

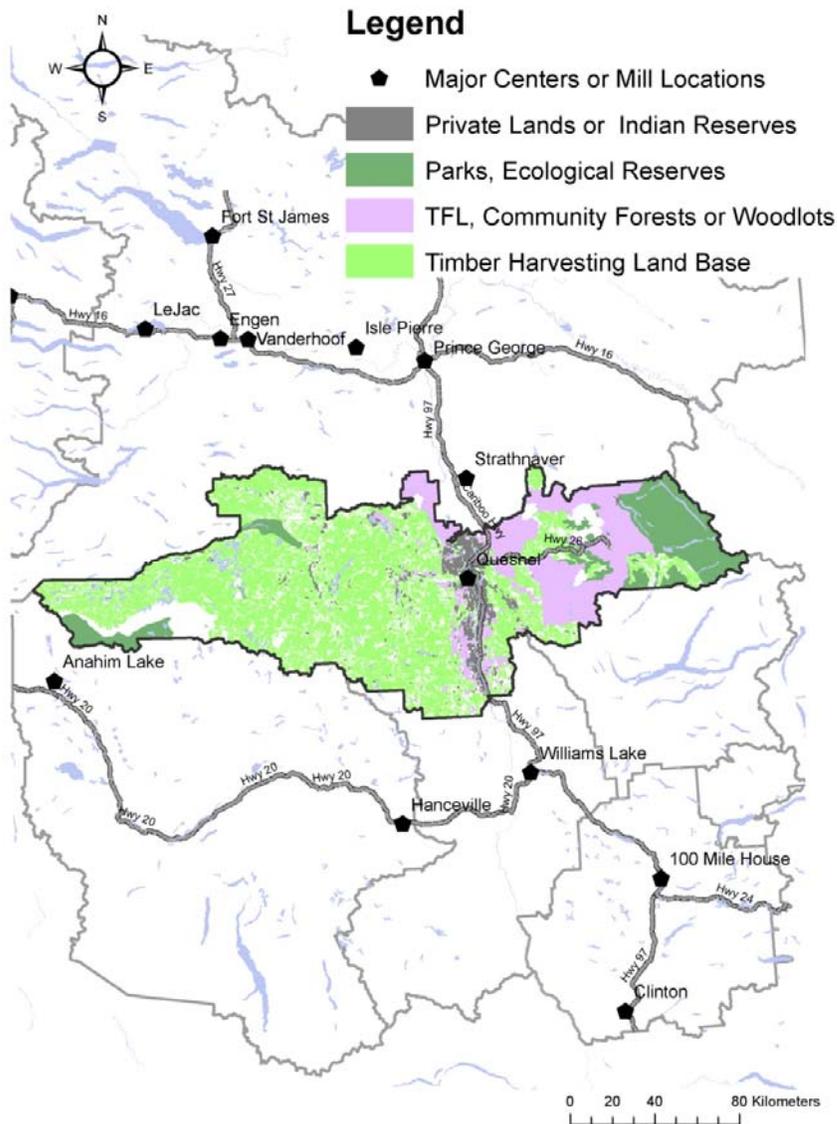


Mid-Term Timber Supply

June 11, 2012

Quesnel Timber Supply Area

Background



The Quesnel Timber Supply Area covers 2.1 million hectares:

- 1.4 million hectares, or 67% is considered Crown productive forest (outside of Indian Reserves, private lands, Tree Farm Licence 52, woodlot licences and Community Forest Agreements).

- 31% (434,416 hectares) of the productive forest is not available for timber harvesting – reserved for protected areas, caribou no-harvest areas, old growth management areas, wildlife tree patches or riparian areas, areas of environmental sensitivity or low productivity, areas supporting non-merchantable forest types, or for other reasons.
- The current timber harvesting land base is 965,687 hectares; roughly 46% of the timber supply area.
- Lodgepole pine comprises about 70% of the total mature volume on the timber harvesting land base.

Communities: Quesnel is the major population centre in the timber supply area with a population of 10,023 in 2009. The nearby communities of Red Bluff, Barlow Creek, Dragon Lake and Bouchie Lake, contribute to the total population of 23,584 (BC Stats). Other communities within the timber supply area include Wells and Barkerville in the east, and Nazko and Kluskus First Nation villages in the west.

First Nations: The following First Nations have communities or reserve holdings in the timber supply area: Lhoosk'uz Dene Nation, Lhtako Dene Nation, Nazko First Nation, 'Esdilagh (Alexandria), Ulkatcho First Nation.

First Nations (including tribal councils and associations) with interest but located outside of the timber supply area include: Carrier Sekani Tribal Council, Lheidli-T'enneh Band, Saikuz First Nation, Simpcw, Skin Tye Nation, Tsilhqot'in National Government, , Williams Lake Indian Band, Xats'ull First Nation.

Status of Land Use Plans

The Cariboo-Chilcotin Land Use Plan (CCLUP) is a legal higher level plan covering Quesnel, Williams Lake and 100 Mile House timber supply areas. The plan represents a careful economic, social and environmental balance which reflects the values of the people and communities in the region and protects the values found on the land. The CCLUP was established by cabinet as a legal higher level plan under the *Forest Practices Code of BC Act* in January 1996. Extensive planning was then done at the sub-regional level to further refine and map many of the land uses in consultation with industry, interest groups and some First Nations. Assessments were done with respect to the complete package of land use designations and reflect foremost, the achievement of the timber target across the region.

Legal objectives were established for 13 values under the *Land Use Objectives Regulation* (June 2010) and nine species under the *Government Actions Regulation* (various dates). Changes to legal objectives would require full consultation prior to amending the plans.

For the CCLUP area, many of the land use designations were overlapped during the implementation of the land use plan to reduce impacts on timber availability (e.g. an old growth management area may also be a visual management area). Across the region about 30% of the forest land base with non-timber designations has overlapping values. Assessment of mitigation options focused on single values is therefore made more complicated.

Past Allowable Annual Cut

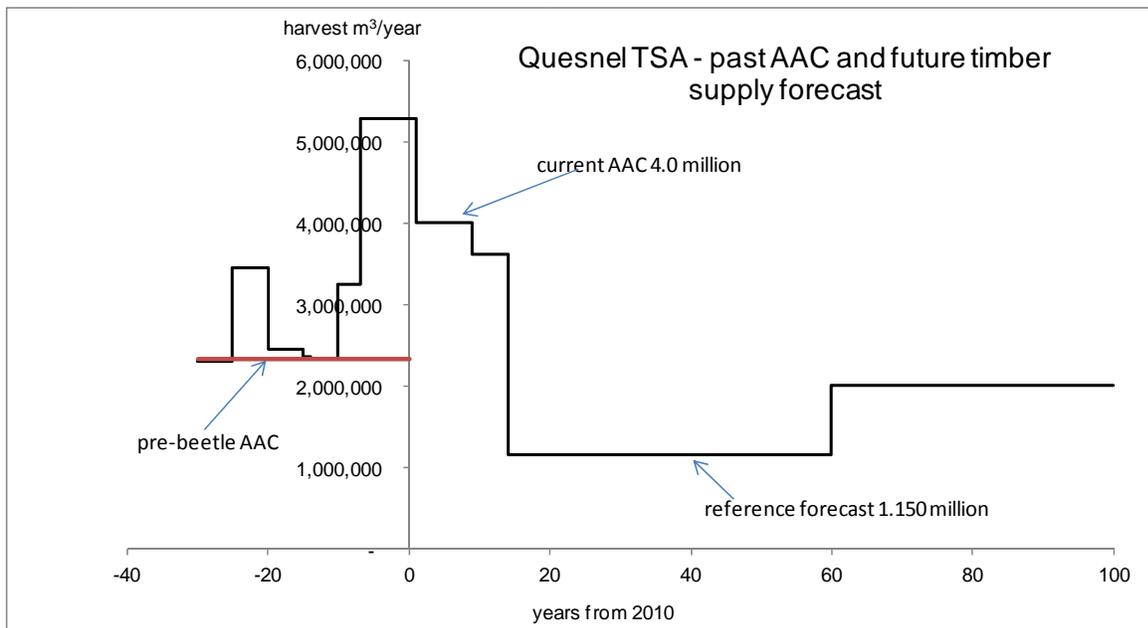
- 2.3 million cubic metres between 1981 and 1996.
- 2.34 million cubic metres in 1996.
- Increased to 3.2 million cubic metres in 2001 in response to beetle infestation.
- Increased to 5.3 million cubic metres in 2004 to allow salvage of beetle-killed timber.
- 4.0 million cubic metres since 2011, with 650,000 cubic metres attributed to non-pine.

From 2001 to 2010 the actual harvest averaged 3.5 million cubic metres in the Quesnel Timber Supply Area. Of that volume, 82% was pine. Between 2005 and 2009, actual harvest levels within the outer boundaries of the timber supply area (including Quesnel Timber Supply Area, Tree Farm Licence 52, woodlots and private sources) averaged about 4.9 million cubic metres.

Mid-Term Timber Supply Forecasts

Timber supply forecasts were prepared by the technical working group to examine scenarios for mid-term timber supply mitigation. Mitigation scenarios were compared to a reference forecast, which is based on similar assumptions used for the current performance base case used in the timber supply review process. These assumptions include, for example, accounting for all existing land-use decisions and non-timber values, focusing harvesting in pine-leading stands and assuming pine will have economic value for 20 years after death. The assumptions have been updated to reflect current conditions, so they differ slightly from those used to support the 2011 timber supply review.

The reference forecast indicates that, without mitigation, timber supply in the Quesnel Timber Supply Area is projected to decline by 48% in the mid-term – from 2.3 million cubic metres a year (pre-epidemic) to 1.15 million cubic metres a year.



- Maintains the current allowable annual cut of 4.0 million cubic metres for nine years.
- Then falls to 3.6 million cubic metres a year for a further five years before declining to the mid-term level of 1.15 million cubic metres a year. This level is maintained for 46 years.
- After 46 years, the forecast increases to the long-term level of 2.0 million cubic metres a year.

The reference forecast does not necessarily reflect today's conditions, which have been seriously affected by the economic downturn since 2008. As harvest forecasts project timber supply over a long timeframe, "current performance" is generally assumed to reflect performance during a market cycle, including both market highs and lows. The current prolonged economic downturn makes it increasingly uneconomic to harvest deteriorating dead pine. Other components of the timber supply, such as hard-to-access stands and small green wood, are included in the timber supply projections, but harvesting them under current economic conditions would result in a loss especially if they are located at long haul distances from the mills. If these conditions persist, licensees have indicated there may be timber supply shortages in mid- to late 2013.

During the mid-term, harvesting in the Quesnel Timber Supply Area will depend on existing non-pine stands, advanced pine plantations, and stands containing pine that survived the infestation.

Mountain Pine Beetle Forecast

Version 8 of the Provincial-Level Mountain Pine Beetle Model was used to predict the current and future pine mortality for the Quesnel Timber Supply Area mid-term analysis. This version of the model predicted that 89.8 million cubic metres in the timber supply area would be killed by 2021, which is 81% of the mature pine that was on the timber harvesting land base in 1999. The latest version of the Provincial-Level Mountain Pine Beetle Model (BCMPB ver.9) showed no change.

Current Practices and Silviculture Investments

- Target harvest in mountain pine beetle impacted pine as much as possible.
- A total of 15,264 hectares in the Quesnel Timber Supply Area and Tree Farm Licence 52 have been fertilized in the last five years, and an additional 3,000 hectares are scheduled to be treated this fall. The expectation is about 10 cubic metres of additional wood per hectare treated, with retreatment every seven to 10 years. During the mountain pine beetle infestation, fertilization was limited to non-pine stands to reduce the risk of loss of investment.
- A silviculture analysis will assess options to maximize mid-term timber availability given current land management objectives, resulting in a tactical plan in 2012 that identifies priority stands to fertilize in the next five years. Fertilization of young pine stands is expected to be a significant opportunity identified by this analysis.

Economic Profile in the Quesnel Timber Supply Area

The economies of the communities in the Quesnel Timber Supply Area are largely resource-based, and the majority depends on the local forest industry. Ranching, mining and tourism are also integral to communities in the timber supply area.

- Based on the report *2006 Economic Dependency Tables for Forest District*, in the Quesnel District, the forest sector accounts for 48% of employment – Quesnel is the third-most forestry dependent district in British Columbia after Mackenzie and Fort St. James. The forest vulnerability index¹ for the Quesnel District is 104, one of the highest in the province.
- The City of Quesnel relies on local forestry-related mills for two-thirds of its municipal tax base.
- Employment in other sectors in the Quesnel District: public sector 27%, tourism 8%, construction 7%, agriculture and food 5%, mining and mineral production 2%, and other 3%.

Mills

- Four lumber mills (Canadian Forest Products Ltd., Tolko Industries Ltd., West Fraser Mills Ltd., C&C Wood Products Ltd), two pulp mills (Cariboo Pulp and Paper Co. Ltd., Quesnel River Pulp Company), a pellet mill (Pinnacle Renewable Energy Group), a veneer/plywood and panel plants (West Fraser), and log home manufacturers.
- Chips produced at the solid wood mills can supply about 60% of the needs of both pulp mills located in Quesnel. Throughout 2008 and 2009, processing activity in Quesnel has been subject to various temporary and long-term mill closures.

Workforce Considerations

- 3,162 person-years of direct, indirect and induced employment supported by the timber supply area allowable annual cut in 2000 before the uplift.
- Increased to 3,667 person-years during the peak harvest from 2006-09.
- Total employment supported by the timber supply area could drop to 1,567 person-years by 2023 without mitigation, and to 2,113 person-years with mitigation scenarios.
- Tree Farm Licence 52 supports about an additional 700 person-years of total employment.

Projected Mill Impacts

- Assuming lumber remains the dominant product, reduction in regional milling output from Houston to Williams Lake will likely be proportionate to the reduction in log supply. The number of mills operating may depend on capacities and efficiencies at individual mills. If larger-capacity sawmills

¹The magnitude of the forest vulnerability index indicates the vulnerability of each local area to potential downturns in the forest sector – a community is vulnerable if its forest sector dependence is high and its diversity is low. It is worth emphasizing that a high index value does not mean that the wood-based manufacturing facilities in that area are more likely to shut down than in other areas. Rather, a high value means that if forest sector activity in the area declines then the area will experience greater economic difficulties than other areas in the province would under the same circumstances.

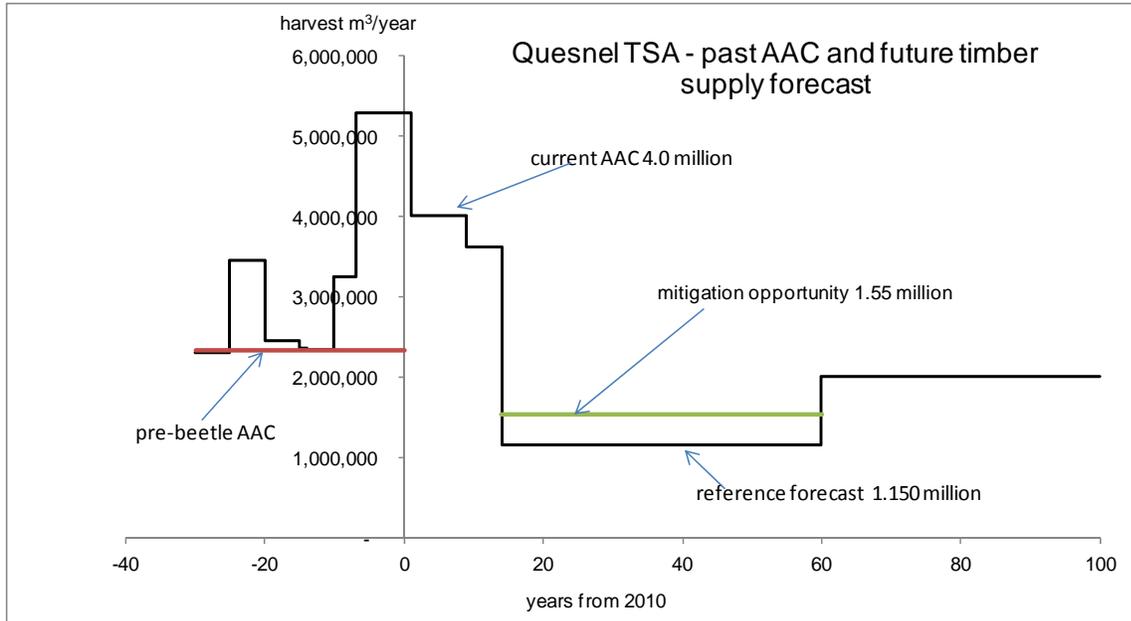
were to be the focus of future milling activity, then fewer mills are likely to be in operation than if production were to be spread out over smaller mills.

Opportunities for Diversification

- In late December 2011, a *Mines Act* permit was issued to Barkerville Gold Mines Ltd. for the Bonanza Ledge open pit gold mine northwest of Barkerville. The mine will have a four-year life and provide 50 post-construction jobs. Barkerville Gold also owns an adjacent property on Cow Mountain which it is testing. Ore from these properties will be processed at the existing QR Mine and Mill.
- Taseko Mines is currently expanding its development of the Gibraltar Copper mine in the southern portion of the Quesnel Timber Supply Area. Many of the mine employees and contractors reside in Quesnel.
- There is currently extensive exploratory work occurring west of Nazko, which is linked to the Blackwater Gold district and New Gold Inc. development southwest of Vanderhoof. Much of the exploratory work uses road networks within the Quesnel Timber Supply Area.
- The Nechako Basin west of Nazko is a currently undeveloped source of oil and natural gas which saw seismic line activity in the 1980s. In 2008, Geoscience BC indicated it was embarking on a major project in the area west of Quesnel – the project included a \$2.5-million survey, totalling approximately 350 line-kilometres of new seismic data acquisition. It was funded with \$2 million from Geoscience BC and \$500,000 from the Northern Development Initiative Trust Pine Beetle Recovery Account. The area of the survey is largely contained within the Nazko First Nation's Traditional Territory.

Opportunities for Mitigation

The mountain pine beetle epidemic will result in a substantial decrease in timber supply in some areas, which is expected to have significant economic and social ramifications. Analyses were undertaken to explore opportunities for potentially mitigating this projected decrease in mid-term timber supply.



The mitigation scenario examined by a technical working group, with input from timber supply area licensees, has the potential of increasing the mid-term harvest level by 400,000 cubic metres a year – for a projected total of 1.55 million cubic metres. This increase is projected to maintain roughly 390 additional direct, indirect and induced person-years of employment in the Quesnel timber supply area.

The specific set of mitigation actions assumed in the above forecast is as follows:

- Allow harvesting in targeted old growth management areas.
- Alteration of visual quality objectives.
- Removal of stand-level biodiversity objectives such as wildlife tree patches or conservation legacy areas.
- Allow harvesting in areas where the site index is too low to produce a minimum required volume of timber in a set timeframe.

Timber supply modeling did not show a significant benefit to mid-term timber supply from relaxing the mature plus old seral target. However, it should be noted that the operational approach to meeting this land use plan objective has the effect of restricting harvest access to some areas over and above what was modeled. The timber supply modeling is consistent with management direction, but further policy work is necessary to adjust operational practice and determine the potential timber supply benefit.

These scenarios were designed to illustrate the potential magnitude of timber supply affected by these objectives. This information is intended to inform the discussion on whether to initiate a process to review and/or amend objectives. It is anticipated that any decision to revise the objectives will need to be supported by transparent public dialogue and by consideration of the full spectrum of social, economic and environmental values and other effects.

Administrative Implications:

- To change objectives for visually sensitive areas, old growth management areas and wildlife tree retention, legal amendments would be needed to the Land Use Objectives for the Cariboo-Chilcotin Land Use Plan under the Land Use Objectives Regulation (*Land Act*).
- All of these changes would require full consultation with stakeholders and First Nations. Consultation and legal amendment would take at least a year to complete.

Resource Value Implications

Cariboo-Chilcotin Land Use Plan – The Cariboo-Chilcotin Land Use Plan (CCLUP) is a legal higher-level plan that established numerous land use designations in the Quesnel, Williams Lake and 100 Mile House timber supply areas. It reflects the values of the people and communities in the region and protects the values found on the land. Harvesting areas designated under the plan, such as old growth management areas, will affect the maintenance of the ecological services and have implications for activities such as tourism, recreation, hunting and culture. Removing land use designations may also affect embedded site specific environmental and First Nations cultural values, many of which are not documented.

Further details – Resource Values Assessment: Cariboo-Chilcotin Land Use Plan

Visual Quality - Scenic Areas and Visual Quality Objectives (VQO) are established on the landscape in response to public input and land use plans. Harvesting is allowed but the VQO classes provide direction with respect to size and scale. Removal or relaxation of VQOs may decrease public acceptance of forest harvesting, and could negatively impact tourism and outdoor recreation opportunities.

Further details – Resource Values Assessment: Visual Quality

Water – Loss of forest cover allows more precipitation to reach the ground, reduces evaporative losses, increases soil moisture and, when forest cover loss is extensive, results in more water leaving the watershed. This can lead to more flooding and erosion, deterioration of aquatic habitat and water quality, changes to plant communities and ecosystems, and risks to community safety, infrastructure and property, fish and fisheries.

Further details – Resource Values Assessment: Water

Riparian Management Areas: Riparian areas – lands adjacent to wetlands or bodies of water such as swamps, streams, rivers or lakes – frequently contain the highest number of plant and animal species found in forest, and provide critical habitats, home ranges, and travel corridors for wildlife. Streamside vegetation protects water quality, stabilizes streambanks, regulates stream temperatures, and provides a continual source of woody debris to the stream channel. Reducing the size of riparian management areas can affect ecosystem resilience, lead to habitat fragmentation and reduce connectivity. Potential deterioration of terrestrial and aquatic habitat, and water quality could increase risk to fish, fish habitat and listed species, and increase the instability of streams, putting infrastructure and productivity of forests at risk.

Further details: Resource Values Assessment: Riparian Management Areas; Resource Values Assessment: Water; Resource Values Assessment: Biodiversity

Old Growth – Old growth management areas retain/recruit the old-growth structure needed to conserve ecosystems and species biodiversity. They are difficult to reproduce once lost. Old growth enhances ecosystem resilience, which means it is better able to respond to changing environmental conditions, e.g. climate change, wildfire, pests. Old growth management areas provide habitat and connectivity; some species depend on old growth for survival.

Further details – Resource Values Assessment: Old Growth

Biodiversity – Measures to conserve biodiversity include coarse filter and fine filter approaches, and both are important to maintain ecosystem resilience and increase options to respond to changing environmental conditions. Coarse filter approaches, such as old growth management areas, preserve ecosystems within their native composition, structure, and function so they can better retain most of the species that evolved within them. Fine filter approaches, such as ungulate winter ranges, meet the needs of a specific species or ecosystem.

Further details – Resource Values Assessment: Biodiversity and Resource Values Assessment: Old Growth

Species at Risk – B.C. is Canada's most biologically diverse province. Species at risk are provincially and/or federally designated Red and Blue species, populations and ecological communities classified by the Conservation Data Centre as Endangered, Threatened or of Special Concern. These designations use science parameters to determine potential extinction or extirpation risks, and whether special attention is needed. Accelerated harvest, excessively large cutblocks, high road densities, reduced forest stand retention, and increased human access can all exacerbate the threat to species at risk.

Further details – Resource Values Assessment: Species at Risk

Wildlife – Conservation strategies aim to maintain the mix of landscape conditions necessary to sustain all species. Management tools include protected areas and old-growth management, wildlife habitat areas and ungulate winter ranges, wildlife tree patches, and landscape seral-stage targets. A full range of ecosystems is needed because many potential impacts are poorly understood, such as changes in predator/prey dynamics or effects of invasive species and climate change. Simplifying ecosystems can reduce resilience; leading to greater risk of future catastrophic pest infestations and susceptibility to climate change.

Further details – Resource Values Assessment: Wildlife

Ungulate Winter Range – Ungulate winter range is designated under the *Forest and Range Practices Act* as an area necessary for the winter survival of an ungulate species such as moose, deer, and caribou. Designations are based on best available science, local knowledge and other expertise, and supported by extensive consultation. A reduced area of suitable winter habitat would impact the abundance and distribution of ungulate species.

Further details – Resource Values Assessment: Ungulate Winter Range

Wildlife Habitat Areas – A wildlife habitat area is designated under the *Forest and Range Practices Act* as an area that identifies necessary habitat for the survival of a species at risk. The largest wildlife habitat areas manage and protect woodland caribou habitat. Reductions in wildlife habitat areas are likely to result in negative population implications for species at risk, possibly resulting in locally and regionally depressed populations. In the worst case scenario, it could lead to compromised population status and possibly extirpation (long-term loss of the species from the area).

Further Details – Resource Values Assessment: Wildlife Habitat Areas; Resource Values Assessment: Species at Risk; Resource Values Assessment: Mountain Caribou; Resource Values Assessment: Northern Caribou

Mountain Caribou – Mountain caribou are a threatened species, and their recovery depends on a sustained supply of mature and old forest cover. Reduction of wildlife habitat areas or ungulate winter ranges for mountain caribou will decrease the supply of suitable cover and forage habitat, reducing the population stability. Clearcut harvesting and more resource roads increase the effectiveness of predators, particularly wolves, and decrease the effectiveness of the habitat as it relates to forage.

Further details – Resource Values Assessment: Mountain Caribou

Northern Caribou – Northern caribou represent some of the largest caribou herds found in the province and are provincially significant for species conservation and recovery. Removal of wildlife habitat areas or ungulate winter ranges is likely to result in negative population implications for this species at risk, possibly resulting in locally and regionally depressed populations. In the worst case scenario, removal of habitat protection could lead to compromised population status and possibly local extirpation (long-term loss of caribou from the area).

Further details – Resource Values Assessment: Northern Caribou and Resource Values Assessment: Mountain Caribou

Resource Roads – Resource roads needed for timber harvesting provide access for backcountry recreation and fire management but can have negative terrestrial and aquatic environmental impacts such as dispersion of invasive plant and animal species that can put biodiversity and native species at risk; loss of habitat or habitat fragmentation; injury or death from vehicle collisions; changes in animal behavior; more sediment in streams; increased predator effectiveness; and increased pressure on previously unmanaged fish and wildlife populations.

Further details – Resource Values Assessment: Access Management – Resource Roads

Recreation Areas and Trails – The provincial network of 1,319 recreation sites and 818 recreation trails on Crown lands outside parks and municipalities involve integrated management, with timber harvesting, range, commercial recreation, mining and other activities and uses. Overall, timber supply impacts are negligible because these represent a small part of the operable timber supply area. The public expects mature forest cover to be sustained in the few recreation sites and trails not affected by beetles, and there is greater demand for sites with forest cover.

Further details – Resource Values Assessment: Recreation

More information:

Special Committee on Timber Supply

www.leg.bc.ca/cmt/39thparl/session-4/timber/index.htm

Mid-Term Timber Supply Project

http://www.for.gov.bc.ca/hfp/mountain_pine_beetle/#whatsnew

Quesnel Timber Supply Area Technical Working Group Report (August 2011)

http://www.for.gov.bc.ca/hfp/mountain_pine_beetle/Mid-Term-Timber-Supply-Report_Appendix-6.pdf

Forest Analysis: Quesnel Timber Supply Area

<http://www.for.gov.bc.ca/hts/tsa/tsa26/index.htm>

Land-Based Investment Strategy (Prince George Timber Supply Area)

<http://lbis.forestpracticesbranch.com/LBIS/node/49>

Quesnel Forest District

<http://www.for.gov.bc.ca/dqu/>

Cariboo-Chilcotin Beetle Action Coalition

<http://c-cbac.com/>

Appendix 1: Mid-Term Timber Supply Mitigation Options, Cariboo Region Timber Supply Areas

Appendix 2: Current Forest Resource Management Challenges in the Cariboo Region

Appendix 3: Non-Timber Values and Risks, CCLUP Land Area