



**MATERIAL SUPPORTING THE NOTICE, BUT NOT PART OF THE NOTICE.**

**INFORMATION CONCERNING WILDLIFE HABITAT FOR THE WINTER SURVIVAL OF UNGULATE SPECIES IN THE MORICE TIMBER SUPPLY AREA**

This document is intended to provide background information and support to the legal framework of the notice of indicators of the amount, distribution and attributes of wildlife habitat required for the winter survival of ungulate species in the Morice TSA. This document is not part of the legal notice. Its purpose is to provide additional information for consideration by delegated decision makers and by those persons required to prepare results and strategies consistent with section 7(1) of the Forest Planning and Practices Regulation or act in a manner consistent with section 9(3) of the *Woodlot License Planning and Practices Regulation*.

**Morice Timber Supply Area**

**Amount and Distribution:**

**1) Northern Caribou:** The amount included in the notice is based on the total area contained within the Telkwa Caribou Herd Recovery Area Boundary (1996) and consistent with TSR 2. A revised version of the Telkwa Caribou Herd Recovery Area Boundary was developed in January 2004 based on seven years of acquired Telkwa caribou location data. This revised Recovery Area is currently part of the Morice LRMP consensus agreement (May, 2004) and totals 177,866 ha. Revised Key Forested caribou Habitat polygons are also part of the Draft Morice LRMP. When the Morice LRMP is finalized and this revised area accepted, the amount in the notice will be revised to reflect this new boundary and Key Forested caribou Habitat polygons.

Figures and spatial information (shapefiles) to support the amount and distribution statements for Mountain Caribou and Goats are included in the folders titled “Figures” and “Spatial Data” on the following ftp site:

[ftp://ribftp.env.gov.bc.ca/pub/outgoing/cdc\\_data/Approved\\_FRPR\\_sec7\\_WLPPR\\_sec9\\_Notices\\_and\\_Supporting\\_Info/Ungulate\\_Winter\\_Range/Timber\\_Supply\\_Areas/Morice\\_TSA/Supporting\\_Info/](ftp://ribftp.env.gov.bc.ca/pub/outgoing/cdc_data/Approved_FRPR_sec7_WLPPR_sec9_Notices_and_Supporting_Info/Ungulate_Winter_Range/Timber_Supply_Areas/Morice_TSA/Supporting_Info/)

Inclusion of draft and proposed Ungulate Winter Range boundaries in the supporting information does not prejudice the review and comment that may be ongoing around these Ungulate Winter Ranges. Where Ungulate Winter Ranges have not been through the full review and comment process, MWLAP will continue to work with affected parties to address the Ungulate Winter Range boundaries.

**2) Mountain Caribou:** The amount included in the Notice is based on proposed UWR polygons for Takla Caribou in the Morice TSA. The estimated impacts are based on the draft Morice LRMP final plan analysis that identified a projected impact to Timber Supply of 0.3% of THLB (1375 ha) for Takla Caribou (Figure 1). The THLB budget is derived from ESA in TSR 2.

**3) Mountain Goats:** It is not intended that management of Mountain Goat winter range will have a substantial impact to the THLB. The amount included in the Notice is based on the total landbase occupied by “primary” and “secondary” Mountain Goat habitat (Figure 1). It is expected that a very high majority of this will be located over non-THLB land (i.e. mostly rock, NP, and non-commercial forest).

TSR2 for the Morice TSA identified a total of 7033 ha for ESA-Ew. Of this total 929 ha overlaps with the Telkwa Caribou recovery area, therefore 6104 ha are available for UWR management in the TSA. The Notice currently only contains a THLB impact of 1378 ha. An amount has not been included in the Notice for either Moose or Mule Deer. Suitability mapping exists for both species, but due to the large overlap with private land it was not possible to determine an amount applicable to the Crown landbase for the purposes of this Notice. The remaining ESA budget from TSR 2 (4729 ha) will be used to address Mule deer and Moose within the TSA. The Notice will be revised to include an amount, distribution and attributes for these 2 species.

### **Attributes:**

#### **1) Mountain Caribou**

In addition to the attributes identified in the notice the Draft Morice LRMP has indicated that Takla Caribou Ungulate Winter Range should be managed as per the objectives that were approved for the Omineca Mountain Caribou UWR (u-7-003) ([http://wlapwww.gov.bc.ca/wld/documents/uwr/uwr\\_u7\\_003.pdf](http://wlapwww.gov.bc.ca/wld/documents/uwr/uwr_u7_003.pdf)). The desired attribute should be obtained through the implementation of these objectives following objectives:

#### **2) Northern Caribou**

# **INTERIM HARVESTING GUIDELINES FOR THE TELKWA CARIBOU HERD RECOVERY PROGRAM AREA**

File: 12625-02

April 1, 1999.

Committee Membership

Dear Members:

Re: Interim Harvesting Guidelines for the Telkwa Caribou Herd Recovery Program Area

The standing committee agrees to the following interim harvesting guidelines for the Telkwa Caribou Herd Recovery Program (TCHRP). These transition guidelines, are recommended to be used before High Level Plans (HLP) are established. This standing committee also recognizes the importance of adaptive management in trying to accommodate both caribou and resource development interests in the TCHRP area.

The committee will continue to work towards managing for both caribou and resource development in a way that will be beneficial to both.

---

Len Vanderstar, R.P.F./ R.P.Bio  
Ministry of Environment, Lands & Parks  
Smithers Regional Office

---

Melissa Todd, Senior Wildlife Biologist  
Houston Forest Products  
Houston, British Columbia

---

Paul Ross, R.P.F.  
Houston Forest Products  
Houston, British Columbia

---

Andy Witt, Forest Ecosystem Specialist  
Ministry of Forests  
Morice Forest District

---

Ted Traer, R.P.F.  
Ministry of Forests  
Morice Forest District

---

Rick Keim, Habitat Specialist  
Ministry of Forests  
Bulkley/Cassiar Forest District

---

Bob Mitchell, R.P.F.  
Ministry of Forests  
Bulkley/Cassiar Forest District

---

Doug Witala, R.P.F.  
Pacific Inland Resources  
Smithers, British Columbia

---

Allan Baxter, B.I.T./F.I.T.

---

Andrew Wheatley, R.P.F.

---

Jim McCormack, Planning Forester  
Northwood  
Houston, British Columbia

\* original document signed by all committee members

## INTERIM HARVESTING GUIDELINES FOR THE TELKWA CARIBOU HERD RECOVERY PROGRAM AREA

### **A) Introduction**

The goal of the Telkwa Caribou Standing Committee was to build a joint agreement to a set of harvesting guidelines that would not forgo:  
any future opportunities for caribou re-establishment in the Telkwa Mountains;  
any future timber harvesting opportunities.

The standing committee created a set of objectives and associated guidelines that are recommended to be used as a template in Landscape unit (LU) plans, when, and where appropriate to do so.

The standing committee focused on the Telkwa Caribou Herd Recovery Project Area (TCHRPA) that was split in half with management strategies from a Land and Resource Management Plan (Bulkley LRMP) and no management strategies (no LRMP) in place for the Morice Forest District.

The standing committee decided that these harvesting guidelines are to be; interim in nature, and designed to provide planning direction until completion of a Higher Level Plan (HLP).

### **B) Objectives for the Interim Harvesting Guidelines**

Maintain arboreal and terrestrial lichen producing range and suitable habitat quality sufficient to sustain a genetically viable herd through the use of appropriate silvicultural systems.

Minimize caribou habitat fragmentation to permit free range by caribou across and in proximity to the Telkwa Mountains through landscape corridors and old-growth management areas established in land resource management plans and landscape unit plans, and through patch size/cluster distribution.

Manage human access to minimize disturbance to caribou and caribou displacement from the Telkwa Mountains by such mechanisms as road closure, road deactivation, designation of access management zones, timing of resource development, and public education.

Maintain habitat separation from predators through the use of appropriate silvicultural systems, season of harvest, and avoidance of snow packed trails and roads to high use caribou areas.

## C) Background

In the early 1960's the Telkwa Mountains supported a herd of approximately 300 animals and since then has declined to a dozen animals in the mid 1990's. BC Environment took the first steps towards enhancing and sustaining a viable caribou herd in the Telkwa Mountains, as recommended by the Bulkley Land and Resource Management Plan (LRMP). In the fall of 1997 and 1998, 28 woodland caribou were relocated from the Sustut-Chase herd to augment the existing resident Telkwa caribou of about 1 dozen animals.

Before relocating caribou, MELP assembled a Telkwa Caribou Recovery Team responsible for completion of a Telkwa Caribou Herd Recovery Plan (TCHRP) and identification of a Telkwa Caribou Herd Recovery Project Area (TCHRPA). The TCHRPA prime focus is the Telkwa Mountain Range which almost equally spans two forest Districts, the Bulkley and Morice timber supply areas. Five landscape units in the Morice Forest District and one landscape unit in the Bulkley Forest District will have forest management practices influenced by the TCHRP. The licensee in both the Morice and Bulkley Forest Districts were invited to work with MELP and MoF, to establish interim harvesting guidelines that would minimize the impact on caribou and caribou habitat, while practicing good forest management in the TCHRPA. A process was initiated to establish interim harvesting guidelines to address key habitat management and disturbance issues in the TCHRPA. Key habitat management issues include:

1. maintaining suitable lichen producing range and important habitat quality;
2. minimizing habitat fragmentation;
3. managing human access;
4. maintaining habitat separation from predators.

Soon into the process of establishing interim harvesting guidelines, the participants (MELP, MOF, and forest licensee) realized the need to have two different planning time frames. A interim time frame is required to establish interim objectives and strategies to ensure that the recovery effort is successful and to provide direction for long term management. A longer-term time frame is needed to do additional studies on understanding the population dynamics of this unique herd of caribou for the purposes of revising Landscape Unit (LU) objectives and strategies as required.

The different resource challenges brought on by recovering the Telkwa Caribou Herd are immense. In acknowledging these challenges, forest licensee, MELP and the MOF created a standing committee that will, on an annual basis, review both the implementation and effectiveness of harvesting guidelines for the TCHRPA. This committee will then immediately address any specific action items required to maintain the habitat of the Telkwa caribou herd, while recognizing commercial resource extraction (timber, mining).

The standing committee advocates a landscape zonation approach for managing caribou habitat while permitting resource development. Delineation of present caribou range, linkage areas, core caribou recovery area, special management zones, key forested caribou habitat, integrated resource management zones and access management strategies have occurred. (Bulkley LRMP, Towards a Mountain Caribou Management Strategy for British Columbia, TCHRP Recovery Plan).

LRMP zonation coupled with further refinement of corridors or mapped “Key Forested Areas” of caribou habitat (based on monitoring and areas analysis) will complete a caribou landscape strategy for the Bulkley Forest District.

Additional information, time and planning is required to propose landscape zonations for the Morice Forest District. For the interim, management strategies have been developed for biogeoclimatic zones and known high value caribou habitat areas in this district.

#### **D) RECOMMENDED INTERIM HARVESTING GUIDELINES**

The Telkwa Caribou Herd Recovery Project area covers 3 biogeoclimatic zones; Alpine (AT), Englemann Spruce Sub Alpine Fir (ESSF) and Sub Boreal Spruce (SBS) zones. The SBS and ESSF zones are very important for early spring and winter food sources. The AT is important to caribou for calving, summer and winter range. Commercial forest development in the ESSF and SBS zones should be sensitive to provide for caribou access corridors to the AT zone, and to provide for forested caribou habitat.

In addition to identifying management strategies based on biogeoclimatic zonation, it was realized that certain areas within the TCHRPA were more important to caribou. Key Caribou Habitats were identified for the entire TCHRPA. Mapping of these areas resulted from review of line work evolving from four separate habitat layers which included:

1. 1) Delineation of slopes providing likely movement corridors
2. 2) Delineation of C3 and C4 Caribou habitat based on Biophysical Classification for Ungulate Capability mapping (summer and winter)
3. 3) Delineation of moderate/high arboreal lichen areas and
- 4) Delineation of areas of known previous and current high caribou use.

The harvesting guidelines for the TCHRPA are based on the ecological characteristics of the habitat in each biogeoclimatic zone and recognize the importance of the designated key forested caribou habitat. Guidelines are recommended to provide direction for forest development planning in the interim and where appropriate, for LU planning consideration.

It is recommended that all LUs connected with the caribou recovery areas have a high or intermediate BEO assigned to them.

A recommended set of HLP objectives for caribou will also be provided.

It is recommended that the TCHRPA be given a priority for planning within LU’s for the location of old growth management areas to achieve old and mature forest percentages as set out in Biodiversity Guide Book (BGB). Overall seral stage percentages for the LU’s connected with the TCHRPA, will not exceed BGB targets, unless directed by a LRMP or higher level plan.

##### **a) Desired Future Conditions for the SBS (General)**

The SBS general provides for important seasonal use by the Telkwa caribou. Large contiguous patches of old and mature forest cover of 500 to 1000 ha begin to provide favorable habitat for these woodland caribou. Patch size, aggregation, and seral stages should reflect as closely as possible the natural distribution associated with stand reinitiating events such as fire and their associated periodicity of occurrence.

Maintaining habitat connectivity between lowland and upland sites through the use of patch distribution planning and the establishment of forested corridor linkages greatly assists caribou movement and seasonal habitat utilization in the SBS.

Important SBS caribou habitat attributes include forested wetland complexes for both arboreal lichen and herbaceous foraging, dry pine plant associations for terrestrial lichens, and in-stand pockets of arboreal lichen abundance.

The desired caribou habitat future condition for the SBS can be achieved by recognizing the importance to maintain:

1. areas of old and mature forest cover;
2. the integrity of forested and nonforested wetland complexes;
3. lowland to upland connectivity that links valley bottoms with subalpine habitat areas; these corridors should have an abundance of old and mature forest attributes (large trees, snags, coarse woody debris, gap dynamics, etc.);
4. areas with terrestrial lichens;
5. in-stand pockets of arboreal lichen abundance;
6. natural forest patch sizes and natural seral stage distribution;
7. retention of lichen propagation trees when conducting timber harvesting and silvicultural activities;
8. seclusion and human/predator avoidance through minimizing past and current disturbance to forest cover and the amount of accessible roads and trails.

Additional Notes:

Applying minimum forest fragmentation techniques ( block aggregation, patch size and seral stage distribution), best riparian management practices, WTPs, OGMAs, in-block leave areas, stand structural retention practices, ecosystem networks, and access management planning will assist in achieving the desired future condition for the SBS.

Some old growth pine flats found in the SBS zone have very dry areas that promote terrestrial lichen growth. Terrestrial lichens grow in scattered concentrated patches and are an important energy source for caribou. These areas should be identified and set aside (wildlife tree patch targets) where possible, or deferred in part as a retained aggregate patch to be harvested at a later date, or harvested with the recognition that extra rotational time following timber harvesting may be required to support adequate terrestrial lichens.

Insect and disease concerns and other forest health issues will be integrated with the TCHRPA management emphasis.

A balanced block aggregation design is recommended to encourage larger openings and mature areas of forest to be left beside these large block aggregates. This will facilitate protective cover, movement corridors and feeding areas for caribou . Areas of identified high valued moose winter range will require further integration when finalizing caribou prescriptions.

**b) Desired Future Conditions for the ESSF (General)**

The ESSF is a critical transition area / habitat for caribou because of:

1. protection from winter storms and predators;
2. connectivity corridors on slopes less than 30% that are used for key habitat movements between the breeding areas in the alpine and critical early spring food sources in the valley;
3. predominate arboreal lichen populations that are relied upon as a key winter food source.

The ESSF in proximity to the Telkwa Mountains is predominately in mature and old seral stages which have provided caribou ideal habitat in terms of large contiguous forested terrain. It is important that the natural landscape pattern of forest cover associated with the NDT2 is perpetuated over time. Harvesting patterns should try and mimic the naturally occurring forest patterns found in the ESSF. Wildfire has played a role, but gap opening dynamics predominate throughout much of the mid to upper elevation bands of the ESSF.

Key forested caribou habitat polygons and the important subalpine habitat are within and adjacent to the ESSF (general). Caribou habitat alienation will become problematic if access planning and management are not carefully considered. Avoidance of packed trails within the ESSF that lead to important caribou habitat will require seasonal operational considerations and access control points (road closures).

The desired caribou future habitat condition for the ESSF can be achieved by recognizing the importance to maintain:

1. a general continuum of mature and old forest cover from a landscape perspective
2. the integrity of forested and nonforested wetland complexes;
3. habitat connectivity to subalpine, key forested caribou habitat polygons and the SBS;
4. spatial abundance of arboreal lichens;
5. in-stand pockets of arboreal lichens following stand disturbance (i.e. logging);
6. retention of lichen propagation trees (heavily branched), poles, saplings, advanced regeneration, and snags where possible to facilitate lichen colonization and recovery following timber harvesting;
7. special attention to natural stand dynamics when selecting an appropriate silvicultural system;
8. seclusion and human/predator avoidance through minimizing past and current disturbance to forest cover and the amount of accessible roads and trails, and applying seasonal constraints on operations coupled with access control points.

Additional Notes:

Promotion of a greater amount of basal area/volume retention as elevation increases will encourage arboreal lichen development, which is a valuable energy source for caribou in the winter within the ESSF. Slopes <30% are most commonly utilized for foraging and thus should have a greater emphasis for partial canopy retention.

The retention of poles and saplings will reduce amounts of browse and forage species for moose, while providing additional security cover for caribou movement. Selective harvesting (group selection or partial canopy removal), may best serve the function of long-term lichen production and discouragement of moose forage species production in light of forest development.



It is best to emulate the natural disturbance patterns associated with the ESSF variants when designing silvicultural systems and block layout.

It is recommended that if harvesting is to occur within connectivity corridors, then either replacement areas should be planned, or enough basal area left after logging to facilitate caribou movement through forested habitat.

**c) Desired Future Conditions for Key Forested Caribou Habitat (SBS & ESSF)**

The key forested caribou habitat are presently regarded as the most utilized and important forested caribou habitat in proximity to the Telkwa Mountains. These areas (polygons) provide critical habitat to the animals, thus forest management activities in these areas will play a significant role in the recovery effort of the herd. Caribou use these stands for eating arboreal and terrestrial lichens, and protection from winter storms and predators. The majority of key forested caribou habitat occurs in an elevation band above 1200 m; some lower elevation SBS in the Bulkley Valley has also been identified.

It is recommended that key forested caribou habitat should have no factors that contribute to long term caribou disturbance displacement. Careful consideration of predator avoidance, minimizing packed trails and human access is imperative for many of the key forested caribou polygons currently identified.

A continuum of natural mature and old forest attributes and canopy cover is crucial where stands currently provide such physical amenities. Early seral stage patches should be of a size to not take away from the overall stand mature + old condition of the polygon. A 70% structure and function criteria (70% volume or basal area retention representative of the original stand composition including snags) is recommended overall for a given polygon. Silvicultural prescriptions that promote retention of stand structure, and uneven-aged management are important for key forested caribou habitat areas. (See the respective District matrix for prescription direction.)

It is important to maintain habitat connectivity, from both inside and outside of the polygon, and between slopes above and below.

The desired caribou habitat future condition for key forested caribou habitat can be achieved by recognizing the importance to maintain:

1. a high proportion of in-block forest reserves within key forested caribou habitat with small openings, and/or promote the retention of forest cover within timber harvest settings;
2. canopy influence with significant basal area or volume retention on slopes <30%;
3. maintain the growth of arboreal lichens over time especially for slopes that are < 30%;
4. a natural pattern between forests and subalpine by harvesting in small patches in cluster aggregates, or mimicking the interface between subalpine and forests by having curving rough sided cutblocks with lots of in-block structure;
5. the lack of packed snow trails for human and predator avoidance. Preferred harvest time frames would start after calves are mobile and stop prior to heavy snowfalls (July 1 to Nov. 1). To recognize the need for winter only operations on some sites, the timber removal should only occur within one key forested caribou habitat area in any given year within a given landscape unit;

6. the current low level of recreational use (motorized and non-motorized) and associated avoidance of packed snow trails;
7. habitat connectivity within and outside of the key forested caribou habitat areas;

Additional Notes:

It is recommended that long-term strategies are developed to retain highly productive lichen-bearing trees to promote long-term lichen recruitment and growth.

It is noted that caribou utilization will likely drop following timber harvesting, even with modest basal area removal. However, some current caribou habitat utilization and full re-utilization in the future is the aspiration.

**d) Interim Access Management Strategies for Caribou**

Ideally, for the benefit of caribou, human and predator access would be that found in a wilderness setting; i.e. no roads or trails. Given that this is not a reality for the Telkwa Mountains due to resource development and recreational pursuits, the following bullets provide guidance with respect to access management.

It is important to note that the Telkwa Caribou Herd Recovery Plan is the basis for access management for the Telkwa Caribou Herd Recovery Project Area. BC Environment has been and will be responsible for public involvement in the setting of access management zones. Access management zones are to be reflected in Landscape Unit Plans.

1. Limiting or controlling access coupled with screening where appropriate is especially important to minimize human-caribou and predator-caribou interactions.
2. Summer and early winter harvesting is preferred, so that predator access on packed trails to key forested caribou habitat and subalpine is discouraged during the deep snowpack period (post November).
3. The ESSF is the focus area where access control points must be designed and placed to control access into key forested caribou habitat and subalpine areas. Good road design is to be emphasized so that future access consideration and effective control points are seriously taken into account at the time of choosing a road location.
4. Establish access restrictions at suitable locations to limit human access to key forested caribou habitat and subalpine following block planting.
5. Access is to be highly controlled at all times, and roads stay in place only long enough to do critical silviculture work in specific areas.
6. Access to “core areas” and motorized access into the nonmotorized areas, as identified in the TCHRP is to be managed in concert with forest licensee, MOF, and BC Environment
7. Effective forested buffers must be maintained adjacent to blocks and roads to restrict ATV and snowmobile access to the nonmotorized areas.

**E) IMPLEMENTATION**

The standing committee provides planning direction advice for forest harvesting. Forest development planning should incorporate plans based on these interim guidelines. It is recommended that a district manager's policy would be beneficial in the interim to provide direction to future FDPs that have planned activity in the TCHRPA in the absence of a LU plan.

The District Manager should try and use these guidelines to help assessing future FDPs, because they recommend the best information available and guidance pertaining to the resources in TCHRP area.

## RECOMMENDED CARIBOU MANAGEMENT GUIDELINE SOURCES

1. Mountain Caribou Managed Forests: Preliminary Recommendations for Managers. Technical working group of the Mountain Caribou in managed forests - Feb. 1994.
2. Caribou Habitat Use in the Chelaslie Migration Corridor and Recommendations for Management - J. Douglas Steventon, MOF - Research, 1997.
3. Rangifer Research, Management and Husbandry of Reindeer and other Northern Ungulates - Special Issue No.9, 1996.
4. Toward a Mountain Caribou Management Strategy for British Columbia BC Environment, Wildlife Branch, 1997.
5. Toward a Mountain Caribou Management Strategy for British Columbia Habitat Requirements and Sub-Population Status, BC Environment, Wildlife Branch, 1997.
6. Telkwa Caribou Habitat Recovery Program, Strategy Document, BC Environment Smithers, 1998
7. Alternative Silvicultural Systems to Integrate Mountain Caribou and Timber Management in B.C., Stevenson 1994.

**Table 1: Harvesting and Access  
Strategy for the Telkwa Caribou Herd  
Recovery Plan Area of the Telkwa  
Landscape Unit**

	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 yr. 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 blocks 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 it is recommended that these be identified on Forest Development 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 supply.					
Where high value caribou habitat is identified outside the key forested caribou habitat it is recommended that these be reviewed to determine management direction.					
This matrix outlines even aged harvesting options only. Uneven aged harvesting over even larger aggregates is recommended to be considered, if all of the issues around stand, landscape, and access are addressed favorably.					

**This table is a condensed decision matrix for harvesting operations within the Telkwa Caribou Herd Recovery Plan Area. Jan. 27/99**

**Table 2: A Matrix Guide for Harvesting Strategies for the Morice Portion of the TCHRP**

<u>ZONES:</u>	SBS	ESSF (general)	ESSF and SBS (Key Forested Caribou Habitat -KFCH)	COMMENTS
<b>CHARACTERISTICS:</b>				
1) Opening Size	<ul style="list-style-type: none"> <li>Distance to cover as per BGB</li> </ul>	<ul style="list-style-type: none"> <li>small (3-15 ha)</li> <li>uneven aged management preferred in - multi-layered stands</li> </ul>	<ul style="list-style-type: none"> <li>small opening (1-3 ha)</li> </ul>	<ul style="list-style-type: none"> <li>Follow DM policy in patch size distribution.</li> </ul>
2) Access	<ul style="list-style-type: none"> <li>access management in identified areas and cut blocks of mutual concern.</li> <li>Identify short term harvesting strategies where appropriate</li> </ul>	<ul style="list-style-type: none"> <li>access management in identified areas and cut blocks of mutual concern.</li> <li>Identify short term harvesting strategies close to high use caribou habitat or where human access may lead to displacement of caribou.</li> </ul>	<ul style="list-style-type: none"> <li>emphasis on temporary roads</li> <li>planned road layout to facilitate access control points.</li> <li>establish access restrictions at suitable locations.</li> </ul>	<ul style="list-style-type: none"> <li>Access to "core areas" non-existent.</li> <li>Effective forested buffers must be maintained adjacent to blocks and roads, to restrict ATV and snowmobile access to the nonmotorized areas.</li> </ul>
3)Connectivity	<ul style="list-style-type: none"> <li>maintain matured and old forest cover connectivity between wetland complexes and slopes &lt;30% going up to alpine by ensuring a continuum of 70% structure and function over the connectivity area.</li> </ul>	<ul style="list-style-type: none"> <li>forested slopes &lt;30% shall have enough mature and old forest cover that maintains canopy closure to allow for unimpeded caribou movement within and between elevation bands.</li> </ul>	<ul style="list-style-type: none"> <li>maintain connectivity within and outside the polygon, by ensuring a continuum of mature and old forest cover that maintains canopy closure.</li> </ul>	<ul style="list-style-type: none"> <li>Identification of broad connectivity corridors, fixed or replaceable is envisioned over time.</li> </ul>
4) Landscape Objectives	<ul style="list-style-type: none"> <li>Seral stage objectives done when detailed LU planning commences.</li> </ul>	<ul style="list-style-type: none"> <li>Seral stage objectives detailed LU planning commences.</li> </ul>	<ul style="list-style-type: none"> <li>Max 50%area &lt;90 years or identify longer rotations.*</li> </ul>	<ul style="list-style-type: none"> <li>Seral stage objectives to be considered after detail analysis completed.</li> </ul>
5) Stand Level Characteristics	<ul style="list-style-type: none"> <li>locate WTP s in areas that have lichens (e.g., swamps, etc.)</li> <li>minimum preferred retention level is 20%.</li> </ul>	<ul style="list-style-type: none"> <li>maintain lichen growth</li> <li>leave snags/leaning trees</li> <li>small clearcuts and forest reserves/leave areas ranging from 30% to 50% retention</li> <li>retain poles and saplings for security cover where feasible (also 'older' lichen bearing trees should be left )</li> <li>target wetland areas</li> </ul>	<ul style="list-style-type: none"> <li>maintain lichen growth</li> <li>leave snags/leaning trees</li> <li>preferred 50% retention level within Silviculture prescription area.</li> <li>retain poles and saplings for security cover where feasible (also 'older' lichen bearing trees should be left )</li> <li>target wetland areas</li> <li>Overall,70% structure and function for an entire KFCH polygon.*</li> </ul>	<ul style="list-style-type: none"> <li>Consult inventories of "known areas" of high lichen growth. See consultant's report</li> <li>Where high lichen loads areas are noted, apply strategies similar to KFCH.</li> </ul>
6) Silviculture System	<ul style="list-style-type: none"> <li>clearcuts with WTP and forest reserves/leave areas.</li> </ul>	<ul style="list-style-type: none"> <li>uneven aged management preferred in - multi-layered stands</li> <li>small clearcuts</li> </ul>	<ul style="list-style-type: none"> <li>single tree selection</li> <li>patch cutting/group selection on slopes &lt;30%</li> <li>maintain stand structure by utilizing uneven aged stands with high lichen loads and or multilayered stands to maintain KFCH.</li> </ul>	<ul style="list-style-type: none"> <li>Practice adaptive management</li> <li>Uneven aged management systems are acceptable and even preferred in multi-layer and or high lichen load stands in the ESSF.</li> </ul>
7) Logging Seasons	<ul style="list-style-type: none"> <li>east side of the</li> </ul>	<ul style="list-style-type: none"> <li>preferred summer</li> </ul>	<ul style="list-style-type: none"> <li>preferred summer</li> </ul>	<ul style="list-style-type: none"> <li>An alternative to summer</li> </ul>

	TCHRP - summer harvesting. <ul style="list-style-type: none"> <li>southern part of the TCHRP - winter harvesting.</li> <li>Preferred road construction window is July 15 to Nov. 1<sup>st</sup>.</li> </ul>	harvesting - is July 15 to November 1 <sup>st</sup> . <ul style="list-style-type: none"> <li>early winter harvesting scenario (finished by Christmas) to avoid the creation of packed trails.</li> </ul>	harvesting is July 15 to November 1 <sup>st</sup> . <ul style="list-style-type: none"> <li>early winter harvesting scenario (finished by Christmas) to avoid the creation of packed trails.</li> </ul>	harvesting is to have one active development area in key caribou habitat at any one time, with the emphasis on getting in and out quickly.
--	--	---	---	--

### 3) Mountain Goat

In addition to trying to maintain desired attributes within mountain goat winter ranges, the following guidance should be considered in development planning:

- Avoid ground based, or cable, logging activities within 500 metres of winter or natal habitats as per Table 1, unless harvest during this period is prescribed for protection of other resource values (e.g. winter harvest on wet or sensitive soils).

**Table 1.** Sensitive Periods for Resource Use and Development for Mountain Goat Habitat

Winter	avoid December to April
--------	-------------------------

- Avoid heli-logging, blasting, and other activities that would likely cause habitat displacement within two kilometre line of sight distance of winter and natal habitats as per Table 1.
- Discourage recreational activities in winter habitats during the season(s) of use as per Table 1.
- Where needed, develop access management strategies, through the operational planning process, in goat range, to prevent or mitigate impacts on goats and goat habitats.
- Where feasible locate main roads >3 km from mountain goat habitat and trails.
- Avoid repeated aircraft flights in or near occupied mountain goat areas.
- In the event of a bark beetle outbreak, limit harvesting to forest health sanitation control activities judged not to be a detrimental impact to Mountain Goat habitat by maintaining a mature forested buffer (200 m no harvest zone) adjacent to critical escape terrain or forested movement trails and licks.