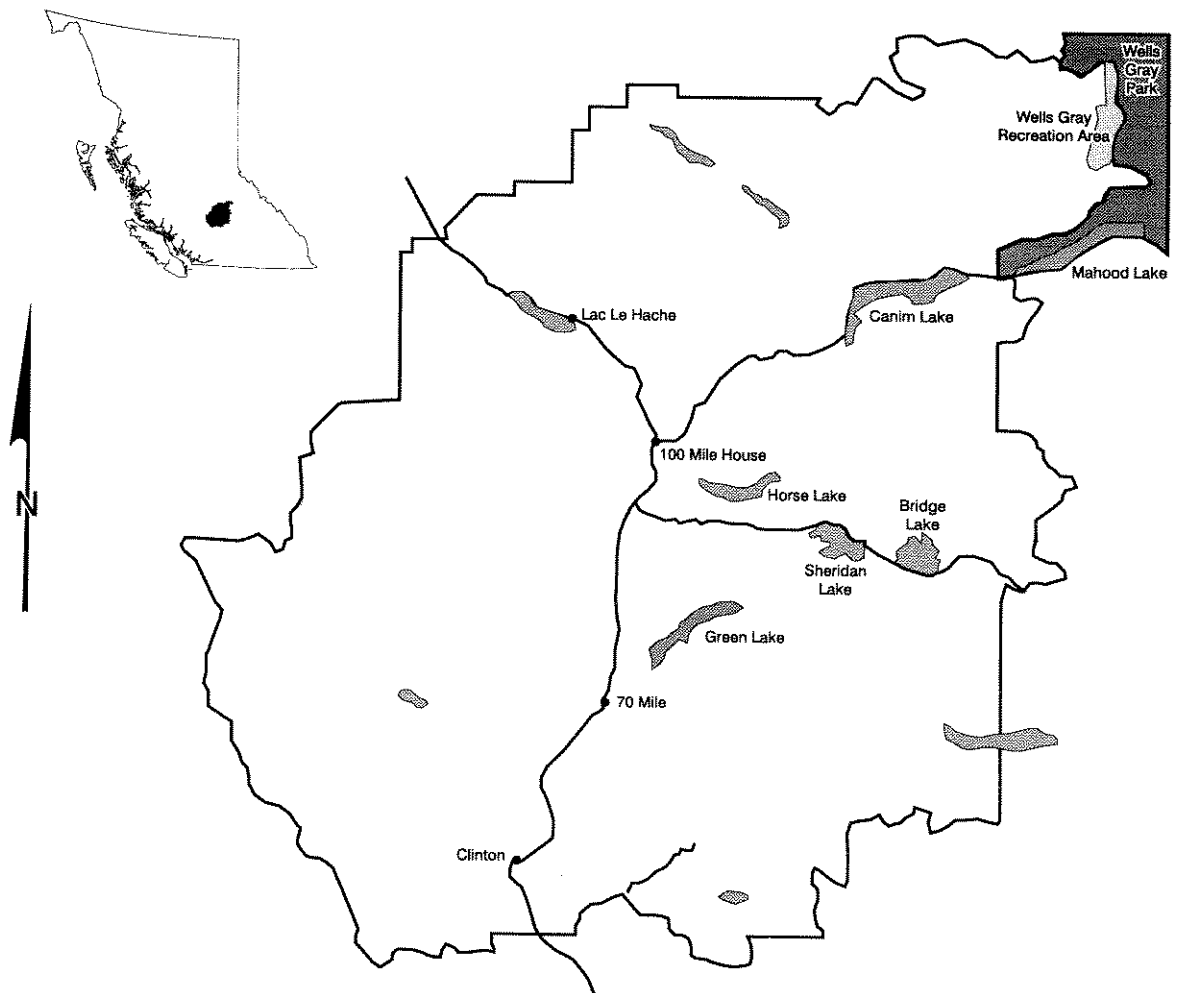




MINISTRY OF FORESTS

100 Mile House Timber Supply Area

Timber Supply Review Discussion Paper
March 1995



Province of
British Columbia
Ministry
of Forests

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100 Mile House Timber Supply Area

Timber Supply Review Highlights

The Timber Supply Review for the 100 Mile House Timber Supply Area began in September 1993. The Cariboo-Chilcotin Land Use Plan, announced in October, 1994, could not be taken into account in this review. It may be possible to assess the timber supply impacts of the Land Use Plan in the 100 Mile House Timber Supply Area before the maximum five-year period required by the *Forest Act*.

- The British Columbia Forest Service is reviewing the timber supply in all timber supply areas* and tree farm licence* areas in the province. This review examines the impacts of current forest management practices* on the timber supply*, economy, environment and social conditions of the local area and the province. Based on the results of this review, the chief forester may decide to maintain or adjust the allowable annual cut* for the 100 Mile House Timber Supply Area.
- The current allowable annual cut in the 100 Mile House Timber Supply Area, set in 1981, is 1.25 million cubic metres. This harvest level supports approximately 779 person-years* of direct forestry employment in the local area and a total of 2,474 person-years of employment provincially. (page 5)
- The base case timber supply forecast indicates that, based on forest management practices being implemented in 1993 when the analysis was initiated, the current allowable annual cut could be maintained for approximately 30 years, followed by a projected 2.8 per cent reduction to reach the long-term sustainable timber supply level. (page 8)
- Current integrated resource management practices which may impact the short-term timber supply more or less than estimated include:
 - restricted harvesting in critical caribou and grizzly bear habitats and deer winter ranges
 - practices being developed for the special management area
 - the amount of older forests that must be reserved from harvesting at any time (pages 8-9)
- Several factors may influence the estimated size of the timber harvesting land base, which in turn may affect the projected timber supply:
 - the area that will be reserved from harvesting to protect non-timber resource values
 - some of the forests that have not been economical to harvest for sawlogs are now suitable for other products
 - alternative practices could be developed to harvest environmentally sensitive areas (pages 9-10)
- Opportunities may exist to increase the timber supply by:
 - improving timber recovery from harvested areas
 - harvesting residual pine timber from areas harvested in the past
 - implementing a commercial thinning program
 - intensive silvicultural treatments (page 10)
- The chief forester must determine an allowable annual cut as part of a strategy to achieve the projected long-term sustainable timber supply level. The base case forecast provides one alternative, but the chief forester could select another harvest level based on his consideration of the factors required under Section 7 of the *Forest Act*.

Recently, an error was identified in the computer coding used to define the timber harvesting land base for the timber supply analysis that was released in the *Timber Supply Analysis Report*. This error resulted in a small reduction in the size of the timber harvesting land base which did not influence the short-term timber supply forecasts. The data and forecasts included in this *Discussion Paper* are from the revised analysis.

* Throughout this document, an asterisk at the end of a phrase indicates the phrase is defined in the definitions section on the back of this page.

100 Mile House Timber Supply Area

Definitions

Allowable annual cut

The rate of timber harvest permitted each year from a specified area of land, usually expressed as cubic metres of wood per year.

Base case forecast

The timber supply forecast that illustrates the effect of current forest management practices on the timber supply using the best available information.

Cariboo-Chilcotin Land Use Plan

A government decision on land use in the Cariboo-Chilcotin which was developed in consultation with stakeholders with consideration of the recommendations of the Commission on Resources and Environment (CORE).

Commission on Resources and Environment (CORE)

An independent commission established to develop regional land use recommendations in consultation with stakeholders.

Current forest management practices

Forest practices that were being approved and implemented in the area when this review was initiated. These practices are described in this paper beginning on page 6.

Environmentally sensitive areas

Areas identified as requiring special management to protect important recreation and scenic values, fisheries resources, sensitive soils and unstable slopes.

Forest Practices Code

A law which requires better forest practices, with heavy penalties for violators. Present plans call for implementation of the Code in the coming months.

Integrated resource management

The identification and consideration of all resource values, including social, economic and environmental needs, in resource planning and decision-making.

Land and Resource Management Plan

A consensus-building process involving a cross section of the public, interest groups and government agencies, to establish resource management objectives and strategies for a management unit.

Person-year

One person working the equivalent of one full year. If someone works full time for six months, he or she accounts for 0.5 person-years.

Problem forest types

Forests that are not included in the timber harvesting land base because they have not been economical to harvest for sawlogs in the past.

Protected Areas Strategy

A provincial initiative to protect representative ecosystems and special features on a regional basis.

Pulpwood Agreement

An agreement between a private interest and the provincial government which permits harvesting of specified forest types in special circumstances when it is necessary to supplement wood supplies.

Riparian areas

The stream bank and flood plain adjacent to streams or water bodies.

Selection management

A system used to maintain or create forests containing a wide range of tree ages or sizes.

Timber harvesting land base

Crown forest land within the timber supply area that is currently considered feasible and economical for long-term timber harvesting. Harvesting must meet integrated resource management objectives.

Timber supply

The volume of timber available for harvesting over time, under a particular management regime.

Timber supply area

An area of Crown land defined in accordance with the *Forest Act* primarily by an established pattern of wood flow from the forest to the primary timber-using industries.

Tree farm licence

An agreement entered into with the provincial government which provides for the establishment, management and harvesting of timber by a private interest on a defined area of Crown land in accordance with the *Forest Act*.

100 Mile House Timber Supply Area

Introduction

The British Columbia Forest Service is reviewing the timber supply* in all timber supply areas* and tree farm licence areas* in the province. The objectives of this three-year review are to:

- identify the economic, environmental and social consequences of existing forest management practices — including their impacts on the short- and long-term timber supply
- identify where improved information is required to make reliable forecasts
- provide the chief forester with information to make necessary adjustments to the allowable annual cuts* for the next five years

This discussion paper summarizes the technical reports for the 100 Mile House Timber Supply Area and encourages British Columbians to comment on the findings. Public comments will be accepted until June 1, 1995. You will find a response form at the end of this paper to help you provide input.

Background to the Timber Supply Review

For at least 20 years, governments have known that British Columbia's timber supply would decline in the future — we could not keep cutting at the rate we've been going. Now there is a need for up-to-date information to review the timber supply and allowable annual cuts throughout the province.

A study completed by the Forest Service in 1991, *A Review of the Timber Supply Analysis Process for British Columbia*, examined the procedures which led to the determination of allowable annual cuts, and confirmed the need for change.

The study found that:

- existing allowable annual cuts were based on outdated information and management practices
- procedures failed to fully account for integrated resource management practices and protection of non-timber values
- procedures were far too time-consuming
- analytical techniques had to be strengthened

As a result of these procedural weaknesses, very few timber supply analyses had been completed since the early 1980s, with few allowable annual cut adjustments.

The Forest Service acted quickly on the study's recommendations. The Timber Supply Review was initiated to assess short- and long-term timber supplies in light of current forest practices and integrated resource management goals.

The chief forester's responsibility

Determining the allowable annual cuts for Crown forest lands in British Columbia is the responsibility of the province's chief forester. It is one of the chief forester's most important responsibilities since it affects the local and provincial economy and environment — now and in the future. Section 7 of the *Forest Act* requires the chief forester to consider the following factors to determine allowable annual cuts for timber supply areas and tree farm licences:

- a) the rate of timber production that may be sustained from the area, taking into account:
 - the composition of the forest and its expected rate of growth
 - the time in which the forest will become re-established
 - silvicultural treatments, including reforestation
 - standards of timber utilization

Towards a sustainable future

British Columbians agree there is a need for sustainable resource management to ensure a strong forest economy, viable communities and a healthy environment—today and always. The Timber Supply Review is one of several government initiatives designed to help achieve sustainability:

- The *Forest Renewal Plan* is a partnership of all the forest interests, working together to invest in increasing the value of the forests and strengthening the forest sector economy.
- The *Forest Practices Code* creates a single enforceable law to require better forest practices, with heavy penalties for violators.
- The *Timber Supply Review* is providing up-to-date information to adjust allowable annual cuts to ensure the sustainability of British Columbia's forests.
- The *Commission on Resources and Environment*, the *Protected Areas Strategy*, and *Land and Resource Management Plans* are moving to integrate all values into land-use planning in an effort to end confrontation and valley-by-valley battles.
- The *B.C. Treaty Commission* is moving us toward fair and equitable settlements of treaties which can create long-term social and economic stability for aboriginal and non-aboriginal British Columbians.

100 Mile House Timber Supply Area

- constraints on the amount of timber produced from the area due to use of the forest for purposes other than timber production
 - any other information that relates to the capability of the area to produce timber
- b) the short- and long-term implications to the province of alternative rates of timber harvesting from the area
 - c) the nature, production capabilities, and timber requirements of established and proposed processing facilities
 - d) the economic and social objectives of the Crown for the area, the region and the province, as expressed by the minister of forests
 - e) abnormal insect or disease infestations and major salvage programs planned for the timber on the area

Some of these factors can be measured and analyzed—others cannot. Ultimately, the chief forester’s determination is an independent, professional judgement based on the best information that is available. By law, the chief forester is independent of the political process and is not directed by the minister of forests when determining allowable annual cuts. In these determinations, the chief forester considers relevant information from any source, including interest groups. However, these determinations cannot be inappropriately influenced by the advocacy efforts of any group.

Timber Supply Review process

The Timber Supply Review is an improvement over past methods, with better information and superior analytical techniques. The process was designed to

stimulate public discussion through the release of reports and this discussion paper, and to accommodate new information, techniques and ideas. Figure 1 illustrates the five-step process that has been developed for the Timber Supply Review in timber supply areas. The diagram also indicates the estimated time required to complete each step in the process and the status of the Timber Supply Review for the 100 Mile House Timber Supply Area.

As the legal mandate for allowable annual cut determinations for tree farm licence areas is the same as for timber supply areas, the Timber Supply Review process for tree farm licences is based on similar principles, but it has been designed to reflect the management role of these licensees. In the past, tree farm licences have not included specified timelines for licensees to prepare the information needed by the chief forester to determine allowable annual cuts for these areas. To reflect changing forest management standards, replacement tree farm licences specify timelines for preparing information.

A commitment to incorporate change

The *Forest Act* requires the chief forester to reassess the allowable annual cut for each timber supply area and tree farm licence area at least every five years after this review is completed to incorporate new information, new practices and government policies. Where major government initiatives prompt changes in land use designations or forest management practices which significantly impact the timber supply, the chief forester may decide to determine allowable annual cuts more frequently than every five years.

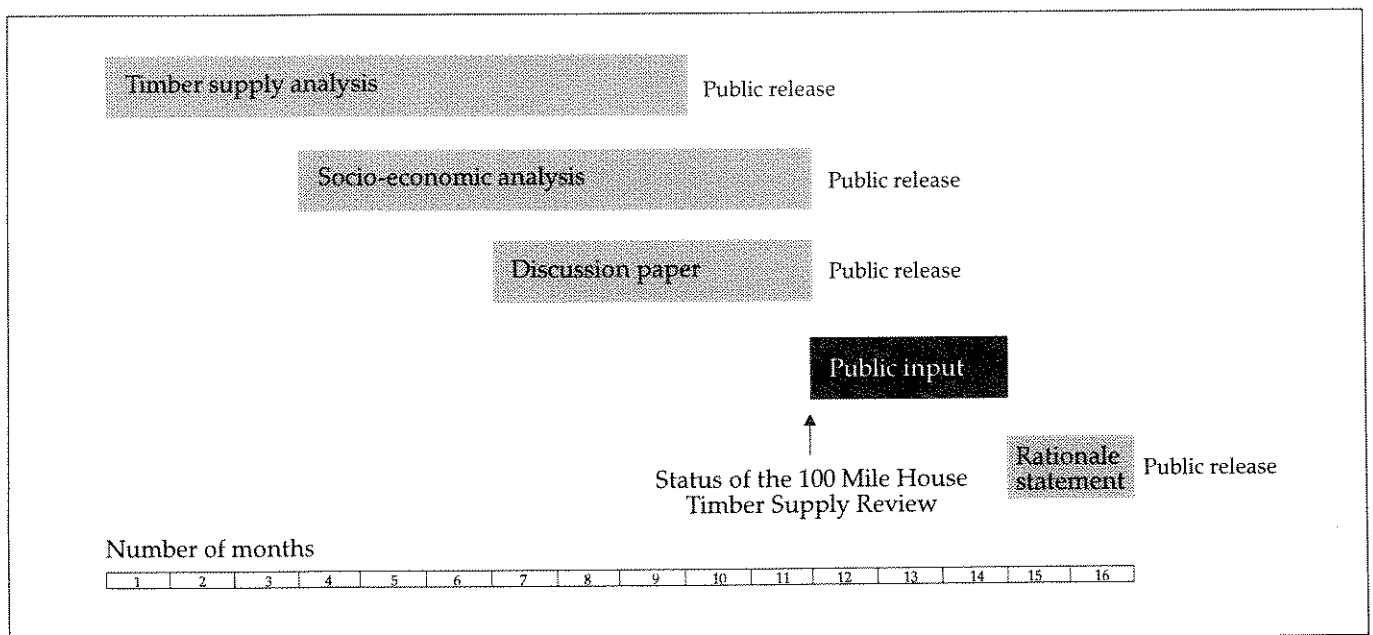


Figure 1 Steps in the Timber Supply Review process

100 Mile House Timber Supply Area

Forest Practices Code

A *Forest Practices Code Act* for British Columbia was passed in the Legislature in July, 1994. This law requires better forest practices throughout the province and establishes heavy penalties for violators. When the Code is fully implemented, forest management practices will be changed to meet its requirements. These new practices may influence both short- and long-term timber supply.

Since the information was prepared for the Timber Supply Review, some practices have been implemented in the 100 Mile House Timber Supply Area based on current understanding of the intentions of the Code. Information about these practices will be provided to the chief forester for consideration in this allowable annual cut determination. However, further implementation and experience with the Code will be required before the timber supply effects of new practices can be properly assessed, making it necessary to incorporate these factors in future allowable annual cut determinations.

Cariboo-Chilcotin Land Use Plan

On October 24, 1994, the government of British Columbia announced a Land Use Plan for the Cariboo-Chilcotin region. This Land Use Plan doubled the Protected Areas where commercial timber harvesting will not be permitted to 12 per cent of the Cariboo-Chilcotin.

Eighty per cent of the region was dedicated to the commercial resource land base within the following zones:

- Enhanced Resource Development Zone (40 per cent)
- Special Resource Development Zone (26 per cent)
- Integrated Resource Management Zone (14 per cent)

The remaining eight per cent of the regional land base is Private/Settlement lands.

The Land Use Plan included broad management objectives for each zone and specific targets for some resources. For example, a timber management target was defined for the Special Resource Development Zone: "the forest industry will have access to 70 per cent of the timber from the productive forest land base averaged over the zone." An implementation process will establish detailed objectives and the remaining targets for each resource in each zone in early 1995.

Until this plan is fully implemented and practices are adjusted in the field, the timber supply impact of the Land Use Plan cannot be measured. This Timber

Supply Review will be used as the foundation, for determining the impacts of the Plan once it is implemented. The next Timber Supply Review will be based on actual experience with the Land Use Plan gained during the implementation period.

There are similarities between the information used in this Timber Supply Review and the Land Use Plan:

- there is some overlap between the new Protected Areas and the areas where harvesting has not been occurring under current practices and that were deducted from the land base for the timber supply analysis
- there is considerable overlap between the objectives for the Special Resource Development Zone and the practices analyzed for the Special Management Zone in the timber supply analysis

A new initiative promoted by the Land Use Plan is the establishment of targets for timber resource enhancement. This was not considered in the timber supply analysis.

For this Timber Supply Review, the Land Use Plan provides the chief forester with an expression of government's commitment to achieve the Crown's social and economic objectives for the region and the 100 Mile House Timber Supply Area.

Implementation of the Land Use Plan has already started. If it becomes apparent that the plan has modified the timber supply to such an extent that the allowable annual cut is no longer consistent with the plan, the chief forester is prepared to reassess the timber supply and to redetermine the allowable annual cut based on Section 7 of the *Forest Act*. The chief forester is also prepared to investigate the possibility of implementing other more expedient procedures under the *Forest Act* to adjust the allowable annual cut if necessary.

It may be possible to assess the timber supply impacts of the Land Use Plan in the 100 Mile House Timber Supply Area before the maximum five-year period required by the *Forest Act*.

Timber Supply Review in the 100 Mile House Timber Supply Area

Forest Service staff finalized the data used for the timber supply analysis for the 100 Mile House Timber Supply Area in March 1994. This data is available for public review at the 100 Mile House Forest District Office.

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The Forest Service then conducted and released a short- and long-term timber supply analysis (*100 Mile House Timber Supply Analysis*, October, 1994).

Recently, an error was identified in the computer coding used to define the timber harvesting land base for the timber supply analysis that was released in the *Timber Supply Analysis Report*. This error resulted in a small reduction in the size of the timber harvesting land base which did not influence the short-term timber supply forecasts. Information on these changes can be obtained from the 100 Mile House Forest District office, the Cariboo Forest Region office in Williams Lake or the Timber Supply Branch in Victoria. The data and forecasts included in this *Discussion Paper* are from the revised analysis.

A socio-economic analysis of the timber supply forecasts has now been completed (*100 Mile House Timber Supply Area: Socio-Economic Analysis*, March, 1995). The *Timber Supply Analysis Report* and the *Socio-Economic Analysis* are available from the 100 Mile House Forest District office and the Cariboo Forest Region office in Williams Lake.

As the Cariboo-Chilcotin Land Use Plan and the Forest Practices Code did not exist when preparation for the timber supply analysis for the 100 Mile House Timber Supply Area began in 1993, the *Timber Supply Analysis Report* and the *Socio-Economic Analysis* do NOT include the land use decisions and changes in forest practices resulting from these initiatives.

This discussion paper summarizes the two technical reports and highlights critical factors the chief forester must consider to determine the allowable annual cut for the 100 Mile House Timber Supply Area. In conjunction with the release of this discussion paper, Forest Service staff will actively solicit public input to ensure the information in the Timber Supply Review is correct. Input will be accepted until June 1, 1995, and will be summarized in a report to the chief forester and the minister of forests.

After considering all the available information, the chief forester will determine the allowable annual cut for the 100 Mile House Timber Supply Area in the summer of 1995. This determination and a *Rationale Statement* for the determination will be released along with the *Summary of Public Input*.

Throughout this discussion paper, the page numbers from the technical reports are provided so that you can refer to them for additional information (TSAR is the *100 Mile House Timber Supply Analysis Report*, and SEA is the *100 Mile House Timber Supply Area: Socio-Economic Analysis*).

Description of the 100 Mile House Timber Supply Area

The 100 Mile House Timber Supply Area is located in the south-central portion of the province, between the Fraser River and the Cariboo Mountains. The topography is characterized by gently rolling hills throughout most of the area, with higher mountains in the Marble Range to the west and the Quesnel Highlands to the east.

Forest resources

The forests of the area are diverse, reflecting the variety of topography and climate. The west side of the area, along the Fraser River, has a hot dry climate resulting in grasslands and interior Douglas-fir ecosystems. Conversely, the Cariboo Mountains on the east side of the area have a wetter climate, steeper slopes, and forests that consist of interior spruce, balsam fir, cedar, hemlock, sub-alpine fir, lodgepole pine and Douglas-fir. The central portion of the area is a relatively high elevation, dry, flat interior plateau with lodgepole pine, Douglas-fir and interior spruce forests. (TSAR page 3)

Timber

Figure 2 illustrates that 59 per cent (718,429 hectares) of the total land base in the 100 Mile House Timber Supply Area is suitable and available for timber harvesting with current land management objectives and harvesting methods. (TSAR page 8)

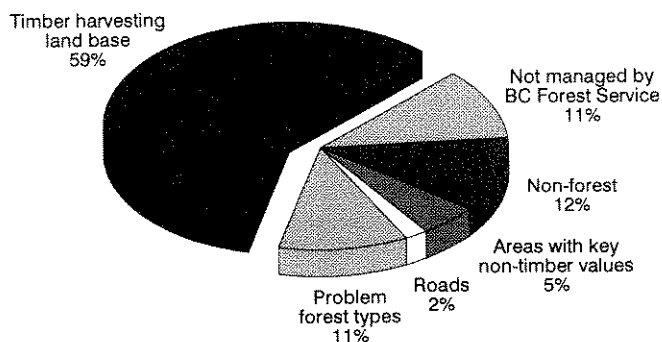


Figure 2 Classification of the land within the 100 Mile House Timber Supply Area

100 Mile House Timber Supply Area

Notes: Total area: 1,220,426 hectares
Areas with key non-timber values that were deducted from the database for the timber supply analysis include critical caribou and grizzly bear habitat, environmentally sensitive areas and mule deer winter range.

Problem forest types are forests that currently are not economical to harvested for sawlogs because of poor timber quality or low timber volume.

Figure 3 illustrates the dominant tree species within the timber harvesting land base of the 100 Mile House Timber Supply Area (TSAR page 9). Approximately 58 per cent of these forests are considered mature and available for harvesting. Many of the pine forests are mature and are becoming susceptible to the mountain pine beetle which has the ability to kill large areas of forest rapidly.

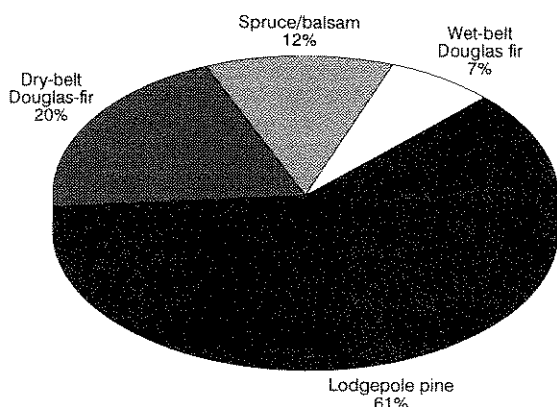


Figure 3 Area of dominant tree species in the timber harvesting land base

Wildlife and fisheries

The 100 Mile House Timber Supply Area contains an abundance of wildlife including caribou, mule deer, California big horn sheep, grizzly and black bear, other fur-bearing mammals and birds. The wide range of wildlife in the area provides the basis for wildlife viewing, guided hunting and fishing, trapping and other economic activities.

The large number of lakes, rivers and streams in the area provide important habitat for a variety of fish species. A number of plant and animal species that require special consideration due to their rarity or restricted range are found in the forests of the 100 Mile House Timber Supply Area. (SEA page 33)

Recreation

The forests in the area promote a wide range of resource uses. The vast, rolling, scenic landscape and

many lakes provide a variety of tourism and recreational opportunities. Numerous outdoor activities such as sport fishing, wilderness tourism, cross-country skiing and snowmobiling capitalize on the beauty of the area and its fish and wildlife (SEA page 20).

Ranching

The grasslands and open forests in the area also provide forage for the beef cattle ranching industry. These operations are highly dependant on public rangelands which provide at least 60 per cent of their forage requirements.

Current allowable annual cut

The total allowable annual cut in the 100 Mile House Timber Supply Area was set in 1981 at 1.25 million cubic metres. Approximately 81 per cent of the allowable annual cut is allocated to long-term timber tenures, 16.5 per cent is harvested through the Small Business Forest Enterprise Program administered by the Forest Service, 1.5 per cent is allocated to woodlot licences and one per cent is unallocated. (SEA page 45)

Because the allowable annual cuts for woodlots are determined separately, the land base for woodlots was not included in the timber harvesting land base for this review. Consequently, the 13,000 cubic metres of allowable annual cut for woodlots was deducted from the cut, creating an allowable annual cut of 1.237 million cubic metres for this review.

In addition to the timber harvesting rights allocated under the allowable annual cut, two pulpwood agreements* also cover portions of the 100 Mile House Timber Supply Area. These pulpwood agreements permit timber harvesting in special circumstances when it is necessary to supplement wood supply. To date, no harvesting has occurred under these agreements, however, harvesting rights were recently issued under one of the agreements. Because there had not been any harvesting under these agreements when the timber supply analysis was initiated, pulpwood harvesting was not considered a current practice and was not included in the timber supply analysis.

Socio-economic profile

In 1991, the total population within the 100 Mile House Timber Supply Area was 13,145, with the largest community, 100 Mile House, having a population of approximately 1,900. Clinton is the other main population centre in the timber supply area.

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First Nations

Members of the Canoe Creek, Canim Lake and High Bar bands live primarily in the 100 Mile House Timber Supply Area and have territorial claims in the area along with eight other bands. Of the approximately 600 First Nations people in the area, it is estimated that 10 per cent of the adult population available for work are employed in the forest industry. (SEA page 8)

Local economy

The largest employment sectors in the area are the forestry sector and supply and services sectors, with additional employment in the public sector, tourism and recreation, ranching, agricultural, trapping and mining sectors (Figure 4). (SEA page 14)



Figure 4 Sources of employment in the 100 Mile House Timber Supply Area

Employment in the service sector is created through the spending of wages and salaries earned in the other sectors. Thus, the employment in the services sector can be divided among the other sectors based on the portion of the direct employment each sector creates. Adding the portion of service sector employment dependent on forestry wages and salaries to direct forest sector employment reveals that forestry activity in the 100 Mile House Timber Supply Area supports approximately 30 per cent of the area's total employment.

Timber industry

Two of the three main forest companies operating in the 100 Mile House Timber Supply Area have a sawmill in 100 Mile House. One also has a sawmill in Chasm and a newly constructed oriented strand board plant in 100 Mile House. All three companies also have mills outside the timber supply area.

Harvesting and processing the current allowable annual cut in the 100 Mile House Timber Supply Area generates an estimated 779 person-years of direct forestry employment and 342 person-years of spin-off employment within the area for a total local employment estimate of 1,122 person-years. (SEA page 50)

Provincial economy and revenues

It is estimated that harvesting and processing the current allowable annual cut from the 100 Mile House Timber Supply Area creates a total of 2,474 person-years of employment in the province. Approximately 45 per cent of this employment is created in the timber supply area.

In addition, approximately \$32.5 million in provincial government revenues are generated annually by harvesting and processing timber from the 100 Mile House Timber Supply Area. This figure is based on the average total fees for harvesting public timber in the area (\$14.64 per cubic metre based on 1993 information), plus estimated personal income taxes and other tax revenues. These estimates do not include the increased stumpage revenues being generated to fund the Forest Renewal Plan. While on a provincial basis stumpage revenues are expected to increase by as much as 80 per cent, it will not be possible to accurately estimate the impact of this change until the new policy has been in place for a period of time.

Current management practices

Public forest lands in British Columbia provide recreational enjoyment, fish and wildlife habitat, water supplies, timber resources and many other benefits. The Forest Service manages the forest, range and recreation resources on public lands. The Ministry of Environment, Lands and Parks is responsible for the management of fish, wildlife and water resources and parks. Both agencies subscribe to the principle of integrated resource management, where all resources are considered before management decisions are made.

The timber supply analysis was based on the best available information about current management practices — the practices being approved and implemented in the 100 Mile House Timber Supply Area in 1993, when the timber supply analysis was initiated. These practices are briefly described below. Readers are encouraged to review the *100 Mile House Timber Supply Analysis Report* (Pages 11-15 and Appendix A) for more detailed information.

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Management zones and integrated resource management practices

For the timber supply analysis, Forest Service staff grouped areas where similar integrated resource management practices are implemented into management zones. This approach permits analysis of the different types of forests and the range of practices in the 100 Mile House Timber Supply Area. The area in each zone was estimated from existing plans and guidelines for integrated resource management in the timber supply area. The site specific practices implemented in any one area may differ from the practices used in the analysis.

Figure 5 illustrates the area within each of the zones. The information used in the analysis to describe the integrated resource management practices in each zone is described below.

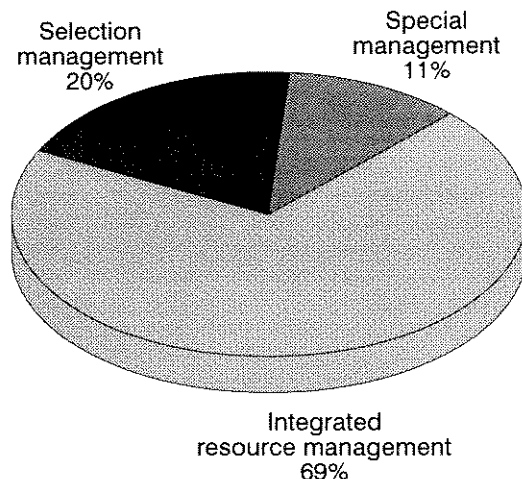


Figure 5 Area within each management zone

- **Selection management* zone** (142,381 hectares) — dry-belt Douglas-fir forests managed using selection management which creates forests with a wide range of ages and sizes. A portion of the timber volume is removed in the first harvest. Future harvests occur approximately every 30 years, when a volume equal to the timber growth during that period is harvested.
- **Special management zone** (78,392 hectares) — areas where important non-timber forest resources such as scenic views, back-country recreational opportunities, wildlife habitat, and drinking water quality (e.g., Clinton Creek community watershed) require special timber management practices. To maintain the important features in this zone, for the analysis, no more than 15 per cent of the forest is permitted to be less than three metres tall at any time. To maintain older

forests, 15 per cent of the forest must be greater than 150 years old at all times.

- **Integrated resource management zone** (497,658 hectares) — the remaining timber harvesting land base not assigned to another zone. The objective of this zone is to integrate all resource values. For the timber supply analysis, this zone is scheduled to be harvested in at least three entries so at any given time, a maximum of 30 per cent of the zone is permitted to be under three metres tall. In order to maintain older forests within the zone, 15 per cent of the forest must be more than 150 years old at all times.

Current practices

The current forest management practices that are approved and implemented in all zones based on the 100 Mile House Timber Supply Area Management Strategy are briefly described below.

- **Basic silviculture** — British Columbia laws require that harvested areas which are expected to produce timber in the future must be reforested with ecologically acceptable species within a specified time frame. The most common silvicultural practice is to clearcut harvest, allow for natural regeneration and/or plant, then brush to remove competing vegetation if needed. It is assumed that areas that are clearcut will be restocked within four to seven years, depending on the regeneration method.

About 20 per cent of the timber harvesting land base is covered by dry-belt Douglas-fir forests. They are ecologically suited to harvesting by selection management which aids regeneration by providing shading.

- **Harvest ages** — Minimum harvest ages are set to define the time it takes for forests to grow to harvestable size. The minimum harvest ages used in the timber supply analysis vary by tree species: 80 years was used for lodgepole pine and 120 years for other species.
- **Timber utilization** — Within areas that are clearcut, all coniferous trees greater than the following dimensions that can be manufactured into lumber are considered merchantable and must be removed:
 - 10 centimetre top diameter
 - 15 centimetre stump diameter for lodgepole pine
 - 20 centimetre stump diameter for other species
- **Soil conservation** — Harvesting and road construction follow regional and provincial guidelines. For the timber supply analysis, it is

100 Mile House Timber Supply Area

estimated that approximately 2.5 per cent of the timber harvesting land base is unproductive due to roads and landings. This estimate is based on studies of local conditions.

- **Forest health and unsalvaged losses** — Losses of timber to fire, wind damage, insects and disease are minimized as much as possible. Annual losses to fire and wind damage are estimated to be 34,000 cubic metres. This timber is currently not being salvaged.
- **Stream protection** — Special practices are required in buffers along streams and around lakes where timber harvesting is restricted to protect fish habitat and achieve water management goals.
- **Green-up** — To provide wildlife cover and promote watershed stability, the forest cover in a harvested area must be at least three metres tall (estimated to be 16 years old) before the adjacent timber can be harvested.

Timber supply forecasts and critical factors

It is important to note that the timber supply forecasts presented in the analysis report and in this paper do not represent either a short-term allowable annual cut determination or a long-term strategy to adjust harvest levels. The base case forecast and the critical factors described below are part of the information the chief forester will use to determine the allowable annual cut for up to the next five years.

Base case forecast

To complete the timber supply analysis for the 100 Mile House Timber Supply Area, a computer model was used to produce a base case* timber supply forecast that met all of the following conditions:

- the current allowable annual cut was maintained for as long as possible, or if this was not possible, the highest initial harvest level was identified, then
- if significant reductions were required, the forecasted harvest level was reduced by eight to 12 per cent per decade until the long-term timber supply level was reached, and
- the timber supply level was maintained at or above the predicted long-term level

The base case forecast for the 100 Mile House Timber Supply Area indicates the present allowable annual cut of 1.237 million cubic metres per year could be maintained for approximately 30 years. A 2.8 per cent reduction is then predicted to reach the long-

term timber supply level of 1.202 million cubic metres per year. (Figure 6)

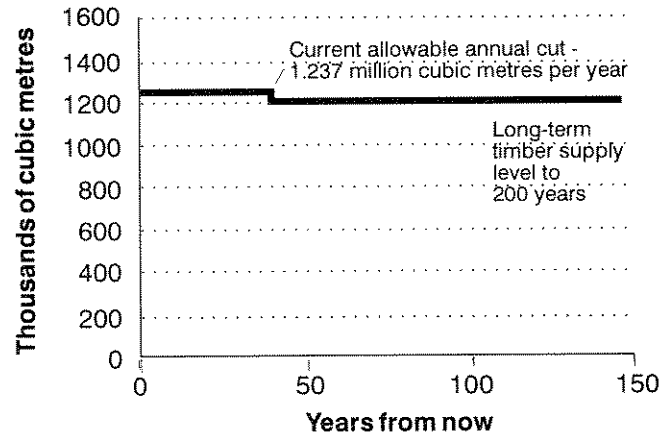


Figure 6 Base case timber supply forecast

Examining critical factors

Since 1993 when the data was prepared for the timber supply analysis, Forest Service staff have been collecting more information for some of the factors in the analysis. Also, tests completed during the timber supply analysis identified which factors had the greatest effect on the timber supply forecasts. These critical factors are discussed in this section.

The chief forester must carefully evaluate this information when assessing the allowable annual cut and identifying where improved information is needed. We encourage you to do the same.

Current management practices

- **Critical caribou and grizzly bear habitat**
A primary emphasis of management practices in critical caribou and grizzly bear habitat areas in this timber supply area is to maintain stable wildlife populations. The existing agreement between the Forest Service and the Ministry of Environment, Lands and Parks regarding the critical habitat areas in the Quesnel Highlands and Boss/Deception Mountain area is to defer harvesting and to study methods of integrating timber harvesting and habitat requirements until the end of 2008. During this period, it has been agreed that timber harvesting would only be permitted for study purposes or under special circumstances. For the timber supply analysis, 11,111 hectares were deducted from the timber harvesting land base for critical caribou and grizzly bear habitat areas.

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Target management objectives for this area are currently being considered in the Land Use Plan implementation process.

- **Critical mule deer winter range**

The Forest Service and the Ministry of Environment, Lands and Parks are jointly developing management plans for critical mule deer winter range areas which occupy 96,704 hectares of dry-belt Douglas-fir forests within the timber harvesting land base. Timber harvesting has been restricted in these areas while these plans are being prepared. For the timber supply analysis, 27,500 hectares were deducted from the timber harvesting land base and special practices were required for the remaining area.

Target management objectives for these areas are currently being considered in the Land Use Plan implementation process.

- **Practices in the special management zone**

The special management zone in the 100 Mile House Timber Supply area includes areas with key resource values such as scenic views, back-country recreational opportunities and domestic watersheds where special management practices are required. The management practices defined for the timber supply analysis are the best estimates of the practices expected to be implemented in these areas. It is possible these estimates do not accurately reflect the practices that will eventually be implemented. This may result in an increase or decrease in the timber supply.

Target management objectives for this area are currently being considered in the Land Use Plan implementation process.

- **Maintaining older forests**

In the timber supply analysis, 15 per cent of the special management zone and the integrated resource management zone was required to be maintained as older forests greater than 150 years old, as specified by the *100 Mile House Timber Supply Area Management Strategy Report*.

The Ministry of Environment, Lands and Parks also stresses the need to identify and establish networks of ecosystems and habitat types, including areas of older forests, with linkages between watersheds throughout the timber supply area. The areas where timber harvesting is restricted within the timber harvesting land base for stream buffers, environmentally sensitive areas, forests not feasible or economical to harvest, and

areas required to meet the conditions for older forests may be adequate to create these networks. Selection management in Douglas-fir forests also maintains the characteristics of older forests and is expected to contribute to these networks. However, if additional area is required, this will reduce the area of mature timber in the timber harvesting land base.

Figure 7 illustrates the impacts of changing the area of older forests that is reserved from harvesting.

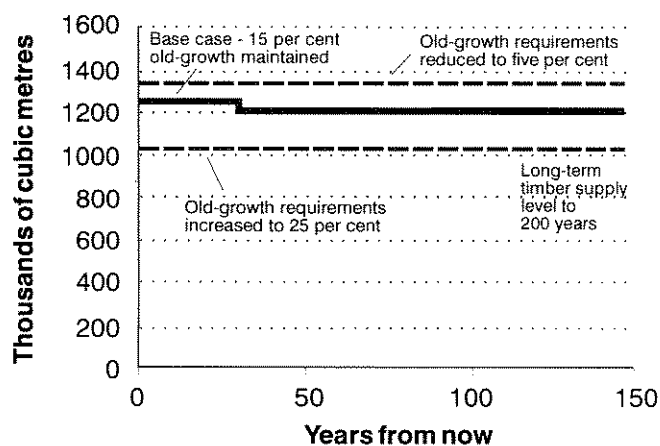


Figure 7 Impact of changing the requirements to maintain older forests

Target management objectives to maintain older forests are currently being considered in the Land Use Plan implementation process.

Size of the timber harvesting land base

The timber harvesting land base includes areas where it is environmentally and economically feasible to harvest and reforest with current practices and harvesting methods. With alternative harvesting practices and a possible increase in timber values as wood supplies become limited, more of the timber may be economical and environmentally feasible to harvest in the future than is currently estimated. This may lead to an increase in the timber harvesting land base and possibly an increase in the short- and long-term timber supply. On the other hand, changes in management practices for non-timber resource values may prompt a reduction in the size of the timber harvesting land base.

Figure 8 illustrates the impacts of changes in the size of the timber harvesting land base.

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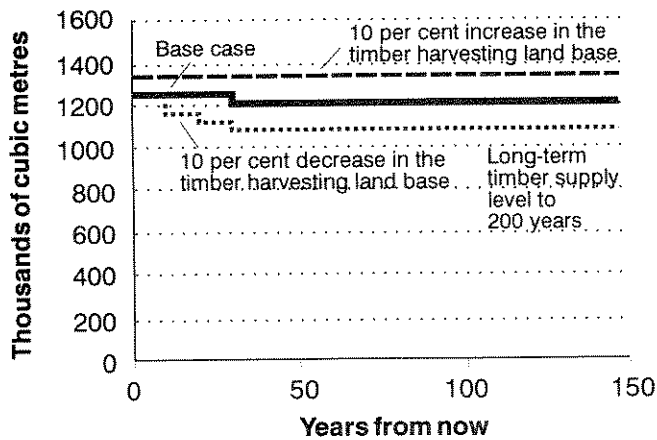


Figure 8 Impacts of changes in the size of the timber harvesting land base

In addition to the area reserved to protect non-timber resource values, two factors have the greatest potential to influence the size of the timber harvesting land base in the 100 Mile House Timber Supply Area:

- **problem forest types***

Approximately 137,000 hectares of problem forest types have been identified in the 100 Mile House Timber Supply Area. These forests have poor quality timber or low timber volume and cannot be economically harvested as sawlogs (i.e., very dense pine forests, deciduous forests and sites with low timber growing potential). Because these forests have not been harvested in the past, they were not included in the timber harvesting land base for the timber supply analysis.

Recent changes in timber harvesting and milling technology now provide an opportunity to utilize problem forest types for oriented fibreboard products. A pulpwood agreement currently authorizes harvesting a maximum of 112,000 cubic metres per year of problem forest types in the 100 Mile House Timber Supply Area.

If these problem forest types were harvested, they would be reforested and a portion would be managed to produce sawlogs in the future. This would increase the size of the timber harvesting land base, and the projected long-term timber supply.

Harvesting problem forest types under the pulpwood agreement may affect the availability of mature timber for sawlog harvesting by creating cutover areas that must be reforested and reach three metres in height before adjacent sawlog forests can be harvested. This is particularly a concern in the special management zone. Concerns have also been raised that harvesting problem forest types may have a negative impact on wildlife habitat.

- **environmentally sensitive areas**

Approximately 22,000 hectares of environmentally sensitive areas were deducted from the timber harvesting land base for the timber supply analysis. It is possible that alternative harvesting practices could be developed to harvest some of these forests without compromising the environmental values in these areas.

Possible opportunities to increase the timber supply

- **Improved timber recovery from harvested areas**
Currently, all lodgepole pine timber larger than approximately 15 centimetres in diameter at the stump must be removed from harvested areas. For other species, the minimum diameter is about 20 centimetres. If all species were utilized to a 15 centimetre diameter, the available timber supply would increase, without increasing the area that is harvested.

Further study is needed to estimate the additional timber volume that could be realized through this practice, assess whether the resulting timber products would justify the increased harvesting cost, and evaluate the biological effects of removing this additional amount of organic material from these areas.

- **Harvesting residual pine timber**

In some of the forests within the 100 Mile House Timber Supply Area, only the Douglas-fir timber was harvested in the past, leaving some pine trees. The pine trees could now be harvested without damaging new regeneration. This would provide additional timber volume that was not included in the timber supply analysis.

- **Intensive silvicultural treatments**

In some circumstances, intensive silvicultural treatments (e.g., juvenile spacing, fertilization) that increase tree growth and the long-term timber supply can also increase the short-term timber supply.

The Timber Supply Review was designed to assess the timber supply impacts of current practices, thus the range of intensive silvicultural treatments that might be implemented in the 100 Mile House Timber Supply Area were not examined. Further analyses are required to examine the potential opportunities for intensive silvicultural treatments, and the implications.

- **Commercial thinning**

Although commercial thinning is not currently practiced in the 100 Mile House Timber Supply Area, approximately 16 per cent of the forests within the timber supply area are between 30 and

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80 years and may be candidates for this treatment. This practice may provide additional timber volume in the short-term. Operational trials of commercial thinning and other similar options are currently being considered to evaluate this opportunity. It is also expected that the Forest Renewal Plan will encourage these types of initiatives.

Widespread commercial thinning may affect the long-term timber supply because the timber harvested in the short-term may reduce the amount of timber that is available to harvest from the same sites in the future. The quality and value of the remaining timber, however, should be improved through commercial thinning. Further trials and assessments are required before this practice is widely implemented in the 100 Mile House Timber Supply Area.

Environmental and socio-economic impacts

Environmental concerns

The timber supply forecasts propose harvesting levels that may have impacts on fish, wildlife and biodiversity. The forecasted harvest levels will create younger forests on much of the accessible area. This will have negative consequences for some wildlife species that depend on older forests, as well as for biodiversity conservation. Depending on the location and rate of timber harvesting, fragmentation of wildlife habitats can also be high, making it difficult for some species to follow natural movement patterns. Potential loss of critical habitats for wildlife species that are dependant on older forests, such as mule deer, caribou and grizzly bear, is also a concern. There may be positive impacts for some species, such as moose, whose habitat includes younger forests. (SEA page 66)

If it is not properly managed increased road access may have negative impacts on wildlife and fisheries species through increased hunting and fishing pressure, and on sensitive habitats, such as riparian zones.

First Nations impacts

First Nation people are concerned about the effect of harvest levels on the cultural, medicinal and food values they derive from forests. A reduction in the harvest level is considered by some to be more consistent with these values. Any decision that would help preserve existing forest resources until treaty negotiations are completed is preferred by First Nations.

The economic opportunities associated with timber harvesting are recognized by First Nations people. Maintaining current harvest levels, along with greater access to timber harvesting rights, would be consistent with the economic development objectives of some First Nations. Reductions in timber supply may affect the opportunities for First Nations to secure timber harvesting rights because competition for these rights will increase. On the other hand, reduced timber harvesting could help protect employment options in other economic activities such as hunting, fishing, trapping, trail guiding and related tourist activities. (SEA page 59)

Any job losses associated with harvest reductions would be significant for First Nations. Employment opportunities for First Nations people in silviculture and environmental restoration are expected to be created through the Forest Renewal Plan.

Community impacts

The impact of timber supply adjustments on local communities is an important consideration in the timber supply review. Communities in the 100 Mile House Timber Supply Area recognize the importance of the timber industry in their economy, and have expressed their concern about possible changes in timber supply resulting from this review and other government initiatives, such as the Forest Practices Code and the Land Use Plan.

Chief forester's determination

The chief forester must determine an allowable annual cut as part of a strategy to achieve the projected long-term sustainable timber supply level. The base case forecast provides one alternative, but the chief forester could select another harvest level based on his consideration of the factors required under Section 7 of the *Forest Act*.

Your input is needed

The allowable annual cut is an important determination requiring well-informed and thoughtful public input. We ask you to answer the questions on the response form at the back of this paper. We encourage you to add any additional comments you feel are relevant. If you prefer, additional comments or a detailed submission may be written on separate pages.

Feedback is welcomed on any aspect of this *Discussion Paper*, the *Timber Supply Analysis Report* and the *Socio-Economic Analysis Report* and other topics related to the timber supply in the 100 Mile House Timber Supply Area. Forest Service staff would be

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pleased to discuss questions or concerns that would help you prepare your response.

Please mail the completed questions and your comments to the forest district manager at the address below. Your comments will be accepted until June 1, 1995.

You may identify yourself on your response if you wish. If you do, you are reminded that responses will be subject to the *Freedom of Information and Protection of Privacy Act* and may be made public. If the responses are requested, personal identifiers will be removed before the responses are released.

A summary of public comments will be available from the district manager when the chief forester's allowable annual cut determination is announced.

For more information contact:

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