BRITISH COLUMBIA

Integrated Land Management Bureau

Bulkley Valley Sustainable Resource Management Plan

September 2005

January 26, 2006

On behalf of the Ministry of Agriculture and Lands, I am pleased to approve the Bulkley Valley Sustainable Resource Management Plan. This plan represents a significant commitment on behalf of the Bulkley Valley Community Resources Board (BVCRB), agencies and tenure holders to sustainable resource management in the Bulkley Valley.

I would like to specifically thank the members of the BVCRB for their contributions and cooperation in developing this plan. Their efforts serve as a valuable model for effective community involvement in land use planning.

Sincerely,

Original Signed by

Pat Bell

Minister

pc: Bulkley Valley Community Resources Board
Northern Interior Interagency Management Committee
Skeena Managers Committee

Note to Readers

The Bulkley Valley Sustainable Resource Management Plan was developed under the same Landscape Unit Planning Framework that the other 11 landscape units within the Bulkley LRMP were completed. Hence, throughout this document, the term Landscape Unit Plan or LUP is used. For all intents and purposes, Landscape Unit Planning and Sustainable Resource Management Planning are synonymous.

The recent election has resulted in a number of significant changes to the natural resource management ministries. These changes are hopefully reflected in the document. However, as a number of ministry functions are still uncertain, future interpretation regarding appropriate roles will be required.

Acknowledgements

The members of Bulkley Community Resource Board, Subcommittee for the Bulkley Valley LU Plan, included Dean Daly, Rosemary Fox, Dallas Kerr (Chair), and Gary Quanstrom.

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B.C. Ministry of Energy and Mines: Paul Wodjak

Department of Oceans and Fisheries: Tom Pendray

Pacific Inland Resources (A Division of West Fraser Mills): *Draft* Bulkley TSA Sustainable Forest Management Plan

Other individuals included: Glayds Atril (Town of Smithers), Ray Chipeniuk (UNBC), Daryl Hanson (geologist, previous CRB member), Laurie Gallant (Footprint Environmental Consultants), Tony Harris (tourist operator, previous CRB Member), Hans Smit (geologist, present Chairperson CRB).

Maps were created by: Pro-Tech Forest Resources Ltd., Jeff Lamb

Project facilitation and co-ordination was provided by Rick Trowbridge of Boreal Research and Development. Cover and map legend photo credit: Rick Trowbridge

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Introduction

The Bulkley Valley Landscape Unit Plan (LUP) presents objectives and strategies for the resource management within the Bulkley Valley portion of the Bulkley Land and Resource Management Plan LRMP (Map 1 and Map 2) [1]. These objectives were initially developed by the Bulkley Valley Community Resource Board (CRB), and the strategies were developed by various resource experts in local government agencies and private industry to meet the objectives. This plan follows Ministerial Policy as presented in the LRMP. The objectives in the LUP will be established by the Integrated Land Management Bureau (ILMB) as policy objectives. In the future, other agencies (e.g. Ministry of Environment) may legally implement objectives under the *Forest and Range Practices Act, Land Act, Wildlife Act* or other such legislation.

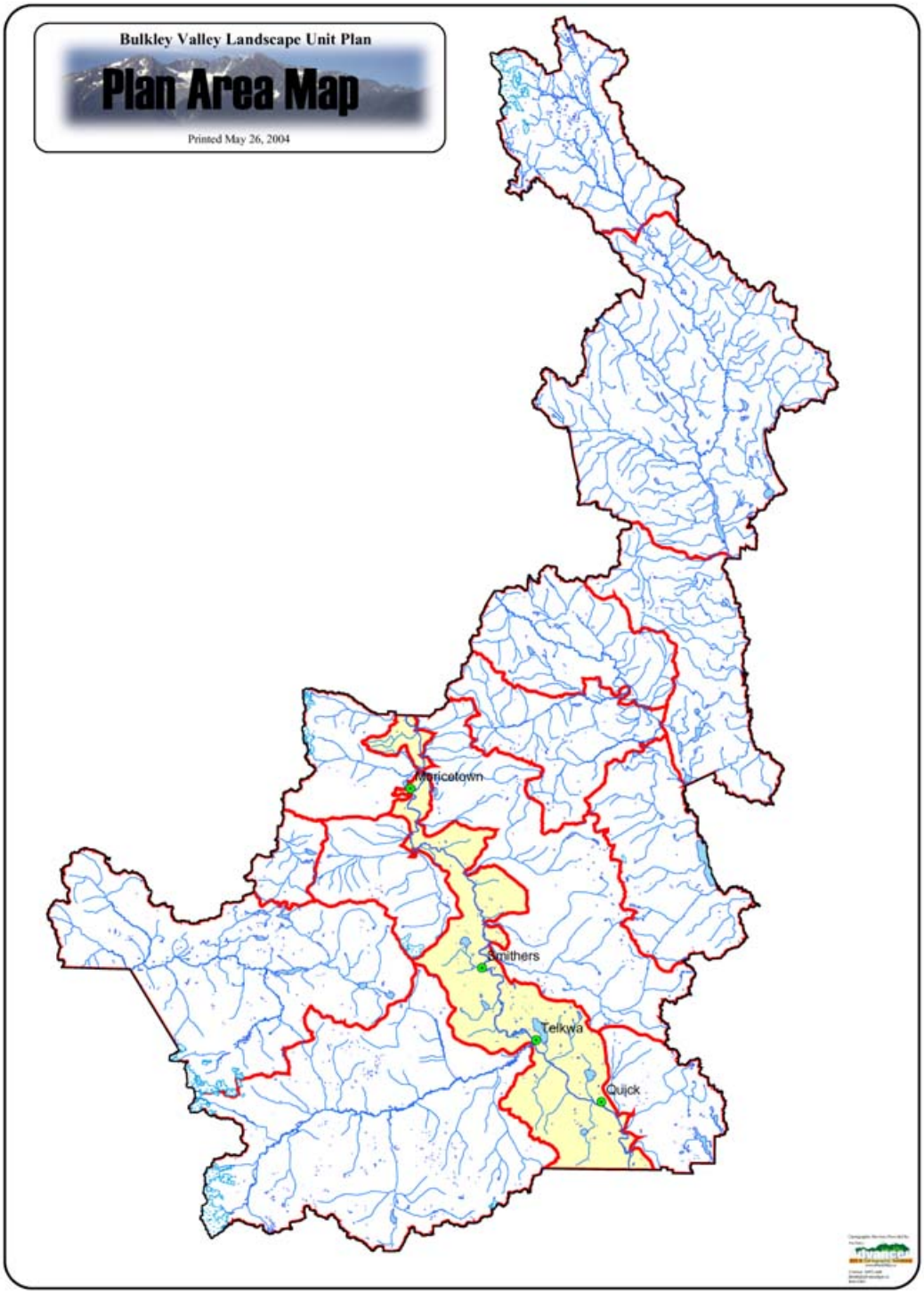
The objectives provide direction for a wide range of resource values. The objectives in the LUP provide sufficient detail to provide direction to government, industry, and local residents and interest groups to allow creative solutions for meeting these land management objectives. The objectives may:

- ✧ be enacted and compulsory where legislation and regulations currently exist;
- ✧ become policy and considered best management practices; or
- ✧ be considered as recommendations for government, industry, and private land owners.

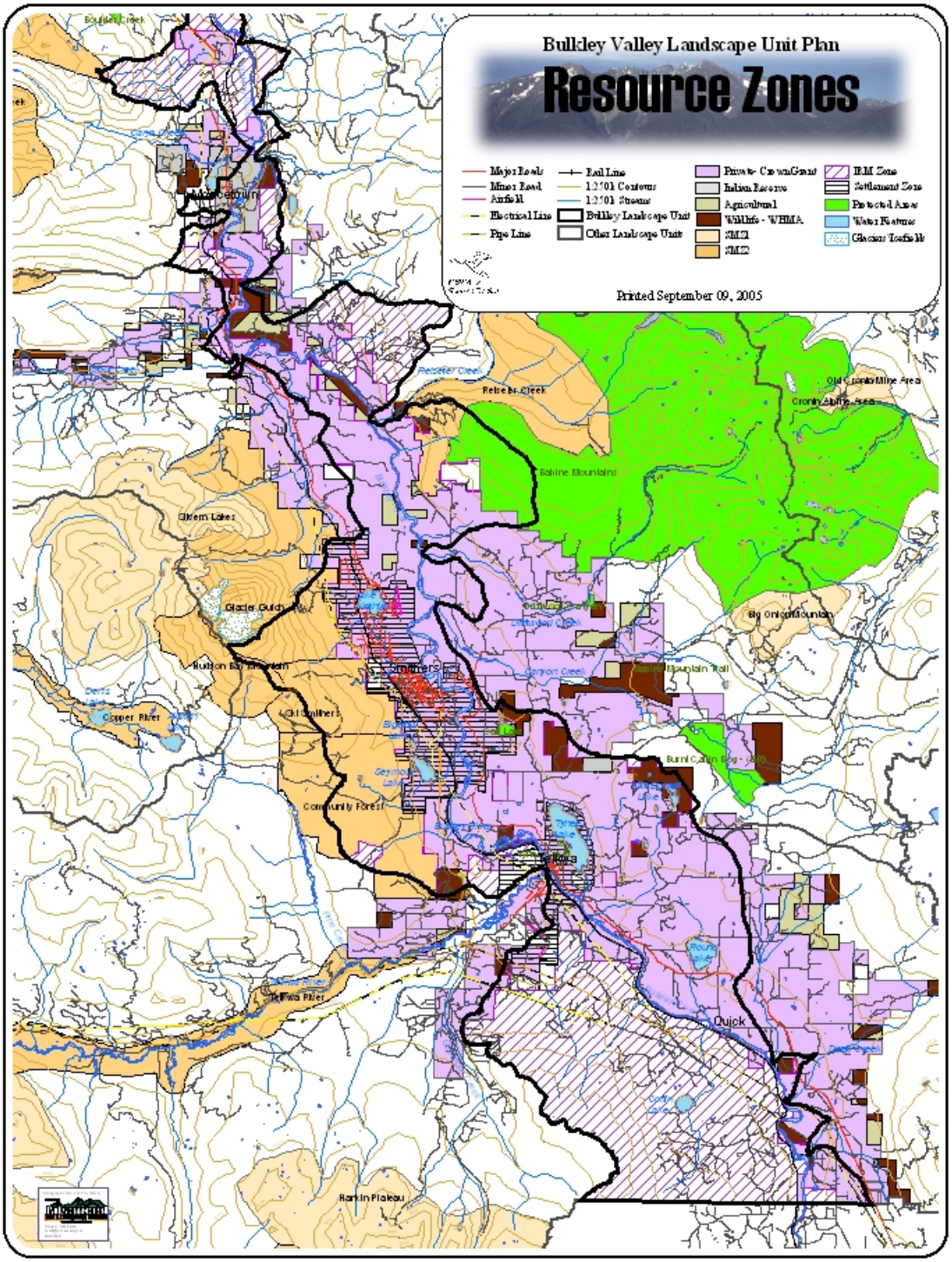
The March, 1996 timber supply analysis of the Bulkley LRMP was a major consideration used in bringing a consensus to the LRMP. The analysis showed that the cumulative timber supply impact resulting from the LRMP management direction was up to approximately 10% for the Bulkley Timber Supply Area (TSA). The impacts summarized in this analysis were considered closely when establishing the following landscape unit objectives. Where objectives were established to meet a special management intent and where this caused greater impact to the timber supply in one area, objectives were modified elsewhere in the plan to lighten timber supply impacts, always with the goal of maintaining the 10% ("LRMP budget") accepted timber supply impact. In the future, when new objectives and/or additional resource constraints are incorporated into the LUP, the LRMP budget will be considered and the goal will be to keep cumulative impacts to less than 10% for the Bulkley TSA.

[1] All maps shown in this document will be available at 1:100,000 scale, and in digital format at links found at the Integrated Land Management Bureau web site: http://srmwww.gov.bc.ca/ske/lrmp/bulkley/index.htm

Map 1. Bulkley Valley Landscape Unit Plan Area



Map 2. Bulkley Valley Landscape Unit Plan Resource Zones



The Planning Area

The Bulkley Landscape Unit (LU) planning area covers 66,971 hectares in an area adjacent to the Bulkley River corridor, and includes the communities of Evelyn, Moricetown, Quick, Smithers, and Telkwa (see Map 2). Almost one-half (45.3%) of this unit is in private, non-Crown land. This LU is within the traditional territory of the Wet'suwet'en (Djogaslee, Woos, Wah Tah Keght, and Smogelgem houses). A minor part of the plan area, North of Kwun Creek, is in the Gitxsan traditional territory. The Plan area occupies a large portion of the Bulkley River Valley roughly running north and south, but also has a wide range in elevation from the valley bottom to the top of Hudson Bay Mountain. The climate, soil, and vegetation varies, as represented by the numerous biogeoclimatic zones contained within it's boundaries (see Map 3).

The Bulkley Valley LU is not completely synonymous with the Bulkley Valley Planning Unit 7 identified in the LRMP. Boundary changes were made subsequent to the LRMP to better reflect the "landscape" watershed systems, and now includes significant areas of Hudson Bay Mountain Planning Unit 10. Refer to Map 2 to distinguish Bulkley Valley Planning Unit 7, and other adjacent LU areas. In this plan, Landscape Unit (LU) refers to the current and legal Bulkley Valley LU Plan area.

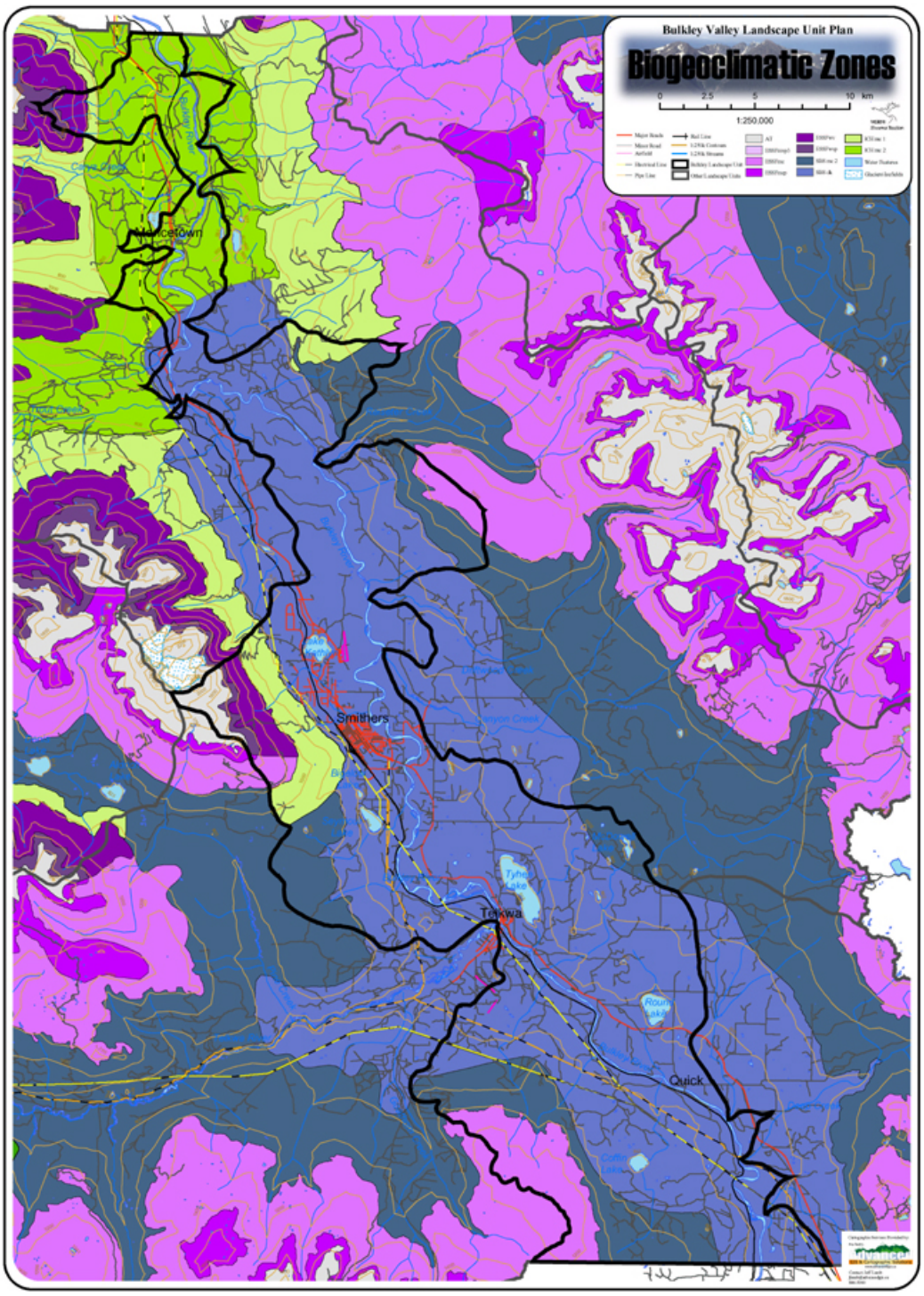
The LRMP identified the following resource zones (area in parentheses) in the Bulkley Valley LU:

1. **Protected/Parks.** This zone identifies Call Lake and part of Babine Mountain Park for their ecological, cultural, heritage and recreation values.
2. **Valley Settlement Zone**. The objective in this Zone is to allow future residential, commercial and industrial development on Crown Land, while minimizing the impacts on wildlife habitat and water supply.
3. **Agriculture/Wildlife Zone**. This Zone was identified to enhance the agricultural and wildlife capacity of the land. The zone has been further divided into two new subzones:
    a. **Agriculture Development Areas.** These areas will provide opportunities for agriculture expansion on arable soils in the Bulkley Valley.
    b. **Wildlife Habitat Management Areas.** These areas will ensure protection of wildlife and wildlife habitat in the Bulkley Valley.
4. **Special Management Zone 2.** (parts of Hudson Bay Mountain, Smithers Community Forest, and Ski Smithers areas). The highest priorities in this Zone of the LU are:
    - commercial and public recreation on the Mountain;
    - encouraging hiking opportunities and non-motorized access;
    - public education; and
    - visual scenic quality from the Highway 16 and Bulkley River corridors.

5. **Integrated Resource Management Zone.** This Zone is intended to recognize a full range of resource values (including timber harvesting, mining, agriculture and grazing, tourism, wildlife, and recreation), and at the same time to ensure that biodiversity is a priority on remaining Crown Land.
6. **Private.** These are lands are privately owned. Private landowners are encouraged to recognize and protect resource values associated with objectives and strategies in this plan.
7. **Indian Reserves.** These lands are under the jurisdiction of Native Governments. First Nations are encouraged to review and comment on this community land resources plan.

The objectives in this plan were developed for a wide range of values by the BVCRB, working in conjunction with the appropriate government agencies. The strategies were developed by government agencies and industry during the plan development. A Draft Plan was presented to the residents of the Bulkley TSA in a public process. All comments and advice received by the BVCRB were taken into account during the consensus agreement process.

Map 3. Biogeoclimatic zones



OBJECTIVES AND STRATEGIES

1.0 BIODIVERSITY

The entire Bulkley LRMP was founded on principles of biodiversity and sustainability. Due to historical settlement patterns and human development in the Bulkley Valley LUP area, biodiversity structure and function has been compromised here more than in any other landscape unit in the LRMP.

The ***ecosystem network*** (EN) is a key feature in the LRMP that provides for old growth retention, protection of the diversity of ecosystems (upland, riparian, and rare ecosystems), forest interior conditions, and wildlife habitat connectivity in the LRMP landbase. The network is comprised of ***core ecosystems*** and ***landscape corridors*** shown on Map 4. The EN was intended to be flexible, and to be modified based on new information and inventories. It may also accommodate new initiatives such as the designation of wildlife habitat areas, wildlife habitat management areas, ungulate winter ranges, and sensitive areas. Amendments to the EN will follow the policy provided in Appendix 1.

The EN areas were superimposed on to all lands in the Bulkley Valley LU area, regardless of land ownership. While the following objectives can be legally imposed only on Crown Lands, their application is encouraged wherever possible. To meet biodiversity objectives in this LUP, the LRMP acknowledged a high degree of cooperation between landowners and government would be necessary. This requirement for cooperation establishes the need for government-aided education and extension to owners of land outside of Crown Land (federal, municipal, private, and first-nation land settlement agreements), encouraging their participation in achieving biodiversity and sustainability of ecosystem integrity in the Bulkley Valley LU, and with objectives in adjacent LU.

While the EN provides areas to protect biodiversity, other legislation such as the Species At Risk Act and the Wildlife Act also identifies and provides protection for species at risk within the Bulkley Valley LUP area.

1.1 Core Ecosystems

Maintain over time the following:

- ✧ a representative range of healthy, naturally occurring ecosystems,
- ✧ a diversity of seral stages (emphasizing conservation and recruitment of old seral age classes 8 and 9),
- ✧ areas with forest interior conditions, and
- ✧ red and blue-listed, sensitive and vulnerable, and regionally significant species, plant communities, and ecosystems within the Core areas indicated on Map 4.

Strategies

1. Allow natural processes to occur within core ecosystems.
2. Keep wildfire, insect infestations, or disease infections from spreading into areas outside the core ecosystem. If intervention is required for forest health, low impact treatments such as fall and burn or modified harvesting are acceptable provided they do not compromise protection of the integrity and/or the intent of the Core ecosystem.
3. Do not permit harvesting in core ecosystems unless harvesting is necessary for the following reasons:
   a. to address forest health problems (see Figure 1); or
   b. to permit incidental tree cutting for mining and exploration purposes.
4. If harvesting does occur:
   a. no permanent road access structures can be built (construct temporary road access or long skids with approved rehabilitation plans, or use helicopter logging); and
   b. use modified harvest practices such as single tree selection (to maintain old growth structure) or small openings (<2 hectares to create or maintain early seral conditions) should be utilized (see Table 1).
5. Where temporary or alternative access is not possible, permanent access structures with minimum construction (e.g. narrow prisms and conservative right of ways) can be built to avoid alienating operable timber outside the core ecosystem.
6. Do not issue new grazing opportunities or boundary changes to existing grazing tenures. Where core ecosystems are within the ALR, other agricultural uses are permitted providing these uses are compatible with ecosystem objectives.
7. Purchase private land holdings to maintain and protect ecologically-valuable valley ecosystems (e.g. through the Habitat Conservation Fund).
8. Provide government assisted, biodiversity extension and education to local governments and private land owners.
9. WLAP to provide management measures for red and blue-listed, sensitive and vulnerable, and regionally significant species, plant communities, and ecosystems.

Map 4. Biodiversity Ecosystem Network

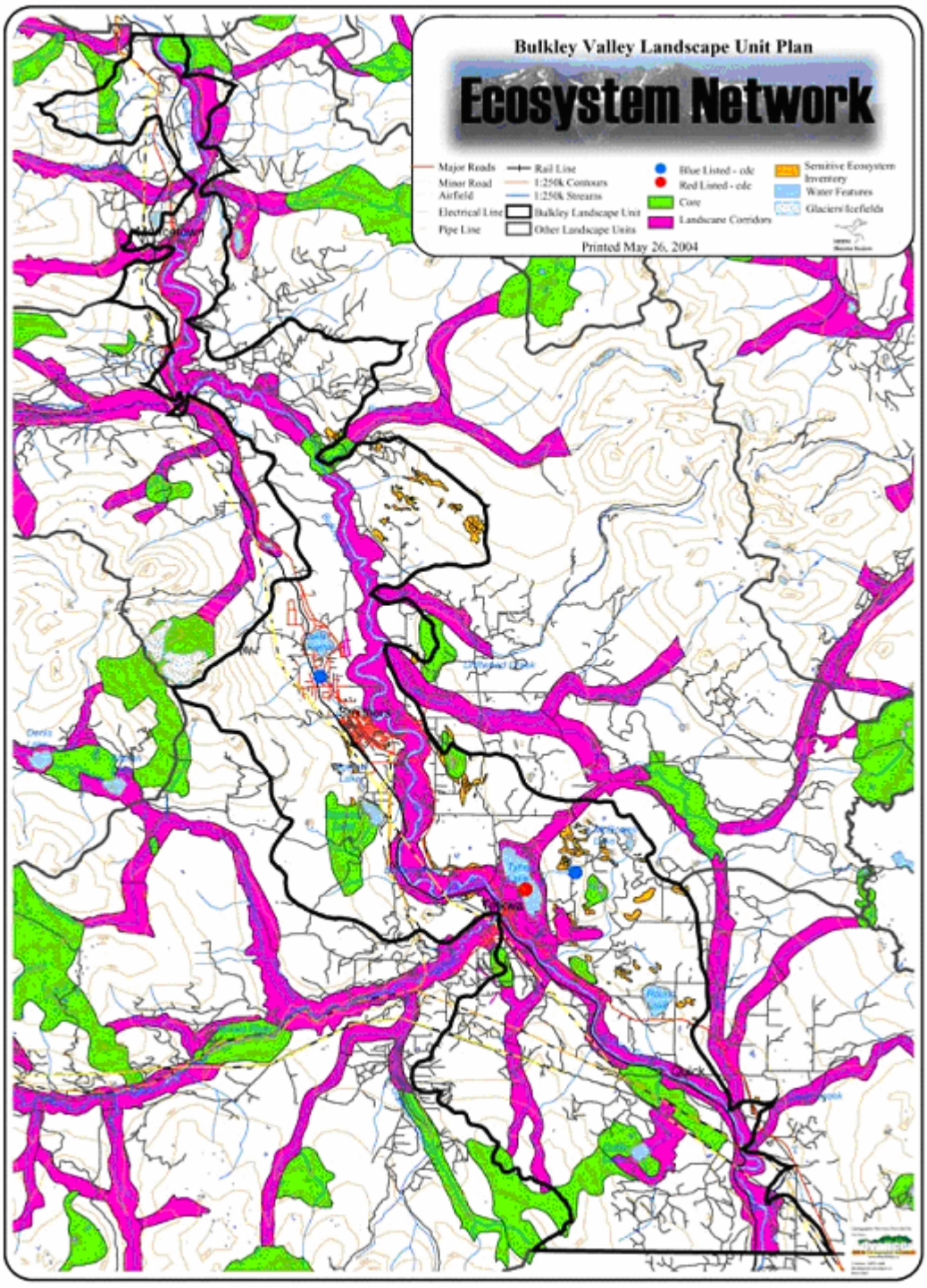
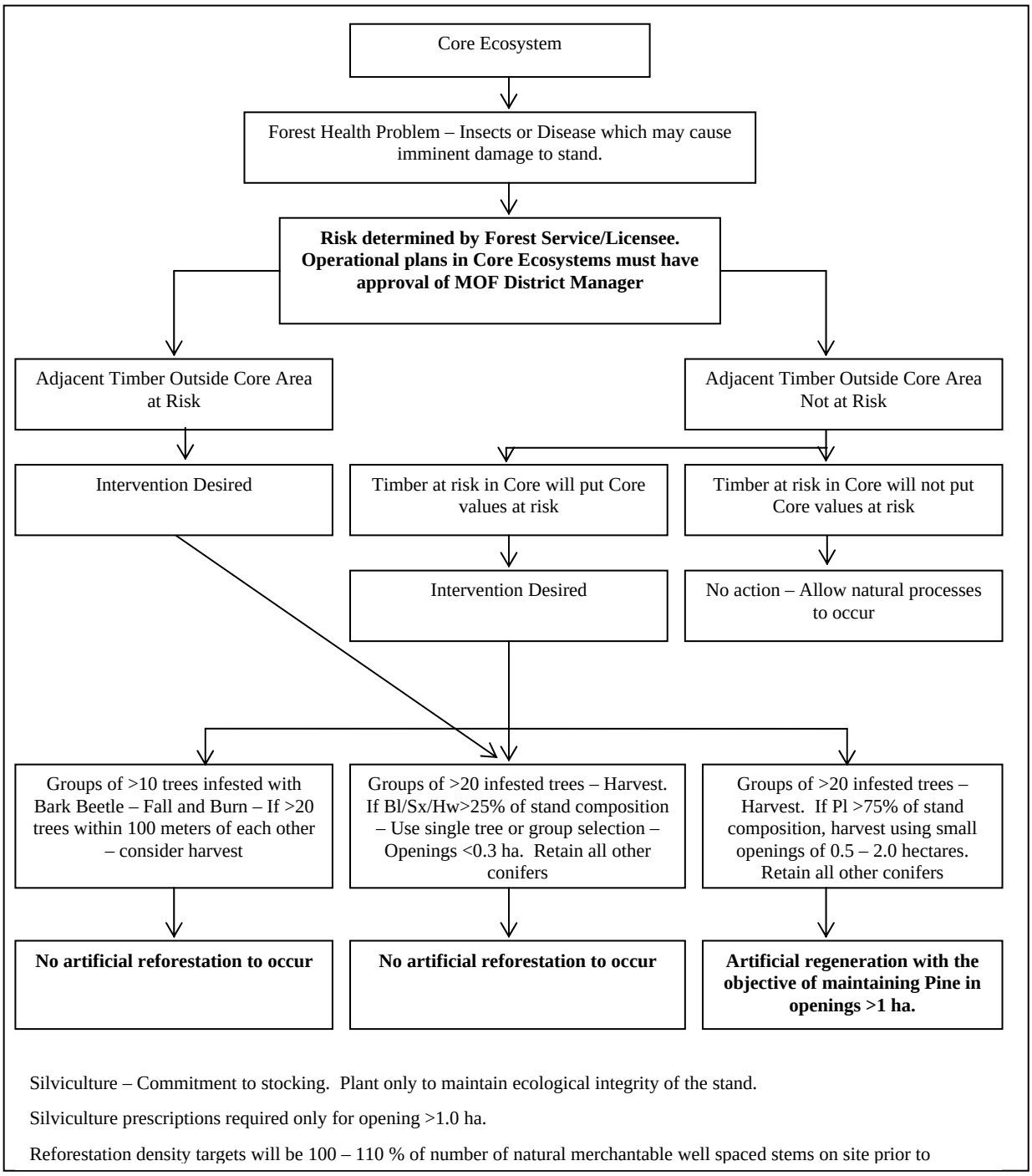

Bulkley Valley Landscape Unit Plan
Ecosystem Network
Major Roads
Minor Road
Airfield
Electrical Line
Pipe Line
Rail Line
1:250k Contours
1:250k Streams
Bulkley Landscape Unit
Other Landscape Units
Blue Listed - ede
Red Listed - ede
Core
Landscape Corridors
Sensitive Ecosystem Inventory
Water Features
Glaciers/Icefields
Printed May 26, 2004

Figure 1. Decision Matrix for Harvesting in Core Ecosystems



Silviculture – Commitment to stocking. Plant only to maintain ecological integrity of the stand.

Silviculture prescriptions required only for opening >1.0 ha.

Reforestation density targets will be 100 – 110 % of number of natural merchantable well spaced stems on site prior to

1.2 Landscape Corridors

Provide and maintain corridors (Map 4) of mature tree cover, containing structural and functional features associated with old forest, so as to provide habitat connectivity within the landscape, and permit movement and dispersal of plant and animal species by reducing habitat fragmentation.

Strategies

1. Industrial, agricultural, recreational, and tourism activities are permitted as long as they are approved and compatible with objective # 1.2, and other objectives in this plan (e.g. critical habitat identified in the caribou recovery plan).
2. Any approved activity must address cumulative impacts on habitat connectivity.
3. Operational plans for harvesting within landscape corridors should consider the harvest pattern adjacent to the corridor. For example, clearcuts adjacent to the corridor will constrain harvesting strategies within the corridor. Conversely, modified harvesting adjacent to the corridor will increase the flexibility for harvesting in a corridor (see Table 1).
4. Inoperable forested areas within landscape corridors which may contribute to landscape connectivity will be considered when determining the amount of area to be harvested, and when analyzing the impacts to determine whether harvest plans meet the corridor objectives.
5. Road access construction into landscape corridors should be temporary with approved rehabilitation plans, unless temporary access is not ecologically sound, is economically unreasonable[2], or permanent access is required due to adjacent topographic constraints.
6. Provide government assisted, biodiversity extension and education to local governments and private land owners.
7. WLAP to provide management measures for red and blue-listed, sensitive and vulnerable, and regionally significant species, plant communities, and ecosystems.

[2] After reviewing a range of options, the option that has the least impact on the corridor is chosen, provided the option is cost effective. This option is not necessarily the cheapest option.

Table 1. Decision matrix for harvesting options in landscape corridors

Timber Type	Maximum Block Size Adjacent to Clear Cuts[a]	Maximum Block Size Adjacent to Partial Cuts[b]	Silviculture System/Mgt. Strategy	Objective	Adjacency
I. Pine (No understory)	1.5 ha. max. 0.3 to 1.5 ha.	3.0 ha. max. 1.5 ha. ave.	Patchcuts or Clearcut with reserve if operationally feasible (i.e., in larger openings) [c]	Artificial or Natural Regeneration (Pine major)	No harvest until the block is 50 years old [d]
II. Pine (Bl/Sx Pole size understory of good quality)	1.5 ha. - 3.0 ha. dependent on amount of pole size saplings (5 - 15 cm.)	1.5 ha. - 3.0 ha. dependent on amount of pole size saplings (5 - 15 cm.)	Overstory Removal with reserves where operationally feasible (i.e. in larger openings) [c]	Artificial Regeneration or Natural Succession to Spruce/Fir stand	No harvest until opening provides sufficient forested attributes
III. Hemlock Spruce/Fir (little or no understory)	Groups 0.3 - 1.5 ha. dependent on the snag component in the stand	3.0 ha. max. 1.5 ha. ave.	Patchcuts or clearcut with reserve if operationally feasible (i.e. in larger openings) [c]	Mainly artificial regeneration Spruce/Fir	No harvest until opening provides sufficient forested attributes
IV. Spruce/ Fir/ Hemlock with good quality varied stand structure	Single Tree or Group selection (0.3 to 1.5 ha.) maintaining approx. 70 % basal area. Single Tree if low snag %. Groups if high snag %.	Single Tree or Group selection (0.3 to 1.5 ha.) maintaining approx. 70 % basal area. Single Tree if low snag %. Groups if high snag %.	Retain approx. 70% of the unit. If the area outside the corridor is a partial cut, flexibility will be considered.	Natural Regeneration Site may be fully stocked after harvest .	Few constraints.[d]

[a] Age and height of the regeneration in the clearcut must be considered. Where the cutblock provides forested attributes, flexibility may be considered. Forest health and catastrophic events will be dealt with on an individual basis.

[b] Partial cutting does not refer to seed tree, shelterwood or larger clearcuts with reserves where there is minimal structural attributes retained. A patch clearcut design with five hectare blocks and which phases into larger openings as one moves away from the corridor is one example of partial cutting as it relates to the intent of this policy.

[c] Approximately 60 stems/hectare comprising 50 per cent windfirm C2/C1 stems and 50 percent 5 metre stubs on openings >1 hectare. Where feasible means safe and technically possible.

[d] Adjacency is dependant on the growth of the stand and return to mature forest characteristics. In Forest Types I, II and III, a maximum of 30 per cent by area is to be removed at any time.

1.3 Old Growth Retention and Recruitment

Forested Crown Lands (with the exception for the agricultural development areas and the settlement zone) within the SBSdk and SBSmc2 sub-zones of the Landscape Unit are to be managed for "Old Growth" Retention and Recruitment to meet the targets identified in table 2. If a stand meets the targets identified in table 3, it will contribute to the old seral stage target.

Table 2. Old Growth Targets

Natural Disturbance Type	BEC Subzone	Minimum Age	% Forested Crown Land Area[3] prior to 2164	% Forested Crown Land Area[2] after 2164
NDT 3	SBSdk	140	>10	>16
NDT 3	SBSmc2	140	>10	>16

Strategies

1. Consider the following table when maintaining old growth attributes:

Table 3. Stand-level Old Growth Structural Attribute Targets[4]

BEC zonation:	SBSmc	SBSdk
Target:		
Snags/ha		
>17.5 cm dbh	9	6
>27.5	3	3
>37.5	2	1
Total:	14	10
CWD m3/ha		
>10 cm diameter	>50	>25
Stems/ha		
>17.5 cm dbh	>400	>400
Large trees/ha		
>37.5 cm dbh	15	10

[3] Forested crown land includes WHMAs, Parks, Core ecosystems, landscape riparian corridors, special management zones and integrated resource management zones.

[4] From Steventon (1993). A stand is considered "old" if these targets are achieved prior to the stand reaching an average age of 140 years.

2. Harvesting may occur, if compatible with the Old Seral Stage Recruitment Strategy.
3. The Old Seral Stage Recruitment Strategy will focus on areas designated as:
   Core Areas, Landscape Corridors, parks, VQO Retention areas;
   Wildlife Habitat Management Areas (WHMA's); and Key Forested Caribou Habitat, and (Riparian Reserve Zones and Wildlife Tree Patches within the IRM zone).
4. Harvesting guidelines for Core Areas and Landscape Corridors are provided in Objectives 1.1 and 1.2, in Figure 1 and Table 1.

1.4 Objective for Coniferous and Deciduous Diversity

Maintain across the landscape a diversity of coniferous and deciduous species representing the natural species composition as defined by the natural range of variation for each biogeoclimatic subzone.

Strategies

1. Site plans should identify the need to retain advanced regeneration, poles and saplings where they will assist to maintain the natural range of species variation in the cutblock.
2. Where hemlock and balsam are not planted but are a preferred and acceptable species, as defined in approved Forest Development or Forest Stewardship plans, maintain a component in wildlife tree patches scattered throughout larger openings to allow for natural ingress of these species.
3. Incremental silviculture activities should ensure that all existing ecologically acceptable species on site will be represented.
4. Where the pre-harvest stand had little or no deciduous component, but deciduous species have occurred naturally, design control measures that allow for the maintenance of deciduous species, while recognizing the need to achieve free-growing requirements. Preferably, retain deciduous in a clumpy distribution.
5. Maintain the natural range of variation of species composition at the stand level for each biogeoclimatic subzone through each stage of succession, throughout its planned rotation.
6. Do not assist conversion of natural deciduous stands to coniferous species if conversion prescriptions do not maintain the natural range of variation in the landscape.

1.5 Stand Structure

In the Integrated Resource Management (IRM) Zone, retain structural diversity in managed stands through attributes of old forests, such as coarse woody debris and standing dead and live trees.

Strategies

1. Where possible, plan wildlife tree patches:
   a. to retain deciduous as well as coniferous trees;
   b. to retain some large, old trees;
   c. to provide connectivity within the cutblock;
   d. to provide structure in riparian management areas, and
   e. in areas already constrained.
2. Regardless of silviculture system, retain wildlife tree patches containing suitable wildlife trees at the time of harvest and during silviculture activities in every block greater than two ha in size. Locate wildlife tree patches to provide a range of old forest stand structural attributes such as standing dead trees, standing live trees, coarse woody debris, and root wads. Patches should be distributed throughout the block.
3. Allow natural processes to occur within wildlife tree patches unless infestations or infections threaten to spread to non-wildlife tree patch areas. Where intervention is required, treatment will strive to maintain a diversity of structural attributes.
4. Retain Wildlife tree patches (WTPs) with each block, independent of silviculture system, and meet the approximate percentages defined by Table 4.
5. Retention of coarse woody debris outside identified wildlife tree patches, core ecosystems and riparian reserve zones should not exceed utilization standards.

Table 4: Targets for Wildlife Tree Patches (WTP) Retention in Cutblocks

BEC Subzone	% of Cutblock as WTPs
ESSFmc	5
ICHmc1	3
ICHmc2	5
SBS dk	5
SBS mc2	7

2.0 TIMBER MANAGEMENT

The Bulkley Valley LU contains approximately 5.3% of the Crown timber harvesting landbase (see Map 5) in the Bulkley TSA (~18,000 ha of ~340,000 ha in the TSA). Of this area, 83% is considered saw log quality, 12% marginal sawlog and 5% pulp.

Timber harvest practices in this LUP area will be managed to meet other resource values set with this LUP. Special Management 2 areas (Map 2) are primarily to emphasize visual and recreational quality. Forest Management in the Integrated Resource Management (IRM) areas within the LUP area will recognize, and manage sensitively, all other resource values: urban, agriculture, wildlife, fisheries, water, and the urban/rural interface. The LUP area also includes the Settlement Zone, Private Land, Agriculture Development Areas, Wildlife Habitat Management Areas, Indian Reserves, and Parks. These resource zonations and their objectives, in comparison with other planning units of the LRMP area, have resulted in timber harvesting being constrained in the Bulkley Valley LU area. However, planned and periodic timber harvesting is encouraged to capture associated social and economic benefits of the timber resource.

2.1 Timber Resource Health

Maintain the health of the timber resource.

Strategies

1. Identify and use harvesting, silviculture, and pest control techniques that limit the spread of forest disease and pests according to the objectives of the area.
2. Ensure harvested areas are being stocked with ecologically suitable species that address immediate and long-term forest health issues on the area.
3. Control invasive weeds to prevent their spread through policies developed by the North West Invasive Plant Committee.
4. Strategies should be consistent with the Bulkley Defined Forest Area Management Forest Health Strategy, and the Forest District Health Strategy (currently in revision www.for.gov.bc.ca/dss)

2.2 Integrated Resource Management Zone

Maintain an economically viable supply of commercial timber in the IRM Zone, while achieving other resource objectives set out in this Plan.

Strategies

1. Manage the timber resource to ensure that all resource values defined in this Plan have been addressed.
2. The District Manager will ensure that any approved stocking standards maintain consistency with timber supply analysis and forest management assumptions.

3. Identify important wildlife use areas (e.g. key forested caribou habitat), and rare and endangered ecosystems (e.g. cottonwood floodplain ecosystems), at the stand level and either develop harvesting techniques that maintain their specific values or consider for deletion from the IRM area.
4. Designate hardwoods (cottonwood, aspen, and paper birch) as acceptable species where ecologically appropriate.
5. Consider Woodlots and Community Forests as a potential future tenure in the IRM zone.

2.3 Special Management Zone 2 Areas

Allow timber harvesting in Special Management Zone (SMZ) 2 areas where compatible with maintaining the desired set of resource objectives established by this plan.

Strategies

1. Timber harvesting may occur within the Ski Smithers Controlled Recreation Area (CRA) as prescribed in its approved Master Plan. However, where there are deviations from other objectives in this plan, the Master Plan must address those deviations, and must provide opportunity for public review and comment. Any operations that link to areas outside of the CRA must conform to FRPA standards and regulations.
2. The Smithers Community Forest will provide small scale demonstration harvesting and silviculture activities, following direction from a public steering committee, and its Master Plan approved by the Ministry of Forests (MOF), District Manager.
3. Manage timber harvesting to integrate with skiing and hiking recreational opportunities and be sensitive to these activities (e.g. temporary harvesting access roads will be rehabilitated and may be converted to trails, gates or barriers may be installed to prevent motorized access where appropriate).
4. Conduct normal silviculture obligations, but basic silviculture may be exempted if wildlife, recreation, or visual values are at risk from reforestation impacts. Any exemptions from a Forest Development Plan or a Forest Stewardship Plan must be clear, in writing, and signed-off by the appropriate authorities.
5. Consider Woodlots and Community Forests as a priority tenure in the SMZ 2 areas.

2.4 Enhanced Timber Development Areas

Intensively manage the timber resource in all Enhanced Timber Development (ETD) areas shown in Map 5, to reduce the rotation and/or increase yield per hectare over time, in accordance with available funding allocations.

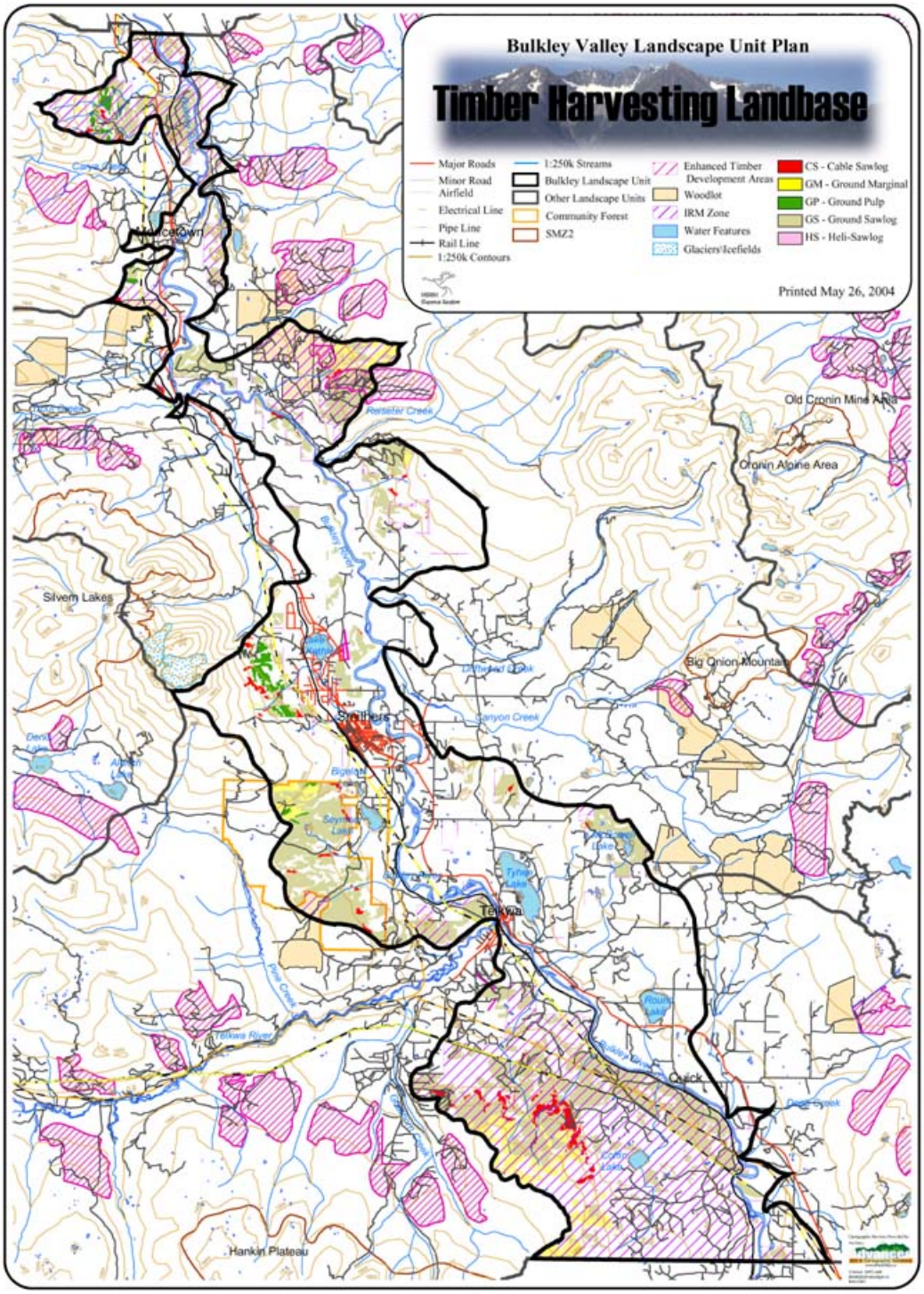
Strategies

1. Target ETD areas for some or all of the following intensive silviculture treatments:

a. using genetically improved seed or superior planting stock;
b. pre-commercial and commercial thinning;
c. pruning;
d. fertilizing; and,
e. intensive brushing and weeding.

2. Maintain visual quality objectives shown on Map 8.
3. Identify high wildlife use areas (e.g. goshawk nests, mineral licks) at the stand level and either develop management techniques that maintain the specific values of these areas, or consider for deletion from ETD area.

Map 5. Crown timber harvesting landbase



3.0 WATER QUALITY AND QUANTITY

Maintaining water quality in the Bulkley Plan Area is important for many reasons, including the maintenance of fish habitat and the production of clean, potable water within community watersheds. Guidelines to maintain water quality outlined in the Forest and Range Practices Act and other relevant legislation and policy will be followed to ensure the existence of acceptable levels of water quality.

3.1 Water Quality and Quantity

Map, assess, and monitor identified water resources, and implement appropriate treatments to maintain water quality and quantity in the Bulkley Valley LUP area.

Strategies

1. Government agencies will form partnerships with local public organizations (e.g. Bulkley Aquatic Resources Committee), and other interest groups to address water quality and quantity values in the Bulkley Valley LU.
2. Review existing watershed evaluations, and using local expertise within government and the local community:
    a. define what the final condition or state of the local water resource should be;
    b. list the:
        2.b.1. water resource values (e.g. fish-bearing streams, community water sources),
        2.b.2. hazards (e.g. fine-textured erodable soils, animal wastes), and
        2.b.3. mechanisms (e.g. road development or land clearing); and
3. map, classify, and rank the watershed landscape in an order of priority to monitor and assess over a rotational time period , based on the severity, extent, and duration of risk to water quality and quantity.
4. Provide and implement measures necessary to maintain, and restore where shown to be degraded, water resources.
5. Protect the water resources through appropriate legislation and regulations.

4.0 FISH HABITAT AND FISHERIES

Fisheries values in the Bulkley Valley LUP area are high in terms of spawning, rearing, water quality, and recreational fishing. The Bulkley River is a Class II angling water, and is central to a very productive fish system in the LU area. Trout fishing occurs on many of the lakes, some of which are used for ice fishing. The river, streams, and lakes attract extensive recreational and guided fishing.

The LRMP provided direction in this LUP area to:

- ✧ focus fisheries management on the Bulkley River;
- ✧ minimize impact of settlement on fish habitat;
- ✧ require future land developments to provide aquatic habitat where appropriate;
- ✧ carefully review referrals of land development proposals, and
- ✧ identify Toboggan and Kathlyn Creek, and their associated watersheds, as regionally significant spawning areas for priority watershed assessments.

4.1 Maintenance and restoration of Fish Habitat

Ensure sustainable fish populations and fish habitat (riparian vegetation, stream integrity, and water quality and quantity) through the following measures: identify, map, and assess fish bearing streams and their riparian areas; and prescribe, implement, and monitor appropriate treatments to sustain these.

Strategies

1. Follow *Forest and Range Practices Act* (FRPA) regulations and standards on all Crown Land.
2. On all other lands, encourage the use of Land Development Guidelines for the Protection of Aquatic Habitat (http://www-heb.pac.dfo-mpo.gc.ca/publications/pdf/guidelines/ldg_e.pdf) for riparian management as appropriate.
3. Where fisheries sensitive streams are identified, forest harvesting and other resource activities will take temperature sensitivity into account when prescribing operations.
4. Government, industry, First Nations, and stewardship groups will identify areas, set priorities, obtain funding, and carry out activities to restore degraded fish habitats and re-establish fish passage.
5. Avoid modification of fish habitat during work around streams whenever possible.
6. Obtain all agency approvals whenever working around streams, floodplains, or other water bodies.
7. Eliminate or minimize the introduction of fine sediment into streams and other water bodies from roads and other cleared areas.
8. Where storm drains empty directly into fish-bearing waters, implement appropriate filtration or settling facilities to minimize sediment input to streams and other water bodies.

9. Maintain acceptable discharge quality from municipal sewage facilities and storm drainage (Smithers, Telkwa, and Moricetown), and discharges and leacheate from industrial operations and municipal solid waste facilities.
10. Minimize degradation of riparian habitat and water quality as a result of rural settlement, livestock, and other agricultural inputs.
11. Use best management practices (BMPs) to ensure that water withdrawals retain appropriate base flows to support fish.

4.2 Bulkley River Angling Use

With local public involvement, implement and enforce an effective angling use plan on the Bulkley River to:

- ✧ maintain sustainability of fish populations;
- ✧ provide and protect a quality angling experience for all anglers, especially British Columbia resident anglers;
- ✧ provide for a stable and economically sound guiding industry; and
- ✧ contribute to the economic diversification of local communities by enhancing tourism and business opportunities in those communities.

Strategies

1. Government and stewardship groups (e.g. WLAP, Federal Fisheries, Toboggan Fish Hatchery and Wet'suwet'en Fisheries) should manage and maintain stocks to ensure sustainability, with public input, review, and comment.
2. Government will update the Angling Use Plan (reference: Angling Use Plan dated December 23, 1998, Appendix 4) for the Bulkley Valley River with the following principles in mind:
   a. increasing overall quality of angling;
   b. protecting interest of local users;
   c. capping non-guided non resident use; and
   d. maintaining guided activity consistent with allocation.
3. Government will implement the Angling Use Plan in a fair, timely, and effective manner.

5.0 WILDLIFE

Some of the most productive wildlife habitats in the Bulkley TSA are in the Bulkley Valley LU. The extensive amount of deciduous forest supports abundant populations of birds and other wildlife. Waterfowl are found in the many important wetlands and associated lakes in the Bulkley Valley.

Specific habitat objectives for moose, deer, and caribou species have been identified by wildlife specialists to maintain a healthy and viable population of these species in the

Bulkley Valley and adjoining Landscape Units. Management criteria for other wildlife species (such as elk and goat), beyond those already established by other objectives in this Plan (biodiversity, timber, fish habitat, water quality, and strategies for moose, deer, and caribou), are not considered necessary at this time.

The moose population in the LU has grown since European settlement, due largely to the increase in forage habitat created by land clearing and resource development. Moose prefer areas of disturbance, particularly within riparian areas and forest habitats in early successional stages. Moose winter range habitat comprises old burn sites, large river riparian zones and oxbows, shrub wetland complexes and deciduous stands where browse is abundant, as well as mature or old growth coniferous forests in mid- and late-winter months when movement is easiest because the snow pack is intercepted by the canopy. Most of the Class I and II capability moose winter ranges in the TSA are found within this LU.

Deer (white- and black-tailed) winter range in the Bulkley Valley generally consists of bottom-land aspen-mixed wood stands and dry pine stands. Most deer winter range lies in proximity to human settlement and farms. Woody browse is the preferred forage for wintering deer, and is typically found in close proximity to mature conifer or mixed-wood cover. Deer also consume arboreal lichen fragments during the winter months. Conifer trees serve as thermal blankets, and protection from wind and precipitation during the winter. Early spring green-up is especially important for pregnant does. Steep south facing sites generally shed snow cover first and deer are known to capitalize on this forage opportunity early in the spring. Mature cover is especially important near these areas, especially at the top of the slope. Summer foraging also includes fireweed, sedges and huckleberry. Deer also require visual screening throughout the majority of their habitat.

In 1997, BC Environment, following LRMP direction, developed a comprehensive plan to enhance the caribou population within the Telkwa mountains and to sustain a viable herd. Successful caribou relocations were conducted in 1997 and 1998. The Telkwa Caribou Herd Recovery Plan (TCHRP) introduced management actions designed to:

1. reverse recent declines in population size by augmenting the herd with caribou from other populations,
2. recommend a recreational access management plan, and
3. protect caribou habitat by utilizing existing land zonation and by modifying industrial activities to compliment caribou recovery.

LRMP Special Management Zones 1 and 2, and the EN contribute to the caribou landscape strategy for the Bulkley TSA. Within the LRMP IRM Zone, caribou management objectives and strategies were developed for the biogeoclimatic zones covering the TCHRP area. Furthermore, other areas known to be specifically important to caribou ("Key Forested Caribou Habitat") have been identified and mapped (Map 6) in the Caribou Recovery Herd Program Area.

5.1 Moose Forage

Ensure forage is retained and available within the identified key moose habitat identified on Map 6.

Strategies

1. Relax stocking standards to allow for increased forage in conifer leading stands that are conducive to high-value moose forage[5].
2. Retain woody forage species (e.g. willow, dogwood, saskatoon, mountain ash, highbush cranberry, etc.), where not jeopardizing attainment of free growing standards, inhibiting crop tree growth, or where they occur in and around riparian areas.
3. Maintain deciduous patches throughout larger blocks, particularly in locations where conifer establishment is poor or deciduous patches are dominated by high value forage species (e.g. willow, dogwood, saskatoon, mountain ash, highbush cranberry, etc.)[6].
4. In large, existing cutblocks, leave or manually brush the deciduous component that is close to forested cover and away from roadsides.
5. Limit livestock grazing on shrubs in late summer, whether it be for range purposes or vegetation management.

[5] Any free growing standards need to be approved in the FSP, submitted by the licensee, and approved by the DM, prior to the commencement of harvest operations.

[6] Any free growing standards need to be approved in the FSP, submitted by the licensee, and approved by the DM, prior to the commencement of harvest operations.

5.2 Moose Cover

Maintain cover for security, visual screening, thermal cover, and snow interception needs within the identified key moose habitat identified on Map 6.

Strategies

1. Clearcuts should have a high perimeter to area ratio with irregular boundaries and retain reserves and unmerchantable trees to provide security cover. Locate wildlife tree patches inside block boundaries where there is no adjacent mature forest providing snow interception and thermal cover.
2. Retain woody forage species (e.g. willow, dogwood, saskatoon, mountain ash, highbush cranberry, etc.) without inhibiting free growing requirements for crop trees, and where occurring in and around riparian areas.
3. Maintain visual screening along road right-of-ways where access is maintained when spacing, pruning and/or brushing. Once the interior of the block offers visual cover, the buffers can be harvested or treated silviculturally.
4. Locate roads away from riparian areas and natural openings.
5. If operational constraints require roads to be located close to these areas, then provide visual screening to reduce vulnerability of moose in the winter and to avoid alienating the habitat. Development planning will emphasize the use of temporary roads and or deactivation following use.
6. Windrows and brush piles should be discontinuous to avoid constraining wildlife movement.
7. Maintain conifer groups in deciduous dominated stands.
8. Distribute harvest throughout the winter range to provide a balance of cover and forage through a rotation.

5.3 Deer Forage

Ensure forage is retained and available within the identified key deer habitat identified on Map 6.

Strategies

1. Relax stocking standards to allow for increased forage in conifer leading stands that are conducive to high-value deer forage.
2. Where pre-existing cutblocks have been large:
   a. leave or manually brush the deciduous component along the block's perimeter to ensure forage availability close to cover, and
   b. maintain deciduous patches through-out larger blocks.
3. Plan periodic harvest entries into key deer habitat to ensure early seral stage conditions exist in a scattered distribution across the landscape.

4. Limit livestock grazing on shrubs in late summer, whether it be for range purposes or vegetation management.

5.4 Deer Cover

Maintain cover for security, visual screening, thermal cover, and snow interception needs within the identified key deer habitat identified on Map 6.

Strategies

1. Where feasible, maintain visual screening along road right-of-ways (where access is not deactivated) when spacing, pruning and/or brushing. Once the interior of the block offers visual cover, the buffers can be treated.
2. Where feasible, achieve a visually screened corridor with forest cover retention along ecotones such as forest/field, forest/NCBr, forest/water, and deciduous/conifer transitions, as well as along ridges and pine terraces.
3. Create a variation of forest structure through a mixture of silvicultural systems, patch sizes and seral stages. Maximum opening size is 5 ha (or aggregates with 5 ha maximum openings).
4. Conifer groups in a dominant aspen stand should not be harvested.
5. Deciduous tree extraction (aspen, birch, cottonwood) should be considered to promote a deciduous component over time in deciduous leading stands, as a range of successional stages will promote favorable deer habitat.
6. Maintain over time pine stands that are key deer habitat (e.g. pine stands on ridges above south-facing slopes). Partial cutting (or small patches) may occur in these stands.
7. Multiple passes (4-5+) are suggested to maintain enough mature forest cover and seral stage distribution to meet winter range requirements.

5.5 Caribou Recovery Management

Provide for security cover, forage and large areas of human inactivity over a rotation (80-120 years) within the Telkwa Caribou Herd Recovery Area (TCHRPA) identified in Map 6.

Strategies

1. Consider uneven aged harvesting or selection harvest systems.
2. Centralize harvest by combining harvest blocks into larger sized aggregates, thereby reducing landscape fragmentation and road densities.
3. Identify on forest development plan maps “leave areas” similar in size to aggregate harvest area, to offset these and to provide for large areas of human inactivity for caribou use.
4. Identify arboreal lichen abundance in areas proposed for timber harvest (using “Estimating the Abundance of Arboreal Forage Lichens - Field Guide Insert 7”).

Retain moderate to high lichen bearing conifer stands (classes of 3,4, and 5), in wildlife tree patches, within block leave areas or areas outside of block aggregations.

5. In harvested areas locate wildlife tree patches and forested reserves in and around riparian areas, arboreal lichen stands, swamp and meadow complexes.
6. Where feasible retain all poles, saplings, natural regeneration and live non-merchantable trees. When in-block retention of poles, saplings, regeneration and live non-merchantable trees rates are low, increase forested reserve amount.
7. When planning block layout for aggregates and "leave areas", allow for caribou movement by retaining mature forest between lowland and upland sites and between wetland and meadow complexes.

5.6 Caribou Habitat and Forage

Within a managed forest setting, provide for important caribou habitat and forage by retaining Key Forested Caribou Habitat identified on Map 6.

Strategies

1. Distribute forest harvesting over several passes.
2. Follow strategies identified in Table 4.

5.7 Caribou Habitat – Patch Size, ESSF

Within the ESSF Biogeoclimatic zone in the TCHRP area, emulate natural disturbance patterns by creating small openings with irregular edge configurations.

Strategy

1. Follow strategies identified in Table 4.

5.8 Caribou Habitat – Patch Size, SBS

Within the SBS Biogeoclimatic zone in the TCHRP area, emulate natural disturbance patterns by creating large aggregate blocks while providing for caribou forage and screening.

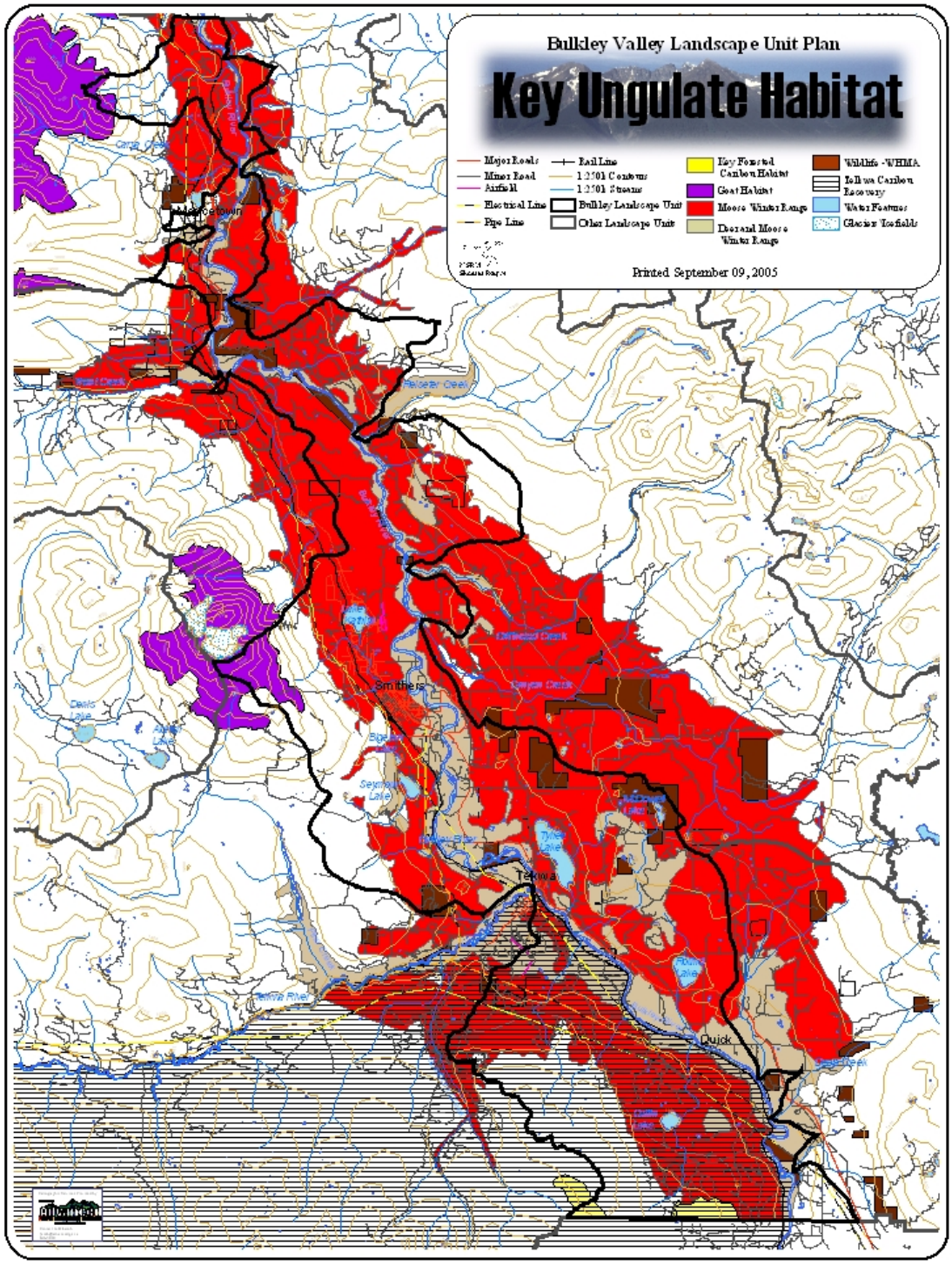
Strategy

1. Follow strategies identified in Table 4.

Table 4. Harvesting and Access Strategy for Telkwa Caribou Recovery Area

	Stand Level			Landscape	Access
	Approx. Forest Leave Areas in aggregate	**Approx. Opening Size in aggregate**	**Aggregate Size**	**Seral Stage Objectives**	
Key Forested Caribou Habitat	50%	1-3 ha	Limited by landscape feature	Max 50% area < 90 yrs old	Emphasis temporary roads 4X4 access restricted Treed reserves
4X4 access restricted means removing a bridge or culvert at suitable locations in or adjacent to key forested or subalpine caribou habitat. Treed reserves means a forest barrier between roads, cut block and easily accessible subalpine that will limit snow machine and ATV access.					
Preferred operating season is July - Nov 1. Second option is one active all season harvest area in key forested caribou habitat at any one time with emphasis on getting in and out as quickly as possible.					
ESSF General	30%	3-15 ha	Limited by landscape feature	LUP ESSF Seral Stage objectives	4X4 access restricted (only when necessary) Treed reserves
Wildlife Tree patches in all SBS and ESSF aggregates should focus on key caribou features.					
Partial Cutting systems are acceptable and even preferred where appropriate in the ESSF.					
SBS General	20%	15-35 ha	Limited by landscape feature	LUP SBS Seral Stage objectives	
Where non aggregated blocks are chosen in the SBS which are larger than 35 hectares, the block design will emulate Natural Disturbance Type 3 with a minimum level of forest leave areas within blocks of 20%. These leave areas will focus on key caribou features such as wetlands, meadows and moderate/high lichen bearing stands.					
Leave areas **between** aggregates will be similar in size as the aggregates themselves and must be identified on Forest Development and Stewardship Plan Maps. Forest leave areas **in** aggregates will be suitable for future harvest and accessible from existing road development. Forest leave areas **in** aggregates will remain part of the timber harvest land base.					
Where high value caribou habitat is identified outside the key forested caribou habitat it should be reviewed to determine management direction.					
This matrix outlines even aged harvesting options only. Uneven aged harvesting over even larger aggregates should be considered, if all of the issues around stand, landscape, and access are addressed favourably					

Map 6. Key Ungulate Habitat



5.9 Caribou - Access

Avoid caribou displacement, reduce opportunities for caribou interaction with humans and predators, and encourage caribou use of the TCHRP area as identified on Map 6.

Strategies

1. Establish access restrictions following block planting. Access restrictions should be in place within two years of block harvest
2. Follow strategies identified in Table 4.
3. Where roads or cutblocks provide easy access to the sub-alpine slopes, implement access restrictions for four wheel drive vehicles will be implemented (bridge or culvert removal).
4. Maintain forested barriers between roads or cutblocks and easily accessible sub-alpine slopes.
5. Where feasible, retain visual screening along roads expected to be used during winter.

6.0 AGRICULTURE DEVELOPMENT AREAS AND WILDLIFE HABITAT MANAGEMENT AREAS

This Agriculture/Wildlife Zone identified Crown land in the Agricultural Land Reserve, with good agricultural capabilities and which also had good wildlife habitat. LRMP Management direction in this zone was intended to promote agriculture while ensuring that wildlife habitat was also provided. Land use and existing boundaries were evaluated considering agriculture, wildlife, grazing, woodlots, agricultural land reserve, provincial forest and potential forest land reserve.

Ministry of Forests Woodlot License proposals were considered in establishing the Agriculture/Wildlife Zone boundary. Since the goal of long-term forest management is not compatible with land clearing for agriculture, the Woodlot License proposals were amended to exclude potential woodlot land from the Agriculture/Wildlife Zone.

Arable soils and wildlife capability and suitability assessments were conducted and mapped at 1:20 000 over the approximately 10,000 ha area in the Zone. Government agencies, the Bulkley Valley Cattlemen's Association, and the Community Resources Board recommended priority Agriculture Development Areas (ADAs) and Wildlife Habitat Management Areas (WHMAs), based on the assessment.

6.1 Establishment of the Agriculture Development Areas and Wildlife Habitat Management Areas

Complete and implement a plan for the LRMP Agriculture/Wildlife Zone to designate Agriculture Development Areas (ADAs) and Wildlife Habitat Management Areas (WHMAs) shown on Map 7.

Strategy

1. The plan will be approved, implemented, and monitored by the appropriate government agencies.

6.2 Agricultural Development Areas

Make available Crown Land designated as Agriculture Development Areas for agriculture, while ensuring environmental stewardship.

Strategies

1. LWBC will establish ADA's as land reserves under the Lands Act.
2. ADA parcels will not be converted to WHMAs.
3. Eligible parties may apply within the reserves to develop the land for agricultural purposes (e.g. cereal, hay and forage crop production, market gardens).

4. WLAP to track percentage and distribution of red and blue-listed, sensitive and vulnerable, and regionally significant species, plant communities, and ecosystems to guide referral comment on development proposals (p. 82 LRMP).
5. Development within ADA's should employ high-quality environmental stewardship practices by:
    a. accommodating high wildlife values (e.g. wetlands, riparian features, pockets of old forests, ecosystems at risk) by adjusting ADA boundary during the approval process (this may allow future use of covenants);
    b. making use of government-provided education and extension services to ensure beneficial management practices; and
    c. encouraging tenure holders to participate in the British Columbia Environmental Farm Plan Program (EFP) in order to implement high-quality environmental stewardship practices.

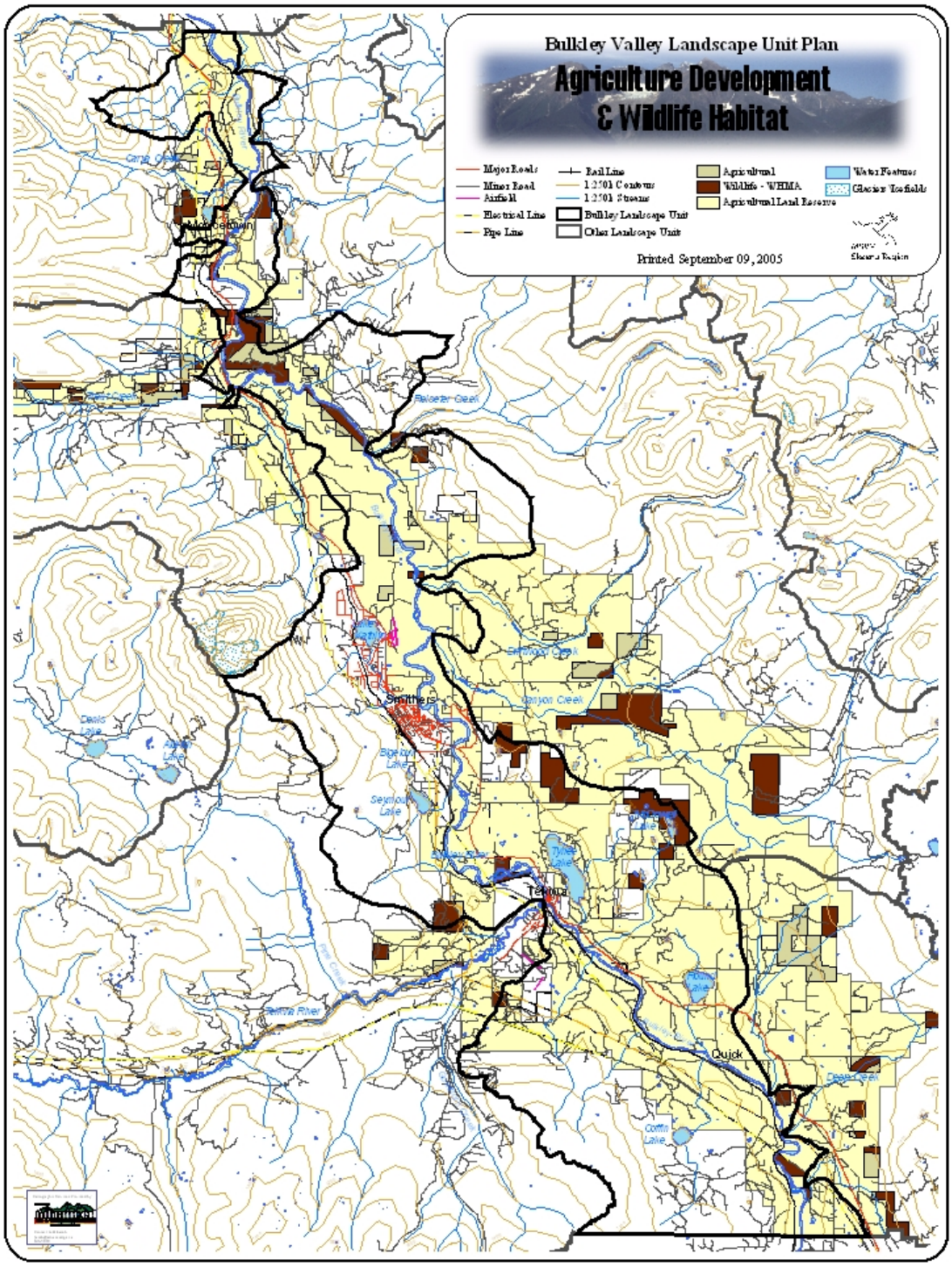
6.3 Wildlife Habitat Management Areas

Ensure the protection of wildlife and wildlife habitat in Wildlife Habitat Management Areas (WHMAs) while allowing forestry, grazing, recreation and infrastructure development where compatible with wildlife and habitat conservation objectives.

Strategies

1. Land and Water British Columbia (LWBC) will establish Notation's of Interest over the WHMAs.
2. WHMAs will not impact existing grazing permits, and licenses.
3. WLAP may designate suitable areas within the WHMA Subzone as Ungulate Winter Range (UWR under FRPA) to provide direction to Forest Stewardship Plans.
4. Integration of forestry and grazing activities in WHMAs and UWR will occur where appropriate and compatible with wildlife and habitat conservation objectives.
5. Infrastructure development may occur where compatible with wildlife and habitat conservation objectives.
6. Integrated use for recreational activities is permitted where compatible with wildlife and habitat conservation objectives.
7. WLAP will provide management measures for red and blue-listed, sensitive and vulnerable, and regionally significant species, plant communities, and ecosystems.

Map 7. Agriculture Development and Wildlife Habitat Management Areas



7.0 VISUAL QUALITY

The Bulkley LRMP states that the scenic resources in the district are critical to the viability of the tourism/recreation sector, and to the quality of life of area residents. Visual aesthetics in the Bulkley Valley LU are a high priority due to this unit being visible from Highway 16, the Bulkley River, and the Telkwa High Road. The LRMP recommended that scenic resources be addressed with special attention given to viewpoints along the entire Highway 16 corridor. Much of the viewscape from the Highway 16 corridor reaches into adjoining LUs. The degree of acceptable change (partial retention and retention) to the natural landscape were derived from Visual Landscape Inventories (VLI) and are displayed on Map 8.

Established viewpoints along Highway 16 include:

- ✧ Hungry Hill viewpoint/rest stop;
- ✧ Quick School;
- ✧ Telkwa / Hubert viewpoint/rest stop;
- ✧ Smithers near the Goat statue;
- ✧ Smithers Airport;
- ✧ Adams Igloo viewpoint/rest stop;
- ✧ Evelyn (Paul Lychak) Hall;
- ✧ Moricetown viewpoint/rest stop; and
- ✧ Moricetown Rail overpass.

The following Visual Quality Objectives (VQOs) provide acceptable degrees of change from the natural appearing landscape caused by land-use alterations, such as logging or road building. Operational Plans, such as Forest Development Plans and Access Management Plans must show they are consistent in achieving these VQOs.

7.1 Partial Retention

Resource management activities in partial retention areas identified on Map 8 must blend well with the natural appearance of the landscape, even though visible.

Strategies

1. Alterations will borrow from natural line and form to such an extent and on such a scale that they are comparable to natural occurrences.
2. Openings will exhibit elements of high-quality design including: strategic placement of leave trees and patches, feathered edges, and borrowing lines from the natural character of the landscape.
3. Alternative silviculture systems will be considered where stand structure is suitable.

4. Where visible openings are created, silviculture prescriptions will incorporate treatments to reduce the time to achieve visually effective green-up (5 metres).
5. Select a technique (i.e. photographic manipulation or computer model (DTM)) and prepare a Visual Impact Assessment for each design option. Consult the forest district if there is any doubt as to the technique necessary for a given operation.
6. Visual impact assessments must be taken from viewpoints along the Highway 16 corridor shown on Map 8.

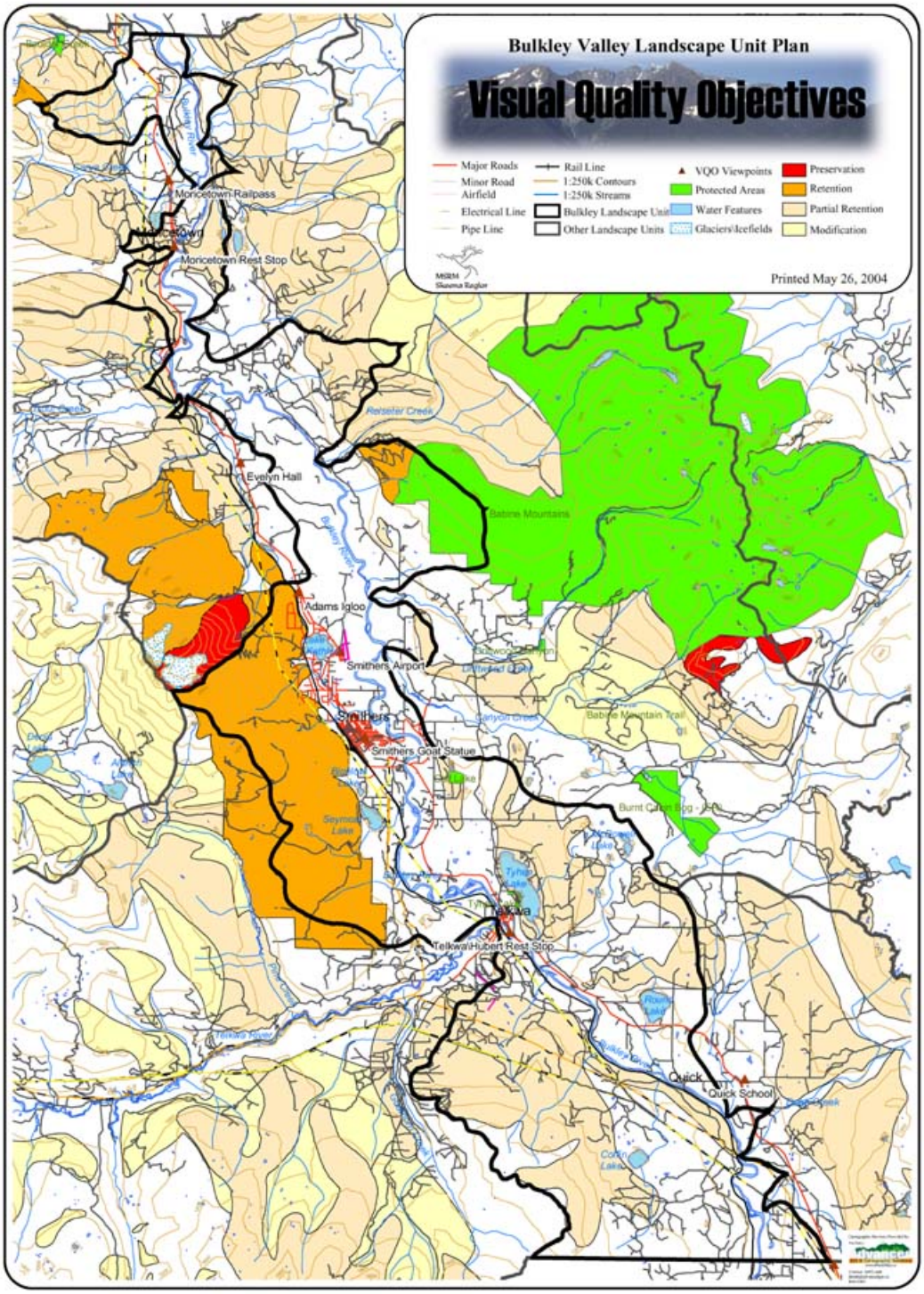
7.2 Retention

Resource management activities in retention areas identified on Map 8 may not be clearly visible to the average viewer, although discernible. Disturbances should appear to be from natural causes.

Strategies

1. Alterations must borrow from natural line and form to such an extent and on such a scale that they are comparable to natural occurrences.
2. Openings will exhibit elements of high-quality design including strategic placement of leave trees and patches, feathered edges, and borrowing lines from the natural character of the landscape.
3. Alternative systems will be considered where stand structure is suitable.
4. Select a technique (photographic manipulation or computer model) and prepare a Visual Impact Assessment for each design option. Consult the forest district if there is any doubt as to the technique necessary for a given operation.
5. Visual Impact Assessments must be taken from viewpoints along the Highway 16 corridor shown on Map 8.

Map 8. Visual quality objectives and view points



8.0 RANGE AND AGRICULTURE

The range and agricultural sector is significant in this planning unit, both on private land and tenures on Crown Land. It is primarily involved in beef and dairy production, but also raises horses, sheep, swine, and goats. Hay production is widespread, and a limited amount of grain, vegetable, horticulture, and market garden also occurs. There are many rural land parcels that mix residential and hobby farm uses.

The LRMP gave specific direction to develop areas within the Agriculture/Wildlife zone for intensive agricultural development (see Section 6). It also provided general management direction to:

- ✧ sustain and enhance the agricultural industry in this planning unit;
- ✧ foster and encourage cooperation between range and other users and land values;
- ✧ foster cooperation in agricultural land development for biodiversity and sustainability; and
- ✧ encourage biodiversity guidelines on new tenures.

8.1 Agriculture Sustainability and Development

Encourage farming and ranching in the Bulkley Valley LUP area.

Strategies

1. Complete an arability study within the ALR of the IRM zone to determine the availablility of land suitable for development as agricultural leases. Based on the outcome of this inventory, the Integrated Land Management Bureau (was MSRM) will work with the Community Resources Board and the Ministry of Agricultural and Lands (was MAFF and LWBC) and the Ministry of Forests and Range (was MoF) to develop mechanisms to address the management of IRM lands in the ALR.
2. Ensure that Agriculture Lease applications are referred to all other resource agencies, the CRB, and other interested parties.
3. Agriculture Lease applications in the IRM zone must demonstrate the area to be on arable land, that agriculture is the highest value and use of the land, and also be compatible with biodiversity and wildlife objectives set out in this Plan area.
4. Encourage Agricultural Development Areas for agriculture making the best use of arable land (e.g. cereal, hay and forage crop production, and market gardens; see Objective 6.2).
5. Encourage and allow range tenures for livestock grazing in the IRM zone.
6. Develop target Animal Unit Month levels for the LUP area through seral site classification, mapping, and GIS analysis in order to plan and implement effective grazing practices.
7. Encourage the use of domestic livestock for silvicultural vegetation management.
8. Seed cutblocks where appropriate within range tenures.

9. Within range tenures, encourage obstacle planting on cutblocks where appropriate..
10. Those who remove natural barriers in range tenures must replace them with fencing or cattle guards.
11. Explore options and create new opportunites to diversify the agriculture sector.

8.2 Environmental Stewardship

Implement the use of best agricultural management practices on Crown Land in the Bulkley Valley LU relating to:

- ✧ Biodiversity, water, fisheries, and all other LUP objectives;
- ✧ waste management; and
- ✧ control of pests, diseases, and invasive weeds.

Strategies

1. Government agencies will provide local farming and ranching organizations with;
   a. extension aids that present and describe relevant LU objectives (e.g. regarding red and blue listed species), and the best management practices (BMPs) on how to achieve them; and
   b. help facilitate the organization of environmental stewardship projects.
2. Encourage farmers and ranchers to participate in the British Columbia Environmental Farm Plan Program (EFP) in order to implement high-quality environmental stewardship practices.
3. Address invasive weed control through policies developed by the North West Invasive Plant Committee.
4. Provide guidelines for other resource users in order to minimize the spread of disease and invasive weeds when passing through agricultural lands (e.g. cleaning weed seed from road building and forest access vehicles, disinfecting hiking boots, etc.).
5. Address animal pollution concerns through the Code of Agricultural Practices for Waste Management.
6. Employ adaptive management, and enforce regulations on Crown Land tenures (e.g. Forest Practices Code, Weed Control Act, and Code of Agricultural Practices for Waste Management).

9.0 RECREATION AND TOURISM

The LUP area is an important centre for year-round tourism and outdoor recreation. There are numerous commercial RV Parks, the Smithers Municipal Campground, several angling lodges, bed and breakfasts, and local hotels. In addition, there is a commercial ski hill development, along with cross country ski lodges and trail systems. Highway 16 is the most traveled corridor within the Bulkley Valley LUP area, providing access to and from Prince Rupert, Prince George, Stewart and northern British Columbia, the Yukon, and Alaska.

Some of the many recreational features include Tyhee, Seymour, Round, and Kathlyn lakes, Bulkley River, Moricetown Falls, glaciers and glacial fed waterfalls, alpine lakes, wildlife, interpretive trails, and urban and near-urban hiking and biking trials. Provincial parks are situated at Tyhee and Call Lakes, and in the Babine Mountains. Historical features include old mill and mine sites, and trails that were originally built to access mining claims.

Examples of recreational activities are hunting, angling, hiking, biking, horseback riding, ice climbing, cross-country, downhill and backcountry skiing, wildlife viewing, picnicking, camping, rafting, kayaking and canoeing on the Bulkley and Telkwa rivers, and viewing salmon at Moricetown Canyon.

The Bulkley LUP is highly important to tourism and recreation not simply for what happens within its boundaries, but because local communities are the jumping off point for many other areas. The way communities present themselves is significant to the ongoing success of tourism and recreation opportunities in the broader area. Visitors to the Bulkley Valley indicate their prime interests include fishing, hiking/trekking, wildlife viewing, seeing wilderness, boating and canoeing, and visiting provincial parks. (Town of Smithers Visitor Survey 2003) Most visitors arrive via Highway 16, so the quality of the road and the sights seen from the road are important to the tourism industry.

A Community Tourism Essentials Workshop held in January 2003 identified strengths and weaknesses facing the tourism industry in and around Smithers. The top six strengths were the Ski hill, wildlife, fisheries, rivers, lakes, pristine and beautiful areas, and Moricetown Canyon. Four top weaknesses were identified - lack of alternative activities (i.e. après-ski, night-time entertainment), tourism values not adequately addressed in natural resource planning, lack of strong aboriginal presence, and limited recreation facilities.

The BVCRB has been communicating with ILMB, LWBC, MOF, and BC Parks on how to proceed in completing a Resource Access Management Plan (RAMP) for the Bulkley TSA that will include both commercial and non-commercial recreational opportunities. A finalized RAMP that incorporates a broad spectrum of recreational opportunities would be a great benefit to the planning of development. While the BVCRB promotes the planning and development of recreational trails throughout the LUP area, they also oppose the development of unauthorized trails.

The LRMP provided general direction for recreation and tourism in the Bulkley Valley LU area to:

- ✧ provide management for recreational user conflicts, including the Bulkley River;
- ✧ encourage use of this planning area as the front country service hub for tourism and recreation in the TSA;
- ✧ maintain existing recreation trails, and encourage a network of hiking trails in the HBM SM2 zone;
- ✧ encourage commercial tourism and public recreation in the SM2 zone subject to visual quality constraints and all other resource value objectives; and

- ✧ provide opportunity to establish new trails that link the Settlement zone, and the Agriculture/Wildlife zone to the IRM zone.

Since the implementation of the LRMP, a group of historic trails is being re-established on Tyhee Mountain near Telkwa and along the northeast slope of Hudson Bay Mountain near Smithers. The towns of Smithers and Telkwa have continually provided improvements to their Perimeter Trail systems (see Map 9). As well, there is a current process in place to establish a trail linking these two communities.

9.1 Recreation Conflicts

Establish public processes and consensus-approved management plans where conflicts exist for:

- ✧ recreation access issues (e.g. completion of RAMP); and
- ✧ angling use on the Bulkley River.

Strategies

1. Government agencies manage recreational conflicts by facilitating consensus-approved Recreational Access Management Plans where unresolved access conflicts exist. Where no resolution results from the process, government will make a decision.
2. Update and implement the Angling Use Plan as recommended (see Objective 4.2).
3. Complete the Draft Bulkley TSA Recreation Access Management Plan.

9.2 Trail Management and Opportunities

Provide and maintain a network of authorized near-urban and inter-urban trails for a full range of recreational opportunities and uses; link urban trails with nearby Crown Land, and minimize new land development impact on the recreational experience.

Strategies

1. Agencies, local governments, and user groups will work together to:
   a. Develop a plan for a network of government authorised trails for a range of outdoor recreational opportunities, this plan to include:
      1.a.1. a process for discouraging and penalizing unauthorised trail development
      1.a.2. suggested trail user etiquette (e.g. dog control, crossing private land, crossing through agriculture land, etc.)
      1.a.3. safety behaviours
      1.a.4. priorities for funding and maintenance of trails and access points
   b. Where possible, discourage trail development in the proposed Ski Smithers CRA for five years (see Map 10), in order to support a potential Master Agreement;
   c. Document old trails and roads that may be developed into trails and trail links;

d. Liaise with private landowners to grant permission to access trails and the Bulkley River;
e. Research existing easement, and opportunity to purchase easement, from private land to trails on Crown land and access to the Bulkley River;
f. Research and provide a registry of public rights-of-way to understand the status of old roads;
g. Provide a network of connecting hiking routes to backcountry hiking trails on Hudson Bay Mountain from the town of Smithers and Crown Land access along the Ski Hill Road, and to the Babine Mountains Provincial Park from the Telkwa High Road; and
h. Provide information regarding urban and near-urban trails, and access opportunities on the Bulkley River, for local residents and visitors, using a variety of media including: pamphlets, maps, billboards, and website formats.

9.3 Maintaining Trail Locations

Ensure government authorized trail locations on Crown Land, identified in Table 5, and shown on Maps 9 and 10, are unobstructed, accessible, and identifiable, and discourage unauthorized development of trails.

Table 5. Recreation Trail List

Trail (or trail system)	General Location
Northeast Slope Trail System (includes Duthie, Bluff, Simpson's Gulch, Boyle, Neilson Rd, Dahlie Creek and the Amax road at present)	Northeast-facing slopes of Hudson Bay Mountain, generally above the town of Smithers
Malkow Lookout	McCabe Road
Morice-Cronin	Telkwa High Road (1.5 km south of Moricetown)
Grouse Mountain	Hungry Hill
Call Lake	Van Gaalen Rd.
Telkwa-Smithers	In development along Bulkley River corridor;
Silvern Lakes Trailhead	Glacier Gulch Rd.
Bulkley River access on Crown Land	Access points from Lunan Rd, Chicken Creek, and Telkwa Bridge

Strategies

1. Mark the original trail bed prior to any new development, and relocate the trail head following development.
2. In some instances it may be preferable to establish a new trail head after new development. In this situation, an acceptable trail plan must be approved prior to any new development.
3. Place signs so that trails can be followed through the new development.

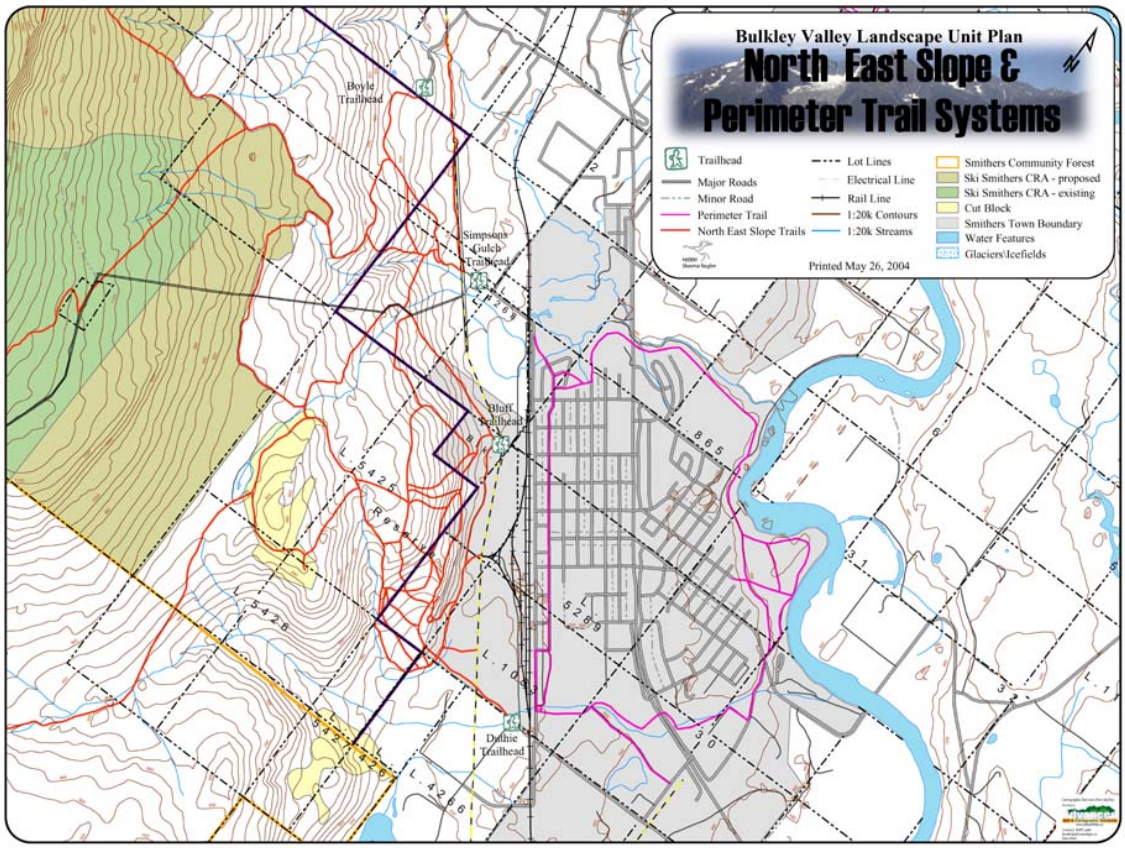
9.4 LWBC Consultation

LWBC will consult with local outdoor organizations (Appendix 5) and interested members of the public when land development (including commercial recreation tenures) is proposed over authorized recreation trails and recreation access points.

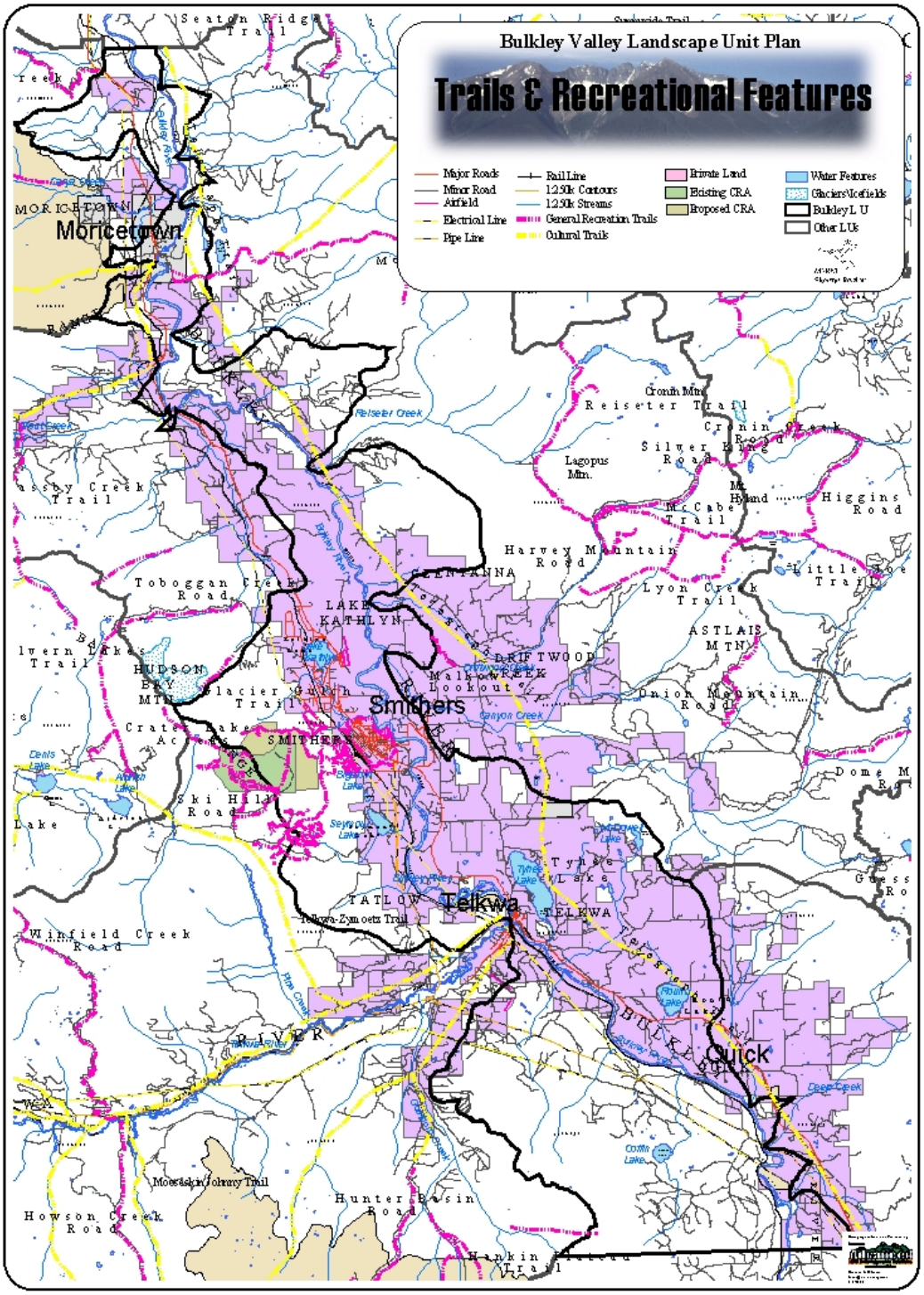
Strategies

1. Existing/approved recreation tenures will be subject to the terms and conditions of their agreement with respect to public consultation.
2. LWBC will forward proposed land development plans to the BVCRB, local outdoor organizations and interested members of the public as part of their planning process.
3. Working together, developers and local interest groups will provide recommendations and solutions to resolve any unforeseen conflicts.
4. If a conflict can not be brought to a resolution, government will facilitate a dispute resolution process. Where consensus resolution is not found, government will make and implement a decision.

Map 9. Northeast Slope and Town of Smithers Perimeter Trail Systems



Map 10. Trails and recreation features



10.0 SUBSURFACE RESOURCES AND MINERAL EXPLORATION

The Bulkley Valley LUP area has an exploration and mining history that began early in the twentieth century. Although there are currently no operating mines in the plan area, Smithers is an important staging area for exploration projects and operating mines in the region.

The LRMP gave direction for subsurface resources and mineral exploration to maintain opportunities for coal, sand, gravel, and mineral resource extraction, and to recognize the potential of past producing mines to operate in this plan area.

Access to mineral resources outside of protected areas is provided under section 14 (5) of the Mineral Tenure Act, which legislates a two-zone system of land management in BC. The two-zone system ensures that mining and mineral exploration applications are considered, subject to all applicable laws, in all areas except parks, ecological reserves, protected heritage properties or areas where mining has been prohibited by an order under the Environment and Land Use Act

General management direction in this LUP is to provide opportunity for the safe, efficient and environmentally sound development and use of the energy and mineral resources for the economic benefit of the plan area. Subsurface resource exploration and mine development may occur subject to provincial regulations and in accordance with the LRMP in all areas except Protected Areas. For proposed major mine developments, objectives will be addressed by the Environmental Assessment Process. For small mine and quarry developments, objectives will be addressed by the multi-agency regional mine development review process.

10.1 Exploration and Mineral Resource Extraction Opportunities

Maintain opportunities for mining exploration and mineral resource extraction in the Bulkley Valley LU, consistent with all other objectives in this plan and compatible with existing uses.

Strategies

1. All land tenure applications on Crown Land that have energy or mineral potential, will be referred to the Ministry of Energy and Mines, and other individuals or organizations that may have an interest in commenting on the resource opportunity. (BVCRB would like to see a complete list of stakeholders that referrals will go to, as an appendix in the LUP)
2. The Smithers Community Forest Master Plan will recognize coal property rights within the Community Forest boundary.
3. Potential of past-producing mines to operate, and new mineral exploration on Crown Land, will be recognized by all resource users.

4. New subsurface and mineral exploration and development will address all other resource zonations, and resource objectives in this LUP.

11.0 TRANSPORTATION AND ACCESS

Objectives and strategies relating to access can be found in various sections throughout the Bulkley Valley LUP. Table 6 contains a list of all objectives and strategies relating to access in the Bulkley Valley Landscape Unit.

Table 6. Objectives and Strategies Relating to Access

SECTION	OBJECTIVE TITLE	OBJECTIVE #	STRATEGY #'s
Biodiversity	Core Ecosystems	1.1	4a, 5,
Biodiversity	Landscape Corridors	1.2	5
SMZ 2	SMZ 2 Areas	2.3	3
Wildlife	Moose Cover	5.2	4,5
Wildlife	Caribou	5.9	1,2,3,4,5
Recreation	Trail Management	9.2	1
Recreation	Trail Locations	9.3	

12.0 CULTURAL HERITAGE

The Bulkley Valley LUP area contains cultural heritage resources, reflecting past and present human use. This LUP recognizes the importance of these sites, and expects that all levels of government and private land owners will minimize the impact of development on both archaeological and traditional use sites.

12.1 Cultural Heritage

Land development will be sensitive to the moderate to high archaeological potential areas of this planning unit.

Strategies

1. Consult with the Skeena Stikine Forest District office to view the Cultural Heritage/Archaeological Resource Potential map (http://www.for.gov.bc.ca/dss/cultural.htm).
2. Follow District Policy in regards to survey requirements for cultural heritage and archaeological resources (www.for.gov.bc.ca/dss/cultural/Cul-policy.htm).
3. Archaeological Overview Assessments will provide guidance for the management of archaeological and traditional use sites, and will be incorporated into more detailed plans.
4. Consultations with First Nations on development plans should be carried out, guided by consultation protocols.

13.0 AIR QUALITY

There is a high level of public interest concerning air quality issues in the Bulkley Valley LUP area. Although air quality is determined by many factors outside the control of local residents (e.g. regional and global events), there are local issues that impact residents in the plan area, specifically air pollutants generated within the Bulkley Valley.

A community-based planning process has been initiated by WLAP (Airshed Management Plan), to gather ideas and determine interests and priorities of the general public, government, and licensees in regards air quality. The scope of the regional Bulkley Valley-Lakes District Airshed Management Plan will include Hazelton, Smithers, Houston, Burns Lake, and surrounding areas. Individual Community Working Groups have been established to contribute to this process, with the intent of finalizing a preliminary plan by March 31, 2004. The goal is to define improved methods of managing all sources of particulate air pollution and implement and monitor these practices."

13.1 Airshed Management Plan

Complete, implement, and maintain the Bulkley Valley-Lakes District (BVLD) Airshed Management Plan that incorporates the Bulkley Valley LUP area.

Strategies

1. WALP and the Bulkley Valley-Lakes District Air Management Plan partnerships, and shared stewardship agreements, will cooperate to:
   a. provide air quality monitoring and instrumentation;
   b. identify sources of air pollutants;
   c. improve methods of airshed management; and
   d. provide continuous improvement to the BVLD Airshed Management Plan.

13.2 Smoke Management

Minimize the impact of smoke caused by resource or debris burning on human health and visibility in the Bulkley Valley LUP area.

Strategy

1. Maintain and implement the Bulkley Timber Supply Area Burn Plan for smoke management in the Bulkley Valley LUP (www.for.gov.bc.ca/dss/SMOKEPLAN6.pdf.)

14.0 SOIL CONSERVATION

Soil is a fundamental part of the ecosystem. It is an essential, but a non-renewable resource. The use made of soil must depend on its properties, its fertility, and the socioeconomic values which it is capable of providing for today and in the future. The soil resource provides a medium that supports plant and animal life, and is vital to maintaining a long term productive agriculture and forestry landbase. Machinery, and other modern agriculture and forestry techniques permit economical increases in yield, but may also be capable of disrupting the natural balance of the soil, altering its physical, chemical, and biological characteristics. Accelerated soil erosion can negatively affect the quality of water, and results in net loss of site productivity. Pollution of the soil may also affect ground water and the air. Urban and rural settlement, road networks, and industry development can cover otherwise productive soils, and disrupt the natural soil water flow and storage. Soil conservation principles should be included as an element in resource extension and education activities. The overall Bulkley Valley LUP goal is to ensure long-term soil conservation, and to maintain its productive capacity.

14.1 Soil Productivity and Hydrologic Function

Conserve the inherent productivity and hydrologic function of soils throughout the Bulkley Valley LUP area.

Strategies

1. All forest and range practices on Crown Land will meet soils objectives and regulations under FRPA legislation, including:
   a. minimizing detrimental soil disturbance caused by harvesting, siliviculture, and range activities;
   b. minimizing the area of productive land that is occupied by permanent access structures (e.g. roads, landings, and pits);
   c. planning for, and implementing soil rehabilitation measures.
2. Encourage government and stewardship groups to provide soil conservation extension and education to all levels of local government, industry, private landowners, and schools.
3. Enforce legislation, regulations, and bylaws where they exist in regards to soil conservation practices.

15.0 SETTLEMENT ZONE

15.1 Settlement Zone Expansion

Ensure that any expansion of the Settlement Zone is consistent with wildlife, water, and all other objectives set out in this Plan.

Implementation, Monitoring, Review, and Amendment

Implementation

Compliance with the LRMP

1. The Bulkley Valley Landscape Unit Plan will be sent to appropriate government agencies to ensure compliance with the Bulkley LRMP and the current regulatory framework.
2. Future amendments to the Bulkley Valley LUP will take intent and direction from the LRMP.
3. No additional constraints to timber supply will be applied without considering the LRMP budget (see "Introduction" section for explanation of 'LRMP budget').
4. No additional constraints to agriculture will be applied without considering the impact to the agricultural industry.

Plan implementation and transition strategy

1. Once approved by the Regional Director/Manager of ILMB, the plan will be distributed to appropriate stakeholder groups, all levels of government, and First Nations. Agencies will work with licensees and other resource users on incorporating the objectives and strategies of this plan into development planning.
2. Objectives that guide forest and range practices may be established legally under the Forests and Range Practices Act. Remaining objectives will either become government policy, or considered consensus BVCRB recommendations for government and the Bulkley Valley community.

Monitoring

Agencies will develop an effective monitoring strategy for each type of landscape unit objective to determine if the objectives are being met. MoE will be responsible for tracking implementation of the plan, and developing a monitoring methodology for biodiversity, wildlife, WMAs, WMHAs, fish, water, air and objectives. In addition, MoE (Parks) will be responsible for monitoring protected areas. MoFR will be responsible for implementation and developing a monitoring methodology for soils, the LRMP Special Management Zone 2, timber, recreation, visual quality and range objectives. MAL will be responsible for developing a monitoring methodology for agriculture objectives, and LWBC for ADAs and the settlement zone. This monitoring will be done in conjunction with the Interagency Management Committee's (IAMC) strategy for monitoring the Bulkley LRMP and LUPs. The Bulkley Valley Community Resources Board (BVCRB) is expected to be an active participant in the monitoring and amendment phases.

In the interim it is recognized that monitoring, in a more simple sense, will be ongoing, and that issues may arise at any time that may warrant revisiting these objectives.

Review and amendment

This landscape unit plan will be amended as required to reflect new information from monitoring, and experience from operational plans as landscape unit objectives and strategies are implemented. Amendments may be required to incorporate new information, First Nations interests, watershed assessments, etc. Amendments may also be required to provide further detail in strategies to meet objectives. Amendments will be completed as per Higher Level Plan procedures (public input, etc.). Although the LRMP and Bulkley Valley LUP are intended to be living plans, it is important to note that the consensus agreements were developed through an extensive community involvement process that required compromises on behalf of all participating resource sectors.

The requirements, listed below, for amendments to the LRMP or LUP may be too onerous for well intended comments from the public at large. The BVCRB does not want to discourage constructive suggestions, and encourages the public to submit their ideas or thoughts regarding the plans through letters to any Provincial agency, or to the BVCRB directly.

If the BVCRB decides there is a need for amendment(s) to address concerns raised by Board members or the public, they will recommend that the Ministry of Sustainable Resource Management consider amendments to the plan.

For any proposed amendment to the LRMP or LUP, the proponent(s) for the change (including the BVCRB) is responsible for fulfilling the following requirements:

- ✧ the name(s) and address(es) of the proponent (s), affiliated organization(s), and consultants hired (if any) to collect data or to prepare the proposed amendment;
- ✧ a clear description of how the current LRMP or LUP is not meeting the needs of the particular resource value(s) in question;
- ✧ an explanation of efforts made to work within the LRMP or LUP framework to address the specific resource management concerns, or why this is not possible;
- ✧ new information, including the results of effectiveness monitoring, that shows the underlying technical assumptions in the current plans were incorrect or social choices of the plans are not being met, or that substantial new values or management issues have arisen that were not anticipated;
- ✧ a clear description of analyses of any data presented, the source of the data, and the methods used to collect the data;
- ✧ a detailed description of the proponent's proposed amendment(s) to the LRMP or LUP;
- ✧ if possible, provide names of persons or organizations that are considered experts on, or have significant interest in the amendment(s), and may be contacted for review or comment regarding the amendment(s); and
- ✧ demonstrated support from a broad cross-section of the community to amend the plan.

If these criteria and information requirements are met, the BVCRB will consider recommending an amendment to the LRMP or LUP to the Integrated Land Management Bureau. Any amendment proposed by the BVCRB would have to be agreed to, and carried out by, the Minister or Regional Director for the Integrated Land Management Bureau.

Appendices

Appendix 1. District Operating Procedure for amending the EN and ETD areas[7].

DISTRICT OPERATING PROCEDURES

SUBJECT:

Ecosystem Network and Enhanced Timber Development Areas

File # 12500-25 LUP FEN

Purpose: To provide a procedure for amending the ecosystem network (EN) or the enhanced timber development (ETD) areas.

Background: The ecosystem network extends throughout the entire Bulkley LRMP area. Its purpose is to maintain connectivity through mature forest structure and to protect a representative cross-section of ecosystems. The enhanced timber development zone is well distributed throughout the Integrated Resource Management Zone in small, non-contiguous sites. Its purpose is to enhance the available timber supply and improve timber qualities, thereby increasing revenues and employment opportunities.

Both these areas are not intended to have legislated boundaries; rather, its borders are deliberately flexible to allow adjustment by the Ministry of Forests, District Manager (DM). The Ministry of Energy and Mines is to be consulted on any boundary changes.

The original EN and ETD line work was developed at a scale of 1:50,000. Therefore, it has always been the district's intention as more information is obtained from detailed operational planning in or around the ecosystem network to refine its boundaries.

Scope: This procedure applies to government agency staff (Ministry of Forests (MoF), Ministry of Water, Land and Air Protection (WLAP), Ministry of Energy and Mines, Land and Water BC (LWBC) and forest licence tenure holders.

[7] Amended to reflect changes in government structure

Procedure:

1. Initiation

    1.1. Individuals requesting amendment (i.e. government agency, forest license tenure holder) will submit to the District Manager:

    a) a letter (see the letter outline attached) explaining the reason[8] or reasons for the amendment and;

    b) a map clearly identifying the amendment area (scale must be suitable to clearly identify the area, usually 1:20,000 or less). Note the amendment application must include a mapped suitable replacement[9] area unless the proponent does not have access to the information to suggest a suitable replacement (e.g. mineral exploration, agriculture leases). In these instances, MoF will work with the referring agency to identify suitable areas.

2. Review

    2.1. Regardless of who initiates the amendment process (licensee or agency) the District Manager or delegate upon receiving the request will forward copies of the proposed amendment to the major licensees (PIR, BCTS and Canfor), to the Ministry of Water, Land and Air Protection, to the Ministry of Energy and Mines and to LWBC even if the proposed amendment is not in their operating areas. Licensees or agencies may choose whether or not they wish to provide comments to the technical review team within 30 days of the date of the referral.

    2.2. District Manager or delegate will review the request and initiate the technical review within 30 days of the receipt of the request.

    2.3. A technical review of the request will be completed by the appropriate district forester (i.e. Stewardship Forester).

    2.4. As part of the technical review agency staff or licensees may request a field trip.

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[8] Examples of appropriate reasons to amend an EN or ETD:

- Acquisition of more specific ecological information;
- Impact on EN objectives through extensive mining exploration or development; and,
- Provision of site information or results of long-term monitoring.

[9] A 'suitable replacement' area for the EN will usually have the following characteristics;

- the proposed replacement area should be within +/- 5% ha of the area being replaced,
- it should be located within the same landscape unit,
- it should be connected to the existing ecosystem network,
- it shall be on crown land and,
- it should contain similar ecological site characteristics to the area being replaced (i.e. represent the same biogeoclimatic subzone to the variant level).

A 'suitable replacement' area for the ETD will usually have the following characteristics;

- high forest productivity
- stable, non-sensitive soils and
- none or very few conflicts with other forest resources.

The District Manager or his delegate will determine whether the proposed replacement area is suitable.

3. Decision

3.1. To be made by the District Manager or delegate based on recommendations of the technical review and comments received.

4. Reply

4.1. An approval/ not approved letter signed by the DM or delegate is to be sent to the initiator of the request and to all parties who indicated an interest in the proposed amendment.

4.2. If the request is not approved, a rationale will be included in the reply letter.

5. Filing and map update

5.1. The original signed copy of the amendment is to be put on file 12600-75 LUP FEN Landscape Unit Planning Forest Ecosystem Network- Amendments and on the appropriate landscape unit file (*e.g.* 12500-25/ Telkwa).

5.2. A copy of the original signed amendment is to be forwarded to the appropriate operations manager.

5.3. Once per year, in December, the District will update any line work resulting from that years amendments to the ecosystem network.

5.4. The District will also update the client server at this time once the yearly line work updates are complete.

Appendix #1 - Ecosystem Network Amendment Submission Letter Outline:

History/Background: The purpose of this section would be to outline the problem or problems that have occurred to initiate the amendment.

Solutions: In this section the amendment applicant would outline the proposed solution or solutions, including: 1) a rational for amending the location of the ecosystem network if this is one of the solutions and 2) the consequences of not amending the location of the ecosystem network.

Recommendation: recommend one of the solutions for approval.

Signature page:

_____ _____

Submission prepared by: Date

_____ _____

Approved/Not Approved Date
District Manager,
Skeena/Stikine Forest District

Appendix 2. Likely Red and Blue Listed Plant Communities in the Bulkley Valley Landscape Unit

Common Name	BEC Site series	Provincial Rank
Subalpine Fir/Lodgepole Pine - Juniper - Lichen	ESSFmc/02	Blue
Subalpine Fir/Lodgepole Pine - Cladonia	ESSFwv/02	Blue
Subalpine Fir - Huckleberry - Crowberry	ESSFmc/03	Blue
Saskatoon-Slender Wheat Grass	SBSdk/81	**RED**
Black Spruce/Lodgepole Pine - Feathermoss	SBSmc2/03	Blue
Lodgepole Pine - Juniper - Ricegrass	SBSdk/02	Blue
Bluegrass - Slender Wheatgrass	SBSdk/82	**RED**
Cottonwood - Dogwood - Prickly Rose	SBSdk/08	**RED**
Douglas-Fir - Feathermoss - Stepmoss	SBSdk/04	Blue
Western Red Cedar/Hybrid White Spruce - Devil's Club - Horsetail	ICHmc2/07	Blue
Western Hemlock - Kinnikinnick - Cladonia	ICHmc1/02 ICHmc2/02	Blue
Western Hemlock - Azalea - Skunk Cabbage	ICHmc1/06	Blue
Timber Oatgrass dry grassland	SBS/ESSF	***RED****(Blue)*[10]
Mesic (montane) forb meadows - variable spp. Composition	all interior zones except AT	***RED****(Blue)*
Cow parsnip - large leaved avens - stinging nettle - brome lush meadows	SBS/ICH/CWH	*Blue*
Black Spruce - hybrid white spruce - scrub birch - sedge	ICHmc2/08	*Blue(RED)*
Hybrid Spruce - paper birch - devil's club - lady fern	ICHmc2/05 ICHmc2/54	*Blue*
Trembling Aspen - paper birch - beaked hazelnut - red osier dogwood	ICHmc2/53	*Blue*

[10] Recommended rank from Haeussler, 1998 - Rare Plant Communties and Plant Species within the Bulkley portion of the Bulkley/Cassiar Forest District

Appendix 3. Likely Red and Blue Listed Animal and Plant Species in the Bulkley Valley Landscape Unit

Scientific Name	English Name	BC Status
Asio flammeus	Short-eared Owl	BLUE
Botaurus lentiginosus	American Bittern	BLUE
Buteo swainsoni	Swainson's Hawk	RED
Cygnus buccinator	Trumpeter Swan	YELLOW
Falco peregrinus anatum	Peregrine Falcon, *anatum* subspecies	RED
Gulo gulo luscus	Wolverine, *luscus* subspecies	BLUE
Martes pennanti	Fisher	RED
Oncorhynchus clarki clarki	Cutthroat Trout, *clarki* subspecies	BLUE
Rangifer tarandus pop. 15	Caribou (northern mountain population)	BLUE
Salvelinus confluentus	Bull Trout	BLUE
Salvelinus malma	Dolly Varden	BLUE
Ursus arctos	Grizzly Bear	BLUE

Scientific name	English name	BC status
Acorus americanus	American sweet-flag	BLUE
Draba alpine	Alpine draba	BLUE
Draba corymbosa	Baffin Bay draba	BLUE
Draba lonchocarpa var. *vestita*	Lance-fruited draba	BLUE
Draba ruaxes	Coast mountain draba	BLUE
Epilobium leptocarpum	Small-fruited willowherb	BLUE
Impatiens aurella	Orange touch-me-not	BLUE
Sagina nivalis	Snow pearlwort	BLUE
Sparganium fluctuans	Water bur-reed	BLUE

Appendix 4. Angling Use Plan

AGLING USE PLAN - STREAMS

1. BASIC INFORMATION

STREAM (Name): Bulkley River SECTION: Morice Jct. to Skeena Jct. LOCATION: Northwestern BC

CLASSIFIED WATER ☒ UNCLASSIFIED ☐ REGION (Name): Skeena M.U.: 6-08/09 WSC: _____

2. PHYSICAL PARAMETERS

TOTAL LENGTH OF STEAM (km) 141 LARGE MAINSTEM STREAM (Inc. Tribs.) ☒

FISHABLE LENGTH OF STEAM (km) 116 MODERATE SIZE STREAM (Inc. Tribs.) ☐

AVERAGE WIDTH IN FISHABLE LENGTH (m) 40-50 m. SMALL SIZE STEAM (No Tribs.) ☐

3. ACCESS STATUS

	EXTENSIVE	LIMITED		NONE
ROAD	☒	☐		☐
DRIFT BOAT	☐	☒	(due to lack of access points)	☐
POWER BOAT	☒	☐		☐
FIXED WING AIRCRAFT	☐	☐		☒
HELICOPTER	☐	☒		☐

4. ANGLING

GENERAL ANGLING SEASON	FROM	June 16	TO	Dec 31
RESTRICTED ANGLING SEASON	FROM	Sept. 1	TO	Oct. 31
PEAK ANGLING SEASON	FROM	Sept. 15	TO	Oct. 20

STREAMSIDE ACTIVITIES:

NONE ☐ LIMITED ☐ EXTENSIVE ☒

Water Clarity, Flow, Public Access

LIST ACTIVITIES AFFECTING ANGLING

ANGLING CONDITIONS: GOOD ☒ POOR ☐ UNPREDICTABLE ☐

5. STOCK STATUS

		ADEQUATE	DEPRESSED	ENDANGERED	NOT KNOWN	NOT APPLICABLE
STEELHEAD - SUMMER		☒	☐	☐	☐	☐
STEELHEAD - WINTER		☐	☐	☐	☐	☒
TROUT (Indicate Species)	Rainbow/cutthroat	☐	☐	☐	☒	☐
CHAR (Indicate Species)	Dolly Varden/Bull Trout	☒	☐	☐	☐	☐
SALMON(Indicate Species)	Chinook	☒	☐	☐	☐	☐
OTHER (Indicate Species)	Coho	☐	☐	☒	☐	☐

6. WATER - SPECIFIC REGULATIONS (LIST)

1) Steelhead Release
2) Bait Ban - August 1 to December 31

7. PRESENT ANGLING USE & ANGLER DAY ALLOCATION

EST. TOTAL ANGLING USE 7602* DAYS NO. OF ANGLING GUIDE BASE CAMPS 3 SATELLITE CAMPS 4

NO. OF LICENCED GUIDES 7 NO. OF BOATS OPERATED BY GUIDES 20 POWER 10 DRIFT 10

TOTAL GUIDED ANGLER DAYS 931** OTHER TRANSPORTATION _____

* 30 year average/** 6 year average

8. PUBLIC ADVISORY ON ANGLING USE

LIST REGIONAL/PROVINCIAL CONSULTATIONS public meetings, mail out of draft plan

RECOMMENDATIONS

- Increase overall level of angling activity by 38% over recent 3 year average (i.e. 1994-1997) but consistent with levels experienced in 1980s
- Increase resident use by 47% compared to recent 3 year average
- Cap non-guided non-resident use at a level consistent with recent 3 year average
- Allow level of guided angling activity to increase to actual allocation (i.e. 1504 rod days)

9. RECOMMENDED ANGLING USE & ANGLER DAY ALLOCATION

EST. TOTAL ANGLING USE 10500 DAYS NO. OF ANGLING GUIDE CAMPS 3 SATELLITE CAMPS 4

NO. OF LICENCED GUIDES 7 NO. OF BOATS OPERATED BY GUIDES 20 POWER 10 DRIFT 10

TOTAL GUIDED ANGLER DAYS 1504

TOTAL NON-GUIDED NON-RESIDENT ANGLER DAYS 1400

10. NARRATIVE (Use additional pages, if required)

See attached narrative

11. REGIONAL ADMINISTRATION

Approved by: _____ effective December 23, 1998.

Appendix 5. Local Outdoor Recreation Groups

- BV Backpackers
- BV Mountain Club
- BV Cross Country Skiers
- BV Naturalists
- BV Kayak & Canoe Club Society
- BV Rod + Gun Club
- Northern Saddle Club
- Northwest Chapter of the Backcountry Horsemen Society of BC
- Smithers Snowmobile Assoc.
- Smithers Cycling Club
- Northeast Slope Trail Group
- Northwest Powerboat Association
- Driftfishers Association of British Columbia
- Backcountry Horsemen of British Columbia
- Bulkley Valley Chapter of the Steelhead Society of BC
- Northwest Guides Association
- Resident Hunter's Association
- BV Quad Riders

Appendix 6. Acronyms

AAC	Allowable annual cut
ADA	Agriculture Development Areas
ADM	Agriculture Development Area
BEC	Biogeoclimatic Ecosystem Classification
BVCRB	Bulkley Valley Community Resources Board
BVLD	Bulkley Valley-Lakes District
CRA	Controlled Recreation Area
CWG	Community Working Groups
EFP	Environmental Farm Plan Program
EN	Forest Ecosystem Network
ESSF	Engelmann Spruce, Sub-alpine Fir
FDP	Forest Development Plan
FRPA	*Forest and Range Practices Act*
FSP	Forest Stewardship Plan
IAMC	Inter Agency Management Committee
IRM	Integrated Resource Management
ILMB	Integrated Land Management Bureau
LWBC	Lands and Water BC
LRMP	Land and Resource Management Plan
LUP	Landscape Unit Plan
MELP	*former* Ministry of Environment, Lands and Parks
MEM	Ministry of Energy and Mines
MOAFF	Ministry of Agriculture, Foods, and Fishers
MOF	Ministry of Forests
MSRM	Ministry of Sustainable Resource Management
NDT	Natural disturbance type
RAMP	Resource Access Management Plan
RMZ	Resource Management Zone
SBS	Sub-Boreal Spruce
SMZ	Special Management Zone

TCHRPA	Telkwa Caribou Herd Recovery Area
THLB	Timber harvesting Land Base
TSA	Timber Supply Area
UWR	Ungulate Winter Range
VIA	Visual Impact Assessment
WLAP	Water, Lands, Air, and Parks
WHMA	Wildlife Habitat Management Area
WLAP	Water, Land and Air Protection
WMA	Wildlife Management Area
VQO	visual quality objective

Natural disturbance types described in this report:

NDT1	Ecosystems with rare stand-initiating events
NDT2	Ecosystems with infrequent stand-initiating events
NDT3	Ecosystems with frequent stand-initiating events
NDT5	Alpine tundra and subalpine parkland

Appendix 7. Glossary of Resource Planning Terms

age class

An interval into which the age range of trees, forest, stands or forest types is divided for classification. Forest inventories commonly group trees into 20-year age increments up to age 140 years, then a single class for trees between 141 and 250 years old, and a single class for those older than 250 years.

biodiversity (biological diversity)

The diversity of plants, animals and other living organisms in all their forms and levels of organization, including genes, species, ecosystems, and the evolutionary and functional processes that link them.

biogeoclimatic ecosystem classification (BEC)

A hierarchical classification scheme having three levels of integration: regional, local and chronological; and combining climatic, vegetation and site factors.

biogeoclimatic zone

A geographic area with a broadly homogenous macroclimate. Each zone is named after one or more of the dominant climax species of the ecosystems in the zone, and a geographic or climatic modifier (e.g. Interior Douglas Fir). British Columbia has 14 biogeoclimatic zones.

blue-listed species

Sensitive or vulnerable species as identified by the Ministry of Environment, Lands and Parks. Blue-listed species are considered to be vulnerable and "at risk" but not yet endangered or threatened. Populations of these species may not be declining but their habitat or other requirements are such that they are sensitive to disturbance. The blue list also includes species that are generally suspected of being vulnerable, but for which information is too limited to allow designation in another category.

coarse woody debris

Sound and rotting logs and stumps that provide habitat for fungi, plants, animals and insects and their predators, and that provide a source of nutrients for soil development. Material generally greater than eight to ten centimetres in diameter.

connectivity

A qualitative term describing the degree to which late-successional ecosystems are linked to one another to form an interconnected network. The degree of interconnectedness and the characteristics of the links vary in natural landscapes based on topography and natural disturbance regime. Breakage of these links results in fragmentation.

cultural heritage resource

For the purposes of the *Forest Act*, a cultural heritage resource is an object, site, or the location of a traditional societal practice that is of historical, cultural or archaeological significance to the province, a community or an aboriginal people. Cultural heritage resources include archaeological sites, structural features, heritage landscape features, and traditional use sites.

cutblock

Defined in the *Forest Practices Code of British Columbia Act* as a specific area of land identified on a forest development plan, or in a license to cut, road permit, or Christmas tree permit, within which timber is to be or has been harvested.

ecosystem

A functional unit consisting of all the living organisms (plants, animals and microbes) in a given area, and all the non-living physical and chemical factors of their environment linked together through nutrient cycling and energy flow. An ecosystem can be of any size -a log, pond, field, forest or the earth's biosphere - but it always functions as a whole unit. Ecosystems are commonly described according to the major type of vegetation, for example, forest ecosystem, or range ecosystems.

forest health

a forest condition that is naturally resilient to damage; characterized by biodiversity, it contains sustained habitat for timber, fish, wildlife, and humans, and meets present and future resource management objectives.

forest health agents

Biotic and abiotic influences on the forest that are usually a naturally occurring component of forest ecosystems. Biotic influences include fungi, insects, plants, animals, bacteria, and nematodes. Abiotic influences include frost, snow, fire, wind, sun, drought, nutrients, and human-caused injury.

forest health treatments

the application of techniques to influence pest or beneficial organism populations, mitigate damage, or reduce the risk of future damage to forest stands. Treatments can be either proactive (for example, spacing trees to reduce risk of attack by bark beetles) or reactive (for example, spraying insecticides to treat outbreaks of gypsy moth).

forest development plan (FDP)

An operational plan, guided by the principles of integrated resource management, which details the logistics of timber development, usually over a period of five years. Methods, schedules and responsibilities for accessing, harvesting, renewing and protecting forest resources are set out to enable site-specific operations to proceed.

forest stewardship plan (FSP)

An operational plan where tenure holders must state explicitly how they will address government objectives for key forest values, such as soils and wildlife. These proposals are the "results" of a "results-based" framework.

forest ecosystem network (FEN)

A zone that serves to maintain or restore the natural connectivity within an area.

forest interior conditions

Conditions achieved at a point where edge effects no longer influence environmental conditions within a patch of forest. For interior B.C. forests, the edge effect is generally felt for a distance equivalent to 100-200 meters into the stand. The conditions changed usually involve light intensity, temperature, wind, relative humidity and snow accumulation and melt.

forest resources

Defined in the *Forest Practices Code of British Columbia Act* as resources and values associated with forests and range including, without limitation, timber, water, wildlife, fisheries, recreation, botanical forest products, forage, and biological diversity.

guidebooks

Guidebooks are sets of guidelines and recommendations on how to best achieve requirements of the *Forest Practices Code of British Columbia Act*. The guidebooks are not legally enforceable. However, specifications and procedures recommended by the guidebooks may be incorporated into plans, prescriptions and contracts, in which case those specifications and procedures may become legally enforceable.

identified wildlife

Defined in the *Forest Practices Code of British Columbia Act* Operational Planning Regulation as those species at risk that the Deputy Minister of Environment, Lands and Parks or a person authorized by that Deputy Minister, and the Chief Forester, agree will be managed through a higher level plan, wildlife habitat area or general wildlife measure.

inoperable areas

Defined in the *Forest Practices Code of British Columbia Act* as areas unavailable for harvest for terrain-related or economic reasons. Characteristics used in defining inoperability include slope, topography (e.g. the presence of gullies or exposed rock), difficulty of road access, soil stability, elevation and timber quality. Operability can change over time as a function of changing harvesting technology and economics.

land and resource management plan (LRMP)

An integrated sub-regional consensus-based process requiring public participation that produces a land and resource management plan for review and approval by government. The plan establishes direction for land use and specifies broad resource management objectives and strategies.

landscape unit

Planning areas established under the *Forest Practices Code of British Columbia Act* by the District Manager, that are up to 100 000 hectares in size and are based on topographic or geographic features such as a watershed or series of watersheds.

natural disturbance types (NDTs)

A term used to characterize areas with different natural disturbance regimes. Five natural disturbance types are recognized as occurring in B.C.:

NDT1 Ecosystems with rare stand-initiating events

NDT2 Ecosystems with infrequent stand-initiating events

NDT3 Ecosystems with frequent stand-initiating events

NDT4 Ecosystems with frequent stand-maintaining fires

NDT5 Alpine Tundra and Sub-Alpine Parkland ecosystems

Northwest Invasive Weed Committee

Members include: Ministry of Forests, Ministry of Environment, BC Ministry of Agriculture, Fisheries, and Foods, Coalition for Alternatives to Pesticides, Bulkley-Nechako Regional District, Canadian National Railway, and Bulkley Valley Cattlemen's Association.

old growth management area (OGMA)

Defined in the *Forest Practices Code of British Columbia Act* Operational Planning Regulation as an area established under a higher level plan which contains or is managed to replace structural old growth attributes.

operable forest

That portion of the production forest that, under current market conditions, can be harvested at a profit.

operational plan

The *Forest Practices Code of British Columbia Act* states that within the context of area-specific management guidelines, operational plans detail the logistics for development. Methods, schedules, and responsibilities for accessing, harvesting, renewing and protecting the resource are set out to enable site-specific operations to proceed. Operational plans include forest development plans, access management plans, range use plans, silviculture prescriptions, and stand management prescriptions.

patch

A stand of similar-aged forest that differs in age from adjacent patches by more than 20 years. When using the term patch in designing landscape patterns, it refers to the size of either natural disturbance openings which lead to even-aged forests or those openings created by cutblocks.

protected area

A designation of areas of land and water set aside to protect natural heritage, cultural heritage or recreational values (may include national park, provincial park or ecological reserve designations).

range use plan

An operational plan that describes the range and livestock management measures that will be implemented to ensure that range resources are protected and that the management objectives for other identified resource values are achieved.

rare ecosystem

Plant communities listed as red or blue with the B.C. Conservation Data Centre.

red-listed species

Threatened or endangered species as identified by the Ministry of Environment, Lands and Parks. The taxa on the red list are either extirpated, endangered or threatened or are being considered for such status. Any indigenous taxon (species or sub-species)

threatened with imminent extinction or extirpation throughout all or a significant portion of its range in British Columbia is endangered. Threatened taxa are those indigenous species or sub-species that are likely to become endangered in B.C. if conditions are not altered.

regional land use plan

A plan identifying land use strategies at a regional level (e.g., a plan resulting from one of the CORE regional processes).

resource management zone (RMZ) - from regional or sub-regional plan:

A division or zone of the planning area that is distinct from other zones with respect to biophysical characteristics, resource issues or resource management direction. Resource management zones (in land and resource management planning [LRMP] these include settlement, agriculture, high intensity resource development, general resource development, low intensity resource development and protection) may be drawn on a map to describe general management intent. The zones are usually further defined using descriptive objectives and strategies to explain future land use and resource management activities.

riparian area

Areas of land adjacent to wetlands or bodies of water such as swamps, streams, rivers or lakes including both the area dominated by continuous high moisture content and the adjacent upland vegetation that exerts an influence on it.

riparian reserve zone

Defined in the *Forest Practices Code of British Columbia Act* Operational Planning Regulation as that portion , if any, of the riparian management area or lakeshore management area located adjacent to a stream, wetland or lake of a width determined in accordance with Part 10 of the regulation.

rotation

The planned number of years between the formation or regeneration of a stand and its final cutting at a specified stage of maturity.

scenic area

Defined in the *Forest Practices Code of British Columbia Act* Operational Planning Regulation as any visually sensitive area or scenic landscape identified through a visual landscape inventory or planning process carried out or approved by the District Manager.

sensitive areas

Small areas established under the *Forest Practices Code of British Columbia Act* by the District Manager to manage or conserve unique or locally significant resource values.

seral stages

The stages of ecological succession of a plant community ,e.g., from young stage to old stage. The characteristic sequence of biotic communities that successively occupy and replace each other by which some components of the physical environment become altered over time.

site series

Sites capable of producing the same late seral or climax plant communities within a biogeoclimatic subzone or variant.

species composition:

The percentage of each recognized tree species comprising the forest type based upon the gross volume or the relative number of stems per hectare or basal area.

stand structure

The distribution of trees in a stand, which can be described by species, vertical or horizontal spatial patterns, size of trees or tree parts, age, or a combination of these.

timber harvesting landbase

Crown land within an area that is currently considered feasible and economic for forest management. Areas 100% constrained to timber harvesting--for example protected areas, riparian reserves or old growth management areas--do not contribute to the timber harvesting landbase.

utilization standards

The dimensions (stump height, top diameter, base diameter, and length) and quality of trees that must be cut and removed from Crown land during harvesting operations.

visual quality objective (VQO)

A resource management objective established by the District Manager or contained in a higher level plan that reflects the desired level of visual quality based on the physical characteristics and social concern for the area. Five categories of VQO are commonly used: preservation, retention, partial retention, modification, and maximum modification.

wildlife trees

Defined in the *Forest Practices Code of British Columbia Act* Operational Planning Regulation as a tree or group of trees that are identified in an operational plan to provide present or future wildlife habitat. A wildlife tree is a standing live or dead tree with special characteristics that provide valuable habitat for the conservation or enhancement of wildlife. Characteristics include large diameter and height for the site.