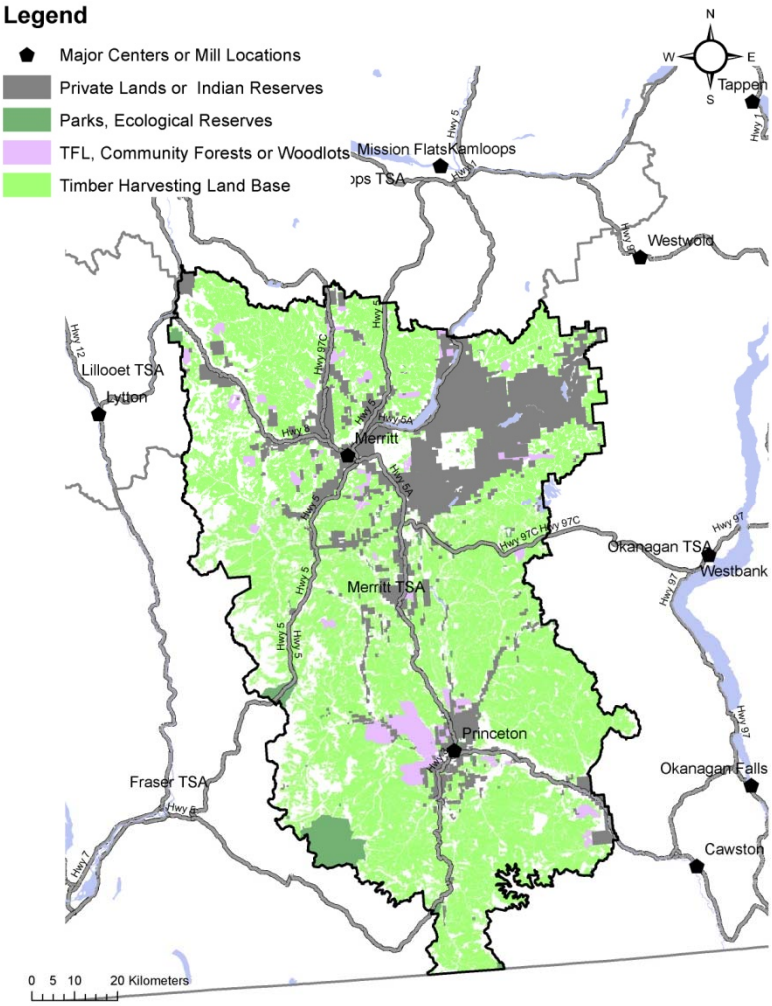
Mid-Term Timber Supply

June 11, 2012

Merritt Timber Supply Area

Background



The Merritt Timber Supply Area covers 1.13 million hectares:

- 71% is considered productive forest that is outside of Indian Reserves, private lands and woodlots.

- 22% of the productive forest is not available for timber harvesting – due to parks and protected areas, environmental sensitivity, inoperability, problem forest types, archaeological concerns, riparian reserves, heritage trails, wildlife tree reserves, and old growth management areas.
- Current timber harvesting land base is 625,080 hectares; 55% of the timber supply area.
- Within the timber supply area, there are no tree farm licences, 14,500 hectares of woodlots, and the 13,000-hectare Vermillion Forks Community Forest, which contribute separately to the timber supply.
- The timber harvesting land base is dominated by pine (58%), Douglas-fir (29%), spruce (8%), and true fir (5%) leading stands.

Communities: Merritt and Princeton are the major population and wood processing centres in the timber supply area with about 60% of the population. Smaller communities include Spences Bridge, Tulameen, Brookmere, Missezula Lake, East Gate, Douglas Lake, Lower Nicola, Osprey Lake and Allison Lake.

First Nations:

The following First Nations (including tribal councils and associations) have communities in the timber supply area: Coldwater Indian Band, Lower Nicola Indian Band, Nooaitch Indian Band, Shackan Indian Band, Lower Similkameen Indian Band, Upper Nicola Indian Band, Upper Similkameen Indian Band.

First Nations (including tribal councils and associations) with interest but located outside of the timber supply area include: Ashcroft Indian Band, Boston Bar First Nation, Lytton First Nation, Oregon Jack Creek Indian Band, Kanaka Bar Indian Band, Skuppah Indian Band, Spuzzum Indian Band, Boothroyd Indian Band, Nicomen Indian Band, Siska Indian Band, Cook's Ferry Indian Band, Okanagan Indian Band, Osoyoos Indian Band, Penticton Indian Band, Westbank Indian Band, Tk'emlúps Indian Band, and Chawathil First Nation.

First Nations represent about 20% of the population in the timber supply area.

Status of Land Use Plans

- A formal strategic land use plan was not completed for the Merritt Timber Supply Area. Forest planning and practices are guided by other broad plans or by the legislation itself.
- In the development of forest stewardship plans, forest licensees are mandated to include results and strategies that meet government's objectives for resource values such as water, wildlife, soils, biodiversity and cultural heritage.
- In June 2004 the minister approved the designation of landscape units and non-spatial old forest retention targets. Subsequently, old growth management areas were drafted (i.e. non-legal) to provide operational guidance.

Past Allowable Annual Cut

- Set at 1.25 million cubic metres in 1995.
- Increased to 1.45 million cubic metres in 1996, including a partition for small-diameter pine types.
- Increased to 2.0 million cubic metres in 1999 in response to the beetle epidemic and fire salvage.
- Reduced to 1.5 million cubic metres in 2002 and included a small-diameter pine partition of 312,500 cubic metres.
- Increased to 2.8 million cubic metres in 2005 in response to new inventory, new site productivity information and beetle infestation; 1.0 million cubic metres identified as the beetle uplift.
- Currently 2.4 million cubic metres (set Dec. 2, 2010), including a partition of 720,000 cubic metres attributable to non-pine species.
- From 2007 to 2011, an average of 118% of allowable annual cut was harvested and was composed of about 75% pine.

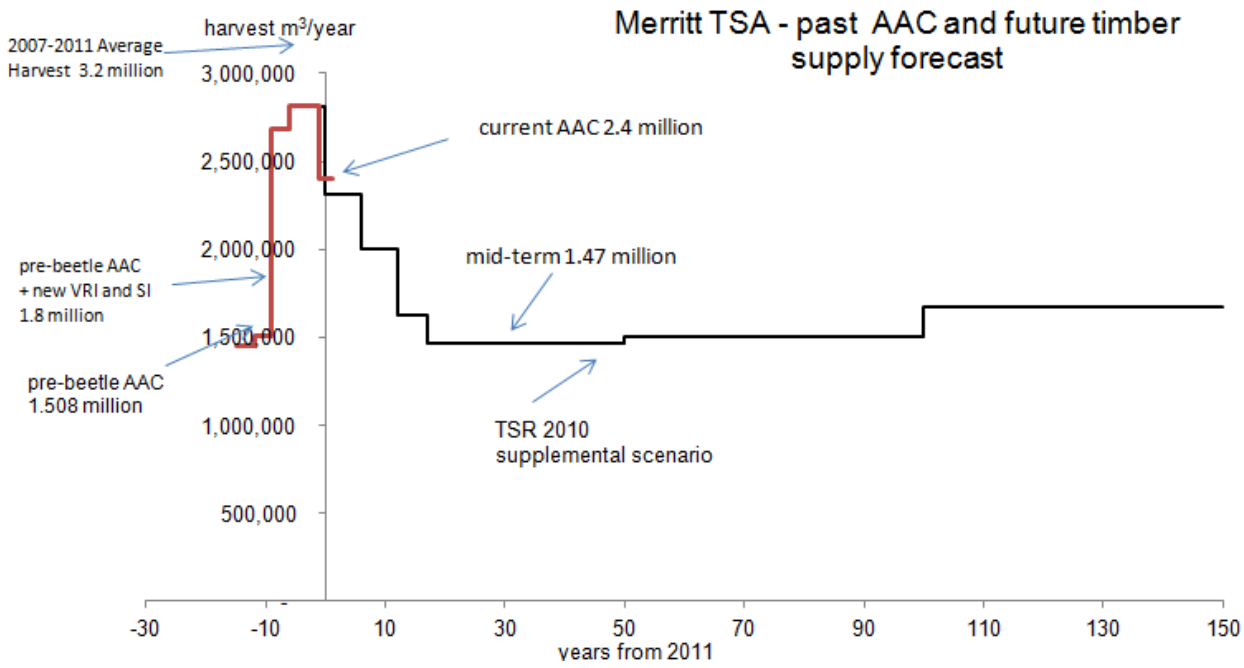
Year	Allowable annual cut (m^3)	Harvest (m^3)	Per cent pine
2007	2,814,171	2,939,563	72
2008	2,814,171	3,007,335	76
2009	2,814,171	3,116,766	77
2010	2,814,171	3,660,919	74
2011	2,400,171	3,397,926	75

- The variation from actual harvest volume to identified allowable annual cut is due to many factors including cut control fluctuations, mountain pine beetle management, interface harvesting, and other fibre-based demands for dead volume.

Mid-Term Timber Supply Forecasts

The best available timber supply forecasts were prepared by Forsite Consultants Ltd. as part of the 2010 timber supply review. The forecast most representative of current conditions, including the beetle infestation, was a supplement scenario that corrected depletions and delineation of small-diameter pine types of the original timber supply review base case.

The supplement scenario demonstrated that timber supply in the Merritt Timber Supply Area is projected to decline by 39% to the mid-term level – from 2.4 million cubic metres a year to 1.47 million cubic metres. This is 12% lower than the expected long-term harvest flow.



The harvest flow of this scenario is as follows:

- Initial level of 2.81 million.
- Steps down in 2011 to a harvest flow of 2.31 million for six years.
- Step down to 2.0 million cubic metres a year for six years, 1.63 million cubic metres a year for five years, 1.47 million cubic metres a year for 30 years, and 1.5 million cubic metres a year for 50 years.
- The long-term level of 1.67 million cubic metres per year is reached after 100 years.

Current inventory and management that differ from the assumptions used in the 2010 analysis include:

- Current forecasts of the mountain pine beetle infestation are less severe than are modeled in the supplement scenario. Original predictions were for a 51% cumulative kill of pine by 2011, whereas current projections are 27% by 2012. Original projections to the end of the beetle outbreak were 65% (at 2019) cumulative kill. The current projection is 30% (at 2022) cumulative kill at the end of the beetle outbreak. Ministry staff estimates that with the lower beetle kill, the mid-term may be 100,000 to 200,000 cubic metres higher than the supplement scenario. This assumes a decision to step down from the current harvest level to the mid-term level within a decade.
- Actual harvest levels are expected to initially exceed the allowable annual cut in efforts to manage the mountain pine beetle and associated tenure obligations, including innovative forestry practices agreement and not billing of all Grade 4 volumes against licence allowable annual cuts. The impact of these higher harvest levels will depend on the ability to balance these higher levels in future dispositions.

- Initially there has been a lower-than-expected salvage of a large spruce beetle infestation. Over the initial decade, about 2.4 million cubic metres (300,000 cubic metres a year for eight years) of these stands were expected to be harvested. There is a risk that this will not be realized as the infestation and associated harvest has not progressed as expected.
- Uncertainties exist within the above timber supply forecast, especially as related to the modeling of mountain pine beetle. The 2010 allowable annual cut determination identifies known information differences and other uncertainties. At the time of the analysis, the Vermillion Forks Community Forest had not been established and was included with the timber supply area forecasts.

Mountain Pine Beetle Forecast

Since 1999, approximately 27% of the pine volume has been killed by the mountain pine beetle infestation. It is estimated that about 49 million cubic metres of live pine remain on the timber harvesting land base.

Current Practices/Silviculture Investments

- The 2010 allowable annual cut determination established a partition to limit the harvest of non-pine. An average of 75% of the 2007-2011 total harvest was pine.
- The Forests for Tomorrow program plans to plant 580 hectares and fertilize 600 hectares in the timber supply area in 2012/2013. Although no fertilization or spacing is budgeted for beyond the current fiscal year, a steady program of 600 hectares of fertilization and 200 hectares of spacing has been forecasted. Expected levels of planting are 307 hectares in 2013/14, 400 hectares in 2014/15, and 125 hectares in 2015/16.

Ecological Values

The diverse landscapes of the Merritt Timber Supply Area provide a variety of wildlife habitats, including forested ecosystems, grasslands, lakes and wetlands, and alpine areas.

- Numerous rivers, lakes and streams support fish such as rainbow trout, kokanee, burbot, mountain whitefish, eastern brook trout, bull trout and steelhead. Coho, Chinook and pink salmon spawn in the Nicola River.
- There are significant ungulate populations of mule deer, elk and moose.
- The grizzly bear population is low and may be subject to future recovery planning efforts.
- There are 28 fish and wildlife species and at least 10 plant species that are federally listed as endangered, threatened or special concern in the timber supply area including Williamson's sapsucker and western screech owl both endangered. There are also numerous red and blue listed ecological plant communities.

Economic Profile in the Merritt Timber Supply Area

The Merritt Timber Supply Area and the Lilloett Timber Supply Area are located in the Cascades District. The report *2006 Economic Dependency Tables for Forest Districts* does not contain information solely for the Merritt Timber Supply Area so information for the Cascades District is provided here.

- The forest sector accounts for 23% of basic employment. The forest vulnerability index[1] for the Cascades District is 29 indicating its economy is somewhat more diversified than the average for forests districts in British Columbia. In comparison, the vulnerability index for the Quesnel area is 100 and for the Victoria area is 0.
- Employment in other sectors in the Cascades District: public sector 31%, mining and mineral production 5%, agriculture and food 9%, tourism 16%, construction 11% and other 4%.
- The Merritt Timber Supply Area derives significant economic value from non-forestry activities on Crown lands. Fishing and hunting are estimated to contribute about $20 million a year.

Workforce Considerations

The socio-economic analysis for the most recent timber supply review projected that a decrease in harvest from 2.8 million to 1.8 million cubic metres would result in a reduction of 651 person-years of total employment within the timber supply area and 799 person-years provincially.

Mills

- Ardew Wood Products Ltd. (sawmill, consumed 200,000 cubic metres a year from 2006 to 2007), Aspen Planers Ltd. (sawmill, consumed 1.0 million cubic metres a year from 2006 to 2008), Tolko Industries Ltd. (sawmill, consumed 900,000 cubic metres a year from 2006 to 2008), Weyerhaeuser Company Ltd. (sawmill, consumed 700,000 cubic metres a year from 2006 to 2008).
- MWP Cascade Post and Rail (posts 480,000 pieces capacity), Coldwater Post and Rail (poles 960,000 pieces capacity), Princeton Post and Rail Co. Ltd. (posts 528,000 pieces, poles 144,000 pieces capacity), Princeton Wood Preservers Ltd. (utility poles 29,000 pieces capacity).
- Trace Resources (chipping/hog fuel plant, 300,000 cubic metre capacity), Nicola Log Works Ltd. (pellets/animal bedding 90 000 tonnes capacity), Princeton Co-Generation Coop (pellets 83 tonnes).
- NMV Lumber (boards), Upper Nicola Post and Rail (posts), Nicola Post and Rail (posts, rails, pressed fire logs).

[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.

- The Merritt Timber Supply Area also supplies fibre to mills outside the timber supply area as well as receiving supply from other timber supply areas – the inflow volume generally balances with outflow volume.

Projected mill impacts

The significant reductions from the current mountain pine beetle uplift level could reduce current regional milling output, if the volume cannot be replaced from other sources.

Opportunities for Diversification

- Copper Mountain Mine, restarting open pit copper mine. Development is based on the construction of a 35,000 tonne a day concentrator at an estimated capital value of $366 million.
- Interior to Lower Mainland doubling of B.C. transmission lines. Estimated capital value is $602 million.
- Magnetite Ridge by Olivine Mt. near Merritt. The proposal is for an open pit mine for the production of magnetite.
- Basin Coal – proposed re-opening of the open pit coal mine near Princeton (the mining ceased in 2006).
- Treasure Mountain, newly developed silver mine located in the Tulameen area southwest of Merritt and associated Craigmont mill site for processing of ore.
- Wind power development – numerous wind power investigative use permits have been issued in the timber supply area. High level socio-economic analysis suggests that at full development due to losses of timber harvesting land base there would be a slight net loss of long-term equivalent jobs

Opportunities for Mitigation

Current forecasts suggest that mid-term timber supply will not be a lot lower than the expected long-term harvest levels. This forecast is based on the continued transition from an uplift level to a mid-term level over the next 15 years.

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 changing status of the mountain pine beetle infestation, the following are suggested:

- Reassess the current timber supply based on current knowledge of the mountain pine beetle epidemic. This assessment, given lower mortality projections due to the mountain pine beetle, will likely identify a higher mid-term level.
- Manage the reduction of current allowable annual cut levels through allowable annual cut determinations on a five-year cycle.

- Develop an appropriate disposition plan that fully considers the mid-term supply implications with respect to new tenure including non-replaceable forest licences, innovative forestry practice agreement allowable annual cut increases, and other.

An adequate mid-term timber supply is possible within the Merritt Timber Supply Area with an appropriate strategy to reduce the current beetle uplifts. Projected mid-term timber supply is about 200,000 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 opportunities do not have sufficient information to identify the potential level of increase. If an increase of 200,000 cubic metres a year were possible, it would be projected to maintain 130 more direct, indirect and induced person-years of employment within the Merritt 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 the mid-term timber supply. No strategic land use plan was initiated in the Merritt Timber Supply Area and, therefore, no associated land use objectives have been established. No specific analysis has been conducted to investigate mitigation opportunities.

- Visual quality objectives are applied on 196,191 hectares of scenic areas, however, overall the objectives at base case harvest flows do not impact the mid-term timber supply and have about a 1% long-term constraint. Currently, to address the mountain pine beetle, flexibility has been built into many forest stewardship plans to accelerate salvage harvest in scenic areas.
- Draft old growth management areas have been determined for about 115,000 hectares, of which 45,500 hectares would have been included in the timber harvesting land base. Current management typically avoids harvesting these areas. The selection of these areas was guided in part by avoidance of susceptible lodgepole pine stands. This has about a 7% reduction in the timber harvesting land base. Establishing this area as a legal objective is currently in the First Nations consultation phase.
- Ungulate winter range for mule deer, sheep and elk covers about 315,000 hectares of which the requirements were set to have no more than a 7,000-hectare mature timber harvesting land base impact. The current timber supply review analysis suggests that the ungulate winter range requirements are slightly, but not significantly, limiting harvest flow.

Enhanced forest management such as intensive silviculture and strategic planning of harvesting may provide some opportunities for increasing the mid-term timber supply.

- Mitigation opportunities exist through the salvage and reforestation of beetle-killed stands with low value overstory. A reforestation program funded by Forests for Tomorrow could soften the transition if supported by a salvage program, and it could mitigate the mid-term by a small amount through enabling stands to be harvested earlier.
- Spacing and fertilization of younger stands may improve the mid-term timber supply slightly by decreasing time to merchantability of these stands.
- Continued support of forest health initiatives is imperative. The protection of the remaining growing stock from pest/disease and initiation of high-priority inventory and analysis projects should be top priorities 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 is necessary to ensure the harvest from this profile is captured and projected benefits are realized.

Administrative Implications

- An updated timber supply review and allowable annual cut determination would require appropriate resources and may impact scheduled reviews of other timber supply areas.
- *Government Actions Regulation* process would be needed to change visual quality objectives and make amendments to the ungulate winter range.
- Changes would require public and First Nations consultation, and would take at least a year to complete once started.

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 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 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

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

Cultural Heritage, Spiritual and Archaeological Values – A cultural heritage resource is "an object, site, or location of a traditional societal practice that is of historical, cultural or archaeological significance to the province, a community, or an aboriginal people". These resources must be considered in any plans to accelerate harvest plans or to include additional (previously protected) areas for harvest. In some cases cultural heritage resource values are incompatible with logging practices for many reasons. In the past, they have been included with areas protected under other programs such as old growth management areas. Archaeological values are protected under the *Heritage Conservation Act,* and would also need to be considered in any plans to accelerate harvest or to include additional areas for harvest.

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: Merritt Timber Supply Area
http://www.for.gov.bc.ca/hts/tsa/tsa18/index.htm

Land-Based Investment Strategy (Merritt Timber Supply Area)
http://lbis.forestpracticesbranch.com/LBIS/node/78)

Cascades District
http://www.for.gov.bc.ca/dcs/