

Lakes TSA Resiliency Project

DRAFT Current Condition Assessment Executive Summary

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Introduction

The Lakes Resiliency Project (LRP) consists of two project phases. The first phase investigates the objectives set out in the Lakes North and South Sustainable Resource Management Plans (SRMP) against the current condition of specified natural resource values and assesses whether the SRMPs should be amended and/or additional SRMP objectives incorporated into the plans. The geographic scope of this phase is the Lakes Timber Supply Area (TSA) and the Community Forest Agreements (CFA) and First Nation Woodland Licenses (FNWL) that reside within the gross boundary of the TSA.

The second phase of the project is a Forest Landscape Plan (FLP) pilot. The FLP will identify strategies that are expected to balance the natural resource values for improved ecosystem resilience within the TSA. The FLP will direct the development of forest licensees' Forest Operation Plans (FOPs) that will replace the current non-spatial Forest Stewardship Plans (FSPs). While this phase of the project is limited to volume - based tenures within the TSA it may inform the management of the large area-based tenures.

The Current Condition Report identifies the current management direction and expectations in the project area, based on legislation, policies, current management practises and natural disturbance. Furthermore, the report presents a set of resource values for the area, and reports on their current condition.

This document provides an abbreviated summary of the Current Condition Report. The reader is advised to consult the Current Condition Report for all scientific references.

Project Area

The project area is in north-western BC. It consists of the Lakes TSA and various area-based tenures, such as First Nations Woodland Licenses (FNWL) and Community Forest Agreements (CFA). The project area is part of the FLNRORD Skeena Region and is administered by the FLNRORD Nadina Natural Resource District in Burns Lake, the largest community in the area with a population of approximately 2,000. The balance of the population (approximately 6,000) can be found in many smaller communities, including Decker Lake, Danskin, and Grassy Plains.

The Lakes TSA is 1,577,450 ha in size, of which 1,039,665 ha is within the LRP study area. The rest of the land base is within Provincial parks, such as Tweedsmuir Provincial Park. Approximately 870,000 ha (84%) of the study area is forested.

The following First Nations have traditional territories within the project area: Wet'suwet'en First Nation, Lake Babine Nation, Ts'il Kaz Koh First Nation, Skin Tyee Nation, Nee Tahi Buhn Indian Band, Cheslatta Carrier Nation, Takla Lake First Nation, Stelat'en First Nation, Nadleh Whut'en Band, Yekooche First Nation, Tl'azt'en First Nation, the Ulkatcho First Nation, Binche Whut'en, and the Office of the Wet'suwet'en.

Climate Change

An examination of Environment and Climate Change Canada (ECCC) weather stations within the Lakes TSA show that climate change is occurring in the Lakes TSA. There are currently significant declines in winter precipitation as well as significant increases in summer and winter minimum temperatures.

Global climate models project that the average summer warming will continue. The models also project an increase in precipitation in most seasons. However, annual precipitation is predicted to vary significantly. This suggests that the primary driver for long-term trends in hydrology and drought is temperature rather than precipitation.

Forest disturbance

Within the last 20 to 30 years the predominantly mature and old forests in the Lakes TSA have transformed to forests dominated by young stands (Figure 1). Natural disturbance (mountain pine beetle and wildfire) and related timber salvage activities have been the main cause of this rapid transition.

Mountain Pine Beetle (MPB)

The mountain pine beetle (MPB) infestation which started at the turn of the century can be related to decreasing extreme cold temperatures. According to the observed data, the MPB peak occurred in 2005 in the Lakes TSA and 54 million m³ of pine was killed by 2014. This represents approximately 76% of the pine volume in the TSA in 1999.

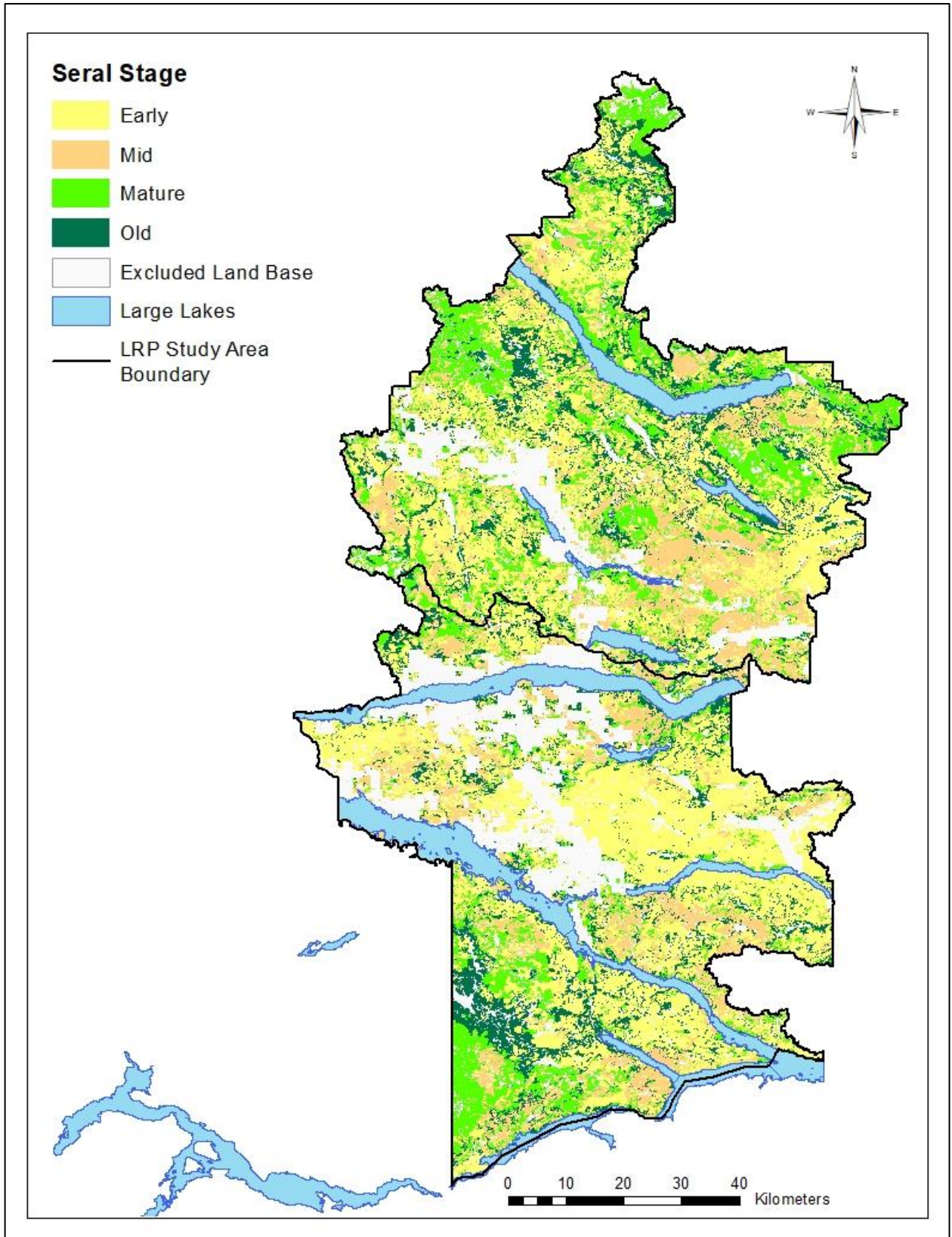


Figure 1: Seral stages in the Lakes project area

Wildfire

The ecosystems in the Lakes TSA are mostly natural disturbance type (NDT) 3 ecosystems. Stand initiating wildfires are common and historically they have occurred frequently and varied in size from small fires to large ones sometimes covering tens of thousands of hectares. Factors such as fire suppression, MPB, harvesting and climate change have exacerbated the fire situation in the Lakes planning area.

According to the BC Wildfire Service, the number of wildfires in the Lakes TSA has declined, while their size and the burned area has increased over time. The recent record-breaking wildfire years in BC have been attributed to extreme warm and dry conditions which were made more likely due to anthropogenic climate change. The largest area burned in the Lakes TSA occurred in 2018 which was the 3rd driest summer on record and followed the driest summer on record in 2017.

Timber Salvage

The MPB infestation has influenced forest management in the TSA significantly. The annual allowable cut (AAC) has been increased twice within the last 30 years to facilitate the salvage of MPB killed trees.

Forest Diseases

Dothistroma needle blight and various pine stem rusts, which are common in the Lakes TSA and can cause lodgepole pine mortality, are also more common with climate change. Recent warmer and wetter summers create favourable conditions for Dothistroma and increased growing season minimum temperatures favour pine stem rusts.

Resource Values and their Indicators

The current condition report identifies various resource values and their indicators for the project area, and reports on their current condition.

Biodiversity

Biodiversity in British Columbia is managed via a coordinated strategy that includes a system of protected areas at the regional scale, a variety of habitats and seral stages at the landscape scale and management practices that provide important ecosystem attributes at the stand scale.

Recent natural disturbances and salvage harvesting have altered the seral stage distributions in the Lakes TSA significantly. All ESSF BEC zones fail to meet landscape level late seral stage targets, while the Burns Lake East and Cheslatta landscape units within the SBS BEC zone also face an old growth deficit. The maximum early seral target is exceeded in both BEC zones in the Cheslatta landscape unit.

Water, Fish Habitat, Riparian Areas

Fish and Fish Habitat is one of the five values chosen by the Skeena Sustainability Assessment Forum Environmental Stewardship Initiative (SSAF ESI). A state of value report was released by SSAF ESI for fish and fish habitat in 2021 where the assessment results suggest that indicators in the moderate to high categories should be given further management attention.

Many of the SSAF ESI indicators for fish habitat are beyond the scope of this project. The project considered road density, equivalent clearcut area (ECA), young second growth and riparian disturbance. All are classified as high concern in the project area.

Salmonid habitat and salmon spawning were also considered. Approximately 99% of the area under assessment is classified as moderate or low salmonid habitat, while approximately 96% of the area under assessment is classified as having low salmon spawning habitat.

Water, Wetlands

Wetlands is another SSAF ESI value with a draft state of value report produced in 2021.

The current condition is presented for selected indicators:

- Road Density within a wetland buffer area (within 100 m of wetland). Approximately 63% of the wetland buffer area is classified as higher risk.
- Intactness of contributing area. This indicator presents the percent of natural and semi-natural land cover within 2 km buffer of wetlands. Approximately 88% of the area are classified as having low intactness.
- Wildlife habitat connectivity. Approximately 40% of the area have wildlife habitat connectivity, while 60% have not.

Wildlife

Wildlife in the Lakes TSA is impacted by the rapid changes in the TSA landscape caused by natural disturbance and harvesting. The current condition report considers several wildlife species and their habitat indicators.

Grizzly Bear

Grizzly Bear is managed through a FPPR Section 7 Notice around the indicators of the amount, distribution, and attributes of wildlife habitat required for the survival of species at risk in the Nadina Natural Resource District. Grizzly Bear is also one of the five SSAF ESI values. The SSAF ESI identified at risk LUs for various Grizzly bear population and habitat indicators. Within the project area, the following LUs have been flagged as higher risk to Grizzly bears:

- Burns Lake West
- Cheslatta
- Francois East
- Francois West
- Burns Lake East
- Babine West
- Ootsa
- Taltapin

While the SSAF have developed 10 indicators most of them are beyond the scope of this project. For the purpose of this report, only road density and mid-seral dense conifer were selected to be reported out on for Grizzly bear, in addition to the requirements of the FPPR Section 7 notice.

Age and Height Constraints (FPPR Section 7)

As per FPPR Section 7 Notice, within the grizzly bear habitat areas, it is required that no more than 50% of the forest cover is younger than 121 years old and no more than 33% of the forest cover is

younger than 28 years old, or less than 5 m tall. Seven out of the 13 landscape units do not currently meet the age defined habitat targets.

Road Density (SSAF ESI)

Road density is a population indicator for grizzly bear. Road density poses a high risk to grizzly bear populations and habitat. Roads cause habitat loss, fragmentation, and population isolation and decline. They also facilitate human-bear interactions.

Road density in all LUs exhibit a very high risk for Grizzly Bear populations except for Babine East (high risk). Both very high- and high-risk classes are problematic to grizzly bear.

Mid seral dense conifer (SSAF ESI)

Open canopy forests support greater berry production, which is an important food source for grizzly bears. This indicator flags potential LUs where forage supply could be an issue for grizzly bear due to excess mid seral forest in certain BEC zones.

LUs with less than 30% of area in mid-seral dense conifer are low risk to grizzly bears, while LUs with 30% or more of the area in mid-seral dense conifer are high risk to grizzly bears and are flagged for management attention. Burns Lake East and Ootsa LUs fail to meet the mid-seral dense conifer target. In both cases the target is exceeded in the ESSF BEC zone.

Caribou - Takla Herd

On January 4, 2021, a Government Actions Regulation Order established Ungulate Winter Range (UWR) U-6-013 for the Takla Caribou herd (red listed species in BC). Little logging or natural disturbance history is evident within the caribou habitat area. Age class 8 (stands older than 140) are most common in the no harvest and conditional harvest zones. Less than 2% of the area is younger than 80 years old.

The management of Caribou habitat is also facilitated through the Lakes South SRMP Ministerial Order Section 4(2) of FPC of BC Act and continued under the Land Act Section 93.8.

Mule Deer

The MoF Skeena Region has developed draft boundaries for a proposed UWR to meet the FPPR Section 7 Notice. All habitat areas are in deficit for mature forest. This likely due to historic natural disturbance; only 146 ha of the forest show harvest history in the proposed UWR area.

Moose

The MoF Skeena Region recently published preliminary explicit boundaries for the management of moose habitat. The preliminary moose habitat model is not finalized or published. It has been developed in collaboration with ESI/SSAF First Nations; however, it has not yet been approved or supported by them.

The preliminary moose habitat boundaries consist of core areas and moose winter range management zones (MWRMZ). The proposed management regime would not allow harvest in the core areas, while harvest in the MWRMZs would be constrained as follows:

- No harvest if >70% of the stand is mature deciduous.
- Otherwise $\geq 33\%$ of the stand must be mature, i.e., taller than 16 m with a crown closure $>55\%$.

Northern Goshawk

The northern goshawk (NOGO, blue listed in BC) population in the project area is at risk. No official direction currently exists for managing NOGO in the area.

The Skeena Region has identified 60 potential NOGO breeding areas covering approximately 7,800 ha of the forested area. Breeding areas are surrounded by forage areas, which range in size; on average forage areas are approximately 2,600 ha. Approximately 49% of the forest in the forage areas are co-located in permanent reserves and visually sensitive areas, while 26 out of the 64 forage areas are at least 60% co-located in permanent reserves and visually sensitive areas.

Fisher

Fisher is a blue listed species in BC. There are 4 fisher habitat zones in British Columbia of which two exist in the project area. These are the sub-boreal dry and the sub-boreal moist habitat zones. The sub-boreal dry fisher habitat zone consists of SBSdw, SBSdh and SBSdk BEC subzones, while the sub-boreal moist is defined as SBSwk, SBSmk, SBSmc, SBSmm, and SBSmw.

Only a small percentage of the habitat zones currently meet the requirements for suitable fisher habitat (<6%).

Visual Quality

Visual quality objectives exist to guide forest management activities on a landscape.

Large areas with dead timber pose a problem, because maintaining visual quality may not be possible, or in some cases the visual quality objectives may conflict with other values, such as fire protection of communities.

The Forest and Range Evaluation Program (FREP) monitors the achievement of visual quality objectives. As per the FREP ([FREP Dashboard \(arcgis.com\)](https://www2.gov.bc.ca/gov2/feature/FREPDashboard)) the VQOs in the Lakes TSA were achieved in 74.4% of the cases and not achieved in 25.6% of the cases. The data is based on 43 samples up to 2021.

Timber

Within the geographic boundary of the Lakes planning area, there are 35 woodlots, two First Nations woodland licences, three community forest agreements, eight replaceable forest licences and a timber sale licence program. The number and diversity of licences and tenure agreements in the TSA reflects the dependence of the local economy on the regional forest industry.

Annual Allowable Cut (AAC)

The current (2019) AAC in the Lakes TSA is 970,000 m³ per year of which 400,000 m³ is attributable to live conifer volume and 550,000 m³ to dead volume. An additional 20,000 m³ is attributable to live deciduous volume.

The historical and current Lakes TSA AAC are shown in Table 1. The increases in the AAC in 2001 and 2004 were in response to the MPB epidemic; the objective was to target moderately and severely impacted pine stands. The 2011 partition was put in place to maximize the mid-term harvest by controlling the harvest of non-pine species.

The expansion of the Burns Lake Community Forest, and the establishment of the Chinook Community Forest, the Lake Babine Nation Woodland Licence and the Nee Tahi Buhn Band First Nations Woodland Licence led to the decrease of the TSA's AAC in 2016.

The AACs for the area-based tenures in the project area are shown in Table 2. The current total AAC for the area-based tenures is 357,753 m³ per year. The total AAC for the project area (sum of the TSA AAC and the area-based tenures AAC) is 1,327,753 m³ per year.

Table 1: Historical and current AAC, Lakes TSA

AAC (m ³)		1982	2001	2004	2011	2016	2019
			1,500,000	2,962,000	3,162,000	2,000,000	1,648,660
Partition	Non-Pine				350,000	288,516	
	Live Conifer						400,000
	Live Deciduous						20,000
	Dead						550,000

Table 2: AAC for area-based tenures in the project area

Tenure	Licensee	Issued	Initial AAC	Current AAC
Community Forest Agreement	Burns Lake Community Forest	2005	86,000	194,226
	Cheslatta Carrier Nation	2007	16,613	73,397
	Chinook Comfor	2016	150,000	65,000
First Nations Woodland License	Lake Babine Nation Forestry	2016	18,930	18,930
	Nee Tahi Buhn	2016	6,200	6,200
Total			277,743	357,753

Harvest Performance and Trends

Figure 2 illustrates the scaled volume for the Lakes TSA and area-based tenures (CFAs and FNWLs) between years 2012 and 2020. Historically the scaled volume has been substantially less than the AAC except for 2020, when the harvest exceeded the project area AAC. Note that all licensees in the planning area are on a 5-year cut control system. Within the system the harvest vs. AAC is monitored over a 5-year period and annual surpluses and shortfalls are common.

Over time the share of area-based tenures of the total harvest has increased. In 2012 approximately 13% of the scaled harvest came from area-based tenures. In 2020 their share had increased to 30%.

Most of the harvest since 2012 has been pine. Pine together with spruce are the most common species in the area; the salvage of the MPB killed stands has further increased pine harvest. It is expected that the harvest of pine will be reduced significantly in the short and medium term as most of the merchantable dead stands have been salvaged.



Figure 2: Harvest 2012 – 2020, CFA, FNWL and Lakes TSA (m³)

Volume of Merchantable Timber

The merchantable volume of timber in the forested area within the Lakes planning area is estimated at 88.8 million m³. Approximately 26% of the volume is classified as dead. Most of the live volume consists of spruce (35%). Pine has a share of 17%, while 12% of the volume is made up of balsam. Approximately 84% of the dead timber is in the SBS BEC zones with the balance in ESSF.

Age class distribution

The MPB infestation in the project area required prompt salvage harvesting of the dead and damaged timber. Due to the salvage activities and recent wildfires, 37% of the forested area is less than 40 years old.

Volume per ha

There are 380,983 ha of natural stands (55 years old or older in 2021) in the potentially harvestable area in the Lakes planning area. Approximately 36% (138,855 ha) of them have less than 140 m³ per ha (dead and live). The natural stands that have less than 140 m³ of live timber per ha, but when combined with dead timber meet the 140 m³ per ha threshold, constitute 22% (82,844 ha) of the area. The balance of the natural stands (159,283 ha, 42%) consists of stands where the live volume is 140 m³ per ha or more.

Timber Supply Review (TSR) Forecast (TSA Only)

The Lakes TSA TSR base case projected a total harvest level of 800,000 m³ per year, equally split between dead and live timber, over the first 10 years of the planning horizon (Figure 3). The harvest of dead timber is projected to fall to an average of 75,000 m³ per year at year 11 and remain at this level until year 60. According to the base case harvest forecast, after year 60 dead volume no longer contributes to the harvest.

It is uncertain how long (shelf life) after death the mountain pine beetle killed trees are usable as sawlogs. The trees killed by the MPB are likely nearing the end of their shelf life.

The harvest of live timber is projected to be sustainable at 400,000 m³ per year until year 60, after which the harvest forecast for live timber (and total) increases to 900,000 m³ per year until the end of the planning horizon.

The base case harvest forecast contains important assumptions regarding the ongoing harvest operations, the quality of natural stands, the growth and yield and the associated quality of managed stands. These assumptions are as follows:

1. Up to 400,000 m³ of MPB killed dead timber is available for harvest annually for 10 years.
2. Up to 75,000 m³ per year of dead timber may be available until year 60.
3. The available dead timber will be harvested by the area licensees.
4. The minimum harvest volume (live and dead) is 140 m³ per ha. This assumption is combined with a minimum harvestable age requirement of 80 years. Both conditions must be met.
5. The timber in low productivity stands will be harvested as modelled; 292,000 m³ per year of live volume and 268,000 m³ per year of dead volume are expected to be harvested in stands where the harvest volume per hectare is low.
6. At year 60, approximately 90% of the harvest is assumed to come from managed stands meeting the minimum harvest criteria of 140 cubic metres per hectare and 80 years of age

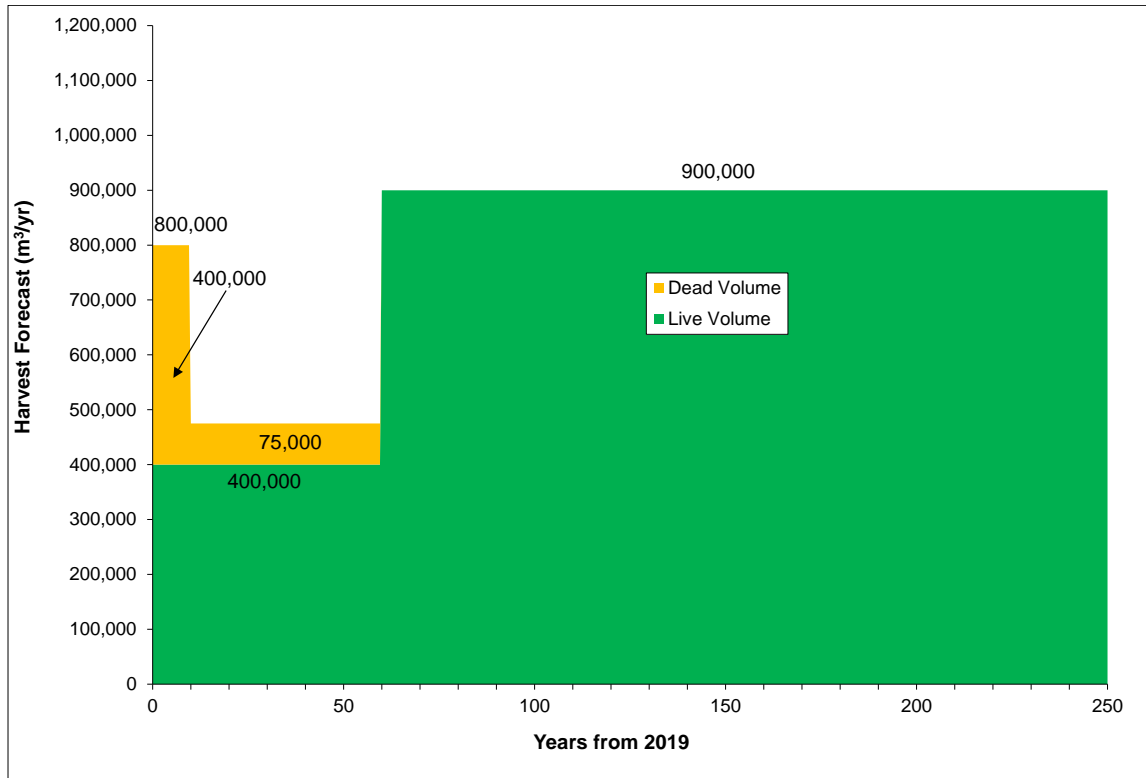


Figure 3: Timber supply forecast (TSR 2019)

Range

Range is a significant economic driver in the Lakes area. In 2021, there were 99 grazing licenses and permits granted in the Lakes area, authorizing 24,652 animal unit months of grazing.

Range health data that assesses proper functioning condition for range uplands, wetlands, and streams exists for the Lakes TSA. Of the 28 sites assessed between 2010 and 2020, 71% were deemed in proper functioning condition, 7% were found to be slightly at risk, 18% moderately at risk, and ~4% at high risk.

Rangeland faces increased pressure from many different sectors. Proper management of these unique landscapes and sometimes rare ecosystems ensures that rangelands continue to support recreationists, ranchers, and First Nations' interests.