

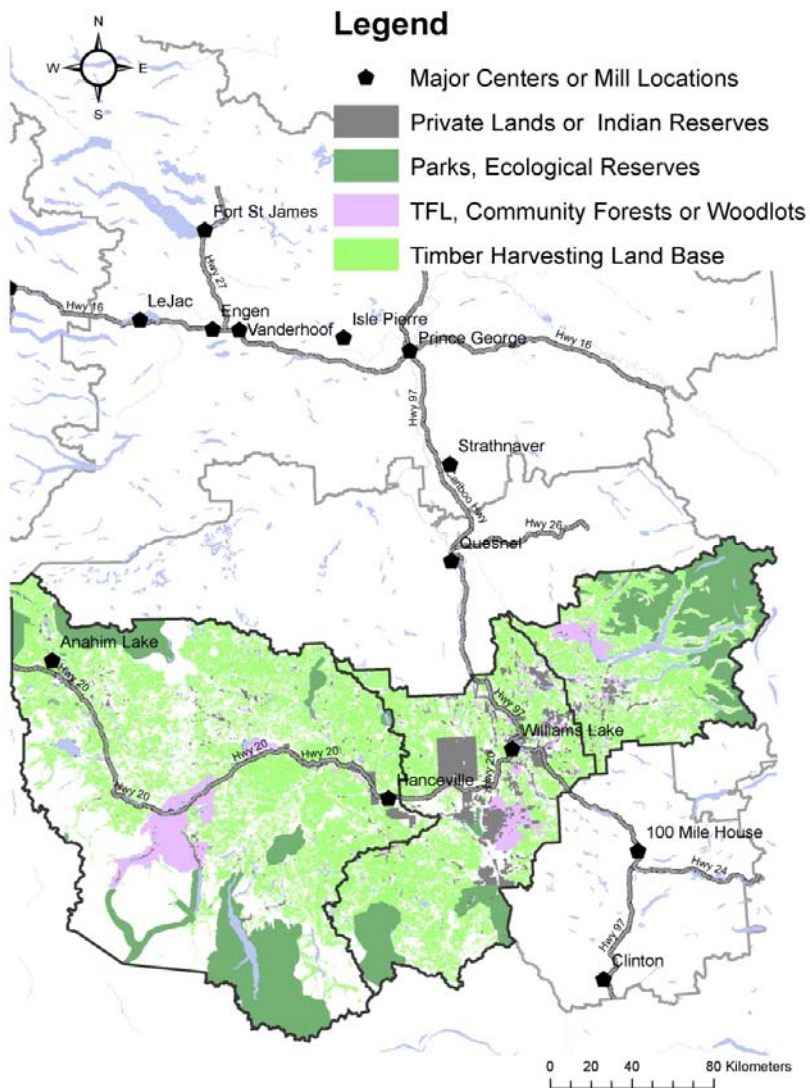


Mid-Term Timber Supply

June 11, 2012

Williams Lake Timber Supply Area

Background



Williams Lake is one of the largest timber supply areas in the province, covering 4.9 million hectares:

- 58% considered productive Crown forest (outside of Indian Reserves, private lands, woodlots and community forests).

- 31% of productive forest is not available for timber harvesting because it is reserved for biodiversity, fish or wildlife or because of poor growing conditions. Current timber harvesting land base is about two million hectares; 40% of the timber supply area.

Communities: Williams Lake, Alexis Creek, Horsefly, Tatla, Anahim Lake and several other smaller communities.

First Nations: The following First Nations (including tribal councils and associations) have communities or reserve holdings in the timber supply area: Tsilhqot'in National Government, Xats'ull (Soda Creek), Xat'tem/Stwecem'c (Dog Creek/Canoe Creek), Esketemc First Nation (Alkali Lake), T'exelc (Williams Lake), Tl'esqox (Toosey), Tl'etinqox (Anaham), Yunesit'in (Stone), Xeni Gwet'in (Nemiah Valley), Tsi Del Del (Alexis Creek), 'Esdilagh (Alexandria), Ulkatcho, Tsq'escen (Canim Lake).

First Nations with interests but located outside of the timber supply area include: High Bar First Nation, Whispering Pines/Clinton Indian Band, St'atl'imx (Lillooet) – Ts'kw'aylaxw (Pavilion), Homalco, Nuxalk, Da'naxda'xw/Awaetlala, Lheidli T'enneh, Lhtako Dene (Red Bluff), Nazko, Lhoosk'uz Dene (Kluskus).

Status of Land Use Plans

The Cariboo-Chilcotin Land Use Plan (CCLUP) is a legal higher level plan covering 100 Mile House, Quesnel and Williams Lake 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* 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 focussed on single values is therefore made more complicated.

Past Allowable Annual Cut

- 2.5 million cubic metres a year from 1981 to 1985.
- Raised to 3.8 million cubic metres in 1985, with partition to address mountain pine beetle.
- Raised to 4.1 million cubic metres in 1989, with partition to address western supply blocks; mountain pine beetle partition decreased.
- Reduced to 4.0 million cubic metres in 1992, with a new deciduous partition and pine partition further reduced.
- Lowered to slightly more than 3.8 million cubic metres in 1996, with the deciduous partition removed, the western supply block partition reduced and a problem forest type partition added.
- Lowered to slightly less than 3.8 million cubic metres in 2003 with the western supply block partition increased.
- Increased to 5.7 million cubic metres in 2007 with no partition; however, the determination is predicated on directing the entire allowable annual cut at stands with at least 70% pine that are located west of the Fraser River.

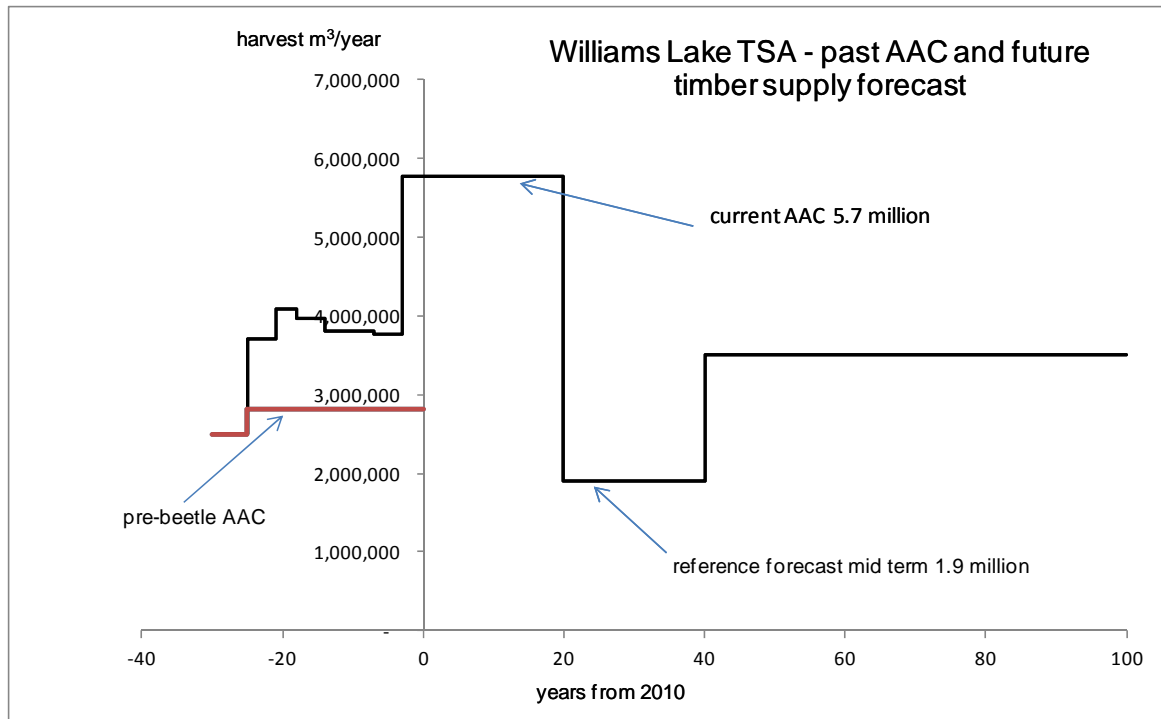
From 2001 to 2010, the average harvest was 3.4 million cubic metres a year; about 74% pine.

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 constraints, focusing harvesting in pine-leading stands, and assuming pine will have economic value for 20 years after death.

The reference forecast indicates that, without mitigation, timber supply in the Williams Lake Timber Supply Area is projected to decline by 32% in the mid-term – from 2.8 million cubic metres a year to 1.9 million cubic metres a year. The 2.8 million cubic metres a year represents an estimate of the allowable annual cut that would have been determined in 2003 without a mountain pine beetle infestation. It is approximately the harvestable volume of 2.4 million cubic metres attributable in the 2003 determination to the main timber supply area plus 450,000 cubic metres attributable to the three western supply blocks.

The timber supply review for the Williams Lake Timber Supply Area is now in progress, and the assumptions for this review were updated from those used in the mid-term analysis. Therefore the harvest forecasts produced in the timber supply review may differ from the ones presented here.



- Maintain current allowable annual cut of 5.7 million cubic metres for 20 years (focus on harvesting dead pine).
- Then falls to 1.9 million cubic metres a year during the mid-term.
- Increases to the long-term level of 3.5 million cubic metres a year in 40 years.

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 late 2014.

Mountain Pine Beetle Forecast

Version 8 of Provincial-Level Mountain Pine Beetle Model, used to predict the current and future pine mortality for the Williams Lake Timber Supply Area mid-term analysis, predicted that 88.6 million cubic metres in the timber supply area would be killed by 2024, which is 62% of the mature pine that was on the timber harvesting land base in 1999.

The latest version of the Mountain Pine Beetle Model (BCMPB version 9) showed 87.7 million cubic metres will be killed by 2024, which is 61% of the mature pine. The difference in these estimates could increase the mid-term harvest projection in the reference forecast by a small amount.

Current Practices and Silviculture Investments

- For the past 10 years, all harvesting in the Williams Lake Timber Supply Area has been focused on salvage of beetle-killed trees. Exceptions have included logging of Douglas-fir and spruce stands to support a plywood mill in Williams Lake.
- Major wildfires in the last decade, most significantly in 2009 and 2010, damaged stands on more than 100,000 hectares of the timber harvesting land base, including 24,490 hectares of areas harvested and not yet declared free-growing, and areas declared free growing. These areas are being reforested by licensees and the Ministry of Forests, Lands and Natural Resource Operations through the Land-Based Investment Fund via Section 108 of the Forest Planning and Practices Regulation and Forests for Tomorrow.
- Fires destroyed many important mule deer winter ranges in the western part of the timber supply area, as well as old growth management areas.
- Forest health is a major consideration within the Williams Lake Timber Supply Area. There is a mid-term threat from Douglas-fir bark beetle, spruce bark beetle and western spruce budworm. These pests are being managed through aerial spray programs to help keep the mid-term timber supply secure.
- Fertilization and spacing are components of the strategy to address the mid-term timber supply deficit. From 2009 to 2011, 2,045 hectares of fertilization occurred with another 1,700 hectares scheduled for 2012. From 2009 to 2011, 1,749 hectares of juvenile spacing occurred within the timber supply area.

Economic Profile in the Central Cariboo and Chilcotin Forest Districts

The Williams Lake Timber Supply Area encompasses the Central Cariboo District and the Chilcotin District. The report *2006 Economic Dependency Tables for Forest Districts* does not contain information for the Williams Lake Timber Supply Area as a whole, so employment information for each district is provided here.

- Economic dependency:
 - In the Central Cariboo District, the forest sector accounts for 32% of basic employment, and the forest vulnerability index¹ is 51, indicating it has a high dependence on the forest sector. In comparison, the vulnerability index for the Quesnel area is 100 and the Victoria area is 0.
 - In the Chilcotin District, the forest sector accounts for 26% of basic employment, and the forest vulnerability index is 39.
- Employment in other sectors:
 - In the Central Cariboo District: public sector 33%, mining and mineral production 8%, agriculture and food 6%, tourism 9%, construction 9%, and other 4%.
 - In the Chilcotin District: public sector 34%, mining and mineral production 0%, agriculture and food 21%, tourism 11%, construction 6%, and other 1%.

Workforce Considerations

- 4,626 person-years of employment in 2000 before the uplift.
- Only reached 4,218 during peak uplift harvest years due to poor market conditions.
- Expected to drop to 1,811 after 2020 without mitigation; 2,955 with mitigation scenarios.
- About 27% of jobs involved with harvesting and silviculture, 40% in timber processing and 33% indirect or induced jobs generated by the forest sector.

Mills

- Five lumber mills (three Tolko Industries Ltd., West Fraser Mills Ltd., West Chilcotin Forest Products Ltd.), Tolko chip mill, Pinnacle Renewable Energy Group pellet mill, West Fraser plywood and veneer mills, Sigurdson Bros. Sawmill and RiverWest.
- The Atlantic Power Corporation bioenergy power plant, operating in Williams Lake since 1993, shows electricity can be produced efficiently when sufficient biomass is available nearby.

Projected Mill Impacts

- Assuming lumber remains the dominant products, reduction in regional milling output from Houston to Williams Lake will likely be proportionate to reduction in log supply. Number of mills operating may be dependent on capacities and efficiencies at individual mills. In the Williams Lake Timber Supply Area, larger capacity sawmills are likely to continue to be the focus of future milling activity, and thus fewer mills are likely to be in operation than if production were to be spread out over smaller mills.

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.

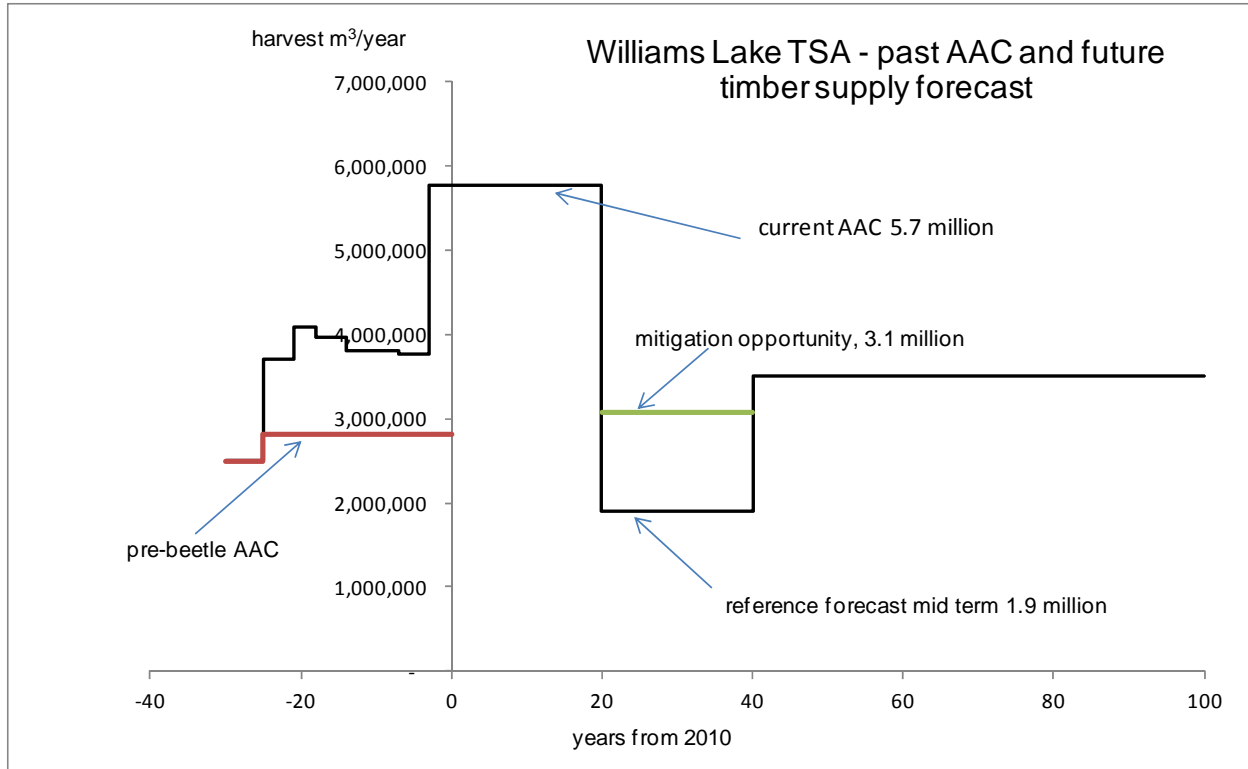
Opportunities for Diversification

- Expansion to extend life of Mount Polley copper-gold mine near Likely would maintain current employment of 350 through 2016. *Mines Act* Permit Amendment and authorizations for road development issued. First Nations have some concerns related to consultation and decision process.
- \$325-million expansion of Gibraltar copper-molybdenum will create up to 500 temporary jobs and 140 permanent positions over the life of mine. Due for completion by end of 2012, it will require *Mines Act* Permit Amendment and may also require a Ministry of Environment effluent permit.
- \$463-million Spanish Mountain open pit gold mine near Likely is in pre-application phase of joint Canadian Environmental Assessment Agency/Environmental Assessment Office comprehensive review.
- \$1-billion Prosperity gold-copper mine in Nemiah Valley would create 1,400 jobs during three years of construction, with 500 full-time positions during the 22-year life of mine. Canadian Environmental Assessment Agency has started a one-year panel review; the project requires an amendment to the existing provincial Environmental Assessment Office certificate.
- Sona Resources is examining the feasibility of underground mining at Blackdome Gold Mine site in one to two years, supporting 100 positions. The permitted mine south of Williams Lake is not operating; company looking to process ore from a neighbouring mine at the site.

Opportunities for Mitigation

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

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.



The mitigation opportunity forecast outlined above indicates that the mid-term harvest level for the Williams Lake Timber Supply Area can be increased by up to 1.2 million cubic metres a year when a specific set of mitigation options is assumed – for a projected total of 3.1 million cubic metres a year. This increase is projected to maintain 1,144 more direct, indirect and induced person-years of employment within the Williams Lake Timber Supply Area.

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

- Harvest stands closer to the minimum merchantability specifications (65 cubic metres per hectare for pine-leading stands and 120 cubic metres per hectare for other stands).
- Allow harvesting in old growth management areas that are not overlapped by other forest values.
- Allow harvesting in one half of the area considered to be steep slope.

Administrative Implications:

- Amendments under the *Land Act* to the Cariboo-Chilcotin Land Use Plan to amend requirements for old growth management areas.

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 will decrease public acceptance of forest harvesting, and could significantly 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. Clear-cut 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

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 (February 2012)

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

Williams Lake Timber Supply Area Technical Working Group Report (November 2011)

http://www.for.gov.bc.ca/hfp/mountain_pine_beetle/Mid-Term-Timber-Supply-Report_Appendix-7.pdf

Forest Analysis: Williams Lake Timber Supply Area

<http://www.for.gov.bc.ca/hts/tsa/tsa29/index.htm#documents>

Land-Based Investment Strategy (Williams Lake Timber Supply Area)

<http://lbis.forestpracticesbranch.com/LBIS/node/44>

Cariboo-Chilcotin Forest District

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

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