The 100 Mile House Timber Supply Area covers 1.24 million hectares:

- 59% considered productive forest (outside of protected areas, Indian Reserves, private lands, woodlots, community forests and First Nations woodland licences).
• 16% of the productive forest is not available for timber harvesting – reserved for old growth, wildlife tree patches, caribou areas or riparian areas; in areas of environmental sensitivity or low productivity and non-merchantable forest types, or for other reasons.
• The current timber harvesting land base is 618,300 hectares; roughly 50% of the timber supply area.
• New Community Forest Agreement and First Nations woodland licence areas were excluded from the timber harvesting land base (but not depicted on the above key map).

Communities: The main communities are 100 Mile House (including 108 Mile Ranch) and Clinton; smaller communities include Lac la Hache, Forest Grove, 70 Mile House, Lone Butte and Bridge Lake.

First Nations: The following First Nation (including tribal councils and associations) has a community or reserve holdings in the timber supply area: Tsq’escen (Canim Lake), Xatl’tem/Stwecem’c (Dog Creek/Canoe Creek), Bonaparte Indian Band, High Bar First Nation.

First Nations (including tribal councils and associations) with interest but located outside of the timber supply area include: Tk’emlups Indian Band, Williams Lake Indian Band, Tsilhqot’in Nation, St’at’imc Nation, Lower Nicola Indian Band, Ts’kw’alaxw First Nation, T’it’q’et Administration, Oregon Jack Creek Band, Skeetchestn Indian Band, Lytton First Nation, Nlaka’pamux Nation Tribal Council, Nicola Tribal Association, Simpcw First Nation, Ashcroft Indian Band, Coldwater Indian Band, Esketemc First Nation, Siska Indian Band, Bridge River Indian Band, Cook’s Ferry Indian Band, Whispering Pines/Clinton Indian Band.

Status of Land Use Plans

The Cariboo-Chilcotin Land Use Plan (CCLUP) is a legal higher level plan covering the 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 focused on single values is therefore made more complicated.

**Past Allowable Annual Cut**

- Currently 2.0 million cubic metres, raised in September 2006 in response to the beetle epidemic with the expectation that 90% of the harvest would be directed at stands with more than 70% pine.

From 2007 to 2011, the average annual harvest level in the 100 Mile House Timber Supply Area was 2.01 million cubic metres, of which 78% was pine and 90% was from pine-leading stands.

**Mid-Term Timber Supply Forecasts**

The mid-term timber supply forecasts were prepared by the Forest Analysis and Inventory Branch to examine options for mid-term timber supply mitigation. Mitigation scenarios were compared to a reference scenario that models current practices. The forest management assumptions applied in the reference scenario were compiled for the timber supply review that is currently in progress for the 100 Mile House Timber Supply Area. 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 15 years after death. All forecast results presented here are preliminary and are subject to change before an in-depth quality assurance review is completed.

The reference forecast indicates that, without mitigation, the timber supply in the 100 Mile House Timber Supply Area is projected to decline by 49% in the mid-term – from 1.334 million cubic metres a year (pre-epidemic) to 0.68 million cubic metres a year.
• Maintains the current allowable annual cut of 2.0 million cubic metres for 10 years.
• Then falls to 0.68 million cubic metres a year, and remains at that level for 50 years.
• Gradually increases to a long-term level of 1.1 million cubic metres a year.
• Part of the decline from the pre-epidemic level in the above graph is due to land base reductions for new and proposed area-based tenures.
• Licences within the 100 Mile House Timber Supply Area but not incorporated into the reference forecast are expected to provide additional mid-term volume of 60,000 cubic metres.

The reference scenario forecasts the physical supply of timber that meets specific criteria (commercial species and merchantability specifications, e.g. sawlogs/pulp). However, market forces influence what proportion of the physical supply is economic to access and process in any given period. The current prolonged economic downturn makes it increasingly uneconomic to harvest deteriorating dead pine. If these conditions persist, licensees have indicated there may be timber supply shortages in mid 2016.

During the mid-term, harvesting will depend on existing non-pine stands, second-growth stands, and pine stands that survived the infestation.

**Mountain Pine Beetle Forecast**

The reference forecast used Version 9 (2011/2012) of the Provincial-Level Mountain Pine Beetle Model to predict the current and future pine mortality. This version of the model predicted that 41.7 million cubic metres of mature pine on the timber harvesting land base in the 100 Mile House Timber Supply Area would be killed by 2024, or 72% of the mature pine on the timber harvesting land base in 1999.

**Current Practices/Silviculture Investments**

• Timber harvesting has been directed to stands with at least 70% pine to optimize salvage opportunities while reducing risk to the mid-term timber supply.
• Since 2006, 5,273 hectares of forest have been fertilized.
• An additional 1,000 hectares are scheduled for fertilization in 2012.

**Economic Profile in the 100 Mile House Timber Supply Area**

• Based on the report *2006 Economic Dependency Tables for Forest Districts*, in the 100 Mile House District, the forest sector accounts for 26% of total basic employment – the second-highest sector and slightly less than the public sector.
• The forest vulnerability index\(^1\) for the 100 Mile House District in 2006 was 35, slightly below average, indicating that the economy of the 100 Mile House District 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.
• Other sectors proving employment in the 100 Mile House District are as follows: public sector 26%, mining and mineral production 2%, agriculture and food 8%, tourism 16%, construction 16%, and other 6%.

Workforce Considerations
• 1,488 person-years of direct, indirect and induced employment before the uplift in 2006 (and before the Community Forest Agreement area was taken out of the timber supply area).
• Increased to 1,757 person-years based on the average harvest from 2007 to 2011 – employment gains from higher harvest levels were partially offset by efficiency gains by industry.
• Expected to drop to 593 by 2022 without mitigation scenario (the community forests are expected to contribute about six additional direct person-years).
• About 31% of total forest sector jobs involved with harvesting and silviculture, 45% in timber processing and 24% indirect plus induced jobs generated by the forest sector.

Mills
• Mills using timber from 100 Mile House Timber Supply Area include: West Fraser Mills Ltd. 100 Mile Lumber and Chasm Sawmills, Ainsworth Lumber Co. Ltd. 100 Mile House OSB plant, Tolko Industries Ltd. Williams Lake Sawmill, West Fraser Williams Lake Plywood, and Interfor Adams Lake Lumber. A number of log home builders in the area also rely on timber from the timber supply area.

Opportunities for Diversification
• Investments in infrastructure and marketing to support and increase the retirement demographic and tourism industry in the area (e.g., recreational trail development, public transit system, hospital services, etc.)
• The mining sector in the area could be explored further to create potential employment.

Opportunities for Mitigation

The mountain pine beetle epidemic will result in a drastic decrease in timber supply in some areas, which is expected to have significant economic and social ramifications. Analyses were undertaken to

\(^1\) 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.
explore opportunities for potentially mitigating this projected decrease in short- and mid-term timber supply. The following three mitigation scenarios for the 100 Mile House Timber Supply Area were examined by Forest Analysis and Inventory Branch with input from the 100 Mile House resource district.

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.

Scenario 1
The primary mitigation scenario, Scenario 1, demonstrated the potential to increase the mid-term harvest levels by up to 220,000 cubic metres a year. This increase is projected to support 192 more direct, indirect and induced person-years of employment within the 100 Mile House Timber Supply Area. The mitigation measures assumed in this scenario are as follows:

- Eliminate cutblock adjacency requirements in the CCLUP Enhanced Resource Development Zone (ERDZ).
- Relax visual quality objectives by one class.
- Allow harvesting of pine-leading stands in old growth management areas within the ERDZ.
- Eliminate dispersed retention within cutblocks.
- Eliminate mature plus old seral objective within the ERDZ.
- Reduce ungulate winter range for deer by 10%.

Scenario 2
Scenario 2 was similar to Scenario 1 except that it allowed timber harvesting in all stands in the old growth management areas within the ERDZ. This scenario has potential of increasing the mid-term
harvest levels by up to 320,000 cubic metres a year, which is estimated to support about 279 more direct, indirect and induced person-years of employment within the timber supply area.

**Scenario 3**

Scenario 3 assessed the timber supply gains that could be achieved if most of the non-timber management objectives were eliminated in the timber supply forecast (i.e. to estimate the mid-term harvest level if constraints are not applied). The forecast indicated that removal of the constraints has the potential of increasing the mid-term harvest level by 470,000 cubic metres a year. This level of increase is estimated to support 410 more direct, indirect and induced person-years of employment within the timber supply area. The specific mitigation measures are as follows:

- Eliminate constraints for visual quality objectives.
- Eliminate constraints for stand-level biodiversity objectives for dispersed retention and wildlife tree retention areas.
- Eliminate constraints for cutblock adjacency.
- Eliminate constraints for ungulate winter range objectives.
- Eliminate constraints for mature plus old seral objectives.
- Timber harvesting allowed in old growth management areas.

![Graph showing harvest levels over years from 2012]

**Administrative Implications:**

- Amendments under the *Land Act* to the Cariboo-Chilcotin Land Use Plan and Land Use Order to repeal patch size distribution, to amend requirements for old growth management areas and seral stage targets, and amend objectives for mule deer winter range.
- *Government Actions Regulation* process would be needed to change visual quality objectives and possibly general wildlife measures for ungulate winter range.
• All of these changes would require public and First Nations consultation, and would take at least a year to complete once started.

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 impact 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.


**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

**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.


**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: 100 Mile House Timber Supply Area
www.for.gov.bc.ca/hts/tsa/tsa23/index.htm

Land-Based Investment Strategy (100 Mile House Timber Supply Area)
http://lbis.forestpracticesbranch.com/LBIS/node/53

100 Mile House District
www.for.gov.bc.ca/dmh/

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