High Conservation Value Forest Assessment

Burns Lake Community Forest

Base Case

Community Forest Agreement K1A

March 29, 2017

This report was compiled for the Burns Lake Community Forest by Homewood Silviculture and Keystone Wildlife Research. Information included is the best possible information available at the time of the report. The First Nations information is limited; however, Burns Lake Community Forest is actively working with First Nations' Communities to improve awareness, information sharing, management, and protection of important areas for First Nations.

Introduction

The Burns Lake Community Forest is in the process of making an application for Forest Management Certification of its Community Forest Agreement (K1A) under the Forest Stewardship Council (FSC®). One component of FSC® certification is completion of an assessment to …"determine whether some or all of the forest area under their management is a High Conservation Value Forests" (FSC 2005).

Overview of the Community Forest Agreement (K1A)

The Burns Lake Community Forest (BLCF) was established in July 2000 when the Ministry of Forests granted Burns Lake Community Forest Ltd. a Pilot Community Forest License that consisted of 23,325 ha of Crown land. This Agreement reflected the values of the community and provided opportunities for the residents.

The BLCF has undergone several expansions since that time and now consists of 92,062.5 ha of Crown land.

In April 2005 Burns Lake Community Forest Ltd. was awarded a 25-year Community Forest Agreement (designated K1A), the first of its kind in the province. This Agreement was revised and renewed on October 1, 2014 for a further 25 years.

Provincial response to MPB attack

The MPB epidemic hit the Burns Lake area starting in 1999, peaked in 2005 and was essentially over by 2008. The salvage of the dead pine continues today and is expected to last another 5 to 8 years.

The Mountain Pine Beetle (MPB) epidemic in BC is recognized as an unprecedented forest-altering event. As the most severe bark beetle infestation on record in North America, it has and will continue to impact the environment, the economy, and communities. These facts have been recognized by the Provincial Government since 2001.

The paper written by the Provincial Government titled "A History of the Battle Against the Mountain Pine Beetle 2000-2012" details the specific direction given by the Provincial Government as early as 2001 to address the seriousness of the MPB epidemic and its impacts on the local communities and the forest industry. A new approach to Government policy, funding and organizational action was taken to optimize the response to the epidemic. These actions were taken in partnership with Communities, First Nations, local and Federal Government, and the forest sector.

- In 2001 the BC Government released "Mountain Pine Beetle Action Plan 2001".
- To facilitate the recovery of economic value from the dead timber, the Provincial Chief Forester raised the AAC in 9 timber supply areas and tree farm licenses. Several First Nations received timber harvesting tenures to assist in the beetle response.
- In November 2003 the Premier convened a special Beetle symposium with representatives from communities, First Nations, academia, industry and Government. In response to the issues identified at the symposium the Government issues the Mountain Pine Beetle Update Action Plan 2004.

- The Forests for Tomorrow program, with funding of $161 million was announced in 2005 to mitigate loss of timber supply by planting new tress, increasing fertilization, and spacing and removing unwanted vegetation from plantations.
- Since 2001, the Government of BC has committed $884 million to battle the MPB and mitigate future impacts.

In 2005, recognizing the complexity of the epidemic, the MPB Action Plan was broadened to include 7 objectives. These objectives mirror the goals and objectives of the Beetle Action Coalitions, local communities, and many area-based tenures (i.e. Community Forests, Tree Farm Licenses)

1. Encourage immediate and long-term economic sustainability for communities.
2. Maintain and protect worker and public health and safety.
3. Recover the greatest value from dead timber before it burns or decays, while respecting other forest values.
4. Conserve the long-term forest values identified in land use plans.
5. Prevent or reduce damage to forests in areas that are susceptible but not yet experiencing epidemic infestations.
6. Restore the forest resources in areas affected by the epidemic.
7. Maintain a management structure that ensures effective and coordinated planning and implementation of mitigation.

BLCF and MPB Salvage

The BLCF was awarded to the Village of Burns Lake in July 2000. From its inception, BLCF has provided logs to local sawmills, including the local Babine Forest Products sawmill, which is partially owned by local First Nations.

Since 2000[1], the BLCF has harvested 3.1 million m^3 and 82% of the volume harvested was pine and approximately 90% of all pine harvested was dead.

Today, we are at the beginning of the transition period from the MPB salvage to the mid-term green wood timber supply. In the short term, we still have important decisions to make as we address the last of the MPB killed timber and as we plan the transition.

The fibre supply for BLCF today has:

- An inventory of mature green sawlogs
- Potentially a 5-year supply of dead pine sawlogs
- An 8 to 10 year supply of logs no longer suitable for sawlogs and whose highest economic value is FSC certified pulp logs
- A small supply of fibre suitable for bioenergy, that will increase in volume as pulp log shelf life is exceeded and the logs are no longer marketable. This bioenergy volume will increase, but unless there are changes to the pellet industry financial model, this would will be largely uneconomic.

[1] To December 2015.

MPB Mitigation Plan

In July 2015, the Community Forest Board of Directors began to explore forest management options to shift management of the Community Forest "Beyond the Beetle".[2] The key challenges identified were the declining revenue forecast as sawlog shelf-life ends, the current timber supply shortfall in the mid-term, and lack of suitable data, tools and area-based operating philosophy to create and implement a MPB Mitigation Plan.

In August 2015, the Board of Directors approved funding for an extensive forest management program to address revenue concerns and mitigating the mid-term timber supply shortfall, all resulting from the MPB attack. The following outlines the forest management activities that are being undertaken.

The basic resource data will be improved, which includes the acquisition of new forest inventory products including, new FLNRO funded forest cover inventory, BLCF LiDAR imagery, and BLCF sub-unit Pl inventory sampling.

The basic silviculture program will be reviewed and how new objectives for both the basic and intensive silviculture program can help mitigate the mid-term timber supply will be determined.

Issues with the timber supply netdown process, potentially some forest cover constraints, non-timber objectives and modelling assumptions that may be artificially constraining parts of the landbase will be identified and explored further.

A significant environmental program has been included in the forest management program. Biodiversity will be conserved by providing a combination of protection and management to sustain ecological integrity across the landscape. The objectives for environmental management on the Community Forest are to:

- Model (using latest inventory information) species and habitats of concern (including rare) to identify high ecological resource values and prioritize conservation in these areas.
- Assess current and potential management strategies with regards to ecological resource values.
- Propose amendments to land use or Government Regulations where required for Government's consideration.
- Maximize potential ecological value of constraints (and integrate overlapping objectives).
- Examine restoration or enhancement opportunities to meet biodiversity objectives.

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[2] Sec 1.2 Overview - Burns Lake Community Forest- Forest Management Program 2015-2017, dated April, 2016.

Due to the limited amount of time to salvage the remaining Pl stands, an economic model will be created and used to help make decisions on which stands should be harvested as the shelf-life and market place changes.

Finally, this information will be used in a Forest Estate Model to develop a MPB mitigation plan and ultimately be included in a revision of Management Plan 3 and potentially changes to the Forest Stewardship Plan (FSP).

Work on the forest management program is now well underway and several projects are complete. The new information is providing needed answers and helping reduce uncertainty of what is happening on the landbase. This is critical as we plan the transition into the mid-term.

One of the early recommendations was that the BLCF undertake FSC Certification. A certification requirement exists in the K1A tenure document. The choice of FSC was based upon a market opportunity to sell FSC certified pulp logs and chips and the value of FSC standards and 3rd party audit in regards to the proposed BLCF environmental program. As well, FSC required a significant change in how the BLF dealt with First Nation communities. A financial business case was made to the Board of Directors on December 9, 2015 and was approved.

FSC Basecase

The term Basecase is used here because at this time, our MPB Mitigation project is in process and there are a number of initiatives underway that will be taken to the BLCF Board of Directors and FLNRO in the next couple of months. Decisions by the BOD will be made with due consideration of FSC® requirements. Approvals by FLNRO will be based upon provincial legislation and regulations.

Basecase Assumptions- The Basecase assumptions reflect current management (under FRPA) + additional FSC requirements for HCV, Riparian protection and even-flow harvest flows for green fibre.

BLCF are proposing to continue our salvage of dead pine stands as a key component of the Basecase. By salvaging the dead pine:

- We delay the harvest of green timber that can help minimize shortfalls in the mid-term.
- We maintain fibre to the local sawmills and the resulting employment
- We maintain forestry employment.
- We create the revenue to continue reforestation and restoration of areas impacted by the scope of the MPB salvage program.

Mitigation Plan Assumptions- If we get a positive response from the BODs and FLNRO, the management of the BLCF may require some re-definition of the land base and categorization of HCV 1-6 areas. The changes are part of the MPB Mitigation Plan which it trying to balance community stability and employment with changes in forest management and environmental protection practices.

The potential difference between the Basecase and these Mitigation initiatives is:

- A re-alignment of some current OGMAs between the BLCF and Lakes TSA.
- A redefining of the areas involved in HCV 1-6. The value and management protection does not change; merely the reduction in areas involved as the result of co-location.
- The FSC requirements for additional riparian protection are still included, but we co-locate some other environmental values and WTP on top of the riparian areas.
- We are pursuing the recommendation from the MLA Special Committee on Timber Supply in regards to increased harvesting in visual management areas. In follow-up on this recommendation, the ministry in 2013 reviewed the effect of land use constraints on the Lakes TSA timber supply. Among its findings, the ministry determined that "there is potential for a slight increase to timber availability by harvesting visually sensitive landscapes in a way that decreases wildfire risk in areas close to communities, an idea that many stakeholders endorsed."
- An offer by the BLCF to undertake specific habitat management initiatives for marten and moose.
- Incorporating partial cutting regimes as way to recover dead pine volumes from mixed pine-spruce stands in the short term, to help restore impacted ecosystems and support the mid-term timber supply; all of which can benefit the local communities.

Objectives of this HCV assessment

The objectives of this assessment are as follows:

- Identify candidate High Conservation Value Forests (HCVF) and attributes based on a regional, national, and global information review;
- Assess candidates to determine if they meet the FSC® definition of a HCVF attribute;
- Map the locations and document the size of HCVF attributes, where possible;
- Recommend management strategies that maintain and/or enhance the HCVF attributes (consistent with the precautionary approach); and
- Recommend monitoring (including adaptive management framework) strategies to assess the effectiveness of management strategies.

Approach

The concept of High Conservation Value Forests (HCVFs) focuses on environmental, social, or cultural values that make a forest area ***outstandingly significant***. The key to the concept of HCVFs is the identification of High Conservation Values (HCVs) or attributes through an assessment process that takes into account the scale and intensity of forest management (FSC 2005). Principle 9 and Appendix D (*High Conservation Value Forest Assessment Framework*) of the FSC Regional Certification Standards for British Columbia (FSC 2005) detail the requirements for the assessment. Principle 9 states:

> *"Management activities in High Conservation Value Forests shall maintain or enhance the attributes which define such forests. Decisions regarding High Conservation Value Forests shall always be considered in the context of a precautionary approach."*

The HCVF assessment includes: 1) identification (and mapping, where appropriate) of High Conservation values and forests; 2) development of management strategies to maintain and enhance High Conservation values and forests; and 3) preparation of a monitoring plan to assess the effectiveness of the measures employed to maintain or enhance High Conservation values and forests.

Note that identification of a HCV or HCVF does not automatically infer that the attribute or area must be placed within a protected area defined by legislation, regulation, or land use policy designed to control human activity. Rather, *the focus is on maintaining or enhancing the value and making management decisions consistent with this focus.* As part of the adaptive management process, the HCVF assessment, management objectives and monitoring strategies will be reviewed and updated on a periodic basis to incorporate new information related to improved scientific knowledge, changing social values, or changes to government policy and regulations. In that sense, the HCVF assessment is an ongoing process and is consistent with the concept of continuous improvement.

As noted above, The High Conservation Value Forest Assessment Framework document (Appendix D of the FSC Regional Certification Standards for British Columbia) was used as the primary guidance tool for identifying HCVFs. The framework is organized as a table covering 6 categories derived from the FSC® definition of a HCVF, which is a forest that holds one or more of the following attributes:

Category 1: Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g., endemism, endangered species, refugia);

Category 2: Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance;

Category 3: Forest areas that are in or contain rare, threatened or endangered ecosystems;

Category 4: Forest areas that provide basic services of nature in critical situation (e.g. watershed protection, erosion control);

Category 5: Forest areas fundamental to meeting the basic needs of local communities (e.g. subsistence, health); and

Category 6: Forest areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

Each category comprises a series of ***Key*** questions aimed at identifying whether or not the forest management area contains any of the values described in the category. Negative answers to these questions mean that the forest does not include HCVs. Positive answers lead to further investigation and additional, more detailed questions. ***Definitive*** and ***Guidance*** questions are structured with Yes/No answers and are designed to determine whether the evidence supports a HCVF designation. A positive response to a *Definitive* question means that the attributes under

consideration are HCVs. A negative response to a *Definitive* question leads to the *Guidance* questions. Several positive responses to *Guidance* questions indicate the potential for reaching a threshold for HCV designation.

Location and Regional Ecology

Babine Upland (BAU)
This is a rolling upland with low ridges, many small streams and wetlands and several very large lakes in the depressions, such as Babine, Tocheha, the Northwest Arm and southern reach of Takla, Trembleur, Tezzeron, Cunningham, and Stuart lakes. This ecosection is drained by the Sutherland and Fulton rivers that flow into Babine Lake; by the Babine River which drains Babine Lake and flows into the Skeena River; by the Nation River which flows into the Parsnip Arm of the Williston Lake; and by the Hautete, Middle, and Tacho rivers that drain into the large lakes which ultimately drain into the Nechako River. Logging is the main resource industry and has been extensive throughout the ecosection, however the current pine beetle epidemic has hit most the lodgepole pine stands within this ecosection. There are no communities in this ecosection although, Fort St James is located on the southeastern boundary, and summer residences and fishing lodges have been established in many places such as: at Pinchi, Middle River, Donald Landing, Smithers Landing, Topley Landing, Granisle and Fort Babine. Copper Mining occurred on Copper Island in the middle of Babine Lake east of Granisle. Rubyrock Lake, Sutherland River and the eastern half of Babine River Corridor parks are the three largest of many protected areas that have been established here.

Bulkey Basin (BUB)
This is a broad lowland area, lying in the northern portion of the Fraser Plateau Ecoregion. There is a strong rainshadow effect caused from its position eastward of the Kitimat and Nass ranges of the Coast Mountains. The broad valleys are filled with many lakes from the large Francois Lake, to medium sized Fraser, Tchesinkut, Tachink, Nulki and Cheslatta lakes to many smaller ones. A large, multi-armed reservoir (Ootsa, Whitesail, Natalkuz and Tetachuck lakes) from damming of the Nechako River. River drainage is via the Bulkely/Morice Rivers northward to the Skeena River or the Nechako/Endako rivers eastward to the Fraser River. The entire area was overridden by cordilleran ice moving out of the Coast Mountains southeastward in the north up the Bulkley Valley and eastward in the south in the general direction of the Nechako River. Except for small areas of higher relief that has Engelmann Spruce - Subalpine Fir zone, most of this ecosection is dominated by lodgepole pine forest in the Sub-Boreal Spruce Zone. It must be noted that most of the Lodgepole Pine forests in this ecosection have be hit with the current pine beetle epidemic. In the lower valleys, trembling aspen stands occur on the southerly-facing slopes. Extensive development and farming occurs along the Yellowhead Highway corridor of the Bulkley/Endako Valley from Vanderhoof in the east to Smithers and Moricetown in the west, and in the Francois Lake area in the south central portion of the ecosection. Extensive logging has occurred throughout this Ecosection. Francois Lake Park is the largest protected area in this ecosection, other protected areas include: the northern tip of Tweedsmuir Park extends into this ecosection on the south shore of Ootsa Lake, the Uncha Mountains Red Hills Park and Nechako Canyon protected area.

Assessment

Category 1 - Forest areas containing globally, nationally or regionally significant concentrations of biodiversity values.

1. Does the forest contain *species at risk or potential habitat of species at risk* as listed by international, national or territorial/provincial authorities?

Rationale: Ensures the maintenance of vulnerable and/or irreplaceable elements of biodiversity. This indicator allows for a single species or a concentration of species to meet HCV thresholds.

Sources for this information:
Global: CITES (Appendix I and II AND III)[i], IUCN red data list[ii], Conservation Date Centre[iii] G1 and G2 element occurrences.

Regional/national: Species designated as rare, threatened or endangered by provincial, territorial or national legislation (e.g., provincial red lists and COSEWIC[iv] list in Canada). Information is managed in each province by Conservation Data Centres. The list of focal and species representative of habitat types naturally occurring in the management unit is determined or reviewed by qualified ecologists (specialists).

Background information: WWF Ecoregion Conservation Assessment[v].

Criteria and Guidance:
Are there any rare, threatened or endangered species in the forest, or potential critical habitat for those species? (DEFINITIVE)

Are there any ecological or taxonomic groups of rare species that would together constitute a HCV? (GUIDANCE)

Do any of the identified rare, threatened or endangered species (individually or concentration of species) have a sensitivity to forest operations? (GUIDANCE)

Response:
Short-eared Owl, Sandhill Crane and Grizzly Bear are listed in CITES Appendix II. Olive-sided Flycatcher, Rusty Blackbird, and Caribou are included on the IUCN Red List. There are no G1 or G2 element occurrences.

Table 1 identifies Species at Risk and Listed Species that have the potential to occur within the K1A management unit. Table 2 identifies Listed plant species with the potential to occur within the K1A. Lists were generated from BC Species Explorer (2017) and have been review by a Professional Biologist.

Table 1. Status of species at risk with known or potential occurrence in the K1A.

English Name	Scientific Name	Global Status	COSEWIC	SARA	BC List	Conservation Framework – Highest Priority	Identified Wildlife
Western Toad	Anaxyrus boreas	G4	SC (Nov 2012)	1-SC (Jan 2005)	Blue	2	
Short-eared Owl	*Asio flammeus*	G5	SC (Mar 2008)	1-SC (Jul 2012)	Blue	2	Y (May 2004)
American Bittern	*Botaurus lentiginosus*	G4			Blue	2	
Common Nighthawk	*Chordeiles minor*	G5	T (Apr 2007)	1-T (Feb 2010)	Yellow	2	
Olive-sided Flycatcher	*Contopus cooperi*	G4	T (Nov 2007)	1-T (Feb 2010)	Blue	2	
Evening Grosbeak	*Coccpthaustes vespertinus*	G5	SC (2016)		Yellow	2	
Black Swift	*Cypseloides niger*	G4	E (May 2015)		Blue	2	
Rusty Blackbird	*Euphagus carolinus*	G4	SC (Apr 2006)	1-SC (Mar 2009)	Blue	2	
Peregrine Falcon, *anatun* subspecies	*Falco peregrinus anatum*	G4T4	SC (Apr 2007)	1-SC (Jun 2012)	Red	2	
Sandhill Crane	*Grus canadensis*	G5	NAR (May 1979)		Yellow	5	Y (Jun 2006)
Barn Swallow	*Hirundo rustica*	G5	T (May 2011)		Blue	2	
Sharp-tailed Grouse, *columbianus* subspecies	*Tympanuchus phasianellus columbianus*	G4T3			Blue	2	Y (Jun 2006)
Wolverine, *luscus* subspecies	*Gulo gulo luscus*	G4T4	SC (May 2014)		Blue	2	Y (May 2004)
Little Brown Myotis	*Myotis lucifugus*	G3	E (Nov 2013)	1-E (Dec 2014)	Yellow	5	
Mountain Goat	*Oreamnos americanus*	G5			Blue	1	
Fisher	*Pekania pennanti*	G5			Blue	2	Y (Jun 2006)
Caribou (northern mountain pop)	*Rangifer tarandus* pop. 15	G5T4T5	E/SC (May 2014)	1-T/SC (Jan 2005)	Blue	2	Y (May 2004)
Grizzly Bear	*Ursus arctos*	G4	SC (May 2002)		Blue	2	
Rocky Mountain Capshell	*Acroloxus coloradensis*	G3	NAR (Nov 2001)		Blue	2	
Northern Tightcoil	*Pristiloma arcticum*	G3G4			Blue	4	

Table 2. Listed plant species with the potential to occur in the K1A.

English Name	Scientific Name	COSEWIC	BC List	CF – Highest Priority	BEC	Habitat
Whitebark pine	*Pinus albicaulis*	E(Apr 2010)	Blue	3	SBSmc, ESSFmc	dry to moderately moist sites in subalpine areas
Sleeping popcornflower	*Plagiobothrys cognatus*		Blue		SBSdk	moist, poorly drained soils that dry out by mid-summer
Back's sedge	*Carex backii*		Blue	2	SBSdk	Dry, sandy or gravelly soils in the open or in rocky woods, thickets, sea and inland cliffs, moist woods and salty river shores
Alp lily	*Lloydia serotina var. flava*		Blue	2	ESSFmc	rocky or gravelly mountain tops, ridges and cliffs
Purple oniongrass	*Melica spectabilis*		Blue	3	SBSdk	Moist subalpine woodlands; elsewhere, in moist woods
	Meesia longiseta		Blue	2	ESSF; SBS	Calcareous fens or boggy woods
	Splachnum vasculosum		Blue	2	ESSF; SBS	Usually herbivore dung, on heaths and bogs

Response:

Vertebrates

The short-eared owl is at the edge of its range in K1A. It requires open areas for foraging and breeding and is not subject to the effects of timber harvest. As such it is not a suitable HCVF attribute for the K1A. Suitable habitat for the sandhill crane (e.g., bogs and swamps) is not subject to the effects of timber harvest. As such it is not a suitable HCVF attribute for the K1A.

The K1A area contains habitat required for the survival of Grizzly Bear in the Nadina Forest District (Section 7(2) Notice 2004). This area will be managed as per the Notice. The effects of timber harvest on grizzly bears are mixed with researchers noting generally positive effects on forage availability and use in early-seral cutblocks, yet negative effects relating to increased mortality.

The Olive-sided Flycatcher is not considered to be a suitable HCVF attribute because there is considerable scientific uncertainty as to whether the open habitats created by timber harvest offer suitable habitat for this species (COSEWIC 2007). Additional region-specific research would be required to resolve this uncertainty. Rusty blackbirds use riparian wetlands and rarely occupy interior forest. Riparian buffer requirements will mitigate impacts on this species, and it is not considered to be a HCVF attribute under this question.

The nearest Caribou populations to the K1A area are the Takla, Telkwa and Tweedsmuir herds which are all greater than 40 km away. As such it is not a suitable HCVF attribute for the K1A.

Plants

According to the CDC (the Species and Ecosystem Explorer Database was used throughout this assessment), there are no records of rare plants within the K1A area. Habitats used by rare plants are not expected to be affected by forest management.

Management Strategy:

The K1A contains habitat required for the survival of Grizzly Bear in the Nadina Forest District. Habitat will provide suitable habitat of the size, spatial distribution and connectivity identified in the species account for Grizzly Bear in the Accounts and Measures for Managing Identified Wildlife (IWMS Version 2004). The areas are located within the biogeoclimatic units and preferred elevations identified in the species account for Grizzly Bear in the Accounts and Measures for Managing Identified Wildlife (IWMS Version 2004).

Attributes include Forest Cover Constraints:

- Forest cover: A maximum 50% of the area < 121 years.
- Forest cover: A minimum of 33% of the area < 5 m tall or 28 years.

2. Does the forest contain a globally, nationally or regionally significant concentration of *endemic species*?

Rationale: Ensures the maintenance of vulnerable and/or irreplaceable elements of biodiversity. Endemic species are more likely to be addressed under Principle 6 because their range/extent is geographically restricted. Hence, meeting the threshold of "critical and/or outstanding" likely requires a concentration of endemic species.

Possible Sources:
Background information: WWF Ecoregion Conservation Assessment (www.panda.org); Conservation International 'hotspot' areas vi (www.conservation.org); WWF Global 200 Ecoregions and Conservation International Hot Spots.

Criteria and Guidance:
- Is there a concentration of endemic species in the forest that includes species representative of habitat types naturally occurring in the management unit? (DEFINITIVE)

- Are there any ecological or taxonomic groups of endemic species or sub-species that would together constitute a globally or nationally significant concentration? (GUIDANCE)
- Do any of the identified endemic species have a demonstrated sensitivity to forest operations? (GUIDANCE)
- Does the forest contain critical habitat of species identified in the above questions? (GUIDANCE)

Response:
The interior of BC does not fall within the WWF Global 200 Ecoregions. The K1A area falls within the Fraser Plateau and Basin complex (NA0514). Only about 25% remains as natural, intact habitat and recommends more protection for wetland habitats.

-Burns Lake Community Forest is not aware of any significant concentrations of endemic species within the management unit.

Management Strategy:

Riparian management area requirements are key Forest Practices Code provisions for protecting streams, wetlands and lakes. The licensee undertakes to comply with sections 47, 48, 49, 50, 51, 52 (2), and 53 of the Forest Planning and Practices Regulation.

Additional riparian requirements from FSC® will also protect wetlands.

3. Does the forest include *critical habitat containing globally, nationally or regionally significant seasonal concentration of species* (one or several species, e.g., concentrations of wildlife in breeding sites, wintering sites, migration sites, migration routes or corridors – latitudinal as well as altitudinal, watershed level forests or riparian forests associated with high value fisheries habitat)?

Rationale:
Addresses wildlife habitat requirements critical to maintaining population viability (regional "hot spots").

Possible Sources:
Global: BirdLife International[vii], Audubon Society.[viii] Conservation International
Regional/national: National and local agencies with responsibility for wildlife conservation; Results from habitat models Local experts, traditional knowledge Bird Studies Canada.[ix] Ducks Unlimited Canada[x]

Criteria and Guidance:
- Is there a concentration of species in the forest that is unusually high compared to the surrounding landscape? (DEFINITIVE)

- Is there an IBA (Important Bird Area) in the forest? (DEFINITIVE)

- What proportion of the global, national or regional population (i.e., > 1% is the threshold used in the RAMSAR Convention) uses the wildlife concentration area (i.e., to determine importance for species persistence)? (GUIDANCE)

- Are there similar wildlife concentration areas within the region? How protected are they? (GUIDANCE)

- Is it a wildlife concentration area for more than one species? (GUIDANCE)

- Are there any landscape features or habitat characteristics that tend to correlate with significant temporal concentrations of species (e.g., where species occurrence data is limited)? (GUIDANCE)

- Are there any ecological or taxonomic groups of species or sub-species that would together constitute a regionally significant concentration? (GUIDANCE)

Response:

The management unit contains habitat required for the winter survival of ungulate species in the Lakes Timber Supply Area. This area will be managed as per the Notice.

There are no important bird areas identified on the Canadian IBA site.

No wetlands of significance identified on RAMSAR.

Management Strategy:

The following notice includes indicators of the amount, distribution and attributes of wildlife habitat required for the winter survival of the ungulate species outlined in Schedule 1.

Moose:

- Forest cover: A minimum of 30% of the area > 101 years.
- Green up: A maximum of 33% of the area < 3 m or 17 years.

Deer:

- Forest cover: A minimum of 50% of the area > 101 years.
- Green up: A maximum of 33% of the area < 3 m or 17 years.

4. Does the forest contain critical habitat for regionally significant species (e.g., species representative of habitat types naturally occurring in the management unit, focal species, species declining regionally, including concentrations of aquatic species whose habitat is dependent on riparian forest or watershed condition)?

Rationale:

Population and meta-population viability.

Possible Sources:

Regionally significant species are determined using the sources below:

1. Conservation Data Centre G3, S1-S3 species and communities
2. Range and population estimates from national or local authorities and local experts for:
• red- and blue-listed species (see sources above);
• species at risk (in existing legislation and/or policy);
• results from habitat models,
• species representative of habitat types naturally occurring in the management unit or focal species; and, species identified as ecologically significant through consultation. The list of focal and species representative of habitat types naturally occurring in the management unit is determined or reviewed by qualified ecologists (specialists).

Criteria and Guidance:

- Is there known critical habitat for a regionally significant species (including aquatic spp.)? (DEFINITIVE)

- Is the regionally significant species in significant decline as a result of forest management? (DEFINITIVE)

- Is the population of regionally significant species locally at risk (e.g., continuing trend is declining rather than stable or improving)? (GUIDANCE)

Response:

Regionally Significant Species for the management unit are: Goshawk *atricapillus* (interior), Brown Creeper, Harlequin Duck, Wood Duck, Pileated Woodpecker, Mountain Goat, Northern Long-eared Myotis, Silver-haired Bat, Marten, Black Bear as well as four fish species Cutthroat Trout, Dolly Varden, Bull Trout, Summer Run Steelhead.

Management Strategy:

Northern Goshawk

- Buffer nests from edge effects by maintaining at least 100 m, and where possible more than 200 m, of forest between nests and well-defined stand edges
- Establish effective reserve sizes around breeding areas. Reserves of more than 100 ha of mature and old (closed canopy and >80 years) have the highest likelihood of continued occupancy

Brown Creeper

- Maintain medium to large diameter trees (especially deciduous) adjacent to water features of all sizes (wetlands, ponds, lakes and streams), to maintain existing and future nest sites.

- Maintain connectivity of old forest stands on the landscape.

Harlequin Duck

- Maintain full, or nearly full, tree retention in the Riparian Management Zone in the vicinity of the occurrence.
- Construct roads outside the RMA; further from the stream is better to minimize disturbance.
- Manage the rate and temporal pattern of harvest so as to maintain the hydrologic stability and water quality of S1, S2, S3 and S5 stream watersheds.
- Prevent sediment inputs to all streams from bridges, road surfaces, and ditches

Wood Duck

- Maintain a component of medium to large diameter trees, especially decadent deciduous, for nesting sites through forest rotation by including them in wildlife tree patches and other retention areas.

Pileated Woodpecker

- Maintain a component of medium to large diameter trees, especially decadent deciduous, for nesting sites through forest rotation by including them in wildlife tree patches and other retention areas.
- Retain large diameter stubs (as tall as possible) in harvest areas, to provide future feeding sites.

Mountain Goat

- No mountain goat ranges have been delineated within the K1A area.

Northern Long-eared Myotis/Silver-haired Bat

- Protect known bat roosting and maternity sites from disturbance.
- Pay particular attention to retention of large diameter wildlife trees that have loose bark or cavities, or will likely develop loose bark or cavities in the future.

Marten

- Maintain mature and old cottonwood and large diameter fir and spruce along riparian and riparian-associated habitats.
- Maintain connectivity of mature and old forest between riparian and upland habitats.
- Maintain important structural attributes for marten and prey species (i.e., CWD, wildlife trees, cottonwood, and large fir and spruce).
- Retain old forest patches that have high structural complexity including high amounts of CWD, through designation as WTPs, OGMAs, or temporary deferred harvest areas.
- Harvest patch size distribution should be as recommended by the Biodiversity Guidebook.

Black Bear

- Locate roads to avoid important habitats (beaches, estuaries, forested and non-forested wetlands, skunk-cabbage swamps, avalanche chutes, riparian areas). Where this is not possible, provide visual screening with natural vegetation.
- Limit public road use to minimize the potential for bear human conflict and resulting black bear mortalities; deactivate and render impassable roads not presently needed for industrial use.
- Address loss of potential den cavities in large, old trees through “enhanced wildlife tree patches”, which are at least 1 hectare in size and contain standing live trees > 1m diameter and > 5 m height. Leaving large structured downed wood (piles) on cutblocks will provide additional opportunities for denning habitat.
- Applying variable retention harvesting may also address issues around the need for structure within managed stands, as long as suitable large trees are retained in areas of harvest.
- Retention patches should be “anchored” at existing black bear dens, if they are present

Fish Species

- Stream and habitat protection and restoration, reduction of siltation from roads and other

erosion sites, proper sizing and installation of stream crossing structures to provide habitat connectivity, and modification of land management practices to improve water quality and temperature are all important.

5. Does the forest support concentrations of species at the edge of their natural ranges or outlier populations?

Rationale:

Relevant conservation issues include vulnerability against range contraction and potential genetic variation at range edge. Outlier and edge of range populations may also play a critical role in genetic/population adaptation to global warming.

Possible Sources:

Range and population estimates from national or local authorities and local experts for:
- red- and blue-listed species (see sources above),
- focal species,
- major forest (tree species) types, and
- species identified as ecologically significant through consultation.

The list of focal and species representative of habitat types naturally occurring in the management unit is determined or reviewed by qualified ecologists (specialists).

Criteria and Guidance:

- Are any of the range edge or outlier species a focal species or species otherwise representative of habitat types naturally occurring in the management unit? (DEFINITIVE)

- Are there any ecological or taxonomic groups of range edge and/or outlier species/sub-species that would together constitute a globally, nationally or regionally significant concentration? (GUIDANCE)

- Are the species potentially negatively impacted by forest management? (GUIDANCE)

- Are there naturally occurring outlier populations of commercial tree species? (GUIDANCE)

Response:

The species found on the K1A area are widely distributed and found abundantly throughout the remainder of British Columbia.

Management Strategy:

Not required

6. Does the forest lie within, adjacent to, or contain a conservation area: a) designated by an international authority, b) legally designated or proposed by relevant federal/provincial/territorial legislative body, or c) identified in regional land use plans or conservation plans?

Rationale:
Ensures compliance with the conservation intent of a conservation area and that regionally significant forest are evaluated for consistency with the conservation intent. (Note: Conservation areas that are withdrawn from industrial activity do not constitute HCV for management purposes, but their values may need to be maintained or enhanced in adjacent or buffer areas.)

Possible Sources:
International designations include: UNESCO World Heritage Sites[xii] RAMSAR sites[xiii] International Biological Program sites

Legally designated sites in Canada/BC: CCAD (available from GeoGratis); WWF Designated Areas Data Base; MSRM; Areas under deferral pending completion of land use planning and-or completion of protected areas system; Local government land use plans; Other conservation planning exercises (e.g., WWF-Canada conservation suitability analysis).

Criteria and Guidance:
Where there is conflicting information regarding the location and/or conservation status of a conservation area designated by an international authority, then the forest manager should assume that the forest contains HCVs.
- Are the values for which the conservation area has been identified consistent with the assessment of HCVs in this framework? (DEFINITIVE)
- Do permitted uses in the conservation area include industrial activities (i.e., not legally withdrawn from industrial activity; e.g., not IUCN category I or II)? (GUIDANCE)
- Are there forest areas important to connect conservation areas in order to maintain the values for which the conservation areas were identified? (GUIDANCE)
- Are there forest areas important to buffer conservation areas in order to maintain the values for which the conservation areas were identified? (GUIDANCE)

Response:

There are Visual Quality Objectives for scenic areas delineated throughout the K1A area.

In order to provide opportunities for the distribution of species, populations and genetic material, there is an objective to maintain or enhance habitat connectivity at the landscape level. A network of landscape corridors has been established to achieve this objective.

-The management unit lies directly adjacent to a number of protected areas established by the government of British Columbia. These adjacent parks include Burns Lake Park and Uncha Mountains Red Hills Park.

Management Strategy:

During the term of this plan, within FDU 1 and 2, when the licensee harvests cut blocks or constructs roads where Visual Quality Objectives have been established through *Government Actions Regulation* (GAR *7 (1) & (2)*) and associated map for scenic areas made known prior to March 17, 2010, when viewed from a significant public viewpoint the altered forest landscape will be within the specified limits

1. Maintain habitat connectivity within the landscape connectivity matrix and in accordance with (a), (b) and (c).

2. Maintain within a managed forest setting, landscape corridors dominated by mature tree cover and containing most of the structure and function associated with old forest

Category 2 – Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.

7. Does the forest constitute or form part of a globally, nationally or regionally significant forest landscape that includes populations of most native species and sufficient habitat such that there is a high likelihood of long-term species persistence?

Rationale:
The forest must not only be large enough to potentially support most or all native species, but long-term, large-scale natural disturbances can take place without losing their resilience to maintain the full range of ecosystem processes and functions (i.e., naturally functioning landscape).

Possible Sources:
Permanent infrastructure data from government sources or forest companies;
Global sources include: Digital Chart of the World; Global Forest Watch for selected forest regions; Appropriate scale (stand level) of vegetation inventories; Habitat suitability models; Forest inventories of harvests or other depletions; Non-permanent roads; Exploration activity (e.g., seismic, drilling).

Criteria and Guidance:
Are there forest landscapes unfragmented by permanent infrastructure and of a size (depending on scale) to maintain viable populations of most species? (DEFINITIVE)

Example thresholds for boreal forests:
- Globally significant threshold > 500,000 ha and free of permanent infrastructures/roads and < 1% non-permanent human disturbances;
- Nationally significant threshold 200,000 to 500,000 ha free of permanent infrastructures/road and < 5%

of non-permanent human disturbances;
- Regionally significant threshold 50,000 to 200,000 ha and free of permanent infrastructures and < 5% non-permanent human disturbances;
- Regionally significant threshold could drop to 10,000 ha in landscapes with extensive development history (see #10 below)

- To assist in the development of management prescriptions, the description of the high conservation value should go beyond size and also include measures of forest quality to be maintained or enhanced for the persistence of native species. Aspects of forest quality may include, but need not be limited to, the two sets of guidance questions below. If unfragmented forest landscapes do not meet the size thresholds above, then there are no large landscape-level forest HCVs. In this situation, remnant intact forest landscapes may be identified as part of Item #10.

- Do the unfragmented forest landscapes include a sufficient range in habitat types and sufficient area of suitable habitat for native species? (GUIDANCE)

- Do the unfragmented forest landscapes include known populations of species representative of habitat types naturally occurring in the management unit sufficient for their long-term persistence (i.e., > 100 years)?

- Do the unfragmented forest landscapes include a seral stage distribution that is within RONV?
- Are the levels of road density and habitat fragmentation sufficiently low within the large unfragmented forest landscapes to permit the persistence of most native species? (GUIDANCE)

- Are densities of non-permanent (e.g., tertiary) roads below levels cited in the scientific literature for a naturally functioning landscape?

- Are levels of forest conversion and/or alteration of seral stage distribution resulting from human activities below levels appropriate for a naturally functioning landscape?

-Are unfragmented landscapes sufficiently large or isolated from human development to allow for continued functioning of natural disturbance regimes and patterns?

Response:
Due to the MPB attack and salvage program, the forest is highly impacted and fragmented. There are no areas of land without permanent features that meet the 50,000 ha minimum threshold for regionally significant large landscape level forests.

Management Strategy:
Objective is to attain a harvest pattern that, over time, reflects the natural disturbance patterns as described in the Biodiversity Guidebook. It is understood that these conditions will not be immediately achieved.

Category 3 – Forests areas that are in or contain rare, threatened or endangered ecosystems

8. Does the forest contain naturally rare ecosystem types?

Rationale:
These forests contain many unique species and communities that are adapted only to the conditions found in these rare forest types.

Possible Sources:
Conservation Data Centre G1-G3 community types;
WWF Ecoregion Conservation Assessments;
Conservation International National vegetation surveys and maps;
Local Research institutions

Authorities on Biodiversity (e.g., NatureServe, Infonatura)

Criteria and Guidance:

- Are there ecosystems that have been officially classified as being rare, threatened or endangered by a relevant national or provincial organization? (DEFINITIVE)

- Is a significant amount of the global extent of these ecosystems present in the country and/or ecoregion? (GUIDANCE)

- Are these ecosystems potentially negatively impacted by forest management? (GUIDANCE)

Response:
Of the 26 rare ecological communities (Table 3), two are grassland and 18 are wetlands and are at low risk to impacts from forestry operations.

Management Strategy:
The six forested rare ecological communities will be protected within Connectivity Corridors. These ecosystems will also be maintained at the stand level.

Table 3. CDC list of red and blue listed ecological communities with potential to occur in the K1A area.

English Name	BC List	Code
mountain alder / red-osier dogwood / lady fern	Blue	Fl02
scrub birch / water sedge	Blue	Wf02
slender sedge / common hook-moss	Blue	Wf05
shore sedge - buckbean / hook-mosses	Blue	Wf08
common spike-rush Herbaceous Vegetation	Blue	Wm04
few-flowered spike-rush / hook-mosses	Red	Wf09
swamp horsetail - beaked sedge	Blue	Wm02
narrow-leaved cotton-grass - shore sedge	Blue	Wf13
tamarack / low birch / bluejoint reedgrass - sedges / peat-mosses	Red	?
buckbean - slender sedge	Blue	Wf06
black spruce / common horsetail / peat-mosses	Blue	Wb09
black spruce / creeping-snowberry / peat-mosses	Blue	SBSdk/09;Wb01
lodgepole pine / few-flowered sedge / peat-mosses	Blue	Wb10
Bebb's willow / bluejoint reedgrass	Blue	Ws03

English Name	BC List	Code
Drummond's willow / bluejoint reedgrass	Blue	Fl05
MacCalla's willow / beaked sedge	Blue	Ws05
scheuchzeria / peat-mosses	Blue	Wb12
tufted clubrush / golden star-moss	Blue	Wf11
hybrid white spruce / hardhack - prickly rose	Blue	SBSdw3/06
lodgepole pine / common juniper / rough-leaved ricegrass	Blue	SBSdk/02
lodgepole pine - black spruce / red-stemmed feathermoss	Blue	SBSdw3/05
(balsam poplar, black cottonwood) - spruces / red-osier dogwood	Red	SBSdk/08
Douglas-fir - lodgepole pine / clad lichens	Blue	SBSdw3/02
Douglas-fir / red-stemmed feathermoss - step moss	Blue	SBSdk/04
saskatoon / slender wheatgrass	Red	81
Sandberg's bluegrass - slender wheatgrass	Red	82

9. Are there ecosystem types or ecosystem type conditions within the forest or ecoregion that have significantly declined, or under sufficient present and/or future development pressures that they will likely become rare in the future (e.g., old seral stages)?

Rationale:
Vulnerability and metapopulation viability. Naturally occurring seral stage distributions are an essential element of habitat management This indicator includes anthropogenically rare forest ecosystem types (e.g., late seral forests).

Possible Sources:
Relevant government authorities;
WWF Ecoregion Conservation Assessments;
Suitable forest or vegetation inventories;
Potential vegetation mapping;
Regional and local experts;

Conservation Data Centre S1-S3 community types.

Criteria and Guidance:
- Does the forest consist of mature and/or old forest stands, where the amount of old forest remaining in that BEC variant has been reduced to less than 50% of estimated natural occurrence of old forest? (DEFINITIVE)

- Have these ecosystems significantly declined (e.g., > 50% loss)? (GUIDANCE)
- Is there a significant proportion of the declining ecosystem type within the management unit in comparison to the broader ecoregion? (GUIDANCE)
- Does potential vegetation mapping identify areas within the management unit that can support the declining ecosystem type (i.e., regeneration potential)? (GUIDANCE)
- How well is each ecosystem effectively secured by the protected area network and the national/regional legislation? (GUIDANCE)

Response:

Old forest will be maintained within the range of forest stand ages that were historically found within the various Biogeoclimatic zones.

The goal of the old growth forest objective is to manage for the retention of areas that are appropriately sized, contain, or can recruit specific structural old growth forest attributes, and represent the range of ecosystem types found across the planning area.

The goal of retaining wildlife trees is to promote healthy functioning ecosystems that provide wildlife habitat elements at the forest stand level. This will be promoted by maintaining forest stand structural attributes of natural forests, within managed stands, through wildlife tree retention areas.

Management Strategy:

Objective 1: Maintain a range of forest seral stages by Biogeoclimatic zone within each landscape unit (Biodiversity Emphasis Option)

Objective 2: Preserve Old Growth Management Areas

Objective 3: Maintain stand level structural diversity by retaining wildlife tree retention areas.

10. Are there ecosystems that are poorly represented in protected areas, and likely to become rare in an intact state due to ongoing human activities?

Rationale:
Maintenance of benchmarks or controls are essential to responsible management

Possible Sources:
MSRM data on protected area representation

Criteria and Guidance:
Does that management unit contain intact or undeveloped watersheds over 5,000 ha in size containing ecosystems that are under-represented in protected areas (e.g., BEC variants with <10% representation)? (DEFINITIVE)

Where there are no intact watersheds over 5,000 ha containing under-represented elements, are there smaller watersheds or other ecologically significant areas that contain those elements? (GUIDANCE)

Does the management unit contain ecosystems that are under-represented in protected areas (<10% by BEC variant, site series or groups of site series)? (GUIDANCE)

Response:

Based on the PEM there are some ecosystems that are poorly represented (<2%) by BEC Variant.
SBSdk 07
SBSmc2 02, 03, 07, 09, 10
ESSFmc 03, 08, 09, 10

Management Strategy:

Hydroriparian ecosystems (07, 08, 09, 10) are protected within the Connectivity Matrix. The drier ecosystems (02, 03)

11. Are large landscape level forests (i.e., large unfragmented forests) rare or absent in the forest or ecoregion?

Rationale:
In regions or forests where large functioning landscape level forests are rare or do not exist (highly fragmented forest), many of the remnant forest patches require consideration as potential HCVs (i.e., best of the rest). Identifies remnant forest patches/blocks where unfragmented (by permanent infrastructure) landscapes do not exceed size thresholds.

Possible Sources:
Global Forest Watch intactness mapping:

Forest cover data provided by companies/government.

Criteria and Guidance:

- Are moderate to large remnant patches (thousands of hectares) the best examples of intact forest for their community and landform types? (GUIDANCE)

- Do the intact remnant patches include a logical ecological unit (e.g., a watershed, sub-basin, a group of home ranges)?

- Do the largest remnant forest patches include a significant proportion of late seral stands (i.e. old forests)? (GUIDANCE)

- Do the remnant forest patches include a significant proportion of structural features such as woody debris and standing dead trees (i.e., structurally complex)? (GUIDANCE)

- Do the largest remnant forest patches include known populations of species representative of habitat types naturally occurring in the management unit, especially access-sensitive species? (GUIDANCE)

Response:
There are no Intact Forest Landscapes (2013) within the K1A area.

Management Strategy:
Objective is to attain a harvest pattern that, over time, reflects the natural disturbance patterns.

12. Are there nationally /regionally significant diverse or unique forest ecosystems, forests associated with unique aquatic ecosystems?

Rationale:
Vulnerability; species diversity; significant ecological processes.

Possible Sources:
Relevant government authorities;
WWF Ecoregion Conservation Assessments;

Regional environmental background studies.

Criteria and Guidance:

- Are there important and/or unique geological areas that strongly influence vegetation cover (e.g., serpentine soils, marble outcrops)? (GUIDANCE)

- Are there important and/or unique microclimatic conditions that strongly influence vegetation cover (e.g., high rainfall, protected valleys)? (GUIDANCE)

- Do these ecosystems possess any exceptional characteristics (including exceptional species richness, critical species, etc.)? (GUIDANCE)

Response:

The WWF Ecoregion Assessment states wetland habitats require more protection.

Young Wild Forests have become increasingly rare due to fire suppression, salvage harvesting, and widespread spacing and thinning of naturally regenerated young stands.

Management Strategies:

Wetlands are a HCV element and protected through riparian management and within Landscape Connectivity Corridors.

Ensure retention of naturally-created wild young forest by monitoring establishment of stands with wild forest attributes and assessing options to ensure retention of up to 1% of the Crown forested land-base in representative wild young stands.

Maintain a diversity of coniferous and deciduous species throughout the rotation that represents the natural species composition of each biogeoclimatic subzone.

Category 4 – Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control).

13. Does the forest contribute to maintaining the quality, quantity and seasonal timing for water flows that are a source of drinking water, irrigation water or water for a critical economic activity?

Rationale:
The potential impact to human communities is so significant as to be 'catastrophic' leading to significant loss of productivity, or sickness and death, and there are no alternative sources of drinking water.

Availability of high quality water may be critical to agriculture or other economic activities

Possible Sources:
The forest manager should obtain the information from the relevant authorities (resource management studies, relevant economic development studies, traditional occupancy studies, regional land use plans, etc.) to determine if the wrong actions or management could cause serious cumulative or catastrophic impacts on these basic services.

Sources of information include First Nations communities, local communities, local organizations and enterprises, British Columbia Ministry of Water, Land and Air Protection, British Columbia Ministry of Forests, British Columbia Ministry of Sustainable Resource Management, and local and regional government.

Criteria and Guidance:

Response:

Spatial coverages available through the Province of BC Data BC Warehouse show:

- 2 "Points of Diversion Licence" on BLCF
- 2 "Water Licenses" on BLCF boundary
- Numerous Points of Diversion and Water Licences adjacent to the BLCF near Burns Lake and Tchesinkut Lake.
- Anecdotal information suggests there are an unknown number of un-licenced users and diversions.

Management Strategy:

These Points of Diversion and Water Licences and contact information will be added to the BLCF GIS database and added to referral and development plan maps.

Licenced owners will be contacted when operations are proposed.

Public viewing of development plans are advertised and anyone with an unauthorized water licence or diversion can attend and make his/her use known.

14. Are there forests that provide a significant ecological service in mediating flooding and/or drought, controlling stream flow regulation, and water quality?

Rationale:
Forest areas play a critical role in maintaining water quantity and quality and the service breakdown has catastrophic impacts or is irreplaceable.

Possible Sources:
Hydrological maps;

Hydrologists in government departments or local research institutions.

Criteria and Guidance:
- Are there high risk areas for flooding or drought? (DEFINITIVE)

- Are there particular forest areas (i.e., a critical subwatershed) that potentially affect a significant or major portion of the water flow (e.g., 75% of water in a larger watershed is funneled through a specific catchment area or river channel)? (GUIDANCE)

- Does the forest occur within a sub-watershed that is critically important to the overall catchment basin? (GUIDANCE)

- Are there particular forest areas (i.e., a critical subwatershed) that potentially affect water supplies for other services such as reservoirs, irrigation, river recharge or hydroelectric schemes? (GUIDANCE)

Response:
Not known at this time.

Management Strategy:

Maintain timely reforestation.

Update ECA analysis

Consider use of partial cutting in highly impacted areas as salvage program continues.

15. Are there forests critical to erosion control?

Rationale:
Soil, terrain or snow stability, including control of erosion, sedimentation, landslides, or avalanches.

Possible Sources:
Maps, remote sensing data, aerial photos, Governmental departments, Consultation with relevant experts.

Criteria and Guidance:
- Are there forest areas where the degree of slope carries high risk of erosion, landslides and avalanches? (DEFINITIVE)

- Are there soil and geology site types that are particularly prone to erosion and terrain instability? (GUIDANCE)

- Is the spatial extent of erosion-prone or unstable terrain such that the forest is at high risk (also of

cumulative impacts)? (GUIDANCE)

Response:
A number of steep slopes have been identified. Harvesting operations will avoid these areas. Following heavy winter snow, or unusual spring thaw conditions, many streams will over run their banks, increasing the risk of erosion.

Management Strategy:
Steep slope classes are excluded from THLB.

The Landscape Connectivity Corridors (LCM) (which is heavily constrained from "normal" harvesting) provides natural vegetation conditions adjacent to main streams.

16. Are there "interface" forests that play a significant role determining the potential spread of wildfires into developed areas, or other areas where fire would be harmful?

Rationale:
Management of interface forests can significantly affect the potential spread of wildfires

Possible Sources:
Ministry of Forests and local communities fire interface plans

Criteria and Guidance:
- Are there forest areas where there is a high risk of uncontrolled, destructive fire and in which forest areas or forest types can act as a barrier to the spread of these fires?
- Do these forest areas contain or are adjacent to human settlements or communities that would be at risk from uncontrolled, destructive forest fire?
- Do these forest areas contain or are adjacent to places of important cultural value that would be severely damaged or destroyed by uncontrolled fire (e.g., sacred places, archaeological sites)?

- Do these forest areas contain or are adjacent to protected areas that contain threatened or endangered species or ecosystems?

Response:
The Village of Burns Lake which is surrounded by the BLCF is developing a Community Wildfire Protection Plan (CWPP). The BLCF recognizes the risks of fire both from fires originating on and off of the BLCF. The BLCF is currently cooperating with FLNRO in a fuel reduction project south of the Babine Forest Products Mill.

Management Strategy: The CWPP boundaries have been added to the BLCF GIS database. The BLCF is examining operations to salvage dead pine including partial cutting in some circumstances within the visual landscapes within the CWPP boundaries.

Pending completion of the CWPP report, the BLCF will update its plans.

Category 5 - Forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health).

17. Are there local communities that use the forest? (This should include both people living inside the forest area and those living adjacent to it as well as any group that regularly visits the forest.)

Is anyone within the community making use of the forest for basic needs/ livelihoods? (Consider food, medicine, fodder, fuel, building and craft materials, water, income). If it is not possible to say that it is NOT fundamentally important, then assume that it is.) (Look at members or subgroups rather than treating the community as homogeneous.)

Rationale:
There is a distinction being made between the use by individuals (i.e., traplines) and where use of the forest is fundamental for local communities.

Possible Sources:
Sources of information
1. Consultation with the communities themselves is the most important way of collecting information.
2. Literature sources such as reports and papers, where available, can be very useful sources of information.
3. Knowledgeable people and organizations such as local community organizations, NGOs, or academic institutions. This type of group can often provide a quick introduction to the issues and provide support for further work.
4. Review of studies of traditional land use and non-timber use of the forest.
5. Review of socio-economic profiles of communities.

Sources of information include First Nations communities, local communities, local organizations and enterprises, British Columbia Ministry of Sustainable Resource Management, British Columbia Ministry of Forests, and local and regional government.

Criteria and Guidance:
Having established that the community uses the forest to fulfill some needs it is now necessary to assess whether it is fundamental to meeting any basic needs. The way that this will be done will be enormously variable, depending on the socio-economic context and the need. However, it will always involve consultation with the community itself. The following are general guidance questions to assess whether the value meets HCV thresholds.
- Is this the sole or a significant source of the value(s) for the local communities? (GUIDANCE)
- Is there a significant impact to the local communities as a result of a reduced supply of these values? (GUIDANCE)

- Are there values that, although they may be a small proportion of the basic needs, are nevertheless critical? (GUIDANCE)

Management Strategy:
The assessment identified a number of organizations that participate in the use of trails and recreation sites within the BLCF (Table 4), which were already addressed in the THLB netdown process, and no additional deductions are necessary.

Response:

The Table 4 identifies known uses of the forest by local communities.

There may be further uses of the forest by local First Nations communities. They are discussed in HCV 6.

Table 4. Use of the Forest by Local Communities

Burns Lake Mountain Bike Association – Boer Mountain Park	4,000 ha mapped	5-year land use and license agreement. (expired October 31, 2016). Grants Association rights to use the land for the purpose of a Mountain Bike Park and rights to access the area at any time	Boar Mountain was established as a provincial recreation site and trail on May 5, 2009 (see attached). The area was initially chosen due to its close proximity to Burns Lake, existing trails (Full Boar, Kager Lake and Star Lake Trails existed at time of establishment, as well as the Burns Lake Bike Park was being developed), and varied terrain. There is a Recreation Site Agreement that the Agreement Holder (Burns Lake Mountain Biking Association) will be given an opportunity to comment on development issues, if required by the FPPR and may be provide an opportunity to comment in any event. Harvesting and road building can occur within the area, but due to the strong recreation focus of the area, it must be done in a way that balances all interests. Also, the MP has some commitments regarding engagement with the BL Mountain Biking Club and review and comments around forestry management activities.
Omineca Ski Club Trails	8.6 KM of trails within the Community Forest Mapped	No formal agreement No netdowns	BLCF consults with Ski Club regarding any harvesting activities and may buffer trails if necessary.
Burns Lake Snowmobile Club	9 km trails Mapped	No agreement	BLCF consults with the Snowmobile Club regarding any harvesting and will buffer trails if necessary.
Bears Den Recreation Trail	2.3 km trail Mapped	Netdown to THLB.	BLCF consults with Lakes Outdoor Recreational Society regarding any harvesting activities and will buffer trails. Used by ski club in winter.
Guyishton Lake Recreation Site	9 ha area Mapped	Netdown to THLB.	Recreation site is within the informal WTP to protect FN and community values.
Rob Reil Recreation Trails	2.3 km of trails Mapped	No netdown.	BLCF consults with Lakes Outdoor Recreational Society regarding any harvesting activities and will buffer trails.

Opal Bed Recreation Trail	2.3 km of trails Mapped	No netdown.	BLCF consults with Lakes Outdoor Recreational Society regarding any harvesting activities and will buffer trails. Harvesting has occurred around this trail to remove dead pine and buffers were put in place.
Star Lake Recreation Trail	5 km of trails Mapped	No netdown.	BLCF consults with Lakes Outdoor Recreational Society regarding any harvesting activities and will buffer trails.
Agate Point Recreation trail	2.3 ha area of trails Mapped	No netdown	BLCF consults with Lakes Outdoor Recreational Society regarding any harvesting activities and will buffer trails.
Range Tenure Holders	13 range tenures that intersect part of the Community Forest for a total area in the CF of 30,660 ha.	No netdowns.	The range holders are just given the opportunity to participate in the referral for proposed harvest areas.
Trap lines	18 trappers have a trap line area (polygon) that the trap line can be placed within.	No netdowns	The trappers are included in the mailing referral list each year. The trappers are just given the opportunity to discuss the proposed harvest areas and BLCF may adjust harvest activities for the lines or the trapper may move it, it all depends on the situation.
Guide Outfitter	1 Guide Outfitter operates within the BLCF.		BLCF has an informal agreement with the Guide Outfitter to refrain from harvesting within the area surrounding the Outfitters lodge. BLCF consults with the Guide Outfitter regarding harvesting activities within the Community Forest.

Category 6 - Forest areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

18. Is the traditional cultural identity of the local community particularly tied to a specific forest area?

Rationale:
See FSC-BC standards glossary for definition of local

Possible Sources:
Sources of information
1. Consultation with the communities themselves is the most important way of collecting information. This is also a difficult thing to do and may require professional help in the planning or implementation.
2. Knowledgeable people and organizations such as local community organizations or academic institutions. This type of group can often provide a quick introduction to the issues and provide support for further work.
3. Literature sources such as reports and papers, where available, can be very useful sources of information.
4. Review studies of traditional land use and non-timber use of the forest.
5. Review of socio-economic profiles of communities.
6. Review of websites, community promotional material, brochures, etc.

Criteria and Guidance:
- Do the communities consider that the forest is culturally significant? (This can only be identified in co-operation with local communities. This requires the forest manager to consult with local communities. Where consultation is not possible then you must assume it is culturally significant). Possible indicators for cultural importance include:
1. Names for landscape features;
2. Stories about the forest;
3. Sacred or religious sites;
4. Historical associations; and,
5. amenity or aesthetic value.
The difference between having some significance to cultural identity and being critical will often be a difficult line to draw and as with meeting basic needs, the way in which it is established will be very variable. However, some key points to consider are:
• To be an HCV, the forest must be critical to the culture.
• For FSC certification all identified values must be addressed even if they are not critical, but will be dealt with under other principles.
Two potential indicators for critical:
1. Will changes to the forest potentially cause an irreversible change to the culture? (GUIDANCE)
2. Is the particular forest in question more valuable than other forests? (GUIDANCE)

Response:
As well, as part of our FSC process, the BLCF management has expanded its efforts to improve the relationship with First Nations communities. The status of their discussions are addressed elsewhere.

3 First Nations representatives sit on the Board of Directors of the BLCF. They are updated monthly on the activities of the MPB Mitigation planning.

The following sites/trails are known to be on the BLCF:

- Maxan Trail
- Old Babine Trail
- Grease Trail
- Historic First Nations' Villages on Burns Lake and Maxan Lake
- Two large WTP with informal, undocumented agreements.
- Botanical food areas.

The following areas have also been identified as having possible First Nations and community values. BLCF limits harvesting activities in these areas and any harvesting that is completed is done on a small scale.

- Kager Lake
- Guyishton Lake
- Eagle Creek/Opal Bed
- East and West sides of Maxan Lake

Potential First Nations' traditional use sites are being identified on the BLCF. BLCF is currently working with First Nations to developing a process to identify these areas and address concerns regarding them. The HCV Assessment identified potential HCV sites and values based upon local knowledge of the BLCF staff and consultants. Until consultation and involvement processes are defined and First Nations' Communities involved in the identification and delineation of their cultural values, the intent of Principle 9 is to ensure precautionary management of those forests such that identified HCVs are maintained, restored, or enhanced.

Management Strategy:
In order to prevent mistakes and negatively impacting First Nations' Cultural Areas, forest planners need to be aware of cultural sites.

The BLCF has met and discussed information sharing, confidentiality of information with local First Nations communities.

Our hope is that as information sharing agreements are reached, management plans and operating procedures can jointly be developed.

This initiative is on going.

In the meantime, in our Mitigation Plan, we have constrained 1,350 ha of the landbase (aspatially) and the 2 large WTPs (spatially), totally 1,500 ha as First Nations' Cultural Management areas.

19. Is there a significant overlap of values (ecological and/or cultural) that individually did not meet HCV thresholds, but collectively constitute HCVs?

Rationale:
Consideration of several spatially overlapping values is important in optimizing conservation management. Individual values that do not meet the threshold for critical and/or outstanding may collectively meet the threshold

Possible Sources:
Neighbourhood analysis can be used to summarize point values (e.g., species occurrences, feeding areas, mineral licks, spawning areas) within a spatial window of a size that is relevant for the ecosystem type and values under consideration. If concentration of single values was not undertaken in any of the previous steps (e.g., S1-S3 species occurrences) then include this in the analysis. Overlays of multiple values to assess spatial coincidence.

Criteria and Guidance:
- Are there several overlapping conservation values? (GUIDANCE)
- Do the overlapping values represent multiple themes (e.g., species distribution, significant habitat, concentration area, relatively unfragmented landscape)? (GUIDANCE)
- Are the overlapping values within, adjacent to, or in close proximity to an identified HCV or existing conservation area? (GUIDANCE)
- Are the overlapping values adjacent or in close proximity to an existing protected area or candidate for permanent protection? (GUIDANCE)

- Do the overlapping values provide an option to meet protected areas representation requirements (i.e., overlap an under-represented landscape as assessed using a protected areas gap analysis)? (GUIDANCE)

Response:
It is expected that there are overlaps. However, until First Nations communities agree upon processes to share information, forest planning is limited in what can be done.

Management Strategy:
In the meantime, as discussed in our comments at the beginning of this document, the Mitigation Plan being proposed to FLNRO and the Board of Directors includes co-location of resource values.

Once an understanding of what FLNROs and BOD desire, this document will be updated.

Summary

High Conservation Values	Theme	Total Area (ha)	Landbase Type		CFLB Breakdown	
			Excluded Area (ha)	CFLB (ha)	NHLB (ha)	THLB (ha)
HCV 1 - Forest areas containing globally, nationally or regionally significant concentrations of biodiversity values.	Grizzly Bear Habitat	126.4	7.4	119.0	117.1	1.9
	Moose Winter Range	31,406.0	3,124.6	28,281.4	8,148.8	20,132.6
	Deer Winter Range	2,112.8	88.4	2,024.4	1,174.0	850.4
	Northern Goshawk (100m buffer)	32.9	0.3	32.6	16.0	16.6
	Lakes North Connectivity Corridor	15,419.5	3,642.7	11,776.8	5,143.6	6,633.2
	Lakes South Connectivity Corridor	1,147.0	56.1	1,090.9	508.1	582.8
	Retention Visual Quality Area	12,228.6	714.9	11,513.7	3,716.6	7,797.1
	Partial Retention Visual Quality Area	21,475.4	1,176.1	20,299.3	5,428.6	14,870.7
HCV 3 - Forests areas that are in or contain rare, threatened or endangered ecosystems	***Rare Ecosystems Total***	4,489.5	2,945.5	1,544.0	765.9	778.1
	SBSdk (02)	490.5	9.9	480.7	249.0	231.7
	SBSdk (04)	287.7	10.5	277.2	154.4	122.8
	SBSdk (08)	136.4	23.6	112.8	93.8	19.0
	SBSdk (09 or 09_10)	1,672.1	1,261.2	410.9	142.7	268.2
	SBSdw3 (02)	82.2	0.5	81.7	55.1	26.6
	Grasslands (81 or 82)	134.6	94.7	39.9	31.3	8.6
	Wetlands (31 or 32)	1,685.9	1,545.1	140.8	39.6	101.2
	Old Growth Management Area	6,461.8	912.4	5,549.4	5,549.4	0
HCV 4 -Forest areas that provide basic services of nature in critical situations	THLB definition includes Inoperable Terrain, slopes > 50%, > 2ha.	975		975	962	13
HCV 5 - Forest areas fundamental to meeting basic needs of local communities	THLB definition includes Recreation Sites. No specific areas listed.	62		62	5	57
	Specific Areas Used by Local Communities					
	Boer Mountain Recreation Site. Est 2008. 4,000 ha. Burns Lake Mountain Bike Association. Harvesting and road building can occur within the area, but due to the strong recreation focus of the area, it must be done in a way that balances all interests".	4,000				
	Omineca Ski Club Trails, 8.6 KM of trails	0				
	Burns Lake Snowmobile Club, 9 km of trails	0				
	Bears Den Recreation Trail, 2.3 km of trails	5				
	Guyishton Lake Recreation Site, 9 ha site	5				
	Rob Reil Recreation Trails, 2.3 km of trails.	5				
	Opal Bed Recreation Trail, 2.3 km of trails.	5				
	Star Lake Recreation Trail, 5 km of trails.	10				
	Agate Point Recreation trail, 2.3 ha site.	5				
	Range Tenure Holders, no deductions	0				
	Traplines, no deductions.	0				
	Guide Outfitter, buffer on lodge. Est	0				

High Conservation Values	Theme	Total Area (ha)	Landbase Type		CFLB Breakdown	
			Excluded Area (ha)	CFLB (ha)	NHLB (ha)	THLB (ha)
	25 ha					
HCV 6 - Forest areas critical to local communities' traditional cultural identity	Two large WTP with informal, undocumented agreements.	135				
	Maxan Trail Old Babine Trail Grease Trail Historic First Nations' Villages on Burns Lake and Maxan Lake Botanical food areas Kager Lake Guyishton Lake Eagle Creek/Opal Bed East and West sides of Maxan Lake	1,350 aspatial allowance				