

# **Jumbo Glacier Resort Master Plan**

## **Appendix 6-E**

### **Supplemental Forestry Information**

Prepared by:  
AI Neal Environmental Consulting

**Jumbo Glacier Resort Project**

**Environmental Assessment Screening Checklist**  
**Supplemental Information - Forestry**

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Submitted by:

Al Neal Environmental Consulting,

## **Introduction**

This document was prepared by Al Neal Environmental Consulting to address three items in the Jumbo Glacier Resort Project – Environmental Assessment Application Screening Checklist, specifically D.4(B) 1., D.4(B) 3. and D. 4 (B) 4. This report does not make forest resource management decisions nor recommendations regarding impacts of the proposed resort development on timber supply. It attempts to provide clarity regarding the quantity and quality of the forest resource base within the area. All data is based on provincial forest cover that has been projected and updated to January 1, 2001. There has been no significant natural disturbances in the area since that date, however some logging has occurred (see current forest management activities summary Page 5).

## **D. Environmental, Resource Management and Technical Issues**

### **4. Forest Resources**

#### **(B)Forest Land Reserve (FLR)**

1. “The proponent, in its project report, must document specific and generalised forest land quality data for areas to be affected not only directly (i.e. by physical development), but also indirectly (e.g. where the operable forest is located within viewsapes which are visible from the village, access road or ski lifts/runs). This analysis must include, at minimum, such parameters as site indices, forest capability, logging and replanting history, and species composition.”

To provide this information Al Neal Environmental Consulting divided the area in to three (3) distinct areas as shown on Appendix A. Map #1. The areas were created using a polygon supplied by Jumbo Glacier Resort Ltd., the Jumbo Glacier Resort Ltd.’s Visual Impact Assessment maps, topographic relief maps, and professional judgments based on a local knowledge of the area.

1. The first area is the Controlled Recreation Area (proposed resort area), defined by an area polygon supplied by Jumbo Glacier Resort Ltd. and includes the resort and ski lifts/ runs. Considered as a “direct impact” area.
2. The second area is a corridor developed by estimating the viewable area from the access road. Considered as an “indirect impact” area. For the purpose of this report, the access road has been defined as all road beyond Panorama Resort and leading directly to the proposal area. It includes a portion of the Toby Creek Forest Service Road (FSR) and a portion of the Jumbo Creek FSR. The polygon in most cases includes all forest to the height of land on either side of the access road. This method was chosen as opposed to ‘buffering’ the access road, due to the narrow valley profile making most of it visible. As shown on the map, major side drainages such as Delphine Creek were excluded (non-visible). It should be noted that the Jumbo creek drainage has many large rock faces and avalanche slide chutes along the access road that increase the visual absorption capacity (VAC) of the drainage. VAC refers to the landscapes ability to ‘hide’ disturbance.

3. The third area is an area within the Horsethief Creek and Farnham Creek drainages. As shown in the Jumbo Creek Resort Ltd.'s Visual Impact Assessment report, portions of this forested area may be visible from within the controlled recreation area. Therefore, it is considered as an "indirect impact" area.

### Site Index

Site index is a measure of site productivity. The indices are reported as the average height, in metres, that the tallest trees in a stand are expected to achieve at 50 years (age measured at 1.3 metres above the ground). Table 1 reports on each of the areas described above, the hectares of each site index class: poor, moderate and good. Poor defined as <14m, moderate is 14m to <18m and good as 18+m. Each of the areas has been described in terms of timber harvesting land base (THLB) and non-contributing land base (NCLB).

**Table 1. Summary of site index**

Area	Site Index Class	THLB (ha)	NCLB (ha)	Total Area
Area 1: Controlled Recreation	High	66.2	37.8	104.0
	Moderate	90.7	11.8	102.5
	Low	198.5	722.9	921.4
	Non-forested	0.0	9137.9	9137.9
<b>Total Area 1</b>		<b>355.4</b>	<b>9910.4</b>	<b>10265.9</b>
Area 2: Access Road Corridor	High	937.8	724.0	1661.8
	Moderate	1039.6	1894.1	2933.7
	Low	408.7	7038.4	7447.1
	Non-forested	0.0	16674.5	16674.5
<b>Total Area 2</b>		<b>2386.1</b>	<b>26331.0</b>	<b>28717.1</b>
Area 3: Potential Visual Area	High	10.4	13.5	23.8
	Moderate	329.4	138.3	467.7
	Low	107.1	2437.5	2544.6
	Non-forested	0.0	16092.6	16092.6
<b>Total Area 3</b>		<b>446.9</b>	<b>18681.8</b>	<b>19128.7</b>
<b>Total of all three areas</b>		<b>3188.4</b>	<b>54923.3</b>	<b>58111.7</b>

Appendix A. Map 2. shows the themed site index classes with the operability line. The operability line has been used to roughly show the THLB area.

### Forest Capability

Tables 1 and 3 of site index and species composition, have been described in terms of non-contributing land base (NCLB) and the contributing timber harvesting land base (THLB). Appendix A. Map 3 shows the location of the contributing and non-contributing land base within the three areas.

The NCLB, as per the *Ministry of Forest's Landscape Unit Planning Guide*, is the Crown forested land base that does not contribute to the annual allowable cut (AAC) but does contribute to seral stage and old growth targets. It includes areas such as parks, riparian reserves,

inoperable forest, environmentally sensitive areas (ESAs) and any other area 100% removed, or area that is partially removed from the THLB, as defined by current forest management practices for each area.

The THLB, as per the *Ministry of Forest's Landscape Unit Planning Guide*, is the Crown forested land base that contributes to the AAC, as defined in the timber supply review for a Timber Supply Area (TSA) or Tree farm License (TFL). While all of the THLB is subject to management requirements such as green-up, some portions are subject to management requirements that are more restrictive, and thus allow less timber to be harvested over time. For example, the management prescriptions for a 'retention' visual quality area often significantly limits the amount of timber that may be harvested.

The definition of THLB within this analysis has been based on the land base assumptions that were used for the most recent timber supply analysis within the TSA. Therefore in terms of "forest capability" it is suggested that the category of THLB for each of the topics discussed, describes all forest land that is capable of producing sawlogs to support the timber supply area's annual allowable cut.

### Logging and Replanting History

Each of the areas has had significant disturbance in the past, both from intermediate utilization (IU) logging, and wildfire.

Table 2. summarizes the harvest and replanting history developed from the 2001 forest cover. The area has been summarized into logging >20 years ago and now reforested, logging <20 years ago and now reforested and area disturbed but not yet reforested (NSR).

**Table 2. Summary of Logging and Reforestation History**

Area	Logging > 20 years ago (ha) - Now reforested	Logging <20 years ago (ha) – Now reforested	Logged but not yet reforested (NSR)	Total Area
Area 1: Controlled Recreation	176.9	0.0	96.8	273.7
Area 2: Access Road Corridor	417.5	122.9	43.9	584.3
Area 3: Potential Visual Area	422.5	0.0	12.6	12.6
<b>Total of all three areas</b>	<b>1016.9</b>	<b>122.9</b>	<b>153.27</b>	<b>870.57</b>

Appendix A. Map 4. provides the locations of the logging history described in Table 2.

Most recently (last five years) in area 1 & 2 the Heli-ski operator had a licence to cut of approximately 75,000 m<sup>3</sup> to produce gladded areas and ski outs.

Since 2001 (the date of the forest cover update), there have been timber sales by the Ministry of Forest's BC Timber Sales program in area 2, totaling approximately 35,000 m<sup>3</sup> (approx 170 ha).

## Species Composition

The three areas have been summarized following in Table 3. as leading species type groups. Typically, a forest stand may not be a homogenous type, therefore for the purpose of this summary, the species making up the largest percentage within the forest cover polygon has been used as the label for the polygon. Further, the leading species have been grouped with tree species commonly found together and similar silvics (example: Fir and Larch). Appendix A Map # 5 details the leading species forest cover within each of the units.

**Table 3. Summary of Leading Species**

Area	Leading Species	THLB (ha)	NCLB (ha)	Total Area
Area 1: Controlled Recreation	Fir Larch	0.0	124.4	124.4
	Pine	66.6	16.9	83.5
	Spruce Balsam	288.8	601.3	890.1
	Whitebark Pine	0.0	30.0	30.0
	Cedar Hemlock	0.0	0.0	0.0
	Deciduous	0.0	0.0	0.0
	Non-forested	0.0	9137.9	9137.9
<b>Total Area 1</b>		<b>355.4</b>	<b>9910.5</b>	<b>10265.9</b>
Area 2: Access Road Corridor	Fir Larch	148.9	1921.2	2070.1
	Pine	1284.1	3520.3	4804.4
	Spruce Balsam	906.4	3179.6	4086.0
	Whitebark Pine	0.0	944.0	944.0
	Cedar Hemlock	46.7	19.3	66.0
	Deciduous	0.0	72.1	72.1
	Non-forested	0.0	16674.5	16674.5
<b>Total Area 2</b>		<b>2386.1</b>	<b>26331.0</b>	<b>28717.1</b>
Area 3: Potential Visual Area	Fir Larch	26.1	422.5	448.6
	Pine	11.7	20.3	32.0
	Spruce Balsam	409.0	1877.9	2286.9
	Whitebark Pine	0.0	236.0	236.0
	Cedar Hemlock	0.0	0.0	0.0
	Deciduous	0.0	32.6	32.6
	Non-forested	0.0	16092.6	16092.6
<b>Total Area 3</b>		<b>446.8</b>	<b>18681.9</b>	<b>19128.7</b>
<b>Total of all three areas</b>		<b>3188.3</b>	<b>54923.4</b>	<b>58111.7</b>

## D. Environmental, Resource Management and Technical Issues

### 4. Forest Resources

#### (B) Forest Land Reserve (FLR)

3. "The project report must summarise the current forest management activities on adjacent Crown lands (e.g. the scale of current logging activities and existing plans for future forest management activities, including logging), and where the cut timber in the area is now processed?"

Within the Invermere timber supply area, a good portion of the logging occurs in unmanaged forest (not previously harvested). Therefore it should be assumed that for any proposed harvest development, varying amounts of road development will also occur.

Area 1: Controlled Recreation Area:

Currently, there is an active license-to-cut permit of approximately 75,000 m<sup>3</sup> issued to the heli-ski operator.

Slocan Forest Products Ltd. has approximately, 133,425 m<sup>3</sup> projected to be harvested in the next 20 years from the entire Jumbo Creek landscape unit, based on timber supply review #2 management assumptions. Volume would come from both areas 1 and 2.

Area 2: Access Road Corridor:

Currently, there is a BC Timber Sale permit active that has removed approximately 35,000 m<sup>3</sup> since 2001. Another 20-30,000 m<sup>3</sup> is developed and is now ready to be sold.

Slocan Forest Products Ltd. has approximately 60,000 m<sup>3</sup> in their current approved five year forest development plan. Of this volume, 10,000 m<sup>3</sup> is in the Jumbo Creek drainage, and the remainder (50,000 m<sup>3</sup>) in the Toby creek drainage.

Area 3: Potential Visual Area:

Currently, Slocan Forest Products Ltd. has approximately 60,000m<sup>3</sup> proposed for harvest in the next five years. Additionally, the entire Horsethief Creek Landscape Unit has a Volume available for harvest over the next 20 years of approximately 453, 990 m<sup>3</sup> based on TSR 2 management assumptions. Within this volume, approximately 90,800 m<sup>3</sup> is expected from the Farnham Creek drainage.

Forest licences have carried out forest health management activities in all three of the units, including surveys, baiting and salvage programs.

In the last five years all timber harvested within the three units was processed within the Invermere TSA.

**D. Environmental, Resource Management and Technical Issues**

**4. Forest Resources**

**(B)Forest Land Reserve (FLR)**

4. "The Proponent should base its reporting with respect to forest land management potential on available information, obtained from either government or adjacent landowners. (note- In order to avoid misunderstanding, the project committee notes that

the proponent is not required to conduct forest management planning on lands for which recognized plans have not already been prepared.)

The reporting of forest land management potential within this report has been based on provincial forest cover data updated to January, 2001 and supplied to Slocan Products Ltd. by the Ministry of Forests. All lands reported on within this report are provincial crown lands that are being managed by various forest license holders. All applicable license authorities were contacted for their relevant information in an effort to provide accurate data.

### **Literature Referenced**

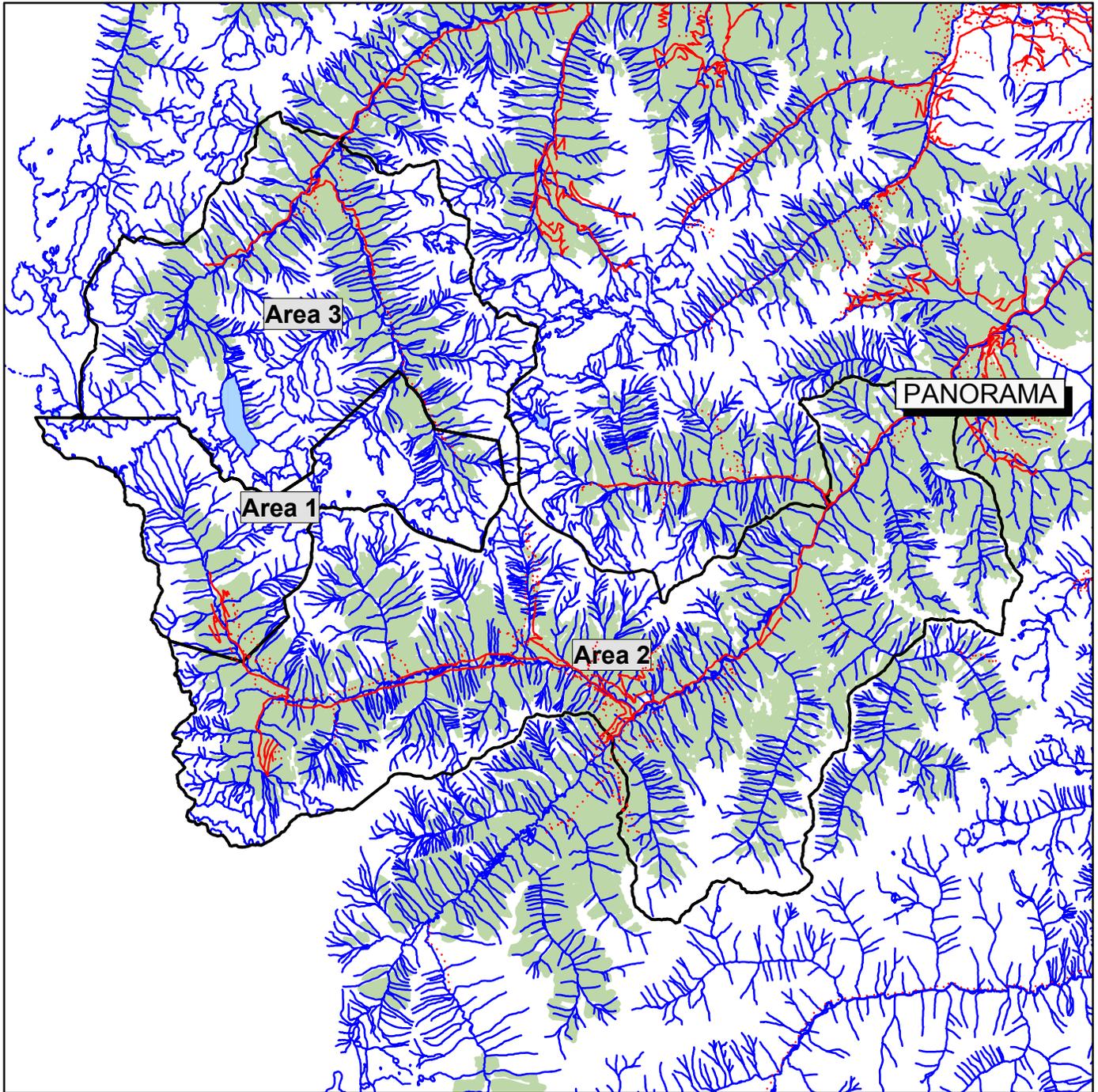
Ministry of Forests – Ministry of Environment Lands and Parks, *Landscape Unit Planning Guide*, March 1999.

Ministry of Forests, *Timber Supply Review 2 Analysis Report*, Inveremere TSA. Timber Supply Branch, 2001.

## **Appendix A**

- Map 1. Subject areas
- Map 2. Site Index
- Map 3. Timber Harvesting Land Base
- Map 4. Logging and Replanting History
- Map 5. Leading Species

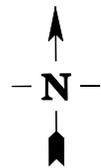
# Jumbo Glacier Resort Limited Forestry Information Report



## Map 1 Subject Areas

 Area Boundaries

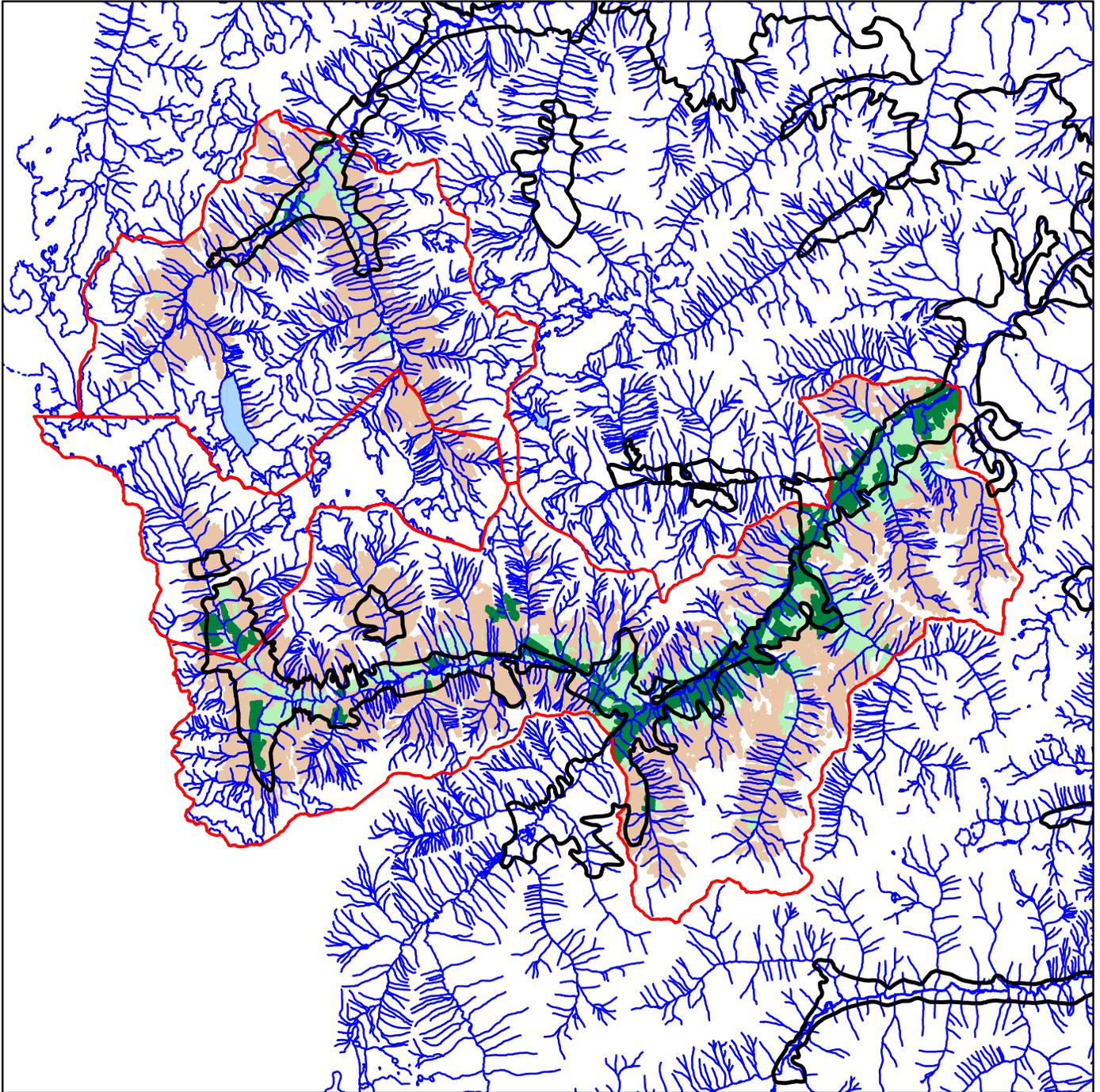
- Area 1 - Controlled Recreation Area
- Area 2 - Access Corridor
- Area 3 - Potentially Visible Area



Scale 1 : 200,000

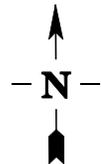
Map Production:  
Al Neal Environmental Consulting  
and Mountainlife Enterprises

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## Map 2 Site Index

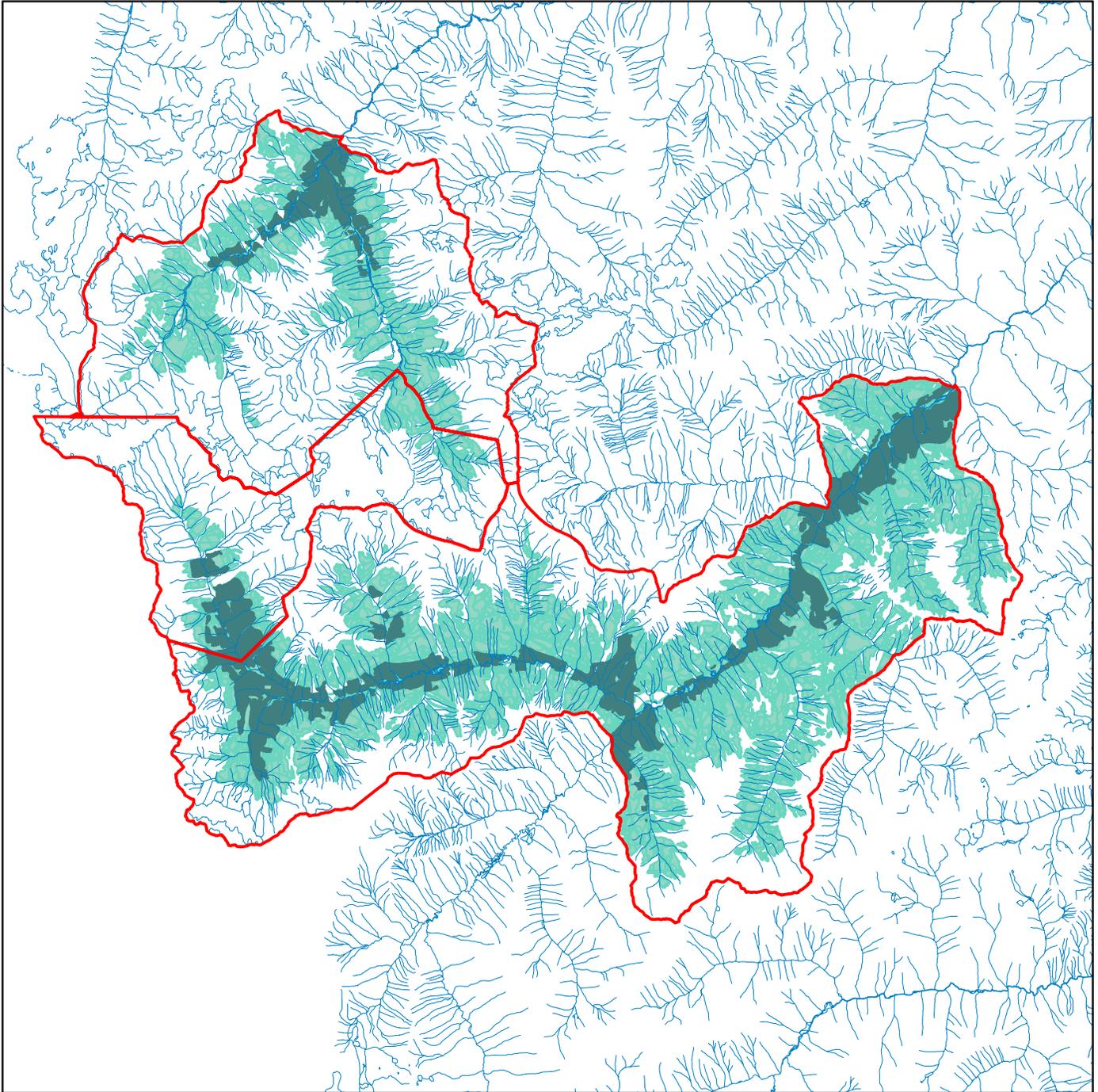
-  Operability Line
-  Area Boundaries
-  Site Index Classes
  -  High
  -  Moderate
  -  Low



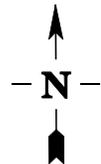
Scale 1 : 200,000

Map Production:  
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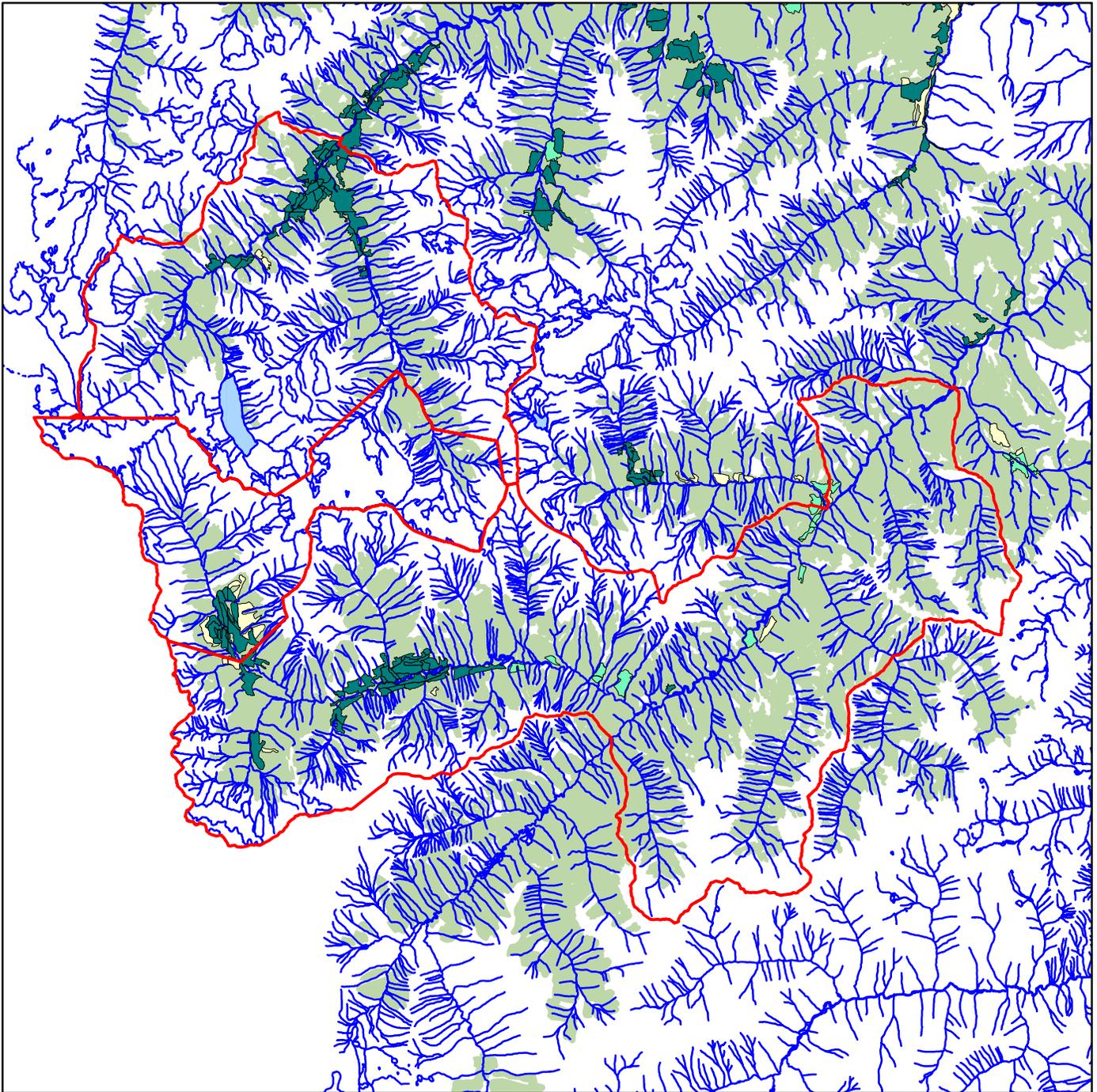
## Map 3 Timber Harvesting Land Base



Scale 1 : 200,000

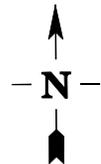
Map Production:  
Al Neal Environmental Consulting  
Mountainlife Enterprises

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**Map 4 Logging and Replanting History  
current to January 2001**

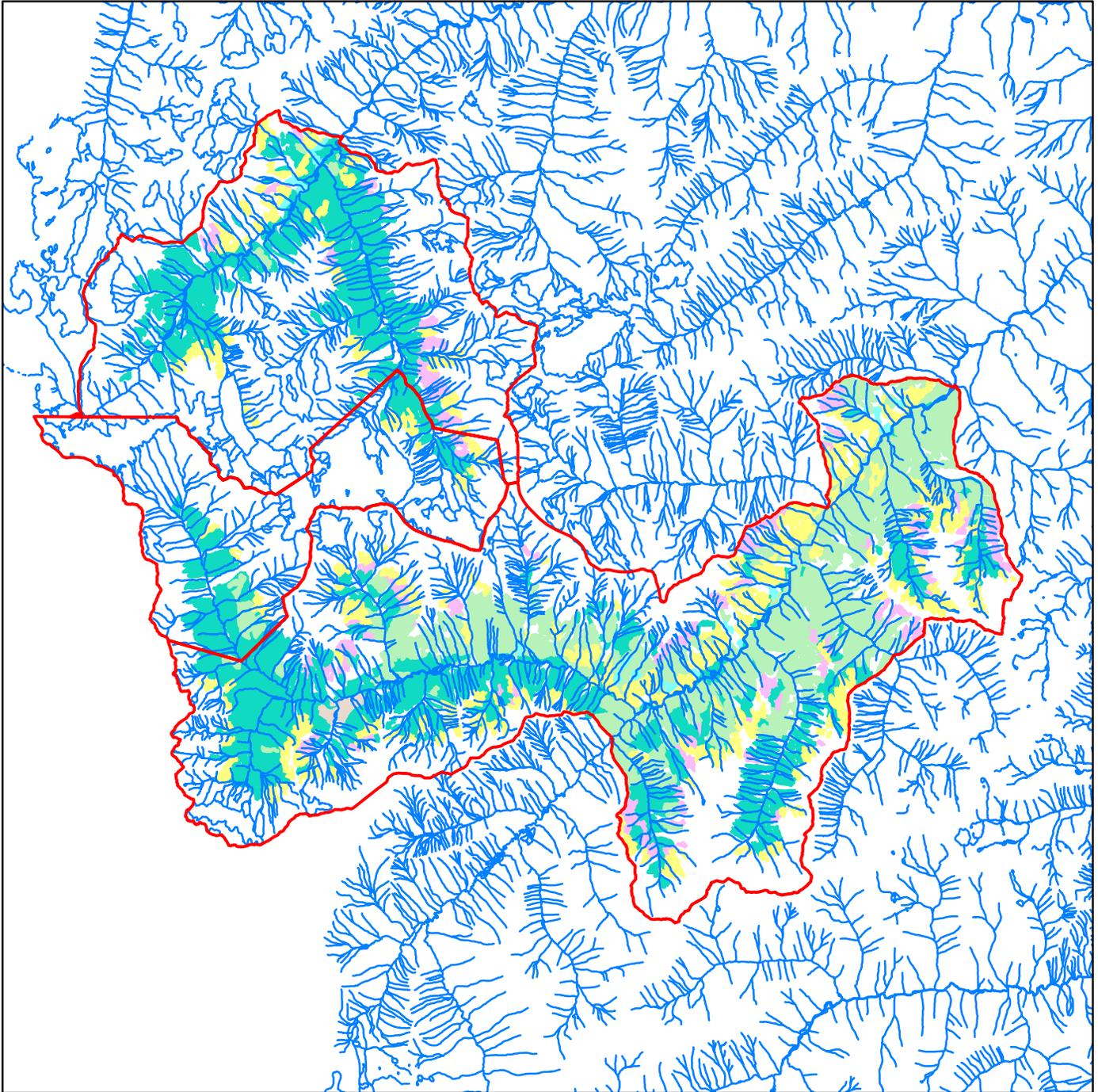
-  Area Boundaries
-  Harvest Activity
  -  Harvest > 20Yrs - reforested
  -  Harvest < 20Yrs - reforested
  -  Harvested - Not currently reforested



Scale 1 : 200,000

Map Production:  
Al Neal Environmental Consulting  
Mountainlife Enterprises

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## Map 5 Leading Species

 Area Boundaries

 Leading Species

 Cedar Hemlock

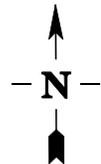
 Pine

 Deciduous

 Spruce Balsam

 Fir Larch

 Whitebark Pine



Scale 1 : 200,000

Map Production:  
AI Neal Environmental Consulting  
and Mountainlife Enterprises