Current Condition Report for Forest Biodiversity: Lakes Timber Supply Area

APPENDIX 2

Land Use Affecting Forest Biodiversity in the Lakes Timber Supply Area (TSA)

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Land Use Overview

Forest biodiversity can be affected by a range of land uses and natural disturbances. The various types of land use and natural disturbances will impact forests in different ways, both through how severely forest structure is modified by the disturbance event and the time for a new stand to develop or recover to a forested condition following the disturbance. Land uses and natural disturbances in this assessment include:

- Forest harvesting that often removes most of the overstory forest structure. Under current practices, regeneration of a new stand typically occurs within a few years following harvest.
- Land uses, such as urban or agricultural developments, mines, oil and gas development, transmission lines, transportation corridors, or pipeline right-of ways, that often result in permanent or semi-permanent conversion of forest land to a non-forested condition. In many cases, regeneration is prevented or delayed until an area is rehabilitated.

The provincial Cumulative Effects Framework (CEF) Human Disturbance Layer is used to categorize the land base into land cover categories including different land uses (Table 1). The CEF Human Disturbance Layer is an update to the provincial Baseline Thematic Mapping layer (BTM) that was originally created in 1995. The updated layer combines various provincial tenure datasets available in the British Columbia Geographic Warehouse (BCGW) and the BTM layer to provide a snapshot of the extent of area covered by each land cover category up to and including 2019. Each land cover category is ranked based on criteria including: 1) permanence of disturbance, 2) activity disruption, 3) size of the disturbance, and 4) accuracy of the data, such that the overlapping physical footprint of the highest ranked land cover category overwrites layers 'below' it to avoid double counting land use.

Table 1: *General Description of Land Cover Categories used to Characterize Key Anthropogenic Disturbances used in the Cumulative Effects Assessment.*

Rank*	Land Cover Category	Description
1	Mining and Extraction	Mines, quarries, gravel pits, mine spoils, and tailings
2	Rail and Infrastructure	Railways and airports
3	Oil and Gas Infrastructure	Oil and gas pipelines, well sites, and ancillary features
4	Power	Dams and transmission lines
5	ROW	Surveyed right-of ways (ROW) for rail, roads, pipelines, or transmission lines
6	Urban	Urban, built-up areas, or residential agriculture mixtures
7	Recreation	Recreational area (e.g., ski resorts and golf courses)
8	OGC Geophysical	Oil and gas seismic survey activities (seismic lines)
9	Cutblocks	Current and historic forest harvesting cutblocks
10	Agriculture and Clearing	Clearings and agricultural areas
11	Cutblock Reserves	Forest harvest reserve areas
12	BTM natural landbase	Range lands, forest lands, shrub lands, swamps, wetlands, marshes, bogs or fens, mud flats, inter tidal areas, rivers, lakes, salt water, alpine, sub-alpine, barren rock, glaciers, and areas of permanent snow

[a] Rank refers to the order applied to each land cover category to avoid double counting when assigning land cover category in areas with overlapping physical footprints.

Land Use: Lakes TSA

In the Lakes Timber Supply Area (TSA), forestry is the main land use but switches to agriculture and clearing, urban development, and other types of linear developments along Burns Lake and François Lake in the Burns Lake East and West and François Lake East and West Landscape Units (LUs) (Figure 1 and Figure 2). A significant portion of land has been affected by wildfire and insects in Lakes TSA; further information on wildfire effects can be found in Appendix 3.

Table 2 provides a breakdown of different land uses by LU and biogeoclimatic (BEC) subzone variant for the Lakes TSA. The medium-high wildfire and severe insect categories reflect where adjustments were made to the amount of early seral to capture disturbances not included in the most recent forest inventory.

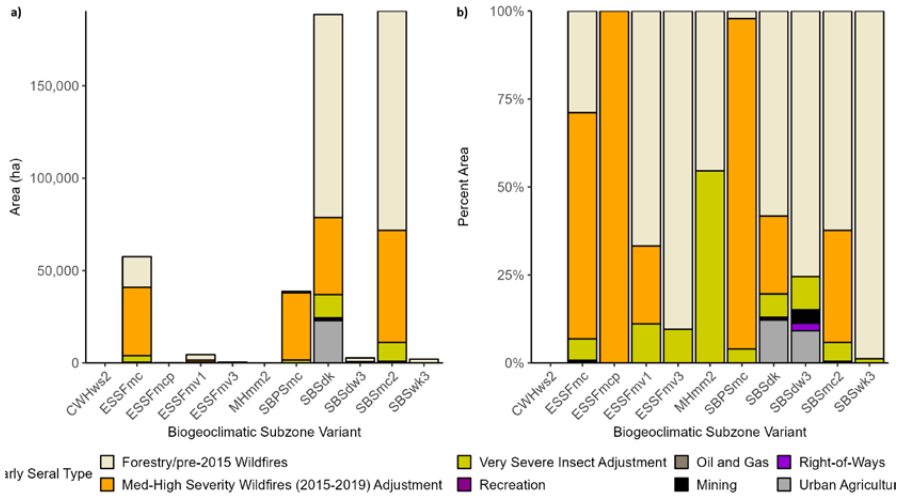

Figure 2: *Land Use and Disturbances Associated with Early Seral (less than 40-year-old) Types by Total Area (a; Left) and Percent of Total Area (b; Right) in each Biogeoclimatic (BEC) Subzone Variant in the Lakes Timber Supply Area.*

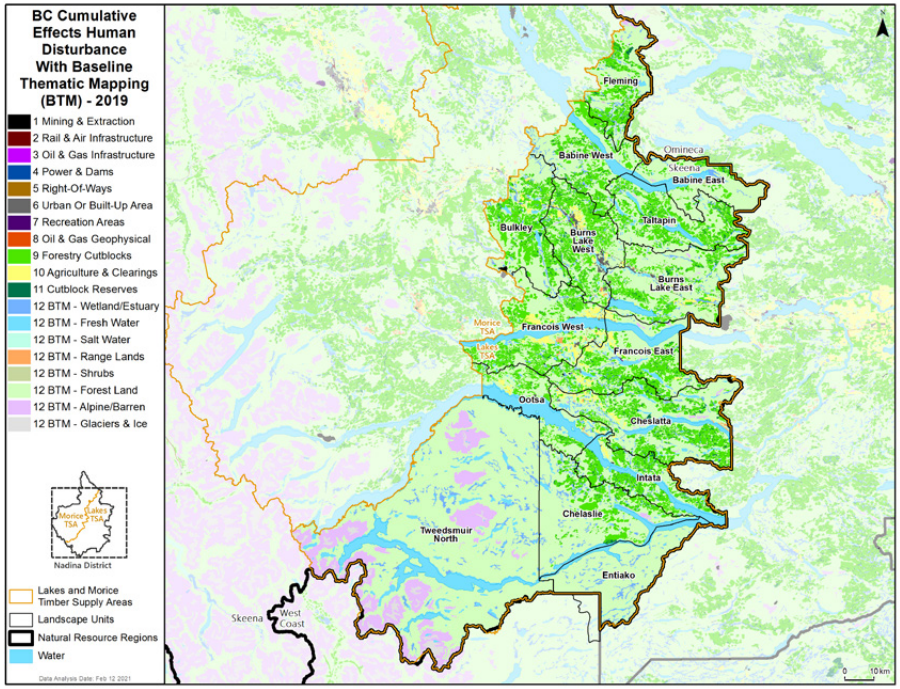

Figure 1: *Land Use and Land Cover in the Lakes Timber Supply Area based on the B.C. Cumulative Effects Framework's Human Disturbance Layer with Baseline Thematic Mapping (BTM).*

Table 2: *Summary of Land Use by Landscape Unit (LU) and Biogeoclimatic (BEC) Subzone Variant in the Lakes Timber Supply Area to 2019.*

Landscape unit	BEC	NDT	LU/BEC Area (ha)	HFLB Area (ha)	Early Forest HFLB Area (ha)	Urban Agricultural (ha)	Mining (ha)	Power, ROW & Rail (ha)	Recreation (ha)	Oil and Gas, Seismic Infrastructure (ha)	Total Forest Converted as early (ha)	Very Severe Insect Mortality (ha)	Med-High Severity Wildfire (ha)	Percent Early Converted (%)	Percent Early Adjusted Insect and Wildfire (%)	Percent Early Adjusted (%)
Babine East	ESSFmc	NDT2	3,307	3,287	377	0	0	0	0	0	0	0	0	0.0	0.0	11.5
	ESSFmv1		8,701	8,674	164	0	0	0	0	0	0	148	0	0.0	1.7	3.6
	SBSdk	NDT3	21,749	15,173	1,720	0	5	0	0	0	5	482	0	0.0	3.2	14.5
	SBSdw3		519	468	357	0	4	0	0	0	4	0	0	0.9	0.0	74.1
	SBSmc2		18,308	18,013	1,622	0	3	0	0	0	3	897	0	0.0	5.0	14.0
Babine West	ESSFmc	NDT2	14,467	13,563	1,975	0	0	0	0	0	0	38	0	0.0	0.3	15.0
	ESSFmv1		1,693	1,681	100	0	0	0	0	0	0	0	0	0.0	0.0	5.9
	SBSdk	NDT3	12,156	7,700	1,715	1	0	10	0	0	11	71	0	0.1	0.9	23.2
	SBSmc2		42,607	39,543	15,048	89	17	12	0	0	118	393	0	0.3	1.0	39.1
Bulkley	ESSFmc	NDT2	17,355	16,104	2,870	0	368	3	0	12	383	132	161	2.4	1.8	19.7
	SBSdk	NDT3	41,139	35,375	14,250	817	7	139	0	38	1,001	567	7	2.8	1.6	42.0
	SBSmc2		18,998	18,168	6,372	0	4	0	0	0	4	516	104	0.0	3.4	38.5
Burns Lake East	ESSFmc	NDT2	10,757	10,526	1,011	0	0	0	0	25	25	16	135	0.2	1.4	11.1
	ESSFmv1		1,181	1,165	84	0	0	0	0	0	0	5	214	0.0	18.8	26.2
	SBSdk	NDT3	47,192	41,283	10,386	1,915	76	274	27	23	2,315	478	1,673	5.6	5.2	30.6
	SBSdw3		7,302	7,011	1,435	247	92	58	0	7	404	62	0	5.8	0.9	21.3
	SBSmc2		31,187	30,307	7,632	0	211	0	0	17	228	423	4,544	0.8	16.4	41.6
Burns Lake West	ESSFmc	NDT2	1,803	1,737	509	0	0	0	0	1	1	90	0	0.1	5.2	34.0
	SBSdk	NDT3	49,700	45,023	19,929	5,658	91	318	46	59	6,172	974	0	13.7	2.2	46.7
	SBSmc2		20,724	20,184	9,484	7	7	7	0	10	31	312	0	0.2	1.5	48.8
Chelaslie	ESSFmc	NDT2	32,852	31,147	4,880	0	0	0	0	0	0	539	3,623	0.0	13.4	29.0
	SBSdk	NDT3	31,599	23,263	3,899	0	5	6	0	0	11	1,270	7,598	0.0	38.1	55.8
	SBSmc2		45,955	42,505	9,580	0	0	0	0	0	0	862	9,639	0.0	24.7	47.3

Landscape unit	BEC	NDT	LU/BEC Area (ha)	HFLB Area (ha)	Early Forest HFLB Area (ha)	Urban Agricultural (ha)	Mining (ha)	Power, ROW & Rail (ha)	Recreation (ha)	Oil and Gas, Seismic Infrastructure (ha)	Total Forest Converted as early (ha)	Very Severe Insect Mortality (ha)	Med-High Severity Wildfire (ha)	Percent Early Converted (%)	Percent Early Adjusted Insect and Wildfire (%)	Percent Early Adjusted (%)
Cheslatta	ESSFmv1	NDT2	3,811	3,792	945	0	0	0	0	0	0	231	180	0.0	10.8	36.1
	SBSdk	NDT3	74,218	63,499	19,405	2,144	20	4	0	0	2,168	1,515	10,521	3.4	19.0	49.6
	SBSmc2		43,961	42,324	16,025	15	7	0	0	0	22	1,804	4,271	0.1	14.4	52.3
Fleming	ESSFmv3	NDT2	10,733	10,644	482	0	0	0	0	0	0	51	0	0.0	0.5	5.0
	SBSdk	NDT3	3,399	2,990	570	0	0	0	0	0	0	3	0	0.0	0.1	19.2
	SBSmc2		34,662	33,674	12,210	0	20	0	0	0	20	229	0	0.1	0.7	37.0
	SBSwk3		5,283	5,252	2,029	0	0	0	0	0	0	24	0	0.0	0.5	39.1
Francois East	ESSFmc	NDT2	858	857	6	0	0	0	0	0	0	11	0	0.0	1.3	2.0
	ESSFmv1		1,196	1,169	284	0	0	0	0	0	0	28	295	0.0	27.6	51.6
	SBSdk	NDT3	64,924	54,387	19,945	3,604	62	3	54	0	3,723	1,112	5,882	6.8	12.9	49.7
	SBSdw3		8,933	5,239	657	0	0	0	0	0	0	193	0	0.0	3.7	16.2
	SBSmc2		15,964	15,769	6,002	123	0	0	0	0	123	441	1,052	0.8	9.5	47.5
Francois West	ESSFmc	NDT2	3,911	3,799	271	0	0	0	0	0	0	44	0	0.0	1.2	8.3
	SBSdk	NDT3	66,766	51,455	20,488	7,049	43	130	27	0	7,249	1,429	1,132	14.1	5.0	44.9
	SBSmc2		24,286	23,708	6,212	305	10	0	0	0	315	662	1,680	1.3	9.9	36.5
Intata	ESSFmc	NDT2	4,089	3,952	1,185	0	0	0	0	0	0	44	281	0.0	8.2	38.5
	ESSFmv1		103	103	19	0	0	0	0	0	0	0	0	0.0	0.0	18.8
	SBSdk	NDT3	39,832	27,190	11,971	437	21	2	0	0	460	998	580	1.7	5.8	50.0
	SBSmc2		17,693	17,105	8,425	0	0	0	0	0	0	753	1,531	0.0	13.4	62.8
Ootsa	ESSFmc	NDT2	2,633	2,587	186	0	1	0	0	0	1	29	0	0.0	1.1	8.3
	SBSdk	NDT3	45,596	26,576	6,631	1,255	15	8	0	0	1,278	2,075	74	4.8	8.1	33.1
	SBSmc2		9,173	8,864	1,855	10	4	0	0	0	14	312	623	0.2	10.5	31.6
Taltapin	ESSFmc	NDT2	17,474	17,251	3,753	0	5	0	0	0	5	26	34	0.0	0.3	22.1
	ESSFmv1		3,307	3,281	1,399	0	0	0	0	0	0	85	303	0.0	11.8	54.0
	SBSdk	NDT3	6,784	3,612	1,175	30	5	0	0	0	35	40	0	1.0	1.1	33.5
	SBSmc2		52,928	47,336	18,853	0	18	13	0	0	31	362	1,857	0.1	4.7	44.6

Landscape unit	BEC	NDT	LU/BEC Area (ha)	HFLB Area (ha)	Early Forest HFLB Area (ha)	Urban Agricultural (ha)	Mining (ha)	Power, ROW & Rail (ha)	Recreation (ha)	Oil and Gas, Seismic Infrastructure (ha)	Total Forest Converted as early (ha)	Very Severe Insect Mortality (ha)	Med-High Severity Wildfire (ha)	Percent Early Converted (%)	Percent Early Adjusted Insect and Wildfire (%)	Percent Early Adjusted (%)
Tweedsmuir North	CWHws2	NDT2	13,431	8,371	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
	ESSFmc		148,755	138,944	12	0	0	0	0	0	0	2,550	31,837	0.0	24.7	24.8
	MHmm2	NDT1	15,293	11,020	5	0	0	0	0	0	0	6	0	0.0	0.1	0.1
	SBPSmc	NDT3	214	212	0	0	0	0	0	0	0	0	218	0.0	102.8	100.0
	SBSdk		9,710	8,891	11	0	0	0	0	0	0	1,285	1,807	0.0	34.8	35.0
	SBSmc2		142,141	113,650	331	0	0	3	0	0	3	2,153	35,408	0.0	33.0	33.4
Entiako	ESSFmc	NDT2	1,306	1,303	0	0	0	0	0	0	0	0	929	0.0	71.3	71.3
	ESSFmcp		1,650	165	0	0	0	0	0	0	0	0	121	0.0	73.3	73.3
	SBPSmc	NDT3	54,374	50,851	844	0	0	0	0	0	0	1,533	36,198	0.0	74.2	75.9
	SBSdk		22,990	16,428	2,189	0	0	0	0	0	0	213	12,493	0.0	77.3	90.7