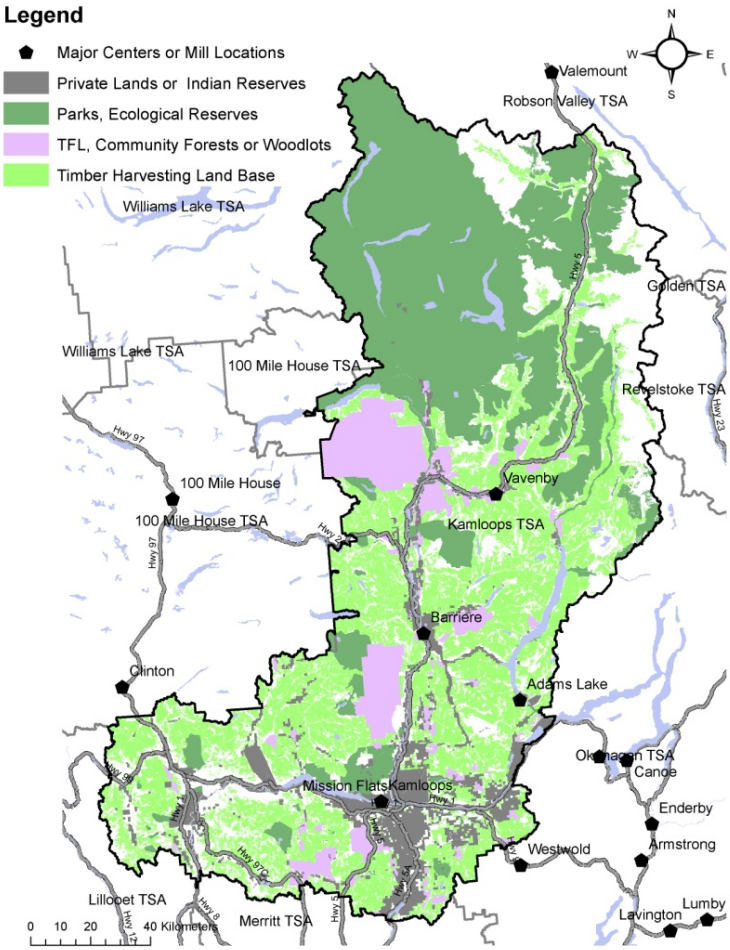
Mid-Term Timber Supply

June 11, 2012

Kamloops Timber Supply Area

Background



The Kamloops Timber Supply Area covers 2.77 million hectares, including Wells Gray Provincial Park:

- 53% is considered productive forest (outside of Wells Gray Provincial Park, Indian Reserves, private lands, roads, tree farm licences and woodlots).
- 32% of productive forest is not available for timber harvesting – due to parks and protected areas, environmental sensitivity, inoperability, problem forest types, low growing site potential, archaeological concerns, riparian reserves, heritage trails, controlled recreation areas, wildlife tree reserves, old growth management areas, and the Wells Gray Community Forest.

- The timber harvesting land base is approximately 950,000 hectares.
- Pine stands make up 30% of the timber harvesting land base, Douglas-fir 33%, spruce 18%, and true fir 9%. Most pine stands are in the southern portion of the timber supply area.
- Tree Farm Licences 18 and 35 (111,099 hectares), community forests (38,061 hectares), and woodlots (41,278 hectares) have individual allowable annual cuts that contribute to the timber supply within the timber supply area.

Communities: The major population centres are Kamloops, Clearwater, Logan Lake, Chase, Barriere, Cache Creek and Ashcroft. Smaller communities include Vavenby, Little Fort and Blue River.

First Nations

The following First Nations (including tribal councils and associations) have communities in the timber supply area: Adams Lake Indian Band, Ashcroft Indian Band, Bonaparte Indian Band, Little Shuswap Indian Band, Neskonlith Indian Band, Oregon Jack Indian Band, Simpcw First Nation, Skeetchestn Indian Band, and Tk'emlúps Indian Band.

First Nations (including tribal councils and associations) with interest but located outside of the timber supply area include: Boston Bar First Nation, Bridge River Indian Band (Xwisten), Canim Lake Indian Band, Canoe Creek Indian Band, Coldwater Indian Band, Cook's Ferry Indian Band, High Bar Indian Band, Ktunaxa Nation Council, Lheidli-T'enneh First Nation, Lower Nicola Indian Band, Lower Similkameen Indian Band, Lytton First Nation, Nicomen Indian Band, Nooaitch Indian Band, Okanagan Indian Band, Penticton Indian Band, Shackan Indian Band, Shuswap Indian Band, Siska, Splats'in First Nation, Spuzzum First Nation, T'it'q'et Administration (Lillooet IB), Toosey Indian Band (Tl'esqox), Ts'kw'aylaxw First Nation, Upper Nicola Indian Band, Whispering Pines/Clinton Indian Band, Xaxli'p First Nation.

Status of Land Use Plans

- Kamloops Land and Resource Management Plan initially designated a higher level plan in 1996 with the most recent amendment in 2009.
- Much of the plan is considered to be "policy guidance" with 24 *Land Act* objectives providing legal direction for the purposes of the *Forest and Range Practices Act*.
    - Forest stewardship plans of major forest tenure holders must be consistent with the 24 objectives.

Past Allowable Annual Cut

- 2.41 million cubic metres in 1989.
- 2.68 million cubic metres in 1996, included a 200,000 cubic metre partition for cedar-hemlock stands and 86,000 cubic metres for Pulpwood Agreement No. 16.
- 2.68 million cubic metres in 2003 with an additional 20,000 cubic metre deciduous partition.

- 4.35 million cubic metres in 2004 to address salvage of timber damaged by fire and mountain pine beetles. Additional partitions include a limited-term 670,000 cubic metres for fire-damaged timber and 1.0 million cubic metres for beetle salvage.
- Currently 4.0 million cubic metres (effective June 1, 2008) with a partition of about 2.0 million cubic metres for pine, 1.7 million cubic metres for non-pine, 200,000 cubic metres for cedar or hemlock, 86,000 cubic metres for Pulpwood Agreement 16, and 20,000 cubic metres for deciduous.
- Between 2007 and 2011, harvest levels averaged about 2.5 million cubic metres in the Kamloops Timber Supply Area of which about 57% was pine.

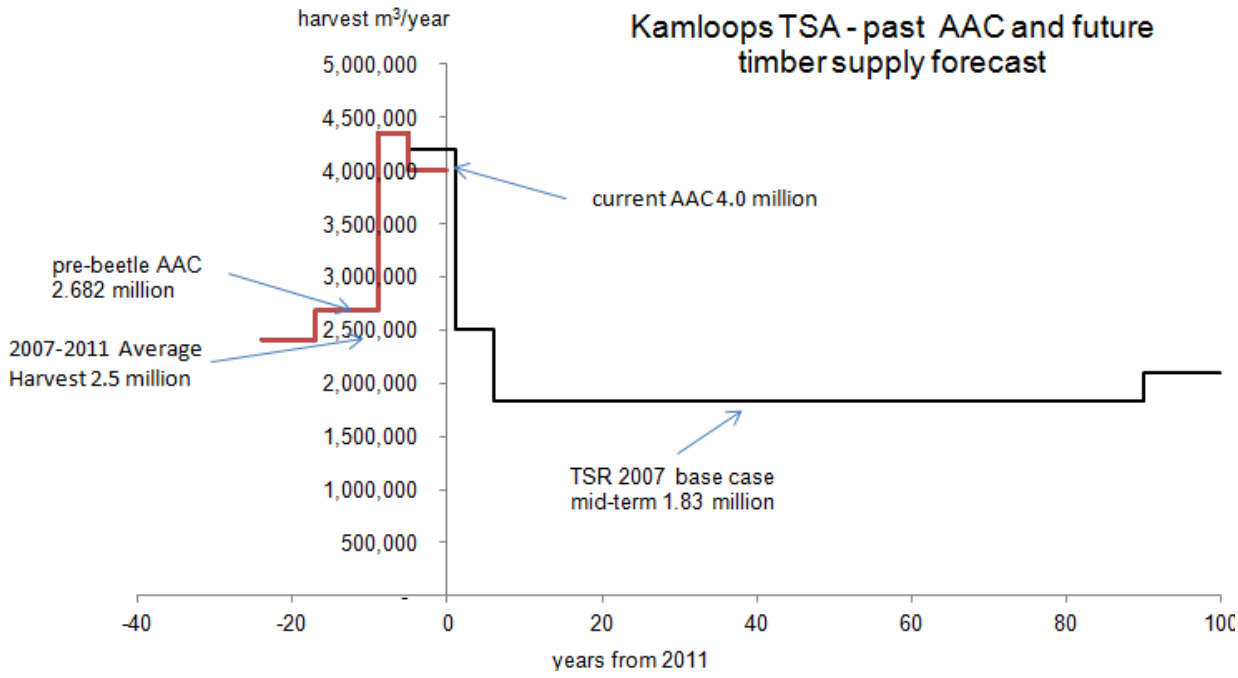
Year	Allowable annual cut (m^3)	Harvest (m^3)	Per cent pine
2007	4,352,770	3,199,945	60
2008	4,176,385	2,150,862	59
2009	4,000,000	1,697,446	58
2010	4,000,000	2,455,963	55
2011	4,000,000	2,865,660	52

Mid-Term Timber Supply Forecasts

Timber supply forecasts prepared by Timberline Natural Resource Group Ltd. as part of the 2007 timber supply review built on and refined work completed under the Kamloops Timber Supply Area Mountain Pine Beetle Horizontal Initiatives Project. This project investigated silviculture options to mitigate losses from the mountain pine beetle infestation.

The timber supply review analysis indicates the timber supply in the Kamloops Timber Supply Area is expected to decline by 54% from the current allowable annual cut to the mid-term – from 4.0 million cubic metres a year to 1.82 million cubic metres. Given this short-term transition from the uplift, the mid-term would be 16.5% lower than the expected long-term harvest flow of 2.18 million cubic metres. The harvest flow of this scenario is as follows:

- Maintain a harvest flow of 4.2 million cubic metres a year for five years from 2006 to 2011.
- Steps down in 2012 to 2.51 million cubic metres a year for five years, then to the mid-term low at 1.82 million cubic metres a year for 80 years then to the long-term level of 2.18 million cubic metres.



Current inventory and management that differ from the assumptions used in the 2007 analysis include:

- Current forecasts of the mountain pine beetle infestation are less severe. Original predictions were for a 78% cumulative kill of pine by 2017 whereas current projections are 51% by 2022. Ministry staff estimate that with lower beetle kill the mid-term may be 100,000 to 200,000 cubic metres higher than the base case scenario, however, this depends on the composition of the pine that is expected to be available in the mid-term, and the harvest flow transition from the current uplift.
- Mountain caribou assumptions have changed since 2007, and it is estimated that this will reduce the allowable annual cut by 95,000 cubic metres a year in the mid-term.
- Actual harvest levels have not approached the allowable annual cut, and the impact of this on timber supply is uncertain.
- Other uncertainties exist within the above timber supply forecast, especially as related to the modeling of mountain pine beetle. The 2007 allowable annual cut determination identified about a 3.5% net overestimation of timber supply.

Mountain Pine Beetle Forecast

About half of the pine volume present in 1999 has been killed on the timber harvesting land base, and about 26 million cubic metres of live pine remains.

Current Practices/Silviculture Investments

- The June 2008 allowable annual cut determination established pine and non-pine partitions in order to encourage that at least 50% of the harvest was directed towards pine. An average of 57% of the 2007-2011 total harvest was pine.
- In 2012/2013, the Forests for Tomorrow program plans to plant 1,885 hectares of not sufficiently restocked areas without industry obligations to reforest, to fertilize 400 hectares, and to space 200 hectares in the timber supply area. Expected levels of planting in 2014 to 2016 are 1,780 hectares, 987 hectares, and 317 hectares, respectively, with no fertilization or spacing currently budgeted.

Ecological Values

- The diverse landscapes of the Kamloops Timber Supply Area provide a variety of wildlife habitats including forested ecosystems, grasslands, lakes and wetlands, and alpine areas.
- There are significant populations of ungulates such as mountain caribou, moose, mule deer, mountain goat and bighorn sheep, and a stable grizzly bear population in the northern half of the timber supply area. Furbearers include wolverine, fisher and martin.
- Numerous rivers, lakes and streams support rainbow trout, kokanee, burbot, mountain whitefish, eastern brook trout, bull trout, cutthroat, lake char and steelhead. Coho, chinook, sockeye and pink salmon spawn in the Thompson River system.
- There are 27 fish and wildlife species and at least seven plant species that are federally listed as endangered, threatened or special concern.

Economic Profile in the Kamloops Timber Supply Area

The report *2006 Economic Dependency Tables for Forest Districts* contains economic information for the Kamloops District which covered a portion of the Kamloops Timber Supply Area in 2006. Headwaters District, which covered the remaining area, also included the Robson Valley Timber Supply Area. The 2006 report does not include economic information for the Kamloops Timber Supply Area specifically, so information for the Kamloops and Headwaters districts are reported below.

- In the former Kamloops District, the forest sector accounted for 12% of basic employment, with a forest vulnerability index[1] of 11, indicating its economy is more diversified than many other forests districts in British Columbia. In comparison, the vulnerability index for the Quesnel area is 100 and for the Victoria area is 0.

[1]The 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.

- Employment in other sectors in the Kamloops District: mining and mineral production 6%, agriculture and food 4%, tourism 17%, public sector 35%, construction 13%, other 13%.
- In the former Headwaters District, the forest sector accounted for 33% of basic employment, and the forest vulnerability index was 60.
- Employment in other sectors in the Headwaters District: agriculture and food 8%, tourism 22%, public sector 25%, construction 8%, other 3%.
- Fishing and hunting are estimated to contribute about $40 million a year to the local economy.

Workforce considerations

A decrease from the current harvest level of 2.5 million to 1.82 million cubic metres based on multipliers from the 2001 timber supply review will result in a reduction of 948 person-years of total employment within the timber supply area, and 1,304 person-years provincially.

Mills

The Kamloops Timber Supply Area has significant milling capacity:

- Chipping mills: River City Fibre (168,000 BDU), Tolko Industries Ltd (76,800 BDU)
- Lumber mills: Canadian Forest Products Ltd. (225 million bd ft), Gilbert Smith Forest Products Ltd. (53 million bd ft), International Forest Products Ltd. (282 million bd ft)
- Pulp and paper mills: Domtar (460 000 tonnes)
- Veneer/plywood mills: Tolko Industries Ltd. (185 million sq ft), Aspen Planers Ltd. (158 million sq ft)

Significant whole log volumes are transported outside of the Kamloops Timber Supply Area to mills in Merritt and Chasm. Wood volumes, particularly byproduct chips and sawdust, are imported to support Domtar's pulp and co-energy production.

Projected mill impacts

Significant reductions in the current allowable annual cut uplift to address the mountain pine beetle infestation could reduce current regional milling output. However, the economic dependence of individual mills on the current level of harvest in the timber supply area will vary.

Opportunities for Diversification

- $400-million Tranquille on the Lake – agri-eco tourist destination with residential and commercial elements on Kamloops Lake.
- Re-activated plan for the M-11 Lornex and Tailings project to extend the mine life to approximately September 2013 with production of concentrate expected at an average of 400,000 tonnes a year. Project will proceed with a further six-year extension to 2019 with production of concentrate expected at 250,000 tonnes a year.

- Ruddock Creek Imperial Metals underground zinc-lead mine near Clearwater has a proposed annual production rate of 700,000 tonnes a year for 10 to 15 years. It includes onsite process facilities, access roads, mill, tailings impoundment area and camp facilities.
- Preliminary design for the Shannon Creek Waterpower project near the Town of Avola indicates a 2.5-MW hydro plant.
- The $795-million Ajax project, an open pit mine proposed for the southern boundary of the City of Kamloops, is expected to have a 23-year mine life, with production of 2.5 billion pounds of copper and 2.28 million ounces of gold in concentrate. There is public concern about the proximity of the mine to the city.
- Harper Creek mine, a large-scale open pit mining and milling operation near Vavenby, is expected to produce a total of 3.63 billion pounds of copper, 372,000 ounces of gold and 14 million ounces of silver contained in concentrate. The project would employ up to 430 hourly and staff personnel and support approximately 1,000 to 1,200 jobs provincially.

Opportunities for Mitigation

Current forecasts suggest that mid-term timber supply will not be greatly lower than the expected long-term harvest levels. This forecast is based on an immediate transition from the uplift level of 4.0 million cubic metres to the intermediate step of 2.5 million cubic metres.

The harvest level resulting from the transition is the most significant factor in determining the mid-term harvest flow. Regular allowable annual cut determinations and associated timber supply reviews are required to ensure an appropriate transition. Given the age of the most current analysis and changing status of the mountain pine beetle infestation, the following are suggested:

- Ensure the next timber supply review, scheduled to start in the fall of 2012, and allowable annual cut decision are completed in a timely fashion. With the lower mountain pine beetle mortality projections, this assessment will likely identify a higher mid-term level.
- Ensure allowable annual cut determinations occur on a five-year cycle for the next decade.

An adequate mid-term timber supply is possible within the Kamloops Timber Supply Area with an appropriate strategy to reduce the current beetle uplifts. Projected mid-term timber supply is about 360,000 cubic metres a year lower than long-term harvest levels. While ministry staff have identified the options noted below to mitigate this difference, there has not been time for a full analysis. Assessments have been made qualitatively based on existing analysis within the most recent timber supply review.

The mitigation considerations do not have sufficient information to identify the potential level of increase. If an increase of 360,000 cubic metres a year were possible, this is projected to enable an additional 306 direct person-years of employment within the timber supply area.

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.

For example, changes to existing legal objectives in the timber supply area are identified as possibilities for increasing mid-term timber supply. Existing objectives, particularly those developed during the land and resource management planning process, were established with considerable public and stakeholder involvement and negotiation.

- Visual quality objectives are applied on about 450,000 hectares, however, overall the objectives are minimally constraining on mid-term timber supply. Currently, to address the mountain pine beetle, flexibility has been built into many forest stewardship plans to accelerate salvage harvest in scenic areas.
- Old growth management areas outside of parks and other area-based tenures of 189,914 hectares are used to meet landscape-level biodiversity requirements. This area is currently in the process of being legally established, although the extensive selection process has extended over many years. It has been estimated as an 83,500-hectare reduction in the timber harvesting land base.
- Ungulate winter range for mule deer covers 59,173 hectares of timber harvesting land base. The requirements are believed not to significantly restrict mid-term timber supply. However, further analysis is needed to understand timber supply opportunities and risks to mule deer.
- Mountain caribou habitat has recently received protection through *Government Actions Regulation* orders following an extensive review and consultation of this federal species at risk. About 37,000 hectares of otherwise available timber harvesting land base is considered a no-harvest zone. Specific analysis would need to be completed to understand any changes to management objectives.
- Critical moose winter range management does not have any timber supply implications.
- Community watershed management has a very small timber supply implication.

Enhanced forest management such as intensive silviculture and strategic planning of harvesting may provide some opportunities for increasing the mid-term timber supply. There is a need to link today's management with tomorrow's needs. However, these activities typically only provide mid-term timber supply gains by enabling other mature stands to be freed from being required for later harvest.

- Mitigation opportunities exist through the salvage and reforestation of mountain pine beetle killed stands with low-value overstory. Currently this is being done in BC Timber Sales chart areas which cover about 20% of the timber supply area. A reforestation program funded by Forests for Tomorrow could soften the transition if supported by an expanded salvage program outside the BC Timber Sales chart area, and could mitigate the mid-term by a small amount through enabling stands to be harvested earlier.

- Spacing and fertilization of younger stands may improve mid-term timber supply slightly by decreasing time to merchantability of these stands.
- Continued support of forest health initiatives including inventory is imperative. The protection of the remaining growing stock from pest/disease should be a high priority from a timber supply perspective
- Douglas-fir selection areas are expected to contribute to the timber supply throughout the mid- and long-term. Appropriate management planning and harvest expertise is necessary to ensure that the harvest from this profile is captured during the mid-term and that increased future benefits are realized
- Increased rehabilitation of logging trails and unnecessary roads enables greater future timber supply.

Opportunities may exist through different tenure options to better capture available fibre and reduce non-recoverable losses. Increased area-based tenure from holders with a broad land base interest may be able to increase the mid-term timber supply by fully using available fibre rather than focusing on sawlogs.

Administrative Implications:

- Amendments under the *Land Act* may be required for a number of the proposed options.
- *Government Actions Regulation* process would be needed to change visual quality objectives and make amendments to the ungulate winter range.
- Ensuring a timely timber supply review and allowable annual cut determination requires appropriate resources and may impact other scheduled reviews and work.
- Many of the changes require public and First Nations consultation, and would take at least a year to complete once started. Given past public and stakeholder involvement in the establishment of objectives, significant interest around changes is expected.

Resource Value Implications

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 retention, 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 mountain 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 and less predation. 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; modified 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

Forest Analysis: Kamloops Timber Supply Area
http://www.for.gov.bc.ca/hts/tsa/tsa11/index.htm

Land-Based Investment Strategy (Kamloops Timber Supply Area)
http://lbis.forestpracticesbranch.com/LBIS/node/43)

Kamloops Forest District
http://www.for.gov.bc.ca/dka/

Headwaters Forest District
http://www.for.gov.bc.ca/dhw/