various warblers and flycatchers, thrushes, sparrows, wrens, finches, sapsuckers and birds of prey. Some of these species are more abundant near alder patches and other openings. The richest bird habitat are the riparian/wetland types where there are many more warblers, woodpeckers, sparrows, thrushes, swallows, hummingbirds and water-oriented species. The variety and abundance of waterfowl is low with only a few Canada geese, Mallards, teal, mergansers and Harlequin ducks.

- Reptiles and Amphibians

Although no surveys have been carried out, there are toads and probably both spotted and wood frogs. Long-toed salamanders may be present. The only reptile in the area is a garter snake but it is rare due to the wet, cool climate and long winters.

Many of the wildlife species in the Herrick are dependent to some degree on old growth forest. Table 2 provides a summary. This table indicates the status of wildlife at risk as assessed by the Committee on the Status of Endangered Wildlife in Canada:

- The species in the Red List are defined as having low abundance. They are legally designated as either threatened or endangered, or they are being considered as potential designates for such status, because they run the risk of extirpation or extinction.

RESOURCES AND VALUES IN THE PLANNING AREA

- The species in the Blue List are sensitive or vulnerable indigenous species that are not threatened but are particularly at risk. The reasons include low or declining numbers, and occurrence at the fringe of their range or in restricted areas.
- The species in the Yellow List have populations that are managed to meet specific demands, including most game and furbearing species.
- The species in the Green List have populations that require no special management.

Forest dependent species need intact old growth at the forest landscape level.

Attribute dependent species need old growth forest attributes such as large diameter dead trees and coarse woody debris carried forward in sufficient quantity to support that population. These attributes can be maintained by special management at the stand level.

RESOURCES AND VALUES IN THE PLANNING AREA

Table 2 - Wildlife Species with a Degree of Dependence on Old Growth Forests in the Herrick Creek Watershed

Vertebrate Group	Status	Dependence Rating	Wildlife Species
Birds	Blue	attribute dependent	Vaux's Swift, Great Blue Heron, Bald Eagle
	Yellow & Green	forest dependent	Northern Goshawk, Spruce Grouse, Blue Grouse, Great Grey Owl, Vaux's Swift, Three-toed Woodpecker, Black-backed Woodpecker, Western Wood-Pewee, Gray Jay, Steller's Jay, Boreal Chickadee, Brown Creeper, Winter Wren, Golden-crowned Kinglet, Hermit Thrush, Varied Thrush, Solitary Vireo, Townsend's Warbler, Western Tanager, Red Crossbill
		attribute dependent	Wood Duck, Harlequin Duck, Barrow's Goldeneye, Bufflehead, Hooded Merganser, Common Merganser, Osprey, American Kestrel, Barred Owl, Boreal Owl, Northern Saw-whet Owl, Red-breasted Sapsucker, Downy Woodpecker, Hairy Woodpecker, Northern Flicker, Olive-sided Flycatcher, Pacific-slope Flycatcher, Clark's Nutcracker, Red-breasted Nuthatch, Wilson's Warbler, White-winged Crossbill
			29 Total Birds Status: 3 Blue

RESOURCES AND VALUES IN THE PLANNING AREA

Table 2 (Continued)

Vertebrate Group	Status	Dependence Rating	Wildlife Species
Mammals	Blue	forest dependent	Mountain Caribou
		attribute dependent	Grizzly Bear
	Yellow & Green	forest dependent	Moose- dependent in severe winter in deep snow areas
		attribute dependent	Marten, Silver-haired Bat, Black Bear (denning), Northern Flying Squirrel, River Otter, Wolverine, Little Brown Myotis, Least Weasel, White-footed Deer Mouse
			10 Total Mammals Status: 2 Blue

RESOURCES AND VALUES IN THE PLANNING AREA

iv) Recreation

Current outdoor recreational use of the Herrick is relatively low. The area is isolated (2 hour drive from Prince George), the summer climate is cool and wet and existing road access is limited. It is anticipated that recreational use will increase as access improves.

Existing recreational uses of the area include resident hunting, guided fishing and hunting, recreational fishing, back-country hiking and skiing, rock and ice climbing, boating (motorized and non-motorized), and snowmobiling in the Wapiti Pass area which is accessed from the Dawson Creek Forest District.

There is one recreation site in the area located at Arctic Lake. New recreation sites will be considered by the Prince George Forest District Recreation program in consultation with the planning team, as need, budget and the location of desirable sites allows. Three recreation map notations are presently recorded: the falls on Herrick Creek; the confluence of Framstead and Herrick Creeks; and a series of rapids on Spakwaniko Creek.

A Visual Landscape Inventory was initiated in the summer of 1992. As it is not yet complete, the inventory and recommended visual quality objectives will be considered by the planning team at the first annual review of the plan. Landscape values as viewed from the alpine are of particular interest.

Significant recreation values exist just outside the planning area boundary on the west slope of the Dezaiko Range. Values include a commercial back country skiing operation, a number of significant caves, and a snowmobile use area.

RESOURCES AND VALUES IN THE PLANNING AREA

Other recreation features (refer to Map 2) include:

Resource Unit 1

- Arctic Lake
- Portage Lake
- Pacific Lake
- James Creek
- Missinka Range and unnamed lakes
- Three Brothers Peaks

Resource Unit 2

- Ice Mountain
- Weaver Peak
- Limestone Lakes
- subterranean stream and resurgent waterfall
- Ice Lake
- lakes and alpine area west of Paxton Peak
- lakes and alpine area southeast of Parsnip Glacier
- mountain peaks south of Paxton Peak
- Parks and Wilderness for the 90's Category 3 large study area - Monkman Park extension

Resource Unit 3

- Knudsen Lake

Resource Unit 4

- Pearson Peak
- Paksumo Mountain
- Knudsen Mountain
- Ovington Mountain
- Herrick Creek
- North Herrick Creek
- alpine area southwest of Knudsen Lake including 2 lakes and 6 icefields

RESOURCES AND VALUES IN THE PLANNING AREA

Resource Units 7, 10, 11

- Old Growth forest features
- creeks
 - Herrick
 - Fontoniko
 - Spakwaniko
 - Muller
 - Framstead
 - Knudsen
 - Ovington
 - Ice
- waterfalls on Herrick and Spakwaniko Creeks

Significant features outside but near the boundary of the Herrick Local Resource Use Plan area:

- Paxton Peak (north)
- Wapiti Pass (northeast)
- Menagin Mountain (east)
- Natanik Pass (east)
- Herrick Pass (east)
- Nechamus Mountain and icefield (southeast)
- caves (south)
- Dezaiko Range (south)
- Mt. Hedrick (south)
- Hedrick Lake (south)
- Parsnip Glacier (northwest)
- McGregor River
- Parsnip River

Other general features in the Herrick valley which may make it a recreation destination:

- alpine flowers
- wildlife viewing (mostly in riparian areas, the alpine and avalanche paths)
- old growth forest viewing
- other caves
- glaciers

RESOURCES AND VALUES IN THE PLANNING AREA

v) Old Growth Forest

Old growth forests are natural stands of old and young trees and their associated plants, animals and ecological relationships, which have remained essentially undisturbed by humans and natural stand destroying events.

A conceptual definition of old growth is a forest that contains live and dead trees of various sizes, species composition and age classes that are part of a slowly changing but dynamic ecosystem. Old growth is typically distinguished from younger stands by several of the following attributes:

- old trees for species and site
- large trees for species and site
- wide variation in tree size and spacing
- accumulations of large dead standing and fallen trees
- multiple canopy layers
- canopy gaps and understory patchiness
- broken or deformed tops or boles and root decay

A systematic survey to confirm the presence of those attributes in particular stands in the Herrick was not carried out, therefore, a working definition of old growth was used. Forest Inventory Age Classes 8 (141-250 years) and 9 (251 years+) were used to define old growth. Age Class 9 stands were of particular interest.

Specific old growth forest values identified by the planning team are:

- snags
- wildlife trees
- clumps of large live trees
- large woody debris
- large organic debris in streams
- biodiversity of plant, fungal and animal species and habitats
- arboreal lichens
- spiritual, recreation and tourism values
- wildlife corridors and landscape linkages
- maintenance of soil stability

vi) Soils

Soil deposits in the area originated for the most part from the most recent glaciation which ended 10,000 to 12,000 years ago. At its greatest extent the ice-sheet covered everything but the higher peaks and ridges. A significant climatic warming commenced about 12,000 years ago. The higher peaks and valleys began to emerge first as the ice sheet melted. More of the land emerged until ice was left only in the valley bottoms and low areas. This pattern of melting created ice dams as water tried to flow to lower elevations. As the ice retreated larger lakes formed at lower elevations and significant deposits of lacustrine (lake) clays, silts, and sands accumulated. These lake sediments are highly erodible and prone to land slides and slumps. The high annual precipitation in the Herrick increases the risk of these events.

Maintenance of soil stability and productivity are essential as all life forms in the Herrick including trees, other vegetation, and fish and wildlife populations and habitats depend on soil. The generalized surficial geology of the area is indicated on Map 4. In addition to the existing soil inventory for the area terrain stability classification was carried out using the coastal five class system:

Terrain Stability Classes

Class I

- no significant stability problems exist

Class II

- no significant stability problems exist
- normal road construction and logging practices will not significantly decrease terrain stability
- periodic maintenance involving ditch cleaning is expected due to sloughing along road cuts

RESOURCES AND VALUES IN THE PLANNING AREA

Class III

- minor stability problems can develop
- harvesting should not significantly reduce terrain stability; there is low likelihood of post-logging failure
- minor slumping is expected along road cuts on roads crossing areas with slopes greater than 30 degrees, especially for one or two years following construction

Class IV

- expected to contain areas where there is a moderate to high likelihood of slope failures following conventional road construction. Wet period construction will significantly increase the potential for slope failure
- there is moderate likelihood of failure in logged areas
- a field inspection of these areas should be made by a qualified terrain specialist prior to any development in order to assess in detail the stability of the affected area

Class V

- there is a high likelihood that slope failures will follow logging or conventional road building
- a field inspection of these areas should be made by a qualified terrain specialist prior to any development in order to assess in detail the stability of the affected area

A terrain stability classification map of the area can be seen on Map 5.

Ministry of Forests Land Management Report Number 62 "*Developing Timber Harvesting Prescriptions to Minimize Site Degradation*" and Land Management Handbook Number 18 "*A Guide for Management of Landslide-Prone Terrain in the Pacific Northwest - Second Edition*" are recommended as essential references for timber harvesting development planners. Degradation Sensitivity Classes in Report Number 62 correspond to the Coastal Terrain Stability Classes as follows:

Degradation Sensitivity Class

Low
Moderate
High
Very High

Coastal Terrain Stability Class

I & II
III
IV
V

RESOURCES AND VALUES IN THE PLANNING AREA

vii) Cultural and Heritage Resources

The planning area was probably utilized by two Aboriginal groups prior to Euro-Canadian contact. The Sekani people used the area around Arctic Lake and the Carrier people the area within the Herrick watershed.

There are eight documented archaeological sites in the planning area, all of which are in the vicinity of Arctic Lake. The sites consist of such things as cultural depressions and flakes from stone tool making. Archaeology Branch of the Ministry of Tourism and Culture has stressed, however, that the absence of other recorded sites does not indicate that other sites do not exist.

Carrier people, specifically the Lheit Lit'en Nation, identified a sacred area early in the planning process. The area lies between Fontoniko and Spakwaniko Creeks and encompasses Ice Mountain and Limestone Lakes. A statement received from the Elders' Council on spiritual values included:

- the waterfalls on Spakwaniko Creek were a meeting place and central point for gathering medicines, edible herbs and plants, and hunting and fishing.
- the water which spouts from an underground stream located near Limestone Lakes is known by their people as sacred since it does not contain imperfections found in other water sources.
- the fish that spawn in the Herrick and the lower reaches of Fontoniko and Spakwaniko Creeks are regarded as sacred. Fishing is carried out for both ceremonial and sustenance purposes.
- the glacier at Charlie Mountain (Ice Mountain) tells their people of the presence of Mother Nature and Her promise of resurrection.
- the beliefs passed down through the ages tells them that one day they must go to the place where the stream pours from the mountain, the place of the waterfalls and the place of the mountain ice. There they will be healed and one with the Creator.

The sacred area can be seen on Map 6.

RESOURCES AND VALUES IN THE PLANNING AREA

Alexander Mackenzie and his companions were the first Europeans to travel through the area. He and his voyageurs and native guides canoed across Arctic and Pacific Lakes, portaged across the Continental Divide, and continued down James Creek to Herrick Creek in the early summer of 1793. Mackenzie's objective was to find a trade route to the Pacific coast for the Northwest Company. He and his party were the first to cross the North American continent and their expedition preceded the more famous Lewis and Clark expedition by twelve years.

viii) Mineral and Petroleum Resources

Mineral potential in the Herrick area is largely unknown. The area has not undergone a geochemical survey, detailed geological mapping or exploration. Information available indicates that:

- geothermal potential is low
- petroleum and natural gas potential is moderate to high. The area is west of any known productive fields but it is underlain by rocks capable of trapping hydrocarbons. There are significant oil and gas fields to the north and east of this area.
- there are currently no subsurface tenures inside the planning area.

ix) Timber

The existing forest inventory for the Herrick dates from a survey carried out in 1967. This inventory is up to date for disturbance (logging, forest fires) and silviculture history to 1991. Some attributes of the forest stand descriptions (eg. age and height) have also been updated "electronically" to account for growth and other stand dynamics. A re-inventory of the area commenced in 1992 and new maps and statistics are expected to be in the Provincial data base in 1994. Tables 3 to 5 are summaries of this updated forest inventory information. A generalized forest inventory can be seen on Map 7.

RESOURCES AND VALUES IN THE PLANNING AREA

Table 3 Classification of Forest Land

Land Classification	Area (hectares)	Percent of Total Area
FOREST LAND		
Productive Forest Land		
• Immature Coniferous	5,377	3
• Mature Coniferous	81,283	44
• Deciduous	540	0
• Not Stocked	1,995	1
Non-Productive Forest Land		
• Alpine Forest, etc.	1,096	0
NON-FOREST LAND		
• Rock, Water, Alpine, etc.	96,327	52
TOTAL	186,618	100

RESOURCES AND VALUES IN THE PLANNING AREA

Table 4 Timber Volume by Leading Species

Tree Species	Volume (cubic metres)	Percent of Total
Spruce	10,539,322	58
Subalpine Fir	7,453,660	41
Douglas Fir	19,148	0
Lodgepole Pine	13,222	0
Hemlock	9,520	0
Other (Deciduous)	235,584	1
TOTAL	18,270,456	100

Forest inventory, soil type, and slope were factors considered in classifying forest land as operable or inoperable with respect to timber harvesting. Operable areas were further classified for appropriate harvest systems (conventional ground skidding, cable systems and mixed conventional/cable systems). The inoperable class includes unproductive forest land (e.g. alpine forest), non-forest land (e.g. rock) and productive forest land that is considered inoperable due to low stand volume, sensitive soils or excessive slope. Operability classification can be seen on Map 8.

Table 5 Area and Volume of Timber by Operability Class

Operability Class	Area (hectares)	Percent of Total	Volume (cubic metres)	Percent of Total
Conventional	31,602	17	7,287,848	40
Cable	7,857	4	2,170,293	12
Mixed	12,192	7	3,139,489	17
Inoperable	134,967	72	5,672,826	31
TOTAL	186,618	100	18,270,456	100
TOTAL OPERABLE:	51,651	28	12,597,630	69

Allocations of timber within the Herrick were made pursuant to "*Prince George Timber Supply Area Plan #1*" and were directed primarily to Northwood Pulp and Timber. Smaller amounts went to the Small Business Forest Enterprise Program and The Pas Lumber (very small area west of Arctic Lake). The timber supply in the Herrick (as per Timber Supply Area Plan #1 strategies) provides 12% of Northwood's total Forest Licence quota and an estimated 23% of their Upper Fraser Sawmill's wood requirement.

7. RESOURCE UNIT DESIGNATION

Resource Unit designation is a means by which large areas like the Herrick can be divided into smaller areas which are easier to manage. Resource Units are identifiable land areas with similar characteristics and resource management goals, objectives and guidelines. One set of unique land use and resource management objectives and guidelines are developed for each of these smaller areas.

The proposed designation and management objectives for Resource Units in the Herrick are generally consistent with Old Growth Strategy recommendations. Eleven Resource Units have been designated and are summarized in Table 6. The Resource Units can be seen on Map 2.

In "*An Old Growth Strategy for British Columbia*", three broad management objectives were recommended for old growth forest conservation:

- Reserves
- Special Management
- Commodity Emphasis

The objective of Reserves is to maintain viable old growth forest ecosystems in their natural state well distributed over their range in size and distribution, to ensure their ecological integrity, both within the individual reserves and within the network or systems of reserves throughout a regional landscape.

The objective of Special Management is to maintain old growth attributes within forests that are managed with a special emphasis on old growth dependent resources. Special management requires the identification and subsequent conservation of specific old growth attributes found within the ecosystem being managed. Maintaining these attributes does not necessarily require a total absence of commodity use or other economic activity, but it does require management that protects and sustains specific old growth ecosystem attributes. Issues to consider include commodity values, riparian habitat, spiritual values, wildlife winter range and movement corridors, recreational activity, and other visually and ecologically sensitive areas.

The objective of Commodity Emphasis is to maintain forest stands for commodity use while retaining, enhancing or creating ecological attributes essential to sustaining the natural productivity of the land base. Areas managed in this way should be able to support specific old growth attributes which are necessary to ensure that reserves and special management areas do not exist in biological isolation.

RESOURCE UNIT DESIGNATION

RESOURCE UNIT 1 - Divide Lakes

Resource Unit 1 is 11,065 hectares in area. It has been designated as a RESERVE. The objective is to protect old growth forest, wildlife habitat and recreation values. No timber harvesting is permitted. The entire Resource Unit is also recommended to the Protected Area Strategy for designation.

RESOURCE UNIT 2 - Ice Mountain

Resource Unit 2 is 39,491 hectares in area. It has been designated as a RESERVE. The objective is to protect old growth forest, wildlife habitat, recreation values and Native spiritual values. No timber harvesting is permitted. Approximately two-thirds of the Resource Unit is also recommended to the Protected Area Strategy as an addition to Monkman Provincial Parks. The boundary for the Park extension was set back from the boundary of Resource Unit 2 in order to provide a buffer from future harvesting in Resource Unit 11.

RESOURCE UNIT 3 - Knudsen Lake

Resource Unit 3 is 1,379 hectares in area. It has been designated as a RESERVE. The objective is to protect alpine recreation values, wildlife habitat and old growth forest. The entire Resource Unit is also recommended to the Protected Area Strategy for designation. No timber harvesting is permitted.

RESOURCE UNIT 4 - Upper Herrick

Resource Unit 4 is 47,922 hectares in area. It has been designated as a RESERVE. The objective is to protect old growth forest, wildlife habitat and recreational values. No timber harvesting is permitted. A non-mechanized alpine recreation area has also been designated for an area southwest of Knudsen Lake (see Map 3). It is recommended that the recreational use of snowmobiles and all terrain vehicles be prohibited within this area.

RESOURCE UNIT 5 - Herrick Falls

Resource Unit 5 is 3,305 hectares in area. It has been designated as a RESERVE. The objective is to protect old growth forest, wildlife habitat and recreation values. No timber harvesting is permitted. Resource Unit 5 connects with Resource Units 9.2 and 6.5 to create a larger landscape linkage and wildlife travel corridor.

RESOURCE UNIT DESIGNATION

RESOURCE UNIT 6 - Remaining Areas Above 1370 metres Elevation

Resource Unit 6 is a total of 16,683 hectares in area and consists of five blocks (6.1 to 6.5) of higher elevation terrain. It has been designated as a RESERVE. The objective is to protect old growth forest, wildlife habitat and recreation values. No timber harvesting is permitted.

RESOURCE UNIT 7 - Herrick Bend

Resource Unit 7 is 2,847 hectares in area. It has been designated as a SPECIAL MANAGEMENT STUDY AREA. The objective is to manage the forest for maintenance of old growth forest attributes. Timber harvesting is deferred for five years. At the end of the five year period the planning team will review the potential for harvesting using alternate systems based on the success of old growth guidelines developed for Resource Unit 11.

RESOURCE UNIT 8 - Mid-Elevation (1060 - 1370 metres) Old Growth Forest

Resource Unit 8 is a total of 7,360 hectares in area and consists of six blocks (8.1 to 8.6) of mid-elevation terrain. It has been designated as a SPECIAL MANAGEMENT STUDY AREA. The objective is to manage the forest for maintenance of old growth forest attributes. Timber harvesting is deferred for five years. At the end of the five year period the planning team will review the potential for harvesting using alternate systems based on the success of old growth guidelines developed for Resource Unit 11.

RESOURCE UNIT 9 - Ecosystem Network

Resource Unit 9 is a total of 3,750 hectares in area and consists of three blocks (9.1 to 9.3) of terrain. It has been designated as a SPECIAL MANAGEMENT AREA. The objective is, through a system of Forest Ecosystem Networks, to manage the forest to maintain landscape linkages and associated wildlife travel corridors. Ecosystem Networks will include forested strips (121 years +) approximately 800 metres wide across the valley in the Ice Mountain, Lower Herrick, and McCullagh Creek areas.

Forest Ecosystem Networks are wind firm landscape linkages of mature and/or old growth forest that utilize areas that would not normally be harvested, such as non-commercial forest, inoperable forest, wildlife corridors, riparian management areas, protected areas, and other special management areas. The three Forest Ecosystem Networks designated connect RESERVES on opposite sides of the Herrick valley. They are bisected by Resource Unit 10 - Special Management Area - Riparian.

RESOURCE UNIT DESIGNATION

RESOURCE UNIT 10 - Stream Side Buffers

Resource Unit 10 is 8,122 hectares in area. It has been designated as a SPECIAL MANAGEMENT AREA. The objective is, using a Riparian Management Area, to manage the forest to protect water quality, riparian fish and wildlife habitat and large organic debris potential.

The Riparian Management Area consists of three zones:

1. The Riparian Habitat Zone is that area of vegetation immediately adjacent to water and directly influenced by and/or directly influences water.
2. The Riparian Buffer Zone is a 30 metre zone of upland vegetation adjacent to the Riparian Habitat Zone that maintains the integrity of the Riparian Habitat Zone.
3. The Riparian Management Zone is an area of upland vegetation beyond the Riparian Buffer Zone. This zone should be of sufficient width to ensure integrity of the Riparian Buffer Zone (wind firm).

RESOURCE UNIT 11 - Valley Bottoms of Herrick Creek and Major Tributaries

Resource Unit 11 is 44,694 hectares in area. It has been designated as COMMODITY EMPHASIS FOREST. This is the working forest. The objective is to manage for the production of timber and other commodity values and to maintain old growth forest attributes at the stand and landscape levels.

8. MANAGEMENT GOALS, OBJECTIVES AND GUIDELINES

Goals are the ultimate end(s) that resource management strives to attain in the planning area.

Objectives are a number of more specific aims within each Goal and are generally measurable.

Guidelines are the tools or strategies used to achieve the Objectives.

Management Goals, Objectives and Guidelines have been developed for the following resources:

- Fisheries/Water
- Wildlife
- Old Growth
- Soils
- Timber
- Recreation

Numbering System

- example: FISHERIES/WATER

F.1. = Goal

F.1.1 = Objective

F.1.1.1 = Guideline

Goal:	F.1. WATER QUALITY - Maintain a high standard of water quality.
Objective:	<p>F.1.1. Minimize erosion and slope failures by:</p> <ul style="list-style-type: none"> • Conducting watershed level cumulative erosion planning, monitoring and remediation. • Identification and inventory of sensitive soils in the watershed. • Reviewing access plans, construction techniques and maintenance schedules (roads, trails, landings, etc.). • Review of harvesting plans, harvesting methods and schedules. • Maintain and enhance sufficient vegetative ground cover to prevent surficial erosion and slope failure.
Guideline:	F.1.1.1. Erosion Review - Soils and slope stability information shall be reviewed in planning forest roads, harvesting, silviculture and other development activities (see Soils guideline S.1.1.1).
Guideline:	<p>F.1.1.2 A detailed Erosion Control Plan shall be provided for all development activities (forest roads, harvesting, silviculture and non-forestry related e.g. recreation sites). The Erosion Control Plan shall include the following:</p> <ul style="list-style-type: none"> • sediment transfer hazard classification • soils and slope stability information • planning information (instream work restrictions, licences, approvals, etc.) • on-site water management (culverts, water bars, etc.) • construction methodology

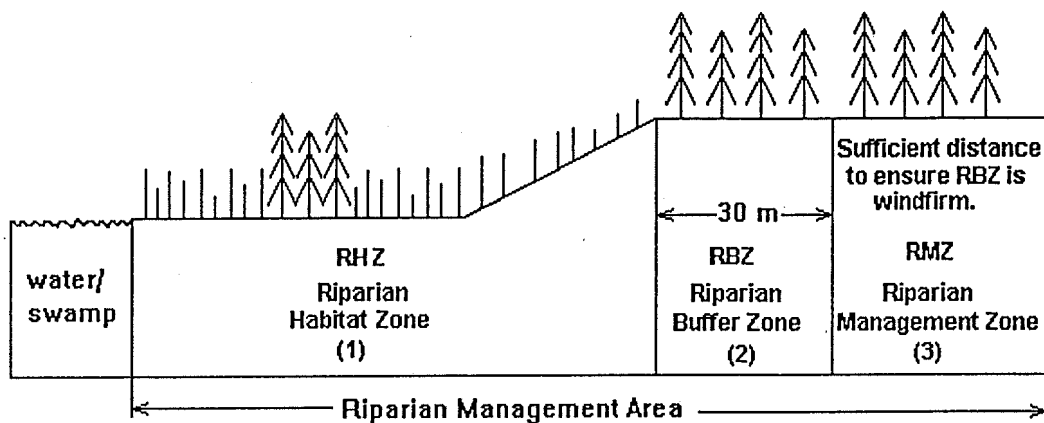
Guideline:	F.1.1.3. Soils inventory - See Soils S.1.1
Guideline:	F.1.1.4. Review access plans - Licensees will prepare Development Plans and Pre-harvest Silviculture Prescription for proposed forest development within the Herrick Watershed. The Development Plans will be reviewed on an annual basis and Pre-harvest Silviculture Prescription on an individual basis by appropriate agencies for compliance with the Local Resource Use Plan objectives and guidelines and any other pertinent guidelines and requirements for Integrated Resource Management.
Guideline:	F.1.1.5. An Access Plan shall be developed and submitted for the Herrick Watershed. The Access Plan shall be reviewed and updated by appropriate agencies on an annual basis. - See W2.
Guideline:	F.1.1.6. Maintain vegetation to prevent surficial erosion - All forest harvesting shall follow the Ministry of Forests Land Management Report Number 62 - December 1991 - See Soils S.1.1.3
Objective:	F.1.2 Maintain water temperature regimes that are consistent with productive aquatic ecosystems.
Guideline:	F.1.2.1. Riparian Buffers - Harvesting proposed within the Riparian Management Area shall provide a <u>minimum 30 m. windfirm buffer</u> along all watercourses (as measured from the top of the streambank). (See Figure 1 - page 44) Detailed harvesting proposals (Streamside Management Plans) are required for all harvesting within the Riparian Mangement Area. The harvesting plan must show how water quality and temperature objectives will be met.

Guideline:	F.1.2.2. Streamside Management Plans - Harvesting adjacent to watercourses (permanent streams and streams that have the potential to influence fish-bearing waters) not identified in a Riparian Management Area require detailed Streamside Management Plans. The harvesting plan must show how water quality and temperature objectives will be met. The range of streamside harvesting options, however, are flexible and varied. Options may include: total buffers, selective harvest, machine buffers, falling and skidding away from creeks, provisions for special equipment, etc.
Objective:	F.1.3. Prevent the entry of contaminants (toxic substances - herbicides, insecticides, petroleum products, etc.) or other substances (nutrients/etc.) that may degrade water quality of surface or ground water.
Guideline:	F.1.3.1. Herbicide use should be minimized. To achieve free to grow status, herbicide use may, however, be required in Resource Unit 11, and will be dealt with through the pesticide permit procedure.
Guideline:	F.1.3.2. Soil Erosion Guidelines - Soil erosion (source of nutrients, sediment, etc.) to water bodies shall be minimized by observing current Ministry of Forests guidelines: <i>"Developing Timber Harvesting Prescriptions to Minimize Site Degradation" and "Forest Road and Logging Trail Engineering Practices (Interim)."</i>
Guideline:	F.1.3.3. The use of fire retardant chemicals shall comply with current guidelines to prevent their entry to surface and ground water.
Goal:	F.2. WATER QUANTITY - Maintain the natural hydrological regime.
Objective:	F.2.1. Prevent changes to natural stream flows by adjusting harvest schedules, harvest areas and type of harvesting.

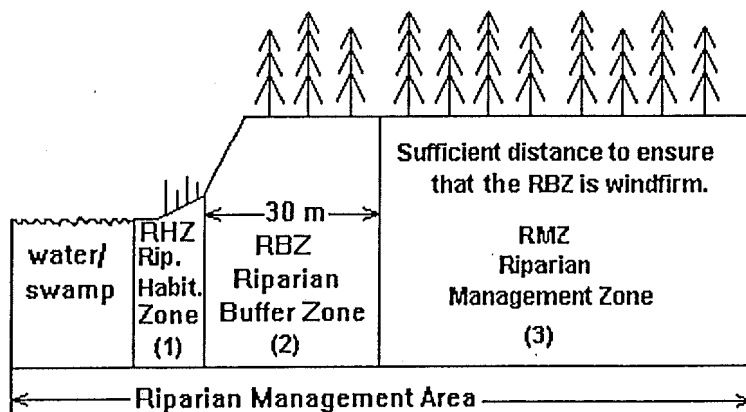
Guideline:	F.2.1.1. A Hydrological Review shall be conducted (multi-disciplinary team) when an identified watershed (subdrainage of the Herrick) reaches a 25 % clearcut equivalent condition (based on total area of the watershed). (see F.2.2.1) Captain and Cargill Creeks will be included in the review, if required, in order to assess the entire Herrick watershed.
Guideline:	F.2.1.2. Rate of Cut Review - Drainages containing high water based values (fish and aquatic-based wildlife habitats) or stream channels sensitive to peak flows shall be reviewed when the drainage reaches a 20 % clearcut equivalent condition (based on total area of the watershed). The minimum size watershed to be considered for hydrological review shall be 1000 hectares and/or where sensitive water based values (fish and aquatic-based wildlife habitats) are identified. Hydrological recovery of vegetation shall be based on data for high snow pack zones. Clearcut equivalent status of identified drainages shall be reviewed and submitted with annual update of 5 Year Development Plans.
Guideline:	F.2.1.3. Harvest across elevation ranges - Harvesting shall be dispersed over the available range of elevations throughout the watershed for each pass.
Guideline:	F.2.1.4. Lay out high elevation blocks for impacts of snow - Harvesting operations in high elevation forests (Engleman Spruce-Subalpine Fir Biogeoclimatic Zone) shall be designed for snow accumulation and retention similar to unharvested areas (e.g. long and narrow clearcuts).
Objective:	F.2.2. Plan for erosion prevention - Provide access plans, construction techniques and maintenance schedules (roads/trails/landings/etc.) that will prevent erosion due to increases in local water flows.

Guideline:	<p>F.2.2.1. A Hydrological Review shall address such things as soils, erosion, channel stability, slope, aspect, etc.:</p> <ul style="list-style-type: none"> • Identify potential watersheds (subdrainages of the Herrick) that may be logically considered for hydrological analyses. • Review information and obtain advice (hydrologist) on various silviculture systems impacts on snow accumulation, retention and changes to the hydrograph.
Goal:	<p>F.3. FISHERIES STREAMSIDE MANAGEMENT - Maintain and protect Riparian Management Areas (see Figure 1 for description of the Riparian Management Area and the separate zones within the Riparian Management Area - page 44).</p> <p>For the purposes of the Herrick Local Resource Use Plan, the following definitions apply:</p> <ul style="list-style-type: none"> • The Riparian Habitat Zone is that area of vegetation that is directly influenced by and/or directly influences water. • The Riparian Buffer Zone is a 30 metre zone of upland vegetation adjacent to the Riparian Habitat Zone that maintains the integrity of the Riparian Habitat Zone. • The Riparian Management Zone is an area of upland vegetation including timber beyond the Riparian Buffer Zone. The Riparian Management Zone should be of sufficient width to ensure the integrity of the Riparian Buffer Zone is maintained (eg. windfirm). • The Riparian Management Area includes the Riparian Habitat Zone , Riparian Buffer Zone and Riparian Management Zone.
Objective:	<p>F.3.1. Delineate Riparian Management Areas for all watercourses in the watershed.</p>

Guideline:	F.3.1.1. Streamside Management Plans on minor tributaries - Minor tributaries will be covered by Streamside Management Plans, and not specifically delineated until those plans are required - (see F.1.2.2.)
Guideline:	F.3.1.2. Identify the important fish bearing streams and/or streams that have the potential to impact fish bearing streams through stream bank, stream channel or valley and slope processes, and delineate Riparian Buffer Zones and Riparian Habitat Zones on Spakwaniko Creek to headwaters, Ice Creek to headwaters, and tributaries to the Herrick, Fontoniko, Spakwaniko, Muller, and Framstead Creeks.
Objective:	F.3.2. Maintain and/or manage a Riparian Management Area that will: <ul style="list-style-type: none"> • prevent excessive and unnatural streambank erosion and/or slope failures, • provide a natural, long term supply of large organic debris (trees) to watercourses to ensure physical and biological influences such as pool/riffle habitat, • provide cover, shade, nutrient input, insect drop and other ecological requirements for aquatic life. • protect productive high water floodplain refuge habitats. (Also, see W.1.1.9.)



Wide Riparian Management Area



Narrow Riparian Management Area

Figure 1

Guideline:	F.3.2.1. The primary purpose of the Riparian Management Area is for the protection of habitat values. Timber harvesting within the Riparian Habitat Zone and Riparian Buffer Zone will only be considered by the Ministry of Forests where the integrity of the Riparian Habitat Zone and/or Riparian Buffer Zone is endangered by catastrophic events or to enhance habitat values. This evaluation is made by Department of Fisheries and Oceans and/or Ministry of Environment.
Guideline:	F.3.2.2. Harvesting is permitted in the Riparian Management Zone but shall be conducted in a manner that will ensure the integrity (windfirmness) of the Riparian Buffer Zone and the Riparian Habitat Zone and meet the objectives listed in F.3.2.
Guideline:	F.3.2.3. The Riparian Management Zone width may be variable depending on site specific conditions such as: <ul style="list-style-type: none"> • adjacent soil types, • windthrow potential, • steepness of adjacent slopes, • proximity to sensitive fish habitats (spawning, rearing, etc.), • stream channel stability.

Guideline:	<p>F.3.2.4. For management within the Riparian Management Zone, emphasis will be placed on alternate silviculture systems and maintenance of the deciduous component. Alternate systems include:</p> <ul style="list-style-type: none"> • patch cutting (1 to 3 hectares) • shelterwood • modified shelterwood • group selection • selection • seed tree <p>Other harvesting patterns may be used that are not technically "silviculture systems", if they meet the primary objectives of the Riparian Management Zone. For example, "balsam retention" may be used if suitable for the site and stand composition. Modified silviculture standards may also be used, in order to best meet the primary objectives of the Riparian Management Zone. To minimize soil disturbance, special harvesting methods will be used, such as:</p> <ul style="list-style-type: none"> • horse logging • high lead • low ground pressure systems
Guideline:	<p>F.3.2.5. Harvesting rates will be adjusted to achieve fisheries objectives in the Riparian Management Areas.</p>
Guideline:	<p>F.3.2.6. If possible, there should be no main system roads in the Riparian Management Areas. This guideline must be weighed against soils impacts created by developing main road systems farther away from the Riparian Management Areas.</p>

Guideline:	F.3.2.7. Special Management Plan for Rare Riparian Habitats - If a Riparian Habitat Zone is rare in the planning unit, or occupied by rare or endangered species, that Riparian Management Area will require a special management plan with a possible total protection of the area.
Guideline:	F.3.2.8. Detailed harvesting proposals (Streamside Management Plans) are required for all harvesting within the Riparian Manangement Zone. A Streamside Management Plan shall include: Riparian Management Zone dimensions and rationale, project supervision, harvesting methods, flagging requirements, map scale, onsite inspection.
Guideline:	F.3.2.9. Streamside Management Plans for smaller watercourses - Harvesting adjacent to watercourses (permanent streams and streams that have the potential to influence fish-bearing waters), not identified in a Riparian Management Area may require detailed Streamside Management Plans) - (see F1.2.2.)
Goal:	F.4. FISH HABITATS - Conserve and enhance fish habitats.
Objective:	F.4.1. Maintain habitat - Ensure high quality spawning, incubation, migration, rearing and refuge environments are maintained for all fish populations in the watershed. (see guidelines for F.1, F.2, F.3, F.5)
Objective:	F.4.2. Produce an inventory of habitat improvement opportunities (Department of Fisheries and Oceans and Ministry of Environment):
Guideline:	F.4.2.1 Identify and implement fish habitat improvement, restoration and enhancement opportunities in the watershed.
Goal:	F.5. ASSESSMENT/MONITORING - Monitor and assess changes to the present natural level of aquatic resource values.
Objective:	F.5.1. Water Quality Plan - Provide and maintain a water quality monitoring and assessment plan (see Section 9, Page 69).

Objective:	F.5.2. Water Quantity Plan - Provide and maintain a water quantity monitoring and assessment plan.
Guideline:	F.5.2.1. Review clearcut equivalent status - Clearcut equivalent status of identified drainages shall be reviewed and submitted with annual update of 5 Year Development Plans. (The Herrick Local Resource Use planning team shall also receive annual updates of the clearcut equivalent status and review.)
Objective:	F.5.3. Riparian Plan - Provide and maintain a Riparian Management Area monitoring and assessment plan. (see Section 9, Page 69)
Objective:	F.5.4. Aquatic Inventory - Maintain or improve the inventory of aquatic resource values (water/fisheries/semi-aquatic wildlife/soils/etc.).
Guideline:	F.5.4.1. Salmon Inventory - Annual adult salmon enumeration surveys shall continue to be conducted. (Department of Fisheries and Oceans' responsibility).
Guideline:	F.5.4.2. Habitat Inventory - Fish habitat quality in the Herrick Watershed (mainstem and major tributaries - Fontoniko, Spakwaniko, James, Muller, Framsted Creeks) shall be monitored on an annual basis. (Department of Fisheries and Oceans & Ministry of Environment responsibility).
Guideline:	F.5.4.3. Conduct a review of potential fish habitat improvement, habitat enhancement and habitat restoration opportunities in the Herrick Watershed. (Department of Fisheries and Oceans & Ministry of Environment responsibility - subject to funding).

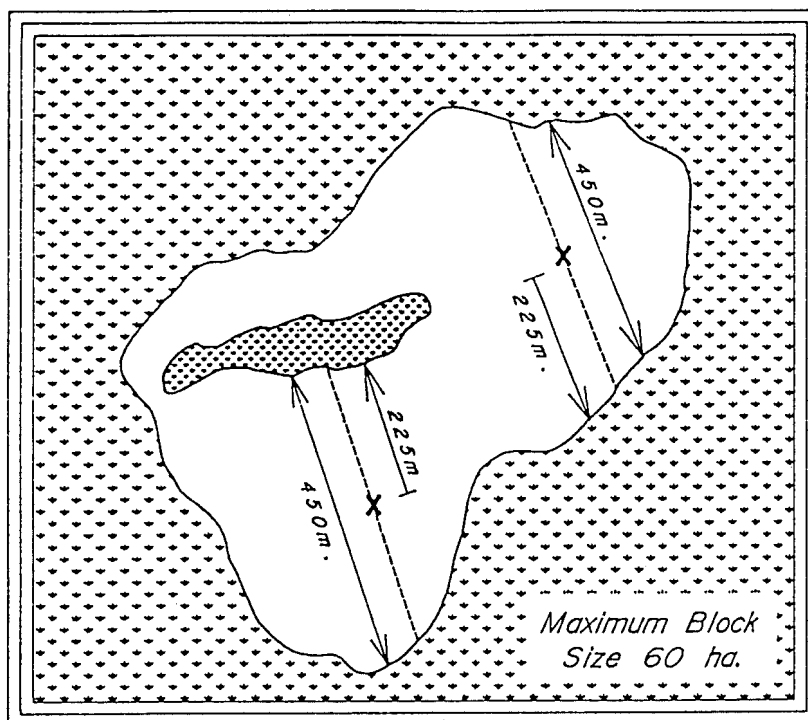
MANAGEMENT GOALS, OBJECTIVES AND GUIDELINESFISHERIES/WATER

Guideline:	F.5.4.4. Inventory high water refuge sites, tributary rearing habitats and tributary spawning habitats, in the lower Herrick Creek (downstream of falls). (Department of Fisheries and Oceans responsibility - subject to funding).
Guideline:	F.5.4.5. The soils inventory shall be improved and upgraded through site specific investigation before and during development activities. (Ministry of Forests and Northwood Pulp and Timber Limited responsibility). (see Soils guidelines)

Goal:	W.1. BIODIVERSITY - Manage forests to maintain or enhance the present level of biological diversity of wildlife species, numbers and their habitat.
Objective:	W.1.1. Biodiversity of Habitat - Maintain or enhance the present level of biological diversity of wildlife habitat.
Guideline:	W.1.1.1. Ecosystem Networks - Manage to maintain Ecosystem Networks of mature forest (121 years +). Ecosystem Networks are windfirm landscape linkages that utilize areas that would not normally be harvested, such as non-commercial forest, inoperable forest, corridors, Riparian Management Areas, protected areas, and other special management zones. Ecosystem Networks are designed to maintain mature forest characteristics. These Ecosystem Networks will include forested strips approximately 800 metres wide across the valley in the Ice Mountain, lower Herrick and McCullagh Creek areas. During higher level planning (Total Resource Planning and 5 Year Development Planning), Ecosystem Networks for the area between Framstead and Muller Creeks will be established. Management techniques may include harvesting within the landscape linkage area (using appropriate silvicultural systems) or relocating the Ecosystem Network as long as the integrity of the landscape linkage is maintained. Cut block sizes in the range of 10-20 hectares are most appropriate.
Guideline:	W.1.1.2. Riparian Management Areas - (See Fisheries Goals - F.3.)

Guideline:	<p>W.1.1.3. Landscape Linkages and Block Size - Maintain contiguous old growth landscape linkages and wildlife corridors (i.e. complete ecosystems). To allow for landscape linkages of mature and old growth forest, to provide wildlife habitat, and to minimize road development and forest fragmentation, block size will be no more than 60 hectares. No point should be more than 225 metres from forest cover within a cut block, with an average distance of 200 metres from forest cover. Another way of stating this is the maximum distance from forest cover to forest cover is 450 metres. Forest cover may be provided by leaving suitable patches of windfirm trees within the block. These windfirm patches will comprise at least 10% of the opening within the area that is greater than 225 metres from cover and will strive to retain 10% of conifers larger than 60 centimetres diameter at breast height. Block boundaries will usually be contour-driven rather than straight lines. Cut block boundary design will address blow down concerns. If a block is greater than 40 hectares, strive to maintain a minimum reserve between blocks of 500 metres. Before the reserve is removed, the average conifer height should be a minimum of 3 metres within the block. (Figure 2 on page 52)</p>
Guideline:	<p>W.1.1.4. Old Growth Characteristics - See Old Growth Goals - O.1.1.</p>

Figure 2
Example of cut block design



Guideline:	<p>W.1.1.5. Rate of Cut - For harvesting within the working forest, ensure that at any one given time the following is maintained:</p> <ul style="list-style-type: none"> • a minimum of forty percent (40%) of the forest below 1370 metres is mature (100+ years), and at least half of that forty percent is older than 121 years. • a maximum of thirty percent (30%) is in the age range of 0 to 40 years. <p>The mature and old growth component will be managed to maintain components of Old Growth.</p> <p>Also, See Fisheries Goals - F.2.1.2 for clearcut equivalency.</p>
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Guideline:	W.1.1.6 Wildlife Trees - Where possible, retain patches of existing forest such as snags, wildlife trees, advanced regeneration, etc. within harvested areas.
Guideline:	W.1.1.7. Coarse Woody Debris - Minimize the removal of dead and down woody material in the working forest to maintain biomass accumulations.
Guideline:	W.1.1.8. Deciduous Component - Manage the forest for a deciduous component. This is especially important for riparian habitat and wherever isolated deciduous trees exist.
Guideline:	<p>W.1.1.9. Sensitive Habitats - Maintain the integrity of sensitive habitats such as wet habitats, movement corridors, bird feeding and nesting sites, mineral licks, calving and rutting areas, avalanche paths, sub-alpine forest, etc.</p> <ul style="list-style-type: none"> • Include Sensitive Habitats in Ecosystem Networks wherever possible. • Use Alternative Silviculture Systems within sensitive habitats (See Fisheries Goals - F.3.2.4.) • Time harvesting to minimize impact on animals using sensitive habitats. • Restrict Access and Disturbance of sensitive habitats. • Maintain movement corridors for caribou. Thirty percent of the timber should be age class 6 or older and contiguous throughout the corridor.
Guideline:	<p>W.1.1.10. Habitat Inventories - Carry out habitat inventories (Ministry of Environment) to provide baseline data needed to plan, measure changes, and maintain habitat integrity:</p> <ul style="list-style-type: none"> • Upland Habitats - Identify upland habitats, such as moose wallows, rutting areas, calving areas, denning sites, etc. to maintain their critical components. • Semi-aquatic Wildlife Habitats - Identify semi-aquatic wildlife habitats for beaver, otter, mink, muskrat, waterfowl, etc. • Riparian Management Areas - Identify and manage Riparian Management Areas to maintain their critical components along streams and lakeshores (See Fisheries Goals - F.3.)

Guideline:	<p>W.1.1.11. Silvicultural Treatments - Use appropriate silvicultural treatments to minimize impacts on wildlife:</p> <ul style="list-style-type: none"> • Brushing and Weeding - Minimize need for brushing and weeding. Use appropriate silvicultural techniques to minimize need for brushing and weeding. • Standards - Standards for stocking densities, tree species mixes and requirements for tree heights before harvesting adjacent areas in the Riparian Management Zone may be amended to accommodate the wildlife and biodiversity values. • Herbicide Use - See Fisheries Goals - F.1.3.1.
Objective:	W.1.2. Biodiversity of Wildlife - Maintain and/or enhance the present diversity of wildlife species.
Guideline:	W.1.2.1. Compatible Wildlife Use - Ensure the levels of hunting, trapping, recreational, and other human activities are compatible with sustainability and diversity.
Guideline:	W.1.2.2. Wildlife Populations - Recommend appropriate measures to protect wildlife populations (for example, changes to regulations and appropriate enforcement staffing).
Guideline:	W.1.2.3. Wildlife Management Plan - Prepare a Wildlife Management Plan for the Herrick Valley Area.
Guideline:	W.1.2.4. Wildlife Inventory - Maintain an appropriate wildlife inventory in the Herrick Valley Area. Carry out an appropriate frequency of inventory of wildlife (species, distribution and abundance) and wildlife habitat, after a baseline inventory is conducted, and monitor trends.
Goal:	W.2. ACCESS - Develop an Access Management Plan to minimize impacts on wildlife, wildlife habitats and wildlife management.
Objective:	W.2.2. Sensitive Habitats - Minimize access within sensitive habitats. (e.g. Riparian Management Areas, avalanche paths, sub-alpine forest, sensitive soils, etc.)
Objective:	W.2.3. High Elevation Motorized Access - Minimize existing and potential access for motorized vehicles to subalpine and alpine areas.

Objective:	W.2.4.Deactivation - Deactivate non-essential secondary roads and revegetate where possible.
Goal:	W.3. RIGHTS OF USERS - Safeguard rights of First Nations, registered trappers and guide-outfitters.
Goal:	W.4. REFERRALS - Ensure all development that impacts use of wildlife is referred to the appropriate users.
Objective:	W.4.1.Include Appropriate Users - Include First Nations, guides and trappers, and other appropriate users in all referrals for changes in access, silvicultural and harvesting plans that will affect their use of wildlife.
Goal:	W.5. FIRE CONTROL - Ensure that vigorous fire suppression control action be taken to minimize the adverse affect on wildlife habitat.
Objective:	W.5.1.Fire Management Plan - Develop a Fire Management Plan (Ministry of Forests) which will designate areas and identify the method of fire suppression action that will be taken with consideration given to wildlife values.
Objective:	W.5.2.Burning - Maintain small mammal and small bird habitat by minimizing broadcast burns and maintianing some debris piles.

NOTE: These Goals, Objectives and Guidelines apply to Resource Unit 11.

Goal:	O.1. STRUCTURE AND FUNCTION - Maintain old growth biological structures and functions through space and time.
Objective:	O.1.1. Old Growth Characteristics - Manage forests to retain old growth characteristics such as snags, wildlife trees, clumps of large live trees (of mixed species if present), advanced regeneration of all species, coarse woody debris, etc.
Guideline:	O.1.1.1. Rate of Cut - See Wildlife Goals - W.1.1.5.
Guideline:	O.1.1.2. Wildlife Tree Retention - See Wildlife Goals - W.1.1.6.
Guideline:	O.1.1.3. Coarse Woody Debris - See Wildlife Goals - W.1.1.7.
Objective:	O.1.2. Broadcast Burning - Broadcast burning will be minimized. It is not anticipated that burning will be an issue. It will be dealt with if and when it becomes an issue.
Objective:	O.1.3. Biodiversity - Maintain or enhance biodiversity of plant, fungus, and animal species (including vertebrates and invertebrates) to provide winter and summer wildlife habitat such as thermal cover, food, denning sites, nest sites, shelter, reproduction, etc.
Guideline:	O.1.3.1. Landscape Linkages and Block Size - See Wildlife Goals - W.1.1.3.
Objective:	O.1.4. Site Disturbance - Minimize site disturbance during harvesting.
Guideline:	O.1.4.1. Damage to Coniferous Cover - When residual coniferous cover is to be retained, avoid damaging residual trees (bark removal, scarring, and root disturbance - especially to Sub-alpine fir).

Guideline:	O.1.4.2. Stream Disturbance - Ensure that there is minimal stream disturbance.
Guideline:	O.1.4.3. Soil Disturbance - Minimize rutting and soil disturbance by machinery.
Objective:	O.1.5. Herbicide Use - See Fisheries Goals - F.1.3.1.
Objective:	O.1.6. Carbon Sink - Maintain the carbon sink of the forest community. (This Objective is met by various guidelines in other sections.)
Objective:	O.1.7. Genetic Variation - Maintain a natural genetic variation approaching that of the old growth community (for medicinal plants, adaptive ecotypes, resistance to severe climates, scientific laboratories, variety, etc.). (This Objective is met by various guidelines in other sections.)
Objective:	O.1.8. Ecosystem Networks - Maintain contiguous old growth landscape linkages and wildlife corridors (i.e; prevent loss of ecosystems). See Wildlife Goals - W.1.1.1.
Goal:	O.2. PHYSICAL - Maintain old growth physical functions.
Objective:	O.2.1. Hydrologic and Nutrient Cycles - Maintain the hydrological cycle and nutrient cycle through vegetation management to achieve the following objectives: dispersing water evenly through the soil, intercepting snow and rain so that run-off and soil stability are retained, intercepting fog, and evaporation.
Guideline:	O.2.1.1. Hydrological Review - See Fisheries Goals - F.2.1.1.
Guideline:	O.2.1.2. Clearcut Equivalency - See Fisheries Goals - F.2.1.2. and Wildlife Goals - W.1.1.5 for rate of cut.
	O.2.1.3. Directional Falling to Retain Soil - To retain soil, snags that must be felled should be dropped across or perpendicular to a slope when feasible.

MANAGEMENT GOALS, OBJECTIVES AND GUIDELINESOLD GROWTH

Guideline:	O.2.1.4. Harvesting across elevation ranges - see Fisheries F.2.1.3.
Guideline:	O.2.1.5. High Elevation Harvesting - Harvesting in high elevations (ESSF) should be designed for snow accumulation and retention similar to unharvested areas (e.g. long and narrow clearcuts).
Objective:	O.2.2. Maintain Water-related Biodiversity - Maintain or improve water quality, temperatures and Riparian Management Areas.
Guideline:	O.2.2.1. Riparian Buffers - See Fisheries Goals - F.1.2.1. and F.3.2.
Guideline:	O.2.2.2. Streamside Management Plans - See Fisheries Goals - F.1.2.2.
Objective:	O.2.3. Maintain Seral Diversity - Maintain stand structure to ensure the presence of all seral stages that occur in a natural forest (snags, veterans, dominants, co-dominants, shrubs and forbs).
Objective:	O.2.4. Ecological Site Disturbance - Plan operations by using methods and equipment that minimize ecological site disturbance. For example, evaluate the use of selection harvesting, horse logging, cable logging, helicopter logging, or small specialized equipment.
Objective:	O.2.5. Silviculture Systems - Silviculture systems will strive for natural seeding where appropriate. Collect cones from old growth areas (within the Herrick drainage when feasible) to provide seeds that are required for fill planting. Strive to achieve reforestation within 2 years of commencement of harvesting. Consider using large stock (eg. 415B) to minimize the necessity of major site disturbances (such as mechanical site preparation and herbicide use). Adaptively manage for spring or fall planting, optimum survival, growth, etc.
Objective:	O.2.6. Adverse Micro Climate - Avoid adversely high soil temperatures and adverse micro climate conditions.

MANAGEMENT GOALS, OBJECTIVES AND GUIDELINESOLD GROWTH

Goal:	0.3. BIOMASS - Manage biomass accumulations of dead woody material to approach those present in natural forest communities.
Goal:	0.4. SPIRITUAL AND CULTURAL - Maintain the forest community to provide spiritual, recreational and tourism values to man.
Goal:	0.5. FIRE CONTROL - See Wildlife Goals - W.5.
Goal:	0.6. ASSESSMENT AND MONITORING - Monitor and assess the activities within the Herrick Local Resource Use Plan area for compliance with these Goals, Objectives and Guidelines.

Goal:	S.1. CONSERVATION - Conserve the soil resource
Objective:	S.1.1. Maintain Productive Capacity of Soil To ensure the productive capacity of forest soil is maintained and deleterious impacts are minimized by insuring good soil conservation practices are followed.
Guideline:	S.1.1.1. Soils Surveys Two levels of soil surveys will be conducted. a) Ministry of Forests commit to produce, subject to funding, a generalized terrain sensitivity survey for the working forest within the Local Resource Use Plan. b) Northwood Pulp and Timber Limited and the Small Business Enterprise Program are responsible for conducting site specific surveys during pre-harvest planning.
Guideline:	<p>S.1.1.2. Roads Follow the interim guidelines set out in the "<i>BC Ministry of Forests Road and Logging Trail Engineering Practices Manual</i>":</p> <p>"The BC Ministry of Forests is ultimately responsible for the management of Crown forest resources, including roads required for forest management. The Ministry is committed to establishing and maintaining an appropriate level of engineering for forest roads and logging trails, while considering the safety, the protection of soils, site productivity, fisheries, water quality, other resource values, and aesthetics.</p> <p>Road designers, builders and operators in B.C. forests must comply with these standards on pre-construction, construction, maintenance and deactivation of roads and logging trails. Landings and fire-guards are considered to be an integral part of road systems, and are subject to the same engineering standards related to construction, maintenance and deactivation.</p>

Guideline:	<p>Forest roads, logging trails and drainage structures are located and designed to minimize the combined costs of construction, log hauling, maintenance, safety requirements, site degradation, remedial works and deactivation."</p> <p>S.1.1.3. Harvesting Follow the interim guidelines set out in the Ministry of Forests Land Management Report #62 - "Developing Timber Harvesting Prescriptions to Minimize Site Degradation":</p> <p>"The purpose of this report is to provide individuals responsible for formulated logging prescriptions, a package of harvesting strategies which do not cause excessive site degradation and thus do not result in long-term losses in forest productivity. Our goal is to give forest managers:</p> <ul style="list-style-type: none"> • an objective process with which to assess the relative sensitivity of a site to degradation; and • a range of appropriate, workable strategies with which to modify timber harvesting practices to suit the varying degrees of sensitivity." <p>The emphasis in these guidelines is on improved pre-harvesting planning as the primary mechanism for controlling the amount of productive forest land that is converted to alternate uses (roads, gravel pits, etc.) and for reducing the amount of detrimental soil disturbance on the remaining productive area.</p> <p>Areas of High Sensitivity (Terrain Stability Class IV) have severe restrictions for timber harvesting practices. Strategies to minimize harvesting impact include logging when the ground is frozen or protected by snowpack, using low ground pressure equipment, designating skidroads, or using cable logging systems.</p>
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	<p>Areas of Very High Sensitivity (Terrain Stability Class V), where sufficiently large, these sites should be classified as environmentally sensitive (Es1 or Es2) in the forest inventory, with appropriate allowable cut reductions. The decision on whether, and if so, how to harvest timber on these extremely degradation-sensitive sites should be made by the Forest District Manager following a site-specific soils or geotechnic investigation. Smaller areas of very high sensitivity require special consideration during the development of logging prescriptions.</p> <p>The guidelines apply to road construction, harvesting-related detrimental soil disturbance, and fireguard construction.</p>
Guideline:	<p>S.1.1.4. Reforestation Site Preparation The objectives of site preparation are:</p> <ul style="list-style-type: none"> • Site preparation will take place without causing detrimental or excessive soil disturbance. Follow the interim guidelines set out in the BC Ministry of Forests "<i>Fundamentals of Mechanical Site Preparation</i>". These guidelines are intended to minimize the extent of detrimental soil disturbance, resulting from mechanical site preparation, that lead to unacceptable reductions in long-term forest productivity. • Create sufficient numbers of suitable, well spaced growing sites for newly established seedlings, either planted or natural, to survive and obtain good growth and acceptable stocking standards.
Guideline:	<p>S.1.1.5. Low Impact Recreational Practices Consider the practices set out in the United States Department of Agriculture report entitled "<i>Low-Impact Recreational Practices for Wilderness and Backcountry</i>". This report is intended to serve as a source book of information on low-impact practices. User guidelines can be developed from them.</p>

Goal:	T.1. SUSTAINABLE HARVEST To harvest timber on a biologically and economically sustainable basis over a rotation.
Objective:	T.1.1. Planning - Plan the use of the forest resources so the production of timber, the harvesting of timber, and the realization of fisheries, wildlife, water, outdoor recreation, soils and other natural resource values are coordinated and integrated through consultation and cooperation between the ministries and agencies of the Crown and with the private and public sectors.
Guideline:	T.1.1.1. Total Resource Plan - Develop a Total Resource Plan, which identifies all blocks planned for harvesting for a full rotation, with consideration for other resources and resource users.
Guideline:	T.1.1.2. Five Year Development Plan - Develop and maintain a Five Year Development Plan on an annual basis with due regard to the higher level plans (e.g. Land and Resource Management Plan, Local Resource Use Plan, public comment, Crown agencies and stakeholder input).
Guideline:	T.1.1.3. Pre-harvest Silviculture Prescriptions - Develop Pre-harvest Silviculture Prescriptions by applying appropriate silvicultural systems, recognizing the biogeoclimatic and ecosystem classification systems used in B.C., advertise for comment and modify as appropriate for approval by the Ministry of Forests.
Guideline:	T.1.1.4. Access Management Plan - Develop an access management plan (e.g. erosion control, deactivation, rehabilitation, etc.) in coordination with the total resource plan, the Local Resource Use planning team, other stake holders and resource users.
Guideline:	T.1.1.5. Consultation - Consult and obtain input from the various agencies of the Crown and stakeholders.

Guideline:	T.1.1.6. Forest Inventory - Maintain a continuous forest inventory on an annual basis.
Guideline:	T.1.1.7. Monitor Plans - Implement, monitor, evaluate (modify as necessary), and report on Herrick Development Plans on an annual basis.
Objective:	T.1.2. Productivity - Optimize productivity of the timber resource in conjunction with objective T.1.1.
Guideline:	T.1.2.1. Silvicultural Activities - Ensure basic silviculture activities are carried out in a timely and appropriate manner.
Guideline:	T.1.2.2. Regard for Other Resource Values - Plan and carry out intensive silviculture activities with due regard for other resource values.
Guideline:	T.1.2.3. Harvesting Priorities - Prioritize harvesting to address older age classes, salvage of blowdown and salvage of fire and pest damaged trees. If required, an emergency action plan will be developed in consultation with other agencies and resource users and stake holders.
Guideline:	T.1.2.4. Soil Conservation - Observe soil conservation guidelines to minimize impacts on the soils resource and, where feasible, improve soil productivity.
Objective:	T.1.3. Conservation - Manage, protect and conserve the timber resource having regard for the immediate and long term economic, ecological, and social benefits they may confer to the province.
Guideline:	T.1.3.1. Biological and Economical Sustainability - Manage the timber resource and its constituent parts on a biologically and economically sustainable basis.
Guideline:	T.1.3.2. Research Activities - Encourage and carry out various research activities (e.g. old growth management, insect control, alternate silviculture systems, etc.).

MANAGEMENT GOALS, OBJECTIVES AND GUIDELINES

TIMBER

Guideline:	T.1.3.3. Soils Resource - Conserve the soils resource (see soils guidelines).
Guideline:	T.1.3.4. Forest Health Program - Carry out a forest health program and related activities. Monitor and manage to control pests and diseases.
Guideline:	T.1.3.5. Rehabilitation Activities - In consultation with other agencies and stake holders, carry out rehabilitation activities where feasible and appropriate.
Guideline:	T.1.3.6. Wildfires - Control wildfires in the operable timber area. Also see Recreation Goals - R.1.5.1.
Objective:	T.1.4. Industry - Encourage an effective, efficient, competitive and sustainable timber processing industry.
Guideline:	T.1.4.1. Optimize Land Base - Optimize the working forest land available for timber management as per Timber Goals - T.1.1.
Guideline:	T.1.4.2. Efficiency - Utilize ecologically appropriate and cost effective silviculture and harvesting systems.
Guideline:	T.1.4.3. Health and Productivity - Encourage and maintain the health and productivity of the working forest as per Timber Goals - T.1.3.
Guideline:	T.1.4.4. Economic Return - Optimize the economic return from the working forest while considering all resource values.
Objective:	T.1.5. Financial Interests - Optimize the financial return to the Crown by considering all inherent resource values, demands for their use and the importance of the forest industry.

Goal:	R.1. Provide opportunity for appropriate recreation, with due consideration for compatibility and level of use of recreation and non-recreation resource use.
Objective:	R.1.1. Develop a recreation plan (Ministry of Forests) by zoning the Herrick planning area in order to: protect ecologically sensitive areas; minimize conflict between incompatible uses; provide access requirements for different recreational activities; and, protect areas of significant recreational value.
Guideline:	R.1.1.1. Prepare and maintain an inventory of the recreation resource by: <ul style="list-style-type: none"> • identifying recreation features of the Herrick Valley; • determining and indicating the sensitivity of these features to accommodate resource development; • identifying existing or proposed forest developments, road developments, other existing activities (trapping, guiding, hunting) and man-made structures; and • assessing the use and demand of recreation.
Guideline:	R.1.1.2. Establish goals/targets/level or establish limits of acceptable change for recreation management.
Guideline:	R1.1.3. Select indicators to monitor goals/targets/levels or limits of acceptable change.
Guideline:	R.1.1.4. Set standards of acceptability for the indicators in R.1.1.3.
Guideline:	R.1.1.5. Identify management action for achieving the standards set in R.1.1.4.
Guideline:	R.1.1.6. Monitor the indicators, standards of acceptability, and the management actions and modify as required.

Objective:	R.1.2. Maintain a high standard of natural aesthetics in the Herrick Valley, generally, and in the Framstead drainage in particular, as viewed from high elevation vantage points, by development of a Visual Landscape Management Plan. It is proposed that a landscape inventory and analysis, with recommended Visual Quality Objectives, be prepared by the Regional Landscape Forester.
Guideline:	R.1.2.1. Set Visual Landscape Management objectives, priorities and guidelines by establishing approved Visual Quality Objectives and developing landscape management guidelines to manage resources and values.
Guideline:	R.1.2.2. Develop strategies for meeting Visual Quality Objectives (e.g. design cut blocks and roads which blend into the natural lay of the land and avoid unnatural lineations in road layout and block boundaries on slopes). This step will be the responsibility of the Licensees and the Small Business Forest Enterprise Program within their Five Year Development Plans, Cutting Permits and Preharvest Silviculture Prescriptions.
Guideline:	R.1.2.3. Monitor achieved visual conditions relative to approved Visual Quality Objectives.
Objective:	R.1.3. Preserve critical viewscape zones and protect environmentally sensitive areas including the sub-alpine and alpine environments, waterfalls and other special features.
Guideline:	R.1.3.1. Ensure sites for radio repeaters and other man-made structures , especially on mountains and ridge tops are selected with full consideration given to the recreational and aesthetic values of the area by ensuring the agencies responsible for permitting or licensing communication sites (Ministry of Lands and Ministry of Forests) are informed of the management decision of this Local Resource Use Plan and that Land Referrals are addressed in a manner consistent with the management decision of this Local Resource Use Plan.
Guideline:	R.1.3.2. Implement the Visual Landscape Management Plan (Objective R.1.2.).

Guideline:	R.1.3.3. Use alternative harvesting techniques , where appropriate, such as skyline logging or cable logging on steep slopes to minimize soils impacts (compaction, scarring, and potential washouts), unwanted access and to help preserve the viewscape.
Guideline:	R.1.3.4. Prohibit motorized vehicles from a designated recreation area southwest of Knudsen Lake (see Map 3).
Objective:	R.1.4. Include recreation values and uses in the development of an Access Plan .
Guideline:	<p>R.1.4.1. Work with Forest Service and recreation groups to plan roads, parking areas and trail corridors with respect to location, standards, longevity, maintenance regime, public and industrial safety, restrictions (type of use, amount of use, seasons, times), and deactivation. Two specific interests concerning back country recreation are:</p> <ul style="list-style-type: none"> • ensure that designated roads are maintained for summer use during and following forestry operations in accordance with the access plan; and, • maintain designated parking areas and/or short side roads during winter snow-clearing operations so that parked vehicles do not impede forest operations.
Guideline:	R.1.4.2. Protect environmentally sensitive areas and reduce conflicting uses by controlling or restricting inappropriate access.
Guideline:	R.1.4.3. Design the road infrastructure to minimize the possibility of inappropriate access.
Guideline:	R.1.4.4. Consider the use and impact of aerial, water and land access.
Objective:	R.1.5. Include recreation values and uses in the development of a Fire Management Plan .
Guideline:	R.1.5.1. Designate areas and identify the method of fire suppression action that will be taken with consideration given to recreation values and uses.

10. CONTINGENCY PLANNING

The approved Local Resource Use Plan will document guidelines that government agencies and licensed resource users have agreed to implement. The plan must be sufficiently flexible, however, to address changing circumstances and emergency situations such as forest fire, insect infestations, wind throw and disease. In the event that the plan must be amended, the planning team will be reconvened to assist in the identification of resources affected and to recommend revised management strategies.

11. ISSUES OUTSIDE THE MANDATE OF THE LOCAL RESOURCE USE PLAN

A number of issues were discussed by the Local Resource Use planning team but were considered to be beyond the mandate outlined by the Terms of Reference. These issues included:

- BC Hydro Flood Reserve

That portion of the Herrick Watershed below the 760 metre contour of elevation is covered by a Land Act - Section 12 reserve for flood reservoir purposes. If plans for the "McGregor Diversion" project were ever implemented, many of the resources and values that the planning team were attempting to conserve with the Local Resource Use Plan would be jeopardized. It was felt, however, that a project of the magnitude was beyond the Local Resource Use Plan Terms of Reference and that a full Environmental Impact Assessment would be required if the project was considered. Local Resource Use planning team members felt they would have an opportunity to be involved in that process.

- Lheit-Lit'en Nation Sacred Area

A representative of the Lheit-Lit'en Nation was an active Local Resource Use Plan participant during the early stages of the process. During a workshop in May 1992 planning team members were informed that the Lheit-Lit'en had identified a sacred area between Fontoniko and Spakwaniko Creeks. Local Resource Use Plan deliberations considered the sacred area until August 1992 when the Lheit-Lit'en withdrew from the process as a result of issues related to their Model Forest application, Comprehensive Land Claim and separate discussions with Northwood Pulp and Timber Limited regarding forest management within the sacred area. Attempts by the planning team to persuade them to return failed. As a result the sacred area was not considered by the planning team during the development of final resource unit boundaries and management goals as they felt it would be inappropriate to negotiate on behalf of the Lheit-Lit'en. The Ministry of Forests then began separate negotiations with the Lheit-Lit'en on a Memorandum of Understanding (MOU).

ISSUES OUTSIDE LOCAL RESOURCE USE PLAN MANDATE

The intent of the MOU is, in part, to facilitate the development of agreements between the Ministry of Forests and Lheit-Lit'en on the issues related to the cooperative management of forest resources contained within the sacred area. The MOU was not complete at the time this Consensus Report was prepared and, as such, remains an outstanding issue that could effect the consensus achieved. The MOU, once complete, may require further deliberations on the part of the Local Resource Use planning team. The boundary of the sacred area, as agreed to by the Lheit-Lit'en Nation and the Ministry of Forests, can be seen on Map 6.

- Small Business Forest Enterprise Program

One of the issues brought to the Local Resource Use Plan table was the sale of Small Business Forest Enterprise Program Timber Sales in the Herrick. A representative of the Central Interior Logging Association felt that the Herrick was too isolated and that Timber Sales should be closer to Prince George. As this issue is related to timber allocation or apportionment, it was not addressed by the planning team. The main function of Local Resource Use Plans is to refine resource management strategies, not allocate timber.

- Mining Exploration and Development

The Ministry of Energy, Mines and Petroleum Resources (MEMPR) and the Cariboo Mining Association were invited to participate in the Local Resource Use Plan, but were unable to commit to the process. Some information on mineral potential and tenures was provided by MEMPR but planning team members felt that the lack of participation by the Mining section is somewhat of a "gap" in the plan, particularly with respect to recommendations for the RESERVE resource units.

- Snowmobile and All Terrain Vehicle (ATV) Use in High Elevation Areas

A non-mechanized recreation area southwest of Knudsen Lake is recommended in this Consensus Report but the issue of ATV use extended to all high elevation areas in the Herrick. The planning team felt that without representation by ATV users, further restrictions could not be considered.

APPENDIX I

PLANT AND ANIMAL SPECIES OBSERVED ON FIELD

TRIP - AUGUST 1 - 6 1993

Report by Sandra Kinsey and Laird Law

PLANTS

<u>COMMON NAME</u>	<u>LATIN NAME</u>
white/Engelmann spruce	<i>Picea glauca/engelmannii</i>
Subalpine fir	<i>Abies lasiocarpa</i>
red elderberry	<i>Sambucus racemosa</i>
black gooseberry	<i>Ribes lacustre</i>
red swamp currant/skunk currant	<i>Ribes triste/glandulosum</i>
Sitka alder	<i>Alnus viridis ssp. sinuata</i>
white-flowered rhododendron	<i>Rhododendron albiflorum</i>
black huckleberry	<i>Vaccinium membranaceum</i>
oval-leaved blueberry	<i>Vaccinium ovalifolium</i>
yellow mountain-avens	<i>Dryas drummondii</i>
juniper sp.	<i>Juniperus sp.</i>
willow sp.	<i>Salix sp.</i>
pink mountain-heather	<i>Phyllodoce empetrifomis</i>
white mountain-heather	<i>Cassiope mertensiana</i>
partridgefoot	<i>Leutkea pectinata</i>
slender hawkweed	<i>Hieracium gracile</i>
pussytoes	<i>Antennaria sp.</i>
mountain sagewort	<i>Artemisia norvegica</i>
yarrow	<i>Achillea millefolium</i>
arrow-leaved groundsel	<i>Senecio triangularis</i>
northern goldenrod	<i>Solidago multiradiata</i>
Arnica sp.	<i>Arnica sp.</i>
sweet coltsfoot	<i>Petasites frigidus</i>
aster sp.	<i>Aster sp.</i>
mountain death-camas	<i>Zygadenus elegans</i>
glacier lily	<i>Erythronium grandiflorum</i>
Indian hellebore	<i>Veratrum viride</i>
white bog-orchid	<i>Platanthera dilatata</i>
red-stemmed saxifrage	<i>Saxifraga lyallii</i>
leatherleaf saxifrage	<i>Leptarrhena pyrolifolia</i>

mitrewort sp.
three-leaved foamflower
fringed grass-of-Parnassus

mountain monkshood
baneberry
sitka burnet
goatsbeard

diverse-leafed cinquefoil

arctic lupine
alpine sweet-vetch
blackish locoweed

cow-parsnip
kneeling angelica

small-flowered paintbrush
Labrador lousewort
pink monkey-flower
alpine speedwell
alpine bistort
mountain sorrel
field chickweed

alpine willowherb
fireweed
yellow willowherb
inky gentian
northern gentian
mountain forget-me-not
sitka valerian
mountain harebell

dwarf scouring-rush
alpine clubmoss
running clubmoss

oakfern

few-finger lichen

Mitella sp.
Tiarella trifoliata
Parnassia fimbriata

Aconitum delphiniifolium
Actaea rubra
Sanguisorba canadensis ssp. latifolia
Aruncus dioicus

Potentilla diversifolia

Lupinus arcticus
Hedysarium alpinum
Oxytropis nigrescens

Heracleum lanatum
Angelica genuflexa

Castilleja parviflora
Pedicularis labradorica
Mimulus lewisii
Veronica wormskjoldii
Bistorta vivpara
Oxyria digyna
Cerastium arvense

Epilobium anagallidifolium
Epilobium angustifolium
Epilobium luteum
Gentiana glauca
Gentianella amarella
Myosotis alpestris
Valeriana sitchensis
Campanula lasiocarpa

Equisetum scirpoides
Lycopodium alpinum
Lycopodium clavatum

Gymnocarpium dryopteris

Dactylina arctica

BIRDS

Golden Eagle
American Kestrel
Willow Ptarmigan (a pair with one juvenile)
Spotted Sandpiper
Solitary Sandpiper
Rufous Hummingbird
pileated woodpecker or flicker
Horned Lark
Steller's Jay
Boreal Chickadee
Red-breasted Nuthatch
American Robin
Varied Thrush

Golden-crowned Kinglet
Ruby-crowned Kinglet
American Pipit
Yellow-rumped Warbler
Wilson's Warbler
Savannah Sparrow
Dark-eyed Junco
Chipping Sparrow
Golden-crowned Sparrow
Rosy Finch
Pine Siskin
White-winged Crossbill
Hermit Thrush (carrying food)

MAMMALS

a lemming or vole
Deer Mouse
Hoary Marmot
Columbian Ground Squirrel
Golden-mantled Ground Squirrel
Grizzly Bear
Caribou

AMPHIBIANS AND REPTILES

none were seen

OTHER

freshwater shrimp
grasshopper
mosquito
black fly

bull trout (fish)

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TIMBER SUPPLY ANALYSIS

for the

Herrick Creek Local Resource Use Plan

MEMORANDUM OF UNDERSTANDING

between the

Ministry of Forests and Lheit-Lit'en Nation