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Upper Cheslatta River Ungulate Habitat Assessment - Fall 2024

Prepared for: Cheslatta Carrier Nation and the Nechako Environmental Enhancement Fund

Attn: Jim D'Andrea – Natural Resources Manager

Board of Directors – Nechako Environmental Enhancement Fund



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Signature Page

Noot’senay Consulting LP is pleased to submit this report for your review. This report has been prepared using sound technical and professional judgement, based on our knowledge and experience, applicable regulatory framework, industry best management practices, and current understanding of project conditions, design, and project setting.

Report Title: Upper Cheslatta River Ungulate Habitat Assessment – Fall 2024

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Written By: 

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- That all project environmental-related information has been received.
- That regulations and standards of practices shall remain constant through the duration of the project.
- That the use of guidance in the report will lead to any particular outcome or result; or, in particular,
- That by using the guidance in the report, the client will be approved by the contract holder for the applied works.

Special Thanks

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1.0 INTRODUCTION

Noot'senay Consulting Limited Partnership (NCLP) was retained by Cheslatta Carrier Nation and the Nechako Environmental Enhancement Fund to conduct comprehensive habitat assessments to evaluate existing conditions for terrestrial ungulate habitat as part of the Reviving Riverine Ecosystems: A Comprehensive Approach to Fish Rehabilitation and Data Collection in the Cheslatta River (the Project).

As a result of the Skins Lake Spillway dam, the Cheslatta River has scoured and widened from its historical morphology. The Project intends to target some impacted areas to rehabilitate aquatic and terrestrial habitats. The purpose of this assessment was to evaluate terrestrial ungulate habitat within the floodplain and the adjacent habitat of the Cheslatta River to inform forthcoming restoration prescriptions targeted at high-risk areas. Assessment methods were adapted from *BC Wildlife Habitat Ratings Standards* (B.C. Ministry of Environment, Lands and Parks Resources Inventory Branch, 1999).

1.1 BACKGROUND

Flow regulation through the utilization of dams is a common practice in many of the world's major river systems, serving various purposes such as hydroelectric power generation, irrigation, and flood control (Nilsson and Berggren, 2004). However, the construction of dams and the resultant flooding can introduce complex disturbance patterns that significantly alter entire ecosystems. These impacts often extend beyond the immediate operational footprint of the reservoir, affecting downstream habitats by altering the natural hydrological regime. Fluctuating water levels resulting from dam operations can create both aquatic and terrestrial impacts.

Recognizing the potential for fish stranding along the Cheslatta River downstream of the Skins Lake Spillway, NCLP partnered with the Cheslatta Carrier Nation (CCN) and the Nechako Environmental Enhancement Fund (NEEF) to complete comprehensive aquatic and terrestrial assessments along the upper Cheslatta River to inform habitat restoration and fish stranding mitigation measures for the identified high-risk areas. Riparian areas provide important habitat for many terrestrial species including ungulates which play a significant role in the shaping vegetation communities and recovery. The terrestrial habitat assessments in this report will focus on ungulate species.

1.2 SCOPE OF WORK

The field assessment was completed on September 09 and 10, 2024, under the supervision of a Qualified Professional (QP). Results of the field assessments have been incorporated into this report to make it a comprehensive overview of the findings.

The main tasks of the overview assessment included the following:

- Identify vegetation communities in the study area.
- Identify focal ungulate species, habitat and sign.
- Evaluate habitat suitability and available forage for focal ungulate species in the Study area.

1.3 STUDY AREA

The Study area includes the floodplains at the four high-risk stranding zones identified in 2023 along the upper Cheslatta River as well as the dam site. The five identified areas are where rehabilitation efforts will be focused.

Terrestrial plot locations were selected within each high-risk area using available spatial data to capture different habitat types within the Study area. Each terrestrial plot was field verified with field assessments. Refer to Cheslatta Ungulate Rehabilitation Study Area map demonstrating the field assessment locations.





Esri Canada, Inc., TomTom, Garmin, FAO, NOAA, USGS, EPA, NRCan, Photo Canada, Esri, CSIR, USGS, Microsoft

LEGEND	
Study Area	Stream



PROJECTION:
NAD 1983 BC
Environment Albers

DATE:
2025/02/14

PREPARED BY:
DWB GIS

Cheslatta Ungulate Rehabilitation
Study Areas

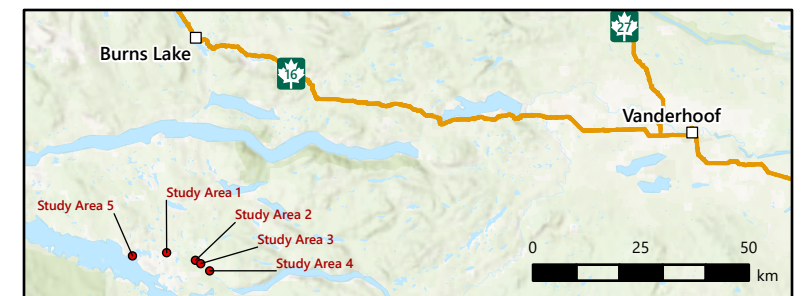
Site Location Map

FILE NAME:
Cheslatta-CN_N2490-091_StudyAreas

FIGURE 1

SCALE:
1:50,000

0 0.5 1 2
km



2.0 METHODS

2.1 LITERATURE AND DESKTOP REVIEW

A comprehensive office review was completed for the development of this assessment by environmental personnel qualified with applicable training, knowledge, experience, and understanding of environmental resource management. Google Earth Pro, GIS systems, and other online resources (see Section 2.1.1) were used to spatially orientate and assess the Study area.

2.1.1 Online Data Sources

The office-based review involves a summary of historical records contained in past reports posted online through various data repositories, including iMapBC and applicable provincial layers (Province of BC, 2025a), Ministry of Environment's (MoE) Habitat Wizard Database (Province of BC, 2025b), the BC Species and Ecosystems Explorer (BCCDC, 2025), and by downloading spatial information (when required) through the Province of BC Data Catalogue. Some information may be obtained through in-house expertise or through communications with agency personnel.

2.1.2 Desktop Habitat Stratification

Habitat stratification was completed through a GIS analysis of available satellite imagery which identified and spatially classified the area based on several metrics including vegetation cover and composition, slope, aspect, and canopy cover to generate stratified habitat mapping. Satellite imagery for the upper Cheslatta River was obtained from Google Earth (2014, 2019, and 2024) and ArcGIS Aerial. Desktop assessment was completed to identify multiple terrestrial plot locations within each of the stratified habitat. Under the direction of the Lead Registered Professional Biologist, NCLP conducted a review of existing and available information to identify terrestrial plots that represent the different ecotypes that would undergo field verification. Prior to fieldwork, a map was created that included all of the proposed terrestrial plots, as well as potential access locations.

2.1.3 Terrestrial Resources

Terrestrial resource data gathered in the office review included online searches and summary details on the Biogeoclimatic (BGC) zone, wildlife, and habitat features of significance such as mineral licks located within the Project area, wildlife habitat areas, caribou distribution, and ungulate winter range. The information is summarized throughout the body of this document to identify and evaluate focal ungulate species and features most likely to occur within the Study area.

2.1.4 Species at Risk and Conservation Status

The BC Conservation Data Centre (BCCDC) website was searched using the following distribution criteria found on the BCCDC website for all blue (i.e., Special Concern) or red (i.e., Extirpated, Endangered, or Threatened) listed ungulate species that may be present within the Project area:

- Ecoregion: Bukley Basin
- BGC Zone: Sub-Boreal Spruce – Dry Cool (SBSdk)

Mammal species that were provincially yellow-listed (i.e., Not at Risk), but ranked as Endangered, Threatened, or of Special Concern by the *Species at Risk Act* (SARA) and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) were included in the search.

2.2 FIELD ASSESSMENT

2.2.1 Habitat Assessments

As part of the field assessments, thorough habitat evaluations were conducted at 23 terrestrial plots throughout the Study area. In some instances, plot locations were determined based on GIS habitat stratification as well as access feasibility.

Visual searches were conducted at each terrestrial plot to identify habitat characteristics including structural stage, slope, slope position, canopy closure, average canopy height, shrub composition as well as, primary and secondary canopy composition. Emphasis was placed on searching for preferred browse species for ungulates (See Table 2). In addition, if any ungulate sign or feature (scat, tracks, rubs, wallows, mineral licks, etc.) were identified during the survey period, a GPS location was taken and the feature was recorded. Additionally at each plot, photos were taken in the four cardinal directions as well as down and up (ground cover, canopy).

Survey Plots

In total, five survey areas were selected to conduct the assessments. These areas were focused on the high-risk fish stranding areas identified in 2023 (Area 1 – 4) as well as an additional area around the dam spillway (Area 5). Within the assessment areas, multiple plots were selected using satellite imagery to capture variable habitats throughout the area. Surveyors assessed a 10 m radius area from the plot center point and ensured plots were located in relatively homogenous habitat. Some plot locations were modified in the field based on access restrictions, or observed variations in habitat. In total, 23 terrestrial plots were assessed. Refer to Table 3 for detailed summary of plot locations. Refer to Section 1.3 and Appendix A for mapped location of the Study areas and terrestrial plots.

2.2.2 Habitat Suitability Ranking

Habitat suitability assessment methods were adapted from *BC Wildlife Habitat Ratings Standards* (B.C. Ministry of Environment, Lands and Parks Resources Inventory Branch, 1999). A rating scheme was developed based on limiting habitat characteristics which for ungulates is largely related to cover and forage. A 6-point system was developed to rank habitat suitability; 1 – 4 is considered usable while 5 and 6 are typically unusable habitat.

Based on the field assessments, eight habitat types were identified throughout the Study area. The field data was compiled to produce eight corresponding plant communities. Each plot was associated with one of the identified plant communities as well as assigned a habitat suitability ranking for each identified focal species according to the observed characteristics documented during the field assessments. Based on desktop habitat stratification, the terrestrial plot data was used to extrapolate habitat characteristics across the study area.

Habitat suitability models were adapted from ungulate habitat models Teversham et al. (1998) and Tera (2013) and modified based on regional literature. Refer to Appendix E for an overview of the Habitat Suitability Assumptions adopted for evaluating habitat suitability within the study area.

3.0 RESULTS

3.1 DESKTOP REVIEW

3.1.1 Focal Species

Focal species for the assessment were selected based on the following criteria:

1. Ungulate species with known ranges overlapping the Study area.
2. Ungulate species identified as having the potential to utilize BGC ZoneSBSdk and Ecosection Bukley Basin.
3. Ungulate species with historic distribution in study area.

Several focal species were identified for this study which include:

- Moose (*Alces alces*)
- Mule Deer (*Odocoileus hemionus*)
- Northern Mountain Caribou (*Rangifer tarandus*)
- Mountain Goat (*Oreamnos americanus*)
- Elk (*Cervus elaphus*)

3.1.2 Habitat Overview

The Study area resides in the Skeena Wildlife Management Unit, Upper Nechako zone. The Study area location is within the Nechako Plateau and overlaps with the Sub-Boreal Spruce zone (SBS) and Dry Cool subzone (SBSdk). This biogeoclimatic zone occurs on gently rolling plateaus with abundant wetlands in the Central and Boreal interior of British Columbia and is characterized by its cold, snowy winters and warm, short summers (Meidinger et al. 1991). The SBS landscape consists typically of both mature and immature forests (predominantly Structural Stage (SS) 4-6), however mountain pine beetle (*Dendroctonus ponderosae*) outbreaks have severely impacted historical stands predominantly composed of lodgepole pine (*Pinus contorta*) (Banner, 2011). Currently, dominate species include hybrid spruce (*Picea engelmannii x glauca*) and trembling aspen (*Populus tremuloides*) except where lodgepole pine stands have survived. Douglas fir (*Pseudotsuga menziesii*) may be present in south facing, warmer sites.

The SBSdk zone is considered important habitat for moose as they are well adapted to the heavy snow winters and are considered the most abundant ungulate in this habitat (Meidinger et al. 1991); however, floodplains and shrublands can provide important forage for both moose and mule deer. Both moose and mule deer occur in much of SBSdk, while, elk are not considered abundant in this zone and are most plentiful within less common habitat such as open grasslands and shrub-steppe. According to iMapBC, the Project area is also located within the Tweedsmuir herd range for Mountain caribou (Northern Mountain Population) (*Rangifer tarandus* pop. 15). Northern mountain caribou typically occupy old growth coniferous forests adjacent to higher elevation areas of SBSdk as early winter habitat. According to the BCCDC, mountain goat have potential to occur in the Project area, however, mountain goat are typically found in rugged high elevations with steep terrain. Furthermore, the project area does not reside in a designated Ungulate Winter Range or other Wildlife Habitat Area.

3.1.3 Historical Sightings

No recorded observations of the focal species were obtained during desktop review process for this report.

3.1.4 Conservation Status

According to the BCCDC, Northern Mountain Caribou is listed as Special Concern (2005) under the *Species at Risk Act* (SARA). Moose, mule deer, and elk are provincially yellow listed while, northern mountain caribou and mountain goat are provincially blue listed.

Table 1. The current provincial and federal status of focal species potentially present in the Study area.

Species	Scientific Species	BC Listing (Provincial Conservation Status) ¹	COSEWIC Assessment	SARA Status
Moose	<i>Alces alces</i>	Yellow (S5)		
Mule Deer	<i>Odocoileus hemionus</i>	Yellow (S5)		
Northern Mountain Caribou	<i>Rangifer tarandus</i> pop. 15	Blue (S2S3)	SC	1-SC (2005)
Mountain Goat	<i>Oreamnos americanus</i>	Blue (S3)		
Elk	<i>Cervus elaphus</i>	Yellow (S5)		

¹Provincial conservation status ranks: S1 = critically imperiled; S2 = imperiled; S3 = special concern, vulnerable to extirpation or extinction; S4 = apparently secure; S5 = demonstrably widespread, abundant, and secure; SU = unrankable

3.1.5 Species Habitat Preferences

Habitat requirements for the focal species typically varies seasonally. Summer habitat tends to vary slightly from winter habitat as in many cases summer conditions have reduced limitations with movement and accessible forage (increased variety and abundance). Limited habitat characteristics are typically used when evaluating habitat suitability. In general, winter habitat and available forage is largely considered the most limiting factor when assessing ungulate habitat suitability. General habitat requirements can be found in Table 2.

Many ungulates are often limited by snow depth which may restrict their winter habitat to windswept slopes or closed canopy forest, however, moose are well adapted to heavy snow and can tolerate greater depths (Meidinger et al. 1991, Smith 1997, Teversham, 1998, MOELP, 2000a, MOE 2000b). Cover can provide protection from heavy snow as well as protection from predation and is therefore considered important part of ungulate habitat quality. Additionally, elevation can restrict species suitability such as mountain goat and caribou which are typically associated with higher elevation areas compared to moose, mule deer, and elk which are typically found at lower elevation habitat.

Each of the focal species are considered herbivores foraging on predominantly vegetative diets. Mule deer, elk, moose, and mountain goat commonly consume herbaceous plants during summer and woody browse in the winter (MOELP, 2000a, MOELP 2000b, Matthew et al. 2019). Caribou predominantly consume lichens however, mountain goat, elk, and deer may also consume some lichens depending on forage composition and availability (Environment Canada, 2012 and MOELP, 2000b). Winter diets for moose, elk, mountain goat, and mule deer rely on wood browse including trees and shrubs.

Other factors are also important for sustaining populations and can influence habitat quality but may not be included in the habitat suitability assumptions. For example, predation dynamics are considered an important factor in habitat quality for caribou. Similarly, mineral licks are often considered important to

sustaining healthy ungulate populations, particularly with high elevation ungulates, such as mountain goat and caribou, where sodium rich forage is limited (MGMT, 2010 and MOELP, 2012).

Table 2. Focal species general habitat preferences.

Common Name	Scientific Name	Habitat Use		
		Habitat Characteristics	Habitat Features	Preferred Forage
Moose	<i>Alces alces</i>	- <u>general</u> ; riparian habitat and floodplains - <u>forage</u> ; early seral forest associated with disturbance, deciduous forest and shrublands (SS3b) - <u>cover</u> ; mature forest or dense young forest- often coniferous, dense riparian		- <u>winter</u> ; twigs and woody shrubs (willow, red-osier dogwood, saskatoon berry, aspen, high bush cranberry, paper birch and mountain ash, subalpine fir) - <u>summer</u> ; grasses, sedges, and aquatic vegetation
Mule Deer	<i>Odocoileus hemionus</i>	- <u>general</u> ; preference to open coniferous forests and riparian/floodplain habitat, low snow pack - <u>forage</u> ; early and intermediate seral forest with disturbance - <u>cover</u> ; mature forests with high closure		- <u>winter</u> ; woody shrubs and twigs (Douglas fir, saskatoon berry, red-osier dogwood, willow), arboreal lichens - <u>summer</u> ; forbs (particularly succulent forbs), grasses
Northern Mountain Caribou	<i>Rangifer tarandus</i>	- <u>general</u> ; mature forest, less other ungulates present (correlated with less predators), high elevation (calving) - <u>forage</u> ; subalpine and alpine meadows - <u>cover</u> ; large patch old growth, closed canopy (snow interception)	-large lichen patches -mineral licks	- <u>winter</u> ; terrestrial and arboreal lichens - <u>summer</u> ; terrestrial lichens, grasses, forbs, and leaves of shrubs
Mountain Goat	<i>Oreamnos americanus</i>	- <u>general</u> ; alpine and subalpine, steep slopes - <u>forage</u> ; variable, alpine meadow to subalpine old growth forest - <u>winter</u> ; windswept slopes and mature forests - <u>summer</u> ; - <u>cover</u> ; mature forest, steep slopes	-steep slopes and escape terrain -mineral licks	- <u>winter</u> ; shrubs and coniferous browse (willows, blueberries, subalpine fir, Engleman spruce), lichens - <u>summer</u> ; grasses, forbs (succulent species), sedges, moss, lichen
Elk	<i>Cervus elaphus</i>	- <u>general</u> ; low to high elevation, riparian floodplains - <u>forage</u> ; open grass or shrubland - <u>cover</u> ; dense vegetation - riparian or coniferous stands with closed canopy		- <u>winter</u> ; deciduous tree and shrub browse (saskatoon berry, trembling aspen, birch, poplar, willow, Canada buffalo berry, dwarf blueberry, common juniper) - <u>summer</u> ; grass and forbs

3.2 FIELD ASSESSMENTS

3.2.1 Survey Area

In total, 23 plots were assessed during the field survey period from September 9 – 10, 2024. Some plots were not able to be assessed due to access restrictions while some plots were modified or added to reflect field observations and the observed variable habitat.

Table 3. Terrestrial plot locations.

Plot	Location
1-1	10 U 311070.00 m E 5963105.00 m N
1-2	10 U 311046.00 m E 5963142.00 m N
1-3	10 U 310965.00 m E 5963189.00 m N
1-4	10 U 310848.00 m E 5963224.00 m N
1-5	10 U 310696.00 m E 5963270.00 m N
1-6	10 U 310663.00 m E 5963248.00 m N
2-1	South of River, Not Assessed due to access restrictions
2-2	South of River, Not Assessed due to access restrictions
2-3	10 U 317107.00 m E 5961469.00 m N
2-4	10 U 317259.00 m E 5961404.00 m N
2-5	10 U 318142.00 m E 5961248.00 m N
2-6	10 U 318016.00 m E 5961438.00 m N
3-1	South of River, Not Assessed due to access restrictions
3-2	South of River, Not Assessed due to access restrictions
3-3	South of River, Not Assessed due to access restrictions
3-4	10 U 318558.00 m E 5960751.00 m N
3-5	10 U 318718.00 m E 5960683.00 m N
3-6	10 U 318779.00 m E 5960634.00 m N
3-7	10 U 318982.00 m E 5960402.00 m N
4-1	10 U 320389.00 m E 5958833.00 m N
4-2	10 U 320638.00 m E 5958688.00 m N
4-3	10 U 320716.00 m E 5958627.00 m N
4-4	10 U 320582.00 m E 5959059.00 m N
4-5	10 U 320870.00 m E 5958848.00 m N
4-6	10 U 321004.00 m E 5958730.00 m N
5-1	10 U 303116.00 m E 5962889.00 m N
5-2	10 U 302933.00 m E 5962992.00 m N
5-3	10 U 302917.00 m E 5963316.00 m N

3.2.2 Habitat Overview

Based on the field assessments, eight plant communities were identified throughout the Study area. The plant communities consisted largely of early successional stage (SS) forests from open grassland to young forest. The secondary canopy/shrub layer across all plant communities was composed of predominantly willow, Canada buffalo berry, scrub birch, trembling aspen, prickly rose, and twinberry honeysuckle. Refer to Table 4 for the detailed characteristics and species composition within each plant community and Table 5 for a detailed breakdown of identified plant species and associated ungulate forage preference. Refer to Appendix A for plant community maps and Appendix B for comprehensive plot characteristics including species composition percentages.

Table 4. Summary of plant communities observed within the Study area.

Community ID	SS	Canopy Cover	LWD	Dominant Species	Sub Dominant Species	Terrain/Slope
Grassland	2b	Open (<20%)	Nil	Graminoid	<u>Young Trees</u> ; trembling aspen, black cottonwood <u>Shrubs</u> ; willow, prickly rose <u>Herbaceous</u> ; grasses	Flat
Low Shrub	3a	Open (<20%)	Nil to low	<u>Shrubs</u> ; scrub birch, Canada buffalo berry	<u>Young Trees</u> ; trembling aspen, lodgepole pine, black cottonwood, birch <u>Shrubs</u> ; twinflower honeysuckle, black gooseberry, willow, saskatoon berry, high bush cranberry <u>Herbaceous</u> ; grasses, meadow rue, fireweed, moss	Flat to gentle slope
Tall Shrub -A	3b	Open (<20%)	Nil	<u>Shrubs</u> ; willow	<u>Shrubs</u> ; red-osier dogwood, highbush cranberry, twinberry honeysuckle, prickly rose, red raspberry <u>Herbaceous</u> ; grasses, fireweed, stinging nettle, moss, bed straw	Flat
Tall Shrub-B	3b	Open (<25%)	Nil	<u>Shrubs</u> ; willow, prickly rose, black gooseberry	<u>Young trees</u> ; trembling aspen, hybrid spruce. <u>Shrubs</u> ; highbush cranberry, skunk currant, red raspberry, twinberry honeysuckle) <u>Herbaceous</u> ; grasses, moss, fireweed, bunchberry	Flat

Pole/Sapling – A	4	Open (<20%)	Nil to mod	<u>Young Trees</u> ; lodgepole pine <u>Shrubs</u> ; scrub birch, Canada buffalo berry, willow	<u>Young Trees</u> ; trembling aspen, hybrid spruce, black cottonwood <u>Shrubs</u> ; prickly rose, saskatoon berry, twinberry honeysuckle, dwarf blueberry, common juniper <u>Herbaceous</u> ; grasses, moss, hawkweed, yarrow, meadow rue, wild strawberry	Flat to gentle slope
Pole/Sapling -B	4	Open (<20%)	Low to mod	<u>Young Trees</u> ; trembling aspen, black cottonwood, hybrid spruce <u>Shrubs</u> ; Canada buffalo berry, willow	<u>Young Trees</u> ; lodgepole pine <u>Shrubs</u> ; prickly rose, twinberry honeysuckle, common juniper <u>Herbaceous</u> ; moss, fireweed, bunchberry	Flat to gentle slope
Young Forest- A	4, 5	Open (<20%)	Low to abundant	<u>Young Trees</u> ; lodgepole pine, hybrid spruce, trembling aspen <u>Shrubs</u> ; Canada buffalo berry	<u>Shrubs</u> ; prickly rose, bearberry, saskatoon berry <u>Herbaceous</u> ; moss, fireweed, bunchberry	
Young Forest - B	5	Dense (40 – 60 %)	No data	<u>Young trees</u> ; hybrid spruce <u>Shrubs</u> ; willow, prickly rose, Canada buffalo berry	<u>Young Trees</u> ; subalpine fir, lodgepole pine, black cottonwood, white spruce <u>Shrubs</u> ; scrub birch, black gooseberry, twinberry honeysuckle, high bush cranberry, saskatoon berry <u>Herbaceous</u> ; moss, fireweed, bunchberry	Flat to gentle slope

SS: Successional Stage

LWD: Large woody debris

Overall, the majority of identified plant species are considered preferred forage for the focal ungulate species. In total, seven out of the eight identified trees species are considered preferred forage to the focal ungulate species. Similarly, 11 of the 14 identified shrub species are considered preferred forage species for the focal ungulate species. The majority of the identified plant species are considered preferred forage for moose (63.6%), followed by elk (31.8%), while preferred forage species for mountain goat, caribou and mule deer each was more limited with <15% of the identified species considered preferred forage. Refer to Table for 5 for the list of identified vegetation and the corresponding preferred forage ungulate species.

Table 5. Summary of identified plant species and associated forage preference for focal species

Common Name	Scientific Name	Identified Preferred Forage Species
Trees		
trembling aspen	<i>Populus tremuloides</i>	moose, elk
hybrid spruce	<i>Picea glauca x engelmannii</i>	
black cottonwood	<i>Populus trichocarpa</i>	moose
lodgepole pine	<i>Pinus contorta</i>	moose, elk
white spruce	<i>Picea glauca</i>	elk
subalpine fir	<i>Abies lasiocarpa</i>	moose, mountain goat
birch	<i>Betula spp</i>	moose, elk
poplar	<i>populus spp</i>	moose
Shrubs		
willow	<i>salix spp</i>	moose, elk, mountain goat, mule deer
twinberry honeysuckle	<i>Lonicera involucrata</i>	
prickly rose	<i>Rosa acicularis</i>	moose
red raspberry	<i>Rubus idaeus</i>	
red-osier dogwood	<i>Cornus sericea</i>	moose, mule deer
Canada buffaloberry	<i>Shepherdia canadensis</i>	elk
bearberry	<i>Arctostaphylos uva-ursi</i>	
common juniper	<i>juniper communis</i>	elk
saskatoon berry	<i>Amelanchier alnifolia</i>	moose, elk, mule deer
scrub birch	<i>betula pumila var. glandulifera</i>	moose, elk
dwarf blueberry	<i>Vaccinium caespitosum</i>	elk
highbush cranberry	<i>Viburnum edule</i>	moose
skunk currant	<i>Ribes glandulosum</i>	moose
black gooseberry	<i>Ribes lacustre</i>	moose

Overall, across all the terrestrial plots moose had the highest suitability followed by mule deer then elk. Both caribou and mountain goat had limited habitat suitability. Refer to Table 6 for habitat suitability for each plot and Appendix C for species suitability maps of the Study areas.

Table 6. Habitat suitability ranking for terrestrial plots

Plot	Vegetation Community	Species Ranking ¹				
		Moose	Mule Deer	Elk	Caribou	Mountain Goat
1-1	Tall Shrub - A	1	2	5	5	5
1-2	Tall Shrub - A	1	2	5	5	5
1-3	Tall Shrub - B	1	2	5	5	5
1-4	Tall Shrub - B	1	2	5	5	5
1-5	Tall Shrub - A	1	2	5	5	5
1-6	Tall Shrub - A	1	2	5	5	5
2-3	Pole/Sapling - A	3	3	2	5	5
2-4	Pole/Sapling - A	3	3	2	5	5
2-5	Pole/Sapling - A	4	3	2	5	5

2-6	Pole/Sapling- A	4	3	2	5	5
3-4	Pole/Sapling- A	3	4	2	5	5
3-5	Low Shrub	2	2	5	5	5
3-6	Young Forest - B	4	4	2	3	5
3-7	Low Shrub	2	2	5	5	5
4-1	Pole/Sapling – A	3	4	2	5	5
4-2	Pole/Sapling - B	3	4	2	5	5
4-3	Young Forest - B	4	4	2	3	5
4-4	Grassland	5	1	5	5	5
4-5	Pole/Sapling - A	3	3	2	5	5
4-6	Low Shrub	2	3	5	5	5
5-1	Young Forest – B	4	4	3	3	5
5-2	Low Shrub	2	2	5	5	5
5-3	Tall Shrub - B	1	2	5	5	5
Total Ranking Score		59	63	83	107	115

¹Species Ranking Categories; 1- High, 2- Moderate High, 3-Moderate, 4- Moderate Low, 5- Low, 6- Nil.

Grassland habitat was limited within Study area and ranked Low for all focal species except for mule deer which was ranked high. Although not assessed in this evaluation, grassland habitat likely provides higher summer ungulate suitability particularly for elk.

Low shrub habitat abundance within the Study area was low and on average and provided Moderate ungulate habitat. Low shrub was evaluated at Moderate High for moose and Moderate High to Moderate for mule deer suitability which was largely dependant on the available forage species and reduced cover. Caribou, elk, and mountain goat suitability was evaluated as Low.

Tall shrub (A and B) habitat was moderately abundant within the survey area occurring predominantly in Areas 5 and 1 and was on average evaluated with Moderate ungulate suitability. Tall shrub was evaluated as High habitat use for Moose and Moderate High habitat use for mule deer while caribou, elk, and mountain goat suitability was evaluated as Low.

Pole/Sapling (A and B) was moderately abundant throughout the survey area predominantly in Areas 1, 2, and 4 and was evaluated on average as Moderate ungulate suitability. Largely depending on species composition and forage abundance. Pole Sapling varied from Moderate to Moderate Low for moose and mule deer but was evaluated as High suitability for elk. Mountain goat and caribou habitat suitability was evaluated as Low.

Young Forest (A and B) was relatively abundant within the survey area and provided on average Moderate ungulate suitability. Young Forest is most suitable for elk with Moderate High suitability. Young Forest was evaluated as Moderate (Young Forest A) to Moderate Low (Young Forest B) for moose. Young Forest (A and B) was evaluated as Moderate for caribou, Moderate Low for Mule deer, and Low for mountain goat.

3.2.3 Ungulate Observations

Abundant ungulate sign including browse (predominantly on willows), game trails, beds, and moose scat/tracks were observed throughout the Study area. No wallows, mineral licks, or other sensitive habitat features were observed. Moose was the only species that was directly identified via scat and tracks. No direct sign of mule deer, mountain goat, or caribou was observed.

4.0 CONCLUSION

Habitat field assessments were conducted on September 9 – 10, 2024 to evaluate existing conditions for terrestrial ungulate habitat as part of the Reviving Riverine Ecosystems: A Comprehensive Approach to Fish Rehabilitation and Data Collection in the Cheslatta River (the Project). Moose, mule deer, elk, mountain goat, and northern mountain caribou were identified ungulate species potentially occurring within the Study area. Overall, the Study area was determined most suitable to moose and mule deer followed by elk. Mountain goat and caribou are less likely to occur in the Study area as the habitat is less suitable and was evaluated as predominantly Low. The survey area was stratified into several localized habitats in which various plant communities were identified ranging from open grassland and shrub habitat to young forest. Summaries of identified plant communities and associated forage can be found in Section 3.2.2 and Appendix A. Habitat suitability mapping can be found in Appendix C while comprehensive habitat and vegetation details can be found in Appendix A.

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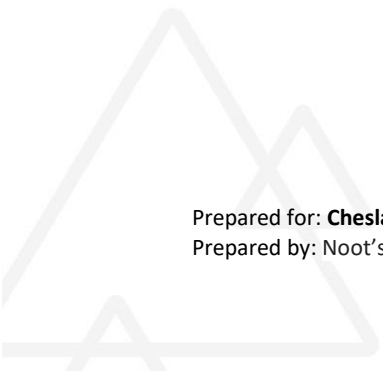
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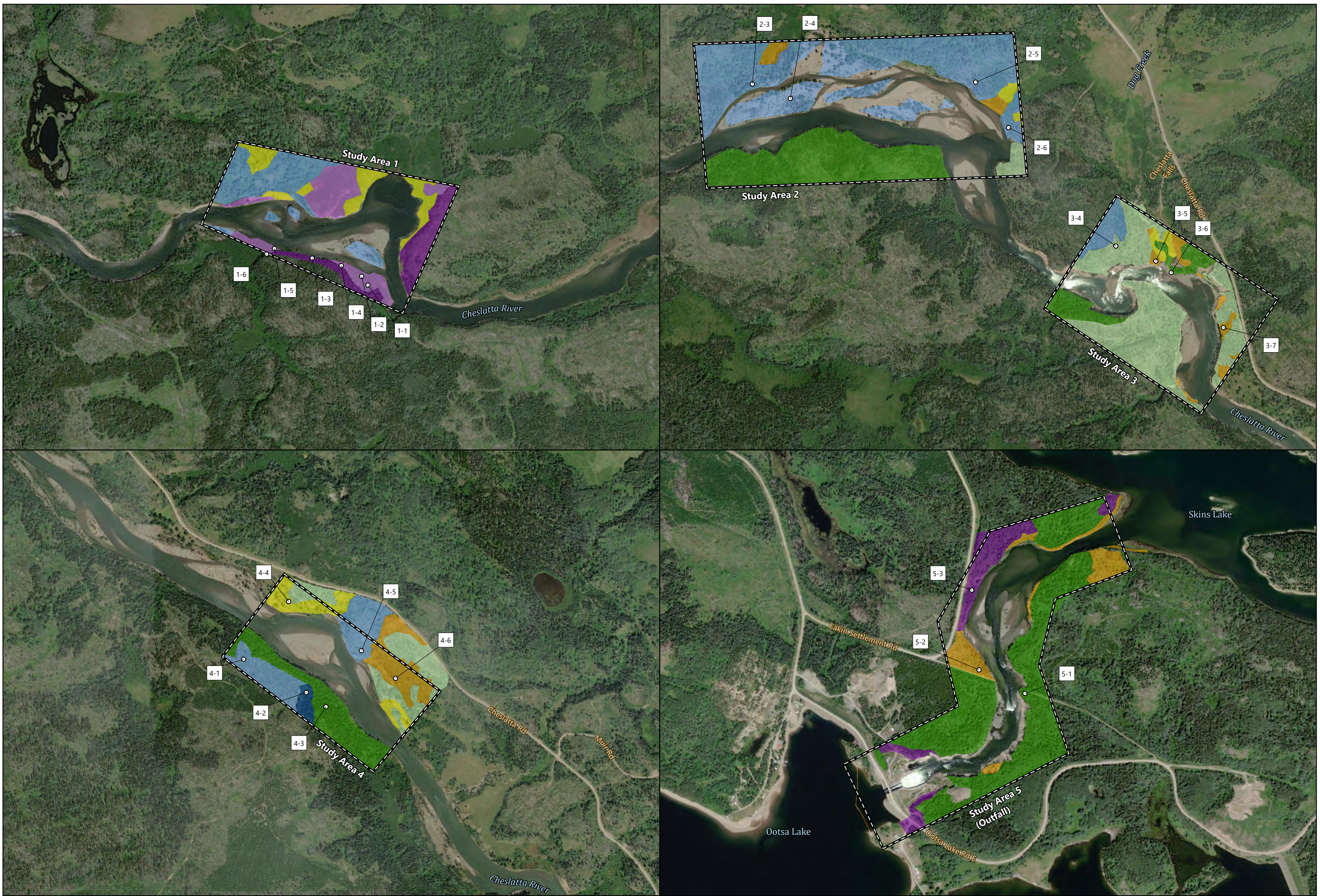
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Appendix A

Plant Community Maps

Prepared for: **Cheslatta Carrier Nation and the Nechako Environmental Enhancement Fund**
Prepared by: Noot'senay Consulting Limited Partnership





Esri Canada, Inc., TomTom, Garmin, FAD, NOAA, USGS, EPA, NRCan, Photo Canada, Esri, USGS, Microsoft

LEGEND	
	Plot
	Study Area
	Grassland
	Low Shrub
	Tall Shrub - A
	Tall Shrub - B
	Pole/Sapling - A
	Pole/Sapling - B
	Young Forest - A
	Young Forest - B

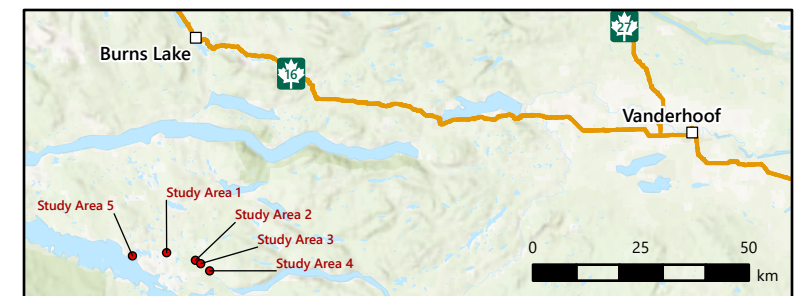


PROJECTION:	NAD 1983 BC Environment Albers
DATE:	2025/02/14
PREPARED BY:	DWB GIS

Cheslatta Ungulate Rehabilitation
Plant Communities

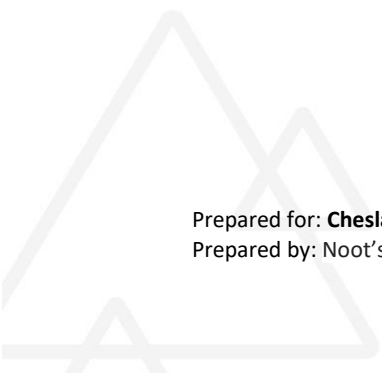
Site Location Map

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FIGURE 1	
SCALE:	1:10,000



Appendix B

Comprehensive Habitat Assessment Table



Site Area	Site Plot	Structural stage	Aspect of slope	Slope	Slope position	LWD	Canopy closure (%)	Avg. Canopy height (m)	Primary canopy composition (species and %)	Secondary canopy presence	Secondary canopy composition (species and %)	Shrub composition (species and %)	Land Use/Disturbance	Assigned plant Community ID	Comments	Ungulate Observations
1	1	3b	N	flat	lower	none	0	NA	NA	none	NA	willow (90%) twinberry honeysuckle (<5%) red raspberry (<5%) prickly rose (<5%)	cutblock nearby	Tall Shrub – A		moose scat; moose trail; moose bed; browse on willow
1	2	3b	N	flat	lower	none	0	NA	NA	none	NA	willow (85%) twinberry honeysuckle (5%) red raspberry (10%)	cutblock nearby	Tall Shrub – A		willow browse; moose trails nearby
1	3	3b	N	flat	lower	none	25	15	trembling aspen (75%) hybrid spruce (25%)	none	Na	skunk currant (5%) willow (70%) trembling aspen (5%) twinberry honeysuckle (5%) black cottonwood (5%) prickly rose (5%) Canada buffaloberry (5%) red raspberry (5%)	cutblock nearby	Tall Shrub - B		moose/large animal trails nearby; browse on willow
1	4	3b	N	flat	lower	none	5	15	hybrid spruce (100%)	none	NA	willow (40%) trembling aspen (5%) prickly rose (40%) red raspberry (5%) twinberry honeysuckle (5%) highbush cranberry (<5%) hybrid spruce (<5%)	cutblock nearby	Tall Shrub - B		browse on willow; moose scat
1	5	3b	NW	flat	lower	none	0	NA	NA	none	NA	red raspberry (5%) trembling aspen (5%) highbush cranberry (5%) willow (80%) twinberry honeysuckle (5%)	cutblock nearby	Tall Shrub - A		browse on willow; old browse on aspen; trails nearby; many moose/large animal trails throughout habitat
1	6	3b	NW	flat	lower	none	0	NA	NA	none	NA	willow (90%) red-osier dogwood (<5%) highbush cranberry (<5%) red raspberry (<5%)	cutblock nearby	Tall Shrub - A	on game trail; some young and old trees	moose/game trails; browse on dogwood; moose scat; large animal near plot-moose?
2	3	4	NA	flat	level	none	10	15	black cottonwood (90%) lodgepole pine (10%)	none	NA	willow (30%) black cottonwood saplings (20%) Canada buffaloberry (30%) common juniper (10%) bearberry (10%)	cattle grazing; flood	Pole/Sapling - A	natural pole with some young and old trees	moose tracks; moose browse; willow and pine browse, buffalo berry browse

Site Area	Site Plot	Structural stage	Aspect of slope	Slope	Slope position	LWD	Canopy closure (%)	Avg. Canopy height (m)	Primary canopy composition (species and %)	Secondary canopy presence	Secondary canopy composition (species and %)	Shrub composition (species and %)	Land Use/Disturbance	Assigned plant Community ID	Comments	Ungulate Observations
2	4	4	NA	flat	level	low	20	15	lodgepole pine (100%)	low	lodgepole pine-100%	poplar saplings (60%) Canada buffalo berry (30 %) common juniper (5%) lodgepole pine (5%)	NA	Pole/Sapling - B	old floodplain, gravel	moose tracks; scat near plot
2	5	4	SW	gentle	middle	moderate	<5	20	lodgepole pine (95%) trembling aspen (5%)	none	NA	prickly rose (5%) Canada buffaloberry (60%) common juniper (10%) trembling aspen (10%) bearberry (5%)	old cutblock	Pole/Sapling - B	Pine regeneration	browse on buffalo berry and rose; moose scat
2	6	4	SW	NA	lower	low	15	15	hybrid spruce (25%) lodgepole pine (75%)	none	NA	Canada buffalo berry (50%) bearberry (10%) prickly rose (5%) poplar saplings (15%) lodgepole pine sapling (15%) scrub birch (5%)	old metal fencing; old cutblock; cattle grazing	Pole/Sapling - B	pine regeneration on edge of river/sand bar	tracks on sandbar cattle/moose; browse on buffalo berry; trail; scat
3	4	5	SE	gentle	upper	NA	10	20	lodgepole pine (NA%) hybrid spruce (NA%) trembling aspen (NA%)	none	NA	prickly rose (15%) trembling aspen (20%) Canada buffalo berry (20%) bearberry (15%) spruce (hybrid and white) (20%) saskatoon berry (10%)		Young Forest - A		browse on aspen, buffalo berry; scat;
3	5	3a	NA	flat	level	none	NA	NA	NA	NA	NA	twinflower honeysuckle (20%) black gooseberry (15%) scrub birch (40%) willow (5%) trembling aspen (20%) Canada buffalo berry (5%)	ATV trails near; cattle use	Low Shrub	flattened grass (could be cattle)	moose scat and sign
3	6	5	S	flat	lower	low	60	25	white spruce (60%) subalpine fir (20%) lodgepole pine (10%) black cottonwood (10%)	low	white spruce (100%)	willow (40%) trembling saplings (10%) Canada buffalo berry (40%) black cottonwood (5%) scrub birch (<5%)	upslope rec spot with picnic table and road; old cattle sign	Young Forest - B		old browse, old scat and tracks on shoreline 30m from plot.
3	7	3a	w	gentle	upper	none	15	15	trembling aspen (90%) black cottonwood (10%)	none	none	scrub birch (75%) willow (5%) poplar saplings (15%) black gooseberry (5%)	ATV trails near; cattle	Low Shrub		

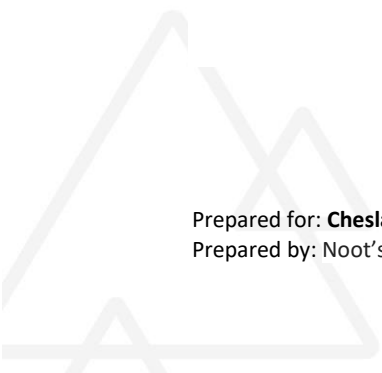
Site Area	Site Plot	Structural stage	Aspect of slope	Slope	Slope position	LWD	Canopy closure (%)	Avg. Canopy height (m)	Primary canopy composition (species and %)	Secondary canopy presence	Secondary canopy composition (species and %)	Shrub composition (species and %)	Land Use/Disturbance	Assigned plant Community ID	Comments	Ungulate Observations
4	1	4	NE	gentle	middle	moderate	<5	10	lodgepole pine (100%)	None	NA	scrub birch (40%) Canada buffalo berry (10%) willow (20%) dwarf blueberry (5%) prickly rose (10%) poplar saplings (5%) twinberry honeysuckle (5%) bearberry (5%)	old cutblock; ATV trail nearby	Pole/Sapling - B		browse on scrub birch and willow
4	2	4	NE	gentle	middle	moderate	15	20	trembling aspen (50%) hybrid spruce (40%) lodgepole pine (10%)	low	trembling aspen (30%) lodgepole pine (30%) hybrid spruce (40%)	trembling aspen (10%) willow (30%) prickly rose (20%) Canada buffaloberry (30%) twinberry honeysuckle (10%)	old cutblock	Pole/Sapling - A	on edge of ss5 forest	browse on willow and aspen
4	3	5	NE	gentle	middle	abundant	50	25	hybrid spruce (100%)	none	NA	Canada buffaloberry (30%) scrub birch (20%) prickly rose (5%) poplar saplings (10%) twinberry honeysuckle (10%) hybrid spruce (10%) saskatoon berry (15%)	outside of old cutblock	Young Forest - B		browse on buffaloberry, spen, saskatoon service berry
4	4	2 b	NA	flat	level	none	30	20	black cottonwood (15%) trembling aspen (80%) white spruce (5%)	none	none	poplar saplings (10%) willow (75%) trembling aspen (10%) prickly rose (5%)	cattle grazing	Grassland	grass dominant with spares trees and shrub	
4	5	4	NA	flat	middle/level	none	5	15	lodgepole pine (90%) white spruce (10%)	none	none	scrub birch (40%) trembling aspen (40%) lodgepole pine (5%) willow (5%) saskatoon berry (5%) buffalo berry (5%)	ATV trails near; cattle grazing	Pole/Sapling - B		abundant moose browse on scrub birch, lodge pole, willow, saskatoon service berry; trails ; (black gooseberry with browse slightly out of plot)
4	6	3b	0	flat	level	low	10	15	trembling aspen (NA%) lodgepole pine (NA%)	none	none	scrub birch (80%) trembling aspen (10%) willow (10%)	none	Low Shrub		browse on scrub birch, trembling aspen and willow; trails; browse and scat old

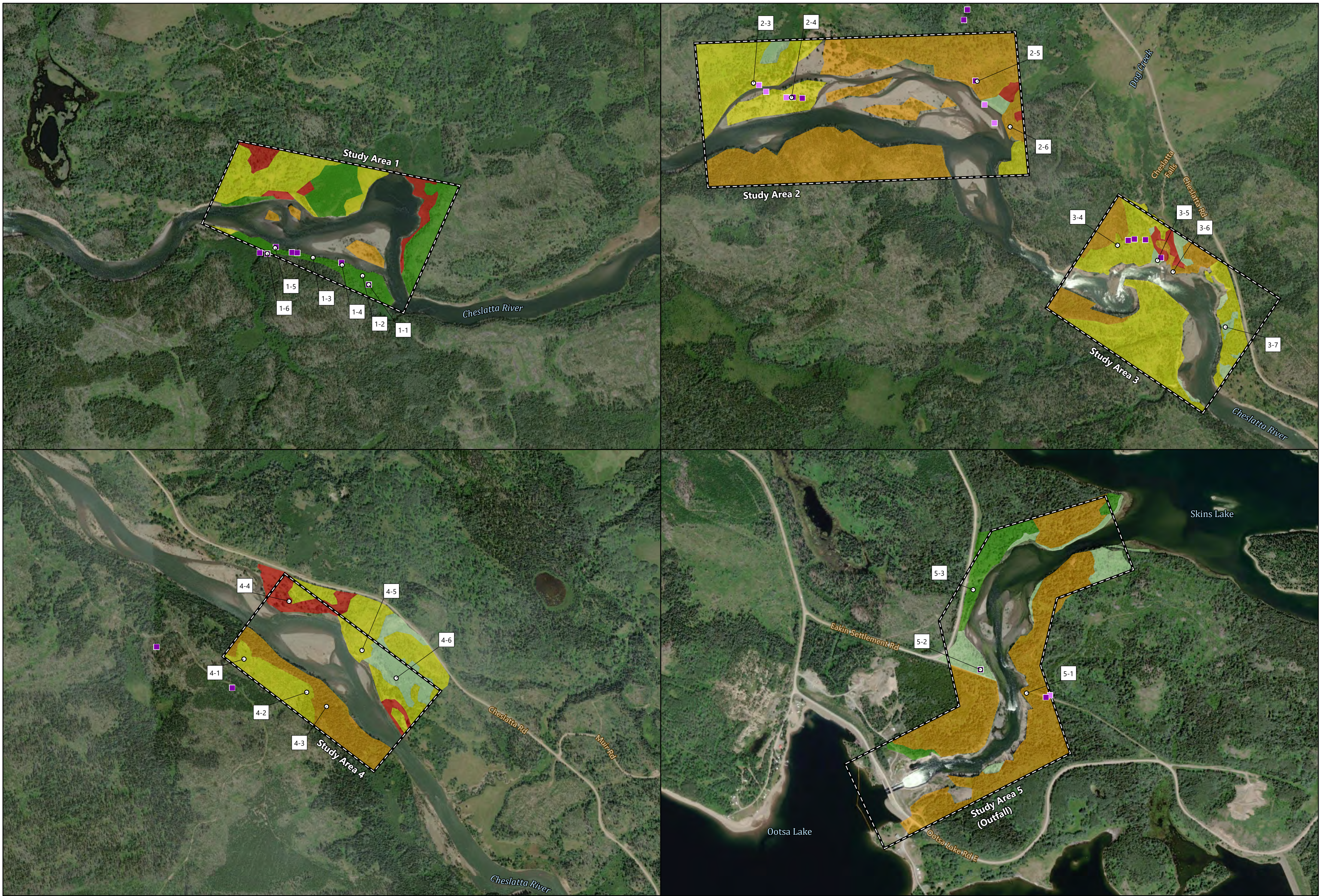
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5	1	5	w	gentle	middle	NA	40		hybrid spruce (100%)	low	spruce (100%)	willow (10%) saskatoon berry (<5%) prickly rose (40%) highbush cranberry (<5%) Canada buffalo berry (<5%) black gooseberry (<5%) twinberry honeysuckle (40%)	cattle grazing	Young Forest - B		moose browse on saskatoon, service berry, rose; moose scat; game trails
5	2	3a	NA	flat	level	NA	20	NA	hybrid spruce (40%) lodgepole pine (50%) birch (10%)	none	NA	Saskatoon berry (10%) Canada buffaloberry (60%) trembling aspen (10%) highbush cranberry (5%) willow (5%) prickly rose (<5%) twinberry honeysuckle (<5%)	cattle grazing	Low Shrub	natural spruce regeneration	twinberry browse; moose scat; trails
5	3	3b	NA	flat	level	NA	10	NA	trembling aspen (100%)	low	Willow (100%)	willow (60%) saskatoon berry (10%) black gooseberry (20%) red raspberry (5%) trembling aspen (5%)	Cattle near plot	Tall Shrub - B	gravel	



Appendix C

Habitat Suitability Maps





Esri, Garmin, GeoEye, IGN, NOAA, USGS, EPA, NRC, GeoEye, Earthstar Geographics, CNR, IGN, USGS, Mapbox

○ Plot	Wildlife Observation	MOOSE HABITAT SUITABILITY	4 - Moderate Low
▭ Study Area	■ Moose Tracks	1 - High	5 - Low
	■ Moose Scat	2 - Moderate High	
		3 - Moderate	



PROJECTION:
NAD 1983 BC
Environment Albers

DATE:
2025/02/21

PREPARED BY:
DWB GIS

Cheslatta Ungulate Rehabilitation Moose Habitat Suitability

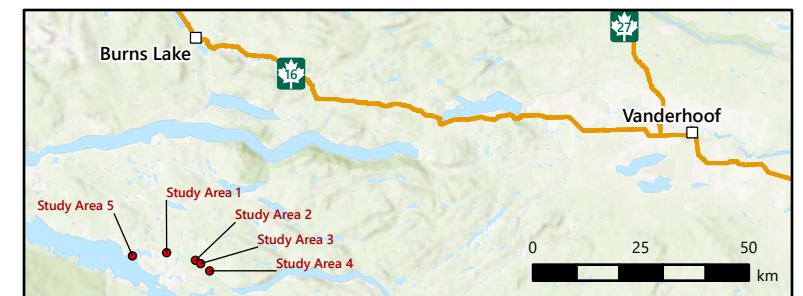
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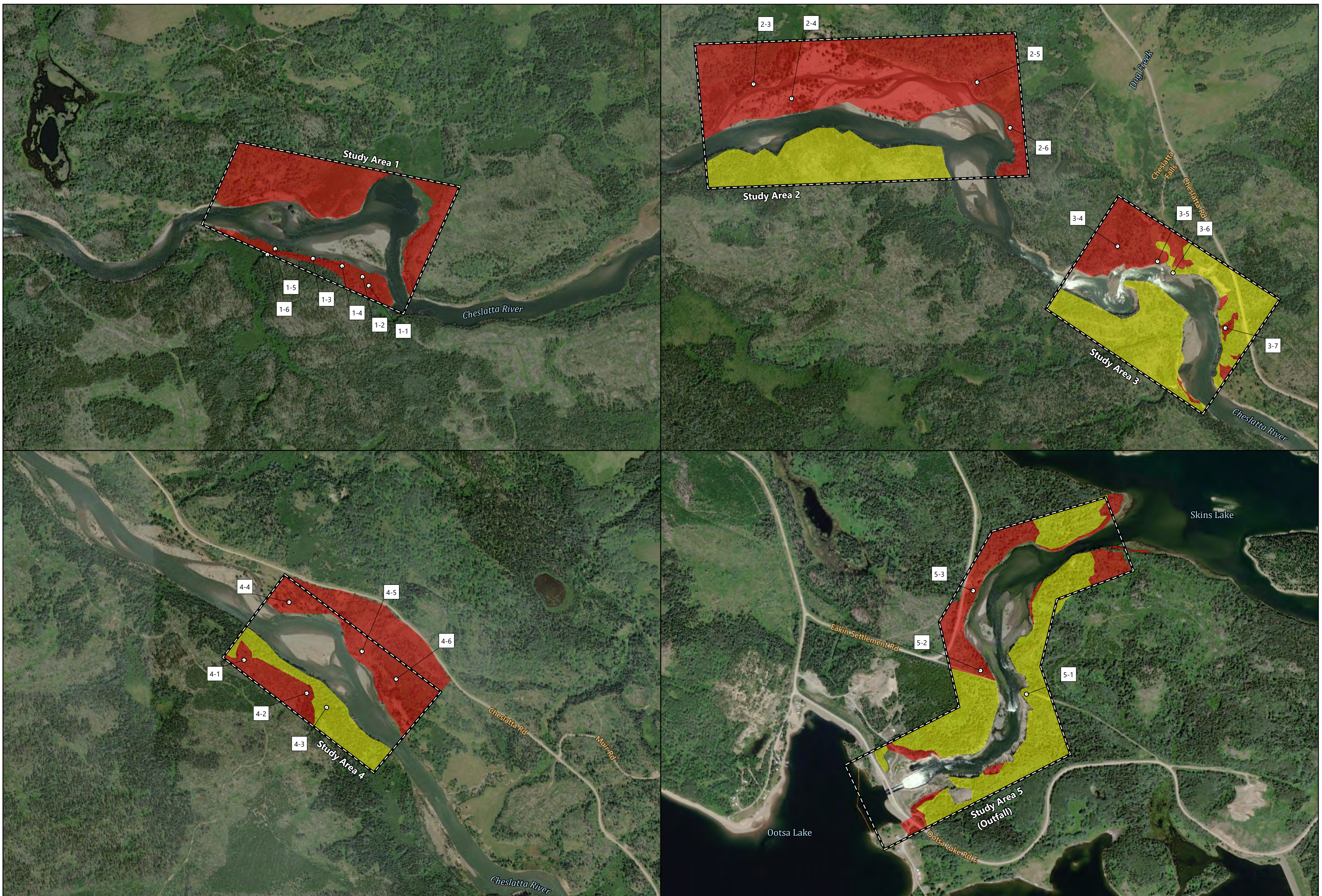
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FIGURE 2

SCALE:
1:10,000

0 50 100 200 300 400
m





Esri, Garmin, GeoEye, IGN, NOAA, USGS, EPA, NRC, GeoEye, Earthstar Geographics, CNR, USGS, Mapbox

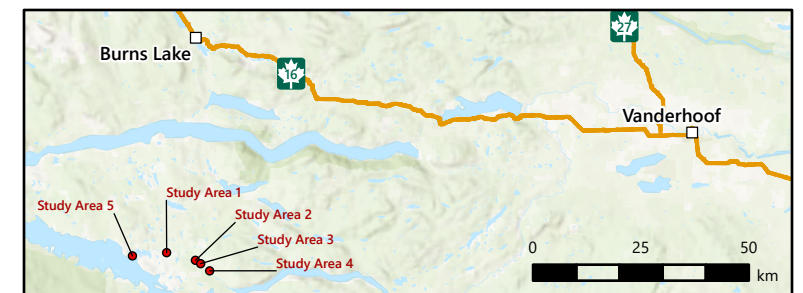
LEGEND	
○ Plot	Northern Mountain Caribou Habitat Suitability
▭ Study Area	3 - Moderate
	5 - Low

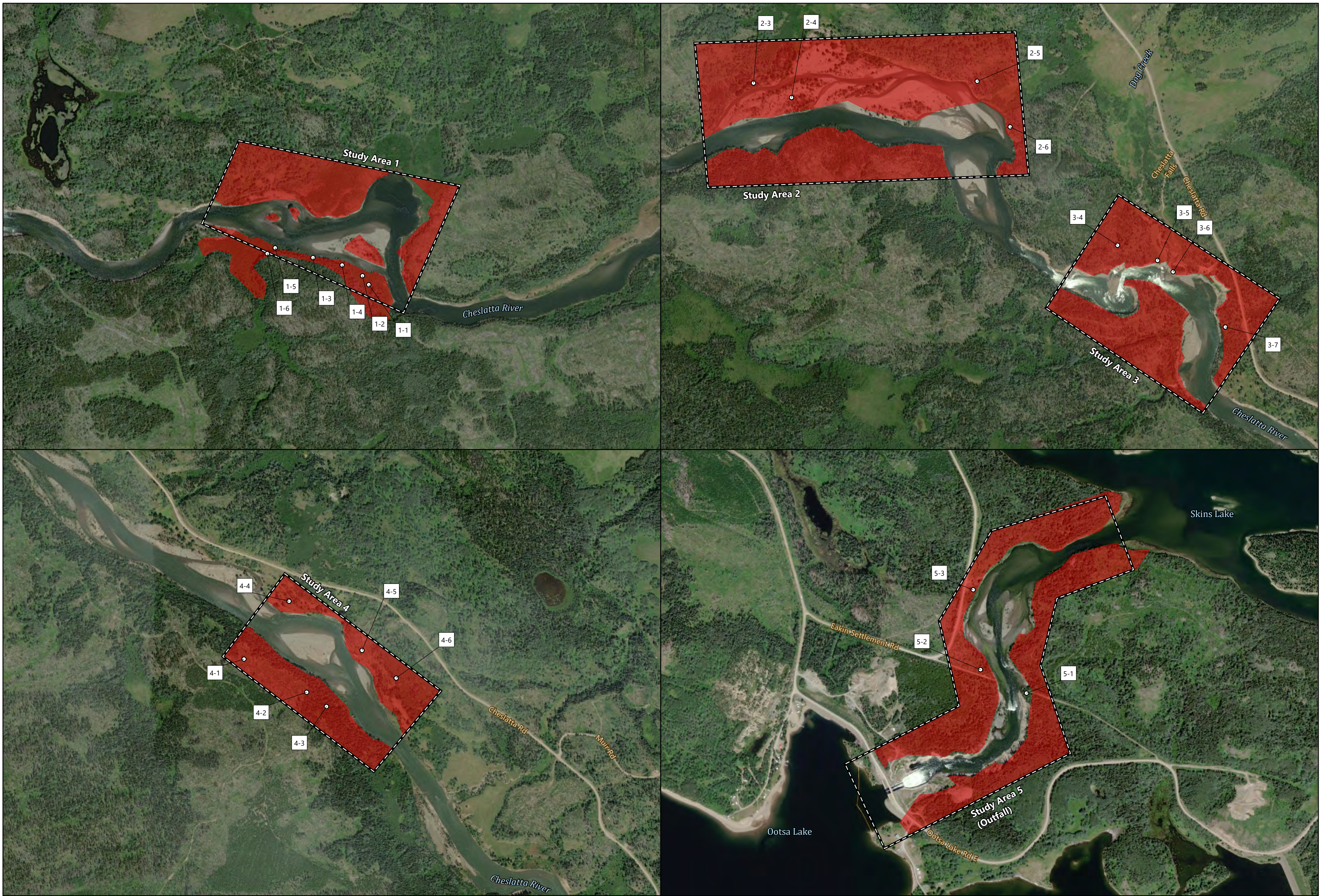


PROJECTION: NAD 1983 BC Environment Albers
DATE: 2025/02/14
PREPARED BY: DWB GIS

Cheslatta Ungulate Rehabilitation Northern Mountain Caribou Habitat Suitability
Site Location Map

FILE NAME: Cheslatta-CN_N2490-091_HabitatSuitability
FIGURE 5
SCALE: 1:10,000
0 50 100 200 300 400 m





Esri, Garmin, GeoEye, IGN, NOAA, USGS, EPA, NRC, GeoEye, Earthstar Geographics, CNR, USGS, Mapbox

LEGEND	
	Plot
	Study Area
	Mountain Goat Habitat Suitability
	5 - Low

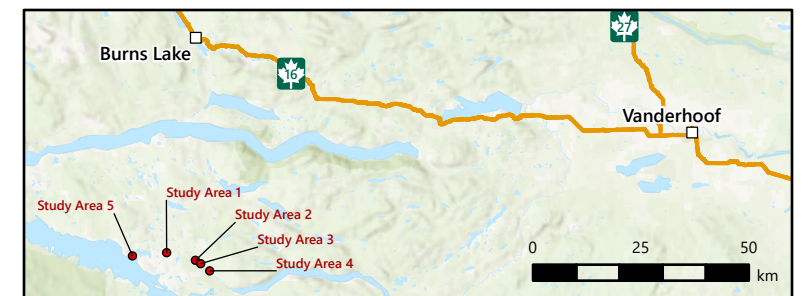


PROJECTION: NAD 1983 BC Environment Albers
DATE: 2025/02/14
PREPARED BY: DWB GIS

Cheslatta Ungulate Rehabilitation
Mountain Goat Habitat Suitability

Site Location Map

FILE NAME: Cheslatta-CN_N2490-091_HabitatSuitability
FIGURE 3
SCALE: 1:10,000



Appendix D

Photos





Photo 1. Plot 1-1 vegetation community Tall Shrub - A.



Photo 2. Plot 1-1 vegetation community Tall Shrub - A.



Photo 3. Plot 1 – 2 vegetation community Tall Shrub - A.



Photo 4. Plot 1 – 2 vegetation community Tall Shrub - A.



Photo 5. Plot 1-3 vegetation community Tall Shrub – B.



Photo 6. Plot 1-3 vegetation community Tall Shrub – B.





Photo 7. Plot 1-4 vegetation community Tall Shrub – B.



Photo 8. Plot 1-4 vegetation community Tall Shrub – B.



Photo 9. Plot 1-5 vegetation community Tall Shrub – A.



Photo 10. Plot 1-5 vegetation community Tall Shrub – A.



Photo 11. Plot 1-6 vegetation community Tall Shrub – A.



Photo 12. Plot 1-6 vegetation community Tall Shrub – A.





Photo 13. Plot 2-3 vegetation community Pole/Sapling – A.



Photo 14. Plot 2-3 vegetation community Pole/Sapling – A.



Photo 15. Plot 2-4 vegetation community Pole/Sapling – A.



Photo 16. Plot 2-4 vegetation community Pole/Sapling – A.



Photo 17. Plot 2-5 vegetation community Pole/Sapling – A.



Photo 18. Plot 2-5 vegetation community Pole/Sapling – A.



Photo 19. Plot 3-4 vegetation community Young Forest – A.



Photo 20. Plot 3-4 vegetation community Young Forest – A.



Photo 21. Plot 3-5 vegetation community Low Shrub.



Photo 22. Plot 3-5 vegetation community Low Shrub.



Photo 23. Plot 3-6 vegetation community Young Forest – B.



Photo 24. Plot 3-6 vegetation community Young Forest – B.

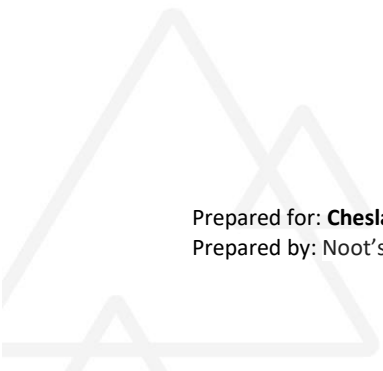




Photo 25. Plot 3-7 vegetation community Low Shrub.



Photo 26. Plot 3-7 vegetation community Low Shrub.



Photo 27. Plot 4-1 vegetation community Pole/Sapling-A.



Photo 28. Plot 4-1 vegetation community Pole/Sapling-A.



Photo 29. Plot 4-2 vegetation community Pole/Sapling - B.



Photo 30. Plot 4-2 vegetation community Pole/Sapling - B.





Photo 31. Plot 4-3 vegetation community Young Forest – B.



Photo 32. Plot 4-3 vegetation community Young Forest – B.



Photo 33. Plot 4-4 vegetation community Grassland.



Photo 34. Plot 4-4 vegetation community Grassland.



Photo 35. Plot 4-5 vegetation community Pole/Sapling – A.



Photo 36. Plot 4-5 vegetation community Pole/Sapling – A.





Photo 37. Plot 4-6 vegetation community Low Shrub.

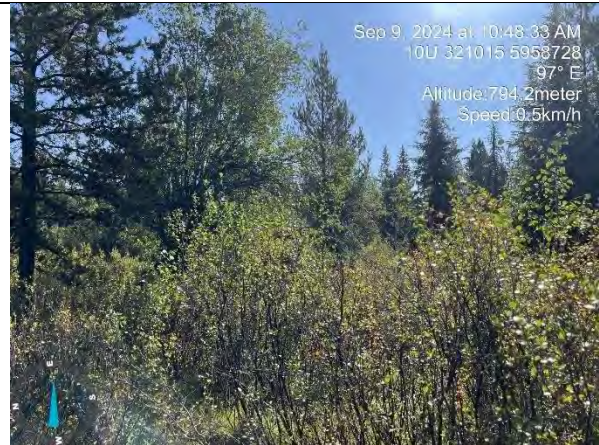


Photo 38. Plot 4-6 vegetation community Low Shrub.



Photo 39. Plot 5-1 vegetation community Young Forest – B.



Photo 40. Plot 5-1 vegetation community Young Forest – B.



Photo 41. Plot 5-2 vegetation community Low Shrub.



Photo 42. Plot 5-2 vegetation community Low Shrub.

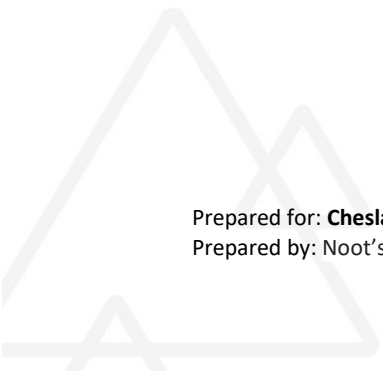




Photo 43. Plot 5-3 vegetation community Tall Shrub – B.



Photo 44. Plot 5-3 vegetation community Tall Shrub – B.



Appendix E

Habitat Rating Assumptions

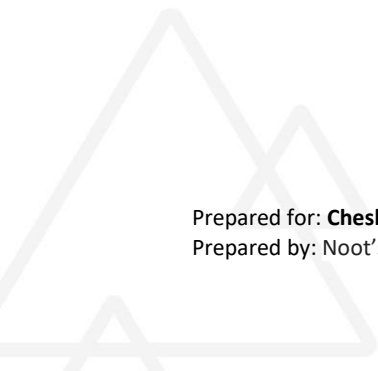


Table 7. Table of Habitat Suitability Assumptions

Species	Limiting Factors	Rating Scheme	% of Province Best	Assumptions
Moose	Winter Forage and Cover	1- High	100-76%	<ul style="list-style-type: none"> Abundant forage shrubs: understory/ground cover >25% forage species SS3b, gentle to undulating terrain
		2- Moderately High	75-51%	<ul style="list-style-type: none"> Moderate- High forage shrubs: understory/ground cover 20-25% forage species SS3a or 3b, gentle to undulating terrain
		3- Moderate	50-26%	<ul style="list-style-type: none"> Moderate abundance of forage shrub: understory/ground cover 15-20% forage species SS3a, 3b, or moderate open and shrubby habitat
		4- Low	25-6%	<ul style="list-style-type: none"> Low abundance forage shrubs: understory/ground cover <15% forage species Closed canopy forest, lower density shrubs or shrub layer lacking forage species
		5- Very Low	5-1%	<ul style="list-style-type: none"> Very Low abundance of forage shrubs: scarce or inaccessible Closed-canopy Forest, traces shrubs layer lacking forage species
		6- Nil	0	<ul style="list-style-type: none"> No shrubs Alpine, high elevation parkland Very dry site
Mule Deer	Winter Forage and Cover	1- High	100-76%	<ul style="list-style-type: none"> Abundant forage shrubs: understory/ground cover >25% forage species Open habitat interspersed with closed canopy coniferous forest, SS2, 6, 7
		2- Moderately High	75-51%	<ul style="list-style-type: none"> Moderate- High forage shrubs: understory/ground cover 20-25% forage species Open habitat interspersed with closed canopy coniferous forest; SS2-3, 6, 7
		3- Moderate	50-26%	<ul style="list-style-type: none"> Moderate abundance of forage shrub: understory/ground cover 15-20% forage species SS1, or open coniferous habitat SS4,5
		4- Low	25-6%	<ul style="list-style-type: none"> Low abundance forage shrubs: understory/ground cover <15% forage species SS1-5, open habitat, deep snow pack
		5- Very Low	5-1%	<ul style="list-style-type: none"> Very Low abundance of forage shrubs: scarce or inaccessible SS1, deep snow pack

		6- Nil	0	<ul style="list-style-type: none"> No shrubs or accessible forage Alpine, high elevation parkland
Elk	Winter Forage and Cover	1- High	100-76%	<ul style="list-style-type: none"> Abundant forage shrubs: understory/ground cover >25% forage species SS6,7, low elevations, warm aspect
		2- Moderately High	75-51%	<ul style="list-style-type: none"> Moderate- High forage shrubs: understory/ground cover 20-25% forage species SS4, 5, 7, open deciduous forest Southern aspect to no aspect
		3- Moderate	50-26%	<ul style="list-style-type: none"> Moderate abundance of forage shrub: understory/ground cover 15-20% forage species SS4, 5, steep slopes
		4- Low	25-6%	<ul style="list-style-type: none"> Low abundance forage shrubs: understory/ground cover <15% forage species SS4, 5, steep slopes, cool aspects
		5- Very Low	5-1%	<ul style="list-style-type: none"> Very Low abundance of forage shrubs: scarce or inaccessible SS1-3a, steep slopes, cool aspects, dry sites
		6- Nil	0	<ul style="list-style-type: none"> No shrubs Very dry site SS1, no cover, high snow pack
Mountain Goat	Winter Forage and Cover	1- High	100-76%	<ul style="list-style-type: none"> Abundant forage shrubs: understory/ground cover >25% forage species SS0-2, 6,7 High elevation with proximity to old growth forest or windswept slopes Escape terrain within 400m Alpine or subalpine
		2- Moderately High	75-51%	<ul style="list-style-type: none"> Moderate- High forage shrubs: understory/ground cover 20-25% forage species Escape terrain within 400m High elevation closed forest >60% canopy Alpine or subalpine
		3- Moderate	50-26%	<ul style="list-style-type: none"> Moderate abundance of forage shrub: understory/ground cover 15-20% forage species Escape terrain within 600m High elevation closed forest >60% canopy
		4- Low	25-6%	<ul style="list-style-type: none"> Low abundance forage shrubs: understory/ground cover <15% forage species Escape terrain or old growth within 600m

		5- Very Low	5-1%	<ul style="list-style-type: none"> • Very Low abundance of forage shrubs: scarce or inaccessible • Greater than 600m from escape terrain • Open forest SS3, 4, 5 • Low elevation
		6- Nil	0	<ul style="list-style-type: none"> • No shrubs • Impassable terrain • Low elevation
Northern Mountain Caribou	Winter Forage and Cover	1- High	100-76%	<ul style="list-style-type: none"> • Abundant lichen forage: arboreal/ground cover >25% forage species • Old growth adjacent to high elevation • SS6, 7, coniferous dominant, low shrub
		2- Moderately High	75-51%	<ul style="list-style-type: none"> • Moderate- High lichen forage: arboreal/ground cover 20-25% forage species • SS6, 7 • Windswept slopes <80% and subalpine forest
		3- Moderate	50-26%	<ul style="list-style-type: none"> • Moderate abundance of lichen forage: arboreal/ground cover 15-20% forage species • SS5, 6, 7 with low arboreal lichen • Moderate slope <80%
		4- Low	25-6%	<ul style="list-style-type: none"> • Low abundance lichen forage: arboreal/ground cover <15% forage species • SS5, 6, 7 • Steep slopes >80%
		5- Very Low	5-1%	<ul style="list-style-type: none"> • Very Low abundance of lichen forage: scarce or inaccessible • SS2-5, open forest • Steep slop >80%
		6- Nil	0	<ul style="list-style-type: none"> • No forage or cover • Impassable terrain • Low elevation

