

Sunshine Coast Community Forest

5710 Teredo St Suite 213,
Sechelt, BC
V0N 3A0

Date: March 22, 2024

Attn: Warren Hansen, Operations Forester

Re: HM64 Forest Attribute Assessment and Block Amendments

Anna Yuill of McTavish Resource & Management Consultants Ltd. (McTavish) and Laurie Kremsater of LLK Consulting were retained by the Sunshine Coast Community Forest (SCCF) to prepare a Forest Attribute Assessment for HM64 (provided below). A field reconnaissance of the block was conducted on September 9, 2022 and the results of the Forest Attribute Assessment were provided to the Operations Forester on June 7, 2023.

Since then, follow-up discussions have been conducted surrounding the age class distribution and timber supply constraints of the Halfmoon Bay tenure area. Since the time of the Forest Attribute Assessment two rounds of revisions to HM64 have occurred, and V12 of the DRAFT Conservation Network (CN) has been developed. The final proposed block reflected in the latest Harvest Plan / Road Construction Map (dated 2024-03-20) is attached below.

Notable alterations to the initial block design based on the Forest Attribute Assessment include the following:

- The overall block size has decreased from 16.6 ha to 9.4 ha with 1.3 ha as a WTRA that overlaps the CN, and 0.9 ha as split between two retention patches that extend from the CN, leaving a net harvestable area of 9.4 ha.
- The block boundary neighboring the Beaver Pond stream (Falling Corner [FC] 48 – 52) has been adjusted to establish a broader riparian and wildlife corridor (25 – 30 m), exceeding the designated minimum of 10 m for Western Painted Turtle.
- Adjustment of block boundary to exclude a wet area where multiple S6's are mapped and where devil's club was noted, located near FC 59 – 62 (Area of Note within Block Results, Appendix II)
- Reduction of the block to exclude a small skunk cabbage swamp, that has evidence of high ungulate usage just west of FC 47 – 48.
- Dispersed retention includes areas that were noted within the Block Results (Appendix II) but has also includes additional areas.

Alterations to the CN have been ongoing as part of the SCCF's ecosystem based management planning process. The Forest Attribute Assessment was based on V10 of the CN. Alterations to the CN resulted in the addition of the small skunk cabbage swamp, and the addition of the wetted area where multiple S6's drain into Wakefield Creek (FC 59 – 62). The addition of CN around the multiple S6's provides a linkage from the north through an existing WTRA, enhancing the CN's connectivity across the Halfmoon Bay tenure area.

The revised block design demonstrates a comprehensive acknowledgment of notable features identified during the Forest Attribute Assessment. The evaluation of the overall seral distribution around HM64 and within Halfmoon Bay remains an essential aspect of ongoing timber supply analysis and will continue to inform block locations and decision-making process of the SCCF.

Additionally, call-play back searches for the Northern Goshawk laingi (*Accipiter gentilis laingi*) subspecies was conducted on July 7th and 8th 2023, within the general area of HM64. No nests were discovered, and no detections were made.

It is worth highlighting that the delineated regions within the Harvest Plan / Road Construction Map (e.g., seepage area, group retention, watercourses) possess a higher level of geographic accuracy due to the surveying process

by layout crews that have conducted detailed delineations after our initial assessments. In contrast, the areas indicated in the illustrated block assessment are based on field observations and iPad GPS locations that have a lower level of accuracy.



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Project Lead, Ecologist



Laurie Kremsater, M.Sc., R.P.Bio., R.P.F
Senior Forester

Site Plan Map Block HM64

DRAFT



Block HM64

Scale: 5,000
 Region: RSC
 District: DSC
 Mapsheet: 092G051
 Location: Halfmoon Creek
 UTM Zone: 10
 UTM Easting: 439287
 UTM Northing: 5484997
 Latitude: 49°30'52.40"N
 Longitude: 123°50'19.45"W
 TAUP (ha): 12.5

Management Areas

- Riparian Stream Class-FISH:
 - S1, S2, S3, S4
 - Unknown
- Riparian Stream Class-NO FISH:
 - S5, S6
 - Unknown
- Non-classified Drainage
- Seepage
- Stream Class, Reach Break
- Riparian Lake (L1-L4)
- Riparian Wetland (W1-W5)
- Water Body ID #
- Retention Patch (Engineered)
- Retention Patch (Proposed)
- Adjacent Retention Patch
- Dispersed Retention Trees
- Dispersed Retention Trees (Group)
- Wildlife Tree Retention Area
- Adjacent Wildlife Tree Retention Area
- Road Right-of-Way
- Riparian Reserve Zone
- Riparian Management Zone (if different than SU prescription)
- Ground-Based Yarding Area
- Helicopter Harvest Area
- Ground Based Area >35% Slope
- Windthrow Management Area
- Machine Free Zone
- Special Management Zone
- Park
- Water Supply Intake
- Previous Harvest
- Community Forest Boundary
- Community Watershed
- Old Growth Mgmt. Area
- Visual Landscape Inventory
- First Nations Treaty Area
- EBM Reserve
- Root Rot Management Area

Stream Reach ID	Stream Class	Reserve Zone Width (m)	Mgmt. Zone Width (m)
Wakefield Creek	S3	20	20
A, E	S3	20	20
G	S4	0	30
C-Reach 1, F-Reach 1, F1, F2	S6	0	20
C-Reach 2, F-Reach 2, 3, 4, 5, 6, 7	NCD	0	0
Wetland A	W2	10	20
Crowston Lake	L1-B	10	0
Beaver Pond	L2	10	20
NCW1, 2, 3, 4, 5	NCW	0	0

Field Marking

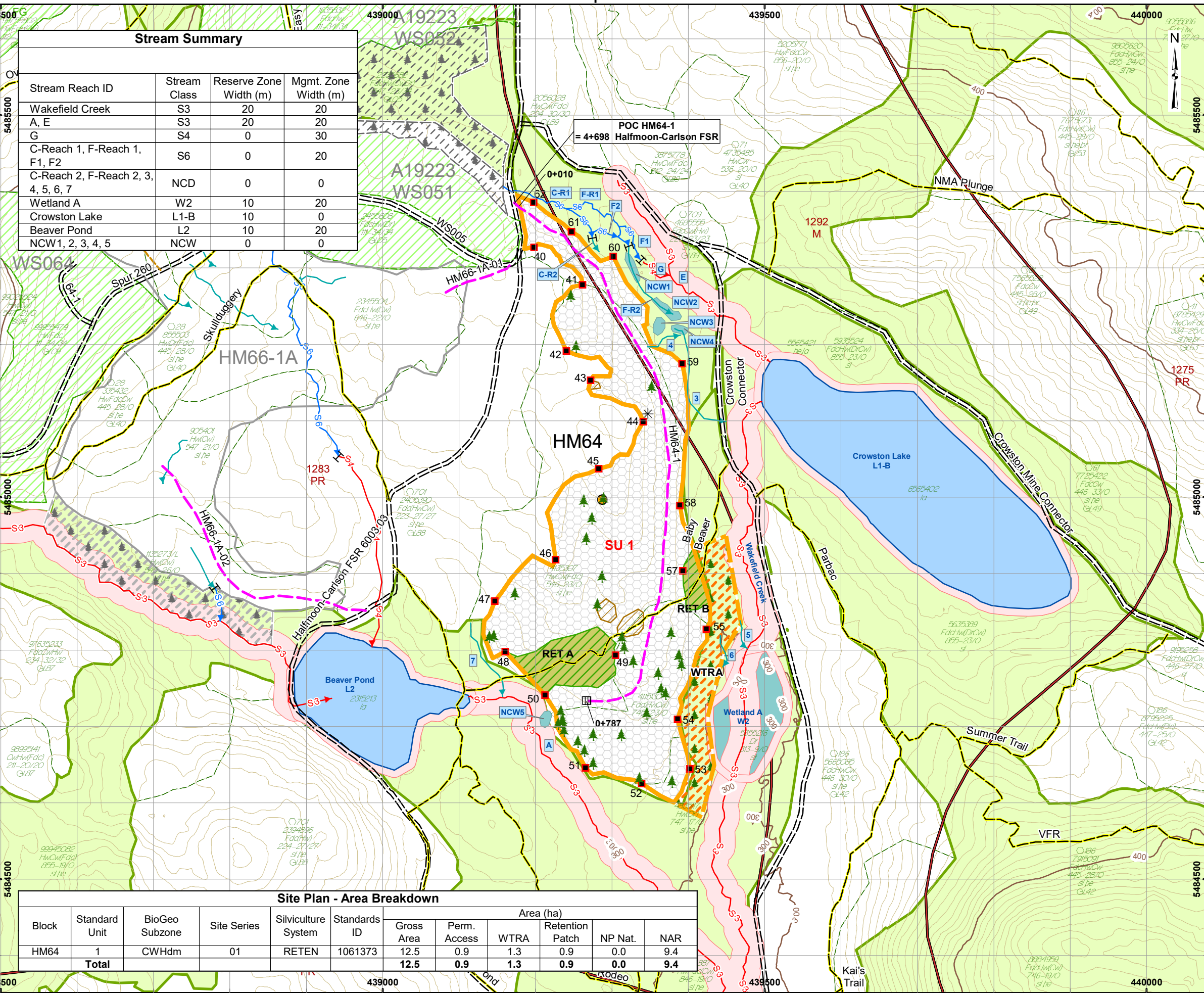
- Falling Bdry: Orange Ribb. & Blazed Painted Orange
- Retention Patch: Orange Black Stripe Ribbon & Blazed Painted Orange
- Road Centre Line: Pink Ribb. & Blazed Painted Pink
- Road ROW: Orange Ribb. & Blazed Painted Orange
- Falling Corner: Blazed Painted Orange
- Dispersed Retention Trees: Orange Painted Dot Each Side & Base
- Special Mgt Zone: Orange Labelled Ribbon
- Fish Stream: Red White Stripe Ribbon
- Non Fish Stream: Blue White Stripe Ribb.
- Deflection Line: Green Ribbon
- Machine Free Zone: Red Ribbon
- Cruise Tree: Blue Painted Number

Scale: 1 : 5,000



Project Number: 21-610
 Drawn By: MC/JC
 Date: 2024-03-20

Block	Standard Unit	BioGeo Subzone	Site Series	Silviculture System	Standards ID	Area (ha)					
						Gross Area	Perm. Access	WTRA	Retention Patch	NP Nat.	NAR
HM64	1	CWHdm	01	RETEN	1061373	12.5	0.9	1.3	0.9	0.0	9.4
Total						12.5	0.9	1.3	0.9	0.0	9.4



Legend

- Total Area Under Prescription (TAUP):
 - Falling Boundary
 - External to Falling Bdy
- Falling Corner
- SP Plot
- Standard Unit Boundary
- Treatment Unit Boundary
- Existing Road
- Existing Trail
- Proposed Roads:
 - Haul Road
 - Designated Skid Trail
 - Temporary (Rehab)
 - Backspar Trail
 - Road Reconstruction
- Road Chainage
- Bridge (Existing)
- Bridge (Proposed)
- Culvert Proposed/Existing
- Survey Route
- Unclassified Road
- Rock Outcrop Area
- Proposed / Designated Stream Crossing
- Gravel Pit
- Transmission Line
- Utility Corridor
- Permanent Structures
- Slide
- Gully
- Rock Outcrop
- Windfall/Snag
- Marsh/Swamp
- Index Contour and Label
- Intermediate Contour
- Landing/Temporary Landing
- Dryland Sort/Water Sort
- Log Dump/Helipad
- Helicopter Drop Zone
- Geographic Centre

Harvest System

- Ground Based
- Skyline
- High-lead
- Harvest System Split Line
- Yarding Split Line

Block HM64 – Forest Attribute Assessment

June 7, 2023

FOREST ATTRIBUTE ASSESSMENT OVERVIEW

OBJECTIVES

The Sunshine Coast Community Forest (SCCF) is adopting an ecosystem-based management (EBM) approach to its forestry practices. As part of this process, it aims to gain an understanding of the forest attributes within its landbase to help facilitate informed decisions at both the stand level and landscape level.

A draft Conservation Network (V10) has been established and at the time of assessment HM64 falls outside the proposed network. The intent of this Forest Attribute assessment is to provide the SCCF with an evaluation of forest attributes within HM64 (the 'block'). This assessment will aid in identifying areas suitable for harvest and stand-level retention, as well as contribute to understanding how the block fits within the ongoing broader tenure-wide assessment of forest characteristics to refine the Conservation Network.

The intent of this assessment is to:

- Identify any red- and blue-list plant communities (listed communities),
- Identify any Old Forest and/or Sufficiently Established plant communities,
- Make recommendations on operational considerations for the planned block that may be incorporated into the final layout,
- Identify instances of ecologically valuable resources (EVRs) within the stand that may have implications for wildlife or species of concern, and
- Consider the Forest Attributes found within the block in relation to seral stage distributions in the immediate neighbourhood of the block and in relation to the current draft of Conservation Network design.

BACKGROUND

DESCRIPTION OF BLOCK AND LANDSCAPE CONTEXT

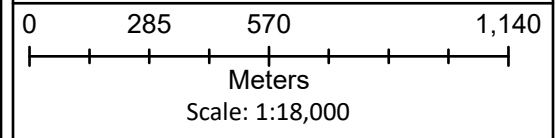
The block is located within SCCF's Halfmoon Bay operating area, northwest of Sechelt (See Figure below for location overview). The block is directly west of Crowston Lake and accessible by two Forest Service Roads (FSRs): Halfmoon-Carlson or the Crowston Connector. There are multiple recreation trails surrounding the block with Baby Beaver (biking and hiking trail) intersecting the lower portion of the block.

SCCF provided an initial concept outline of the intended block, which is viewable in their [2021 - 2025 Operations Plan for Halfmoon Bay](#) (Operations Plan). At the time of our assessment, an official harvest plan had not been fully developed. However, preliminary flagging identifying the block boundary had been hung in the field (refer to Appendix I). The block boundary and harvesting plan has been revised since the assessment (Amendment p. 1).

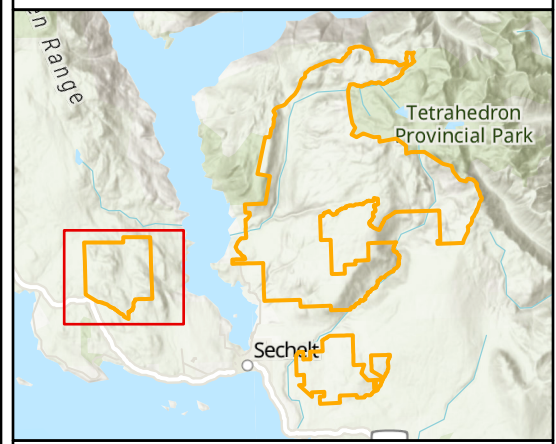


Legend

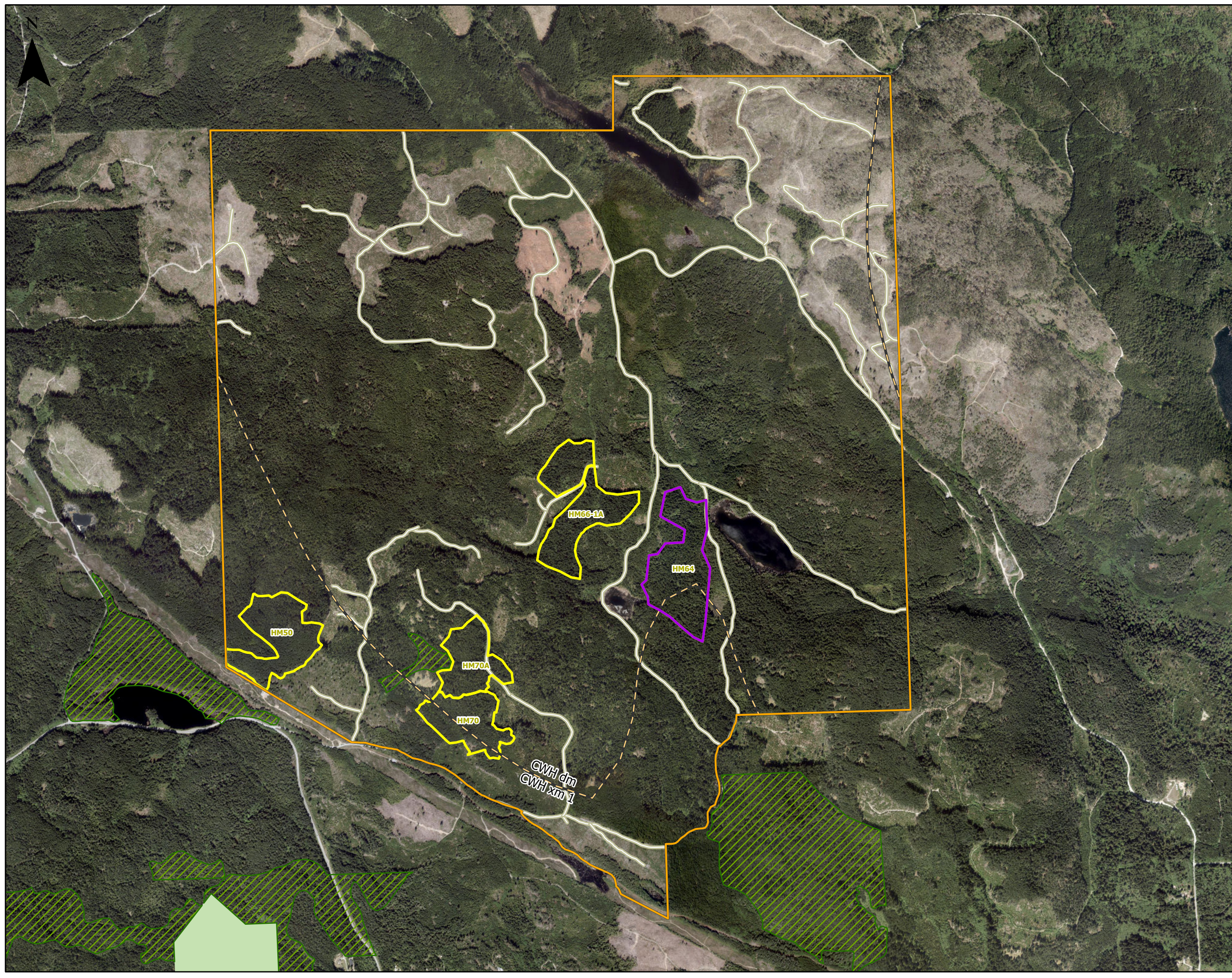
-  Tenure Area
-  Planning Blocks 2021 - 2025
-  Assessed Block
-  Biogeoclimatic Ecosystem Classification (v12)
-  OGMA (Legal)
-  Parks and Protected Areas
-  Existing Roads



Project ID: OT-58
Project Name: SCCF Forest Attribute Assessment
Drawn By: Anna Yuill
Date Exported: 12/6/2022 10:54 AM



Location Overview: HM66-1A



Block HM64 – Forest Attribute Assessment

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A desktop review was completed prior to conducting a field assessment to determine the BEC unit(s), potential presence of listed communities, EVRs, and potential wildlife occurrences in and near the block (200 m radius). For a full list of all spatial datasets consulted, please refer to the Data Sources section of this report.

Ecosystem Review

- BECv12 indicates that most of the block occurs within the Coastal Western Hemlock dry maritime (CWHdm) with the southern portion of the block occurring within the Coastal Western Hemlock eastern very dry maritime (CWHxm1).
- Sechelt LU TEM indicates that the block lies entirely within the CWHdm. The BEC boundaries identified by TEM is typically considered more accurate than the broad BEC mapping as it is generally conducted at a finer scale. Table 1 below lists the communities found within the TEM.
- The largest difference between the CWHdm and the CWHxm1 is presence of vine maple (*Acer circinatum*) and higher abundance of wavy-leaved cotton moss (*Plagiothecium undulatum*) in the CWHdm. Vanilla-leaf (*Achlys triphylla*), ocean-spray (*Holodiscus discolor*), and baldhip rose (*Rosa gymnocarpa*) are rare and there is no arbutus (*Arbutus menziesii*) on drier site series within the CWHdm (Green and Klinka 1994). It was outside of the scope of work to confirm the BEC unit transition zone, however, notes on species composition and makeup of the block were taken.

Table 1: Mapped Ecosystems within HM64 according to the Sechelt Landscape Unit Mapping (BABPID 4678).

BEC Unit	Site Series	Ecosystem Name	Potential Listed Community (BC CDC 2022)
CWHdm	01	Douglas-fir - western hemlock / salal	Red
	05	western redcedar / sword fern	Red
	07	western redcedar / three-leaved foamflower	Blue

DESKTOP REVIEW -
SITE SERIES AND AGE
ASSESSMENT

Stand History

The Vegetation Resource Inventory ([VRI](#)) and [RESULTS](#) data do not indicate an existing harvest history for the majority of the block nor any major natural disturbance.

- Majority of the block does not have any documented occurrences of natural disturbance or harvest apart from the northeastern corner having documentation of being harvested in the 1940's.
- Despite the lack of documentation, the block was previously harvested in the 1950's (W. Hansen, personal communication, September 2022)
- The block is largely estimated to be 84 years old with the southern corner to be around 113 years old, indicating a mature stand.

Environmentally Valuable Resources (EVRs)

Multiple existing data sources were referenced to determine the potential for any existing EVRs within or adjacent to the block.

- [Critical habitat](#) for Painted Turtle (*Chrysemys picta bellii*), Trout Lake/Halfmoon Bay population, has been outlined as a buffer surrounding Wakefield Creek (east of the block) and the Bever Pond stream (south of the block).
- The portion of Wakefield Creek that parallels the southern boundary of the block is part of a larger watercourse that drains Crowston Lake and supports downstream fish habitat.
- No documented species and ecosystem at risk are recorded in the area by the BC Conservation Data Centre (neither [public](#) nor [masked](#) occurrences).
- No documented [incidental](#) or [survey observations](#) of red- or blue-listed, mammals, birds, reptiles or insects have been recorded within or in close proximity (200 m) of the block.

Block HM64 – Forest Attribute Assessment

June 7, 2023

METHODOLOGY

As the SCCF begins to move towards an EBM approach for their forest management practices, a deeper understanding of the forested landbase is required. As such, a Forest Attribute assessment was conducted in the block to provide insight into stand structure and function at the stand and tenure scales. This assessment involved evaluating features within the block using the methodology outlined in Land Management Handbook 72 (LMH 72), *Guidelines to Support Implementation of the Great Bear Rainforest Order with Respect to Old Forest and Sufficiently Established Listed Communities* (Banner et al. 2019). LMH 72 provides a process for identifying Sufficiently Established (SE) plant communities and Old Forest (OF) communities for the Great Bear Rainforest Order (GBRO). While the SCCF does not occur within the Great Bear Rainforest (GBR), it shares similar ecological communities that are included within the BECs (CWHxm and CWHdm) for which the LMH 72 was written. The application of LMH 72 within the SCCF is to support EBM and a framework for designing a Conservation Network and identifying patches of old forest and recruitment forest to be included as stand-level retention.

The block was selectively sampled using a fixed-area plot of 0.2 ha (25-m radius). Within the fixed radius plot four (4) assessments were conducted.

- Identifying ecological plant community.
- Identifying Old Forest communities,
- Identifying Sufficiently Established communities,
- Conducting a Forest Attribute Score (FAS), and
 - Counting the density of *Veteran Overstory Trees* (VOTs)
 - Counting *Snag Density*
 - Assessing *Vertical Canopy Complexity*
 - Assessing *Understory Shrub and Herb Cover*
 - Documenting the abundance of *Coarse Woody Debris* (CWD)
 - Documenting if there is a visibly discernible *Disturbance History*

FIELD ASSESSMENT

For a stand to be considered SE or OF, the stand must be greater than 80 years old and have basic structural and vegetation requirements that differentiate it from early and mid-seral stand characteristics. LMH 72 provides a decision key that was used to identify these features (Figure below). However, it requires site level assessments of stand attributes, knowledge of stand age, and site series. As such, the most recent VRI data was used to determine the age matrix of the block, this age was field validated using an increment bore to core one to two trees at each plot. Additional coring was also done to check if a VOT met (or was close to) the minimum age threshold of 200 years.

Even if a plot was not identified as SE or OF, a Forest Attribute Score (FAS) was still conducted to determine the overall ecological condition of the plot. Calculating a FAS provides a numerical score of the stand's condition based on its ecological complexity, allowing for stands to be quantitatively ranked in relation to their quality as candidates for recruitment into the Conservation Network or if special management or conservation measures are appropriate. Note that some subjectivity will always be required in any field assessment determining a FAS, thus, to err on the side of caution, ecologically conservative decisions were made in the scoring of plots by giving higher scores in categories where the difference between the categories were not obvious (e.g., choosing natural disturbance versus harvest disturbance if the history was no longer clear).

The utilization of LMH 72 provides a consistent and systematic approach to evaluating a block's structural and ecological attributes. However, it does not consider the site-specific values (i.e., recreation trails, proximity to watercourses, wildlife use or value) nor does it consider landscape context or ecological integrity within its assessment scheme. Therefore, in addition to the FAS, the block assessment includes comments on other site values and landscape context. The application of LMH 72 and the concept of landscape context and ecological integrity relies on qualified professionals trained in its application and experienced in the identification of ecological communities, stand development, and ecosystem resilience and function.

Block HM64 – Forest Attribute Assessment

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In addition to following LMH 72 methods, notes were taken on potential reserve patches, Wildlife Tree Retention Areas (WTRAs), or other features aimed at maintaining forest structure and function. Additionally, observations were made regarding incidental wildlife or unique features and values found within the block.

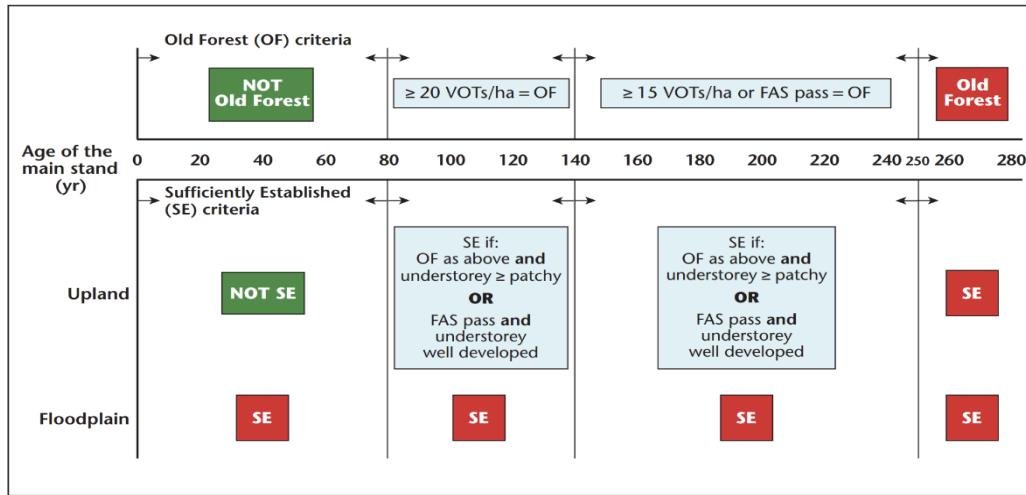


Figure 1: Summary of main criteria for identifying Old Forest and Sufficiently Established Listed Communities (Banner et al., 2019).

ASSESSMENT
DATE

The block was assessed on September 9, 2022 by Anna Yuill (M.Sc., R.P.Bio, F.I.T) and Laurie Kremsater (M.Sc., R.P.Bio., R.P.F.), outside of the goringing season but under faveroable conditions (i.e., sunny weather, mild tempratations and minimal wind).

Block HM64 – Forest Attribute Assessment

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RESULTS

Plots were subjectively located in areas that were most likely to be able to pass the FAS or have a relatively higher score than other areas. A total of five (5) plots were assessed in the block (Table 2):

- None of the plots were classified as Old Forest.
- None of the plots were classified as Sufficiently Established.
- None of the plots passed the FAS.

The only plot that came close to passing the FAS was plot 04, with a score of 5.5, due to presence of a snag, a well-developed understory of a 05 (Cw - sword fern) red-listed ecological community, and the high abundance of CWD. Higher scores are attributed to the presence of a well-developed understory. As plots were subjectively located in areas that would likely to have higher scores, most of the block tended to have score under 3.5.

- The block had only two VOTs, one a western redcedar (*Thuja plicata*) and the other a Douglas-fir (*Pseudotsuga menziesii*) both of which were GPS'd for potential retention trees.
- The block generally had a patchy to consistent/well-developed shrub and herb cover.
- The typical FAS score for the block was between 2 - 3.5 with plots 01 and 03 representing the typical forest structure of the stand.

Table 2: Results of Forest Attribute Assessment including results of Old Forest, Sufficiently Established and the Forest Attribute Score (FAS) for each plot within HM64. Scoring is based on the assessment methodology outlined in Land Management Handbook 72 (LMH 72).

Plot	Old Forest	Sufficiently Established	Density of VOTs	Density of Snags	Vertical Canopy Differentiation	Understory Shrub and Herb Cover	CWD Pieces	Disturbance History	Score	Pass/Fail
01	No	No	0	0	0	1	1	0	2	Fail
02	No	No	0	0	0	1	0.5	0	1.5	Fail
03	No	No	0	0	1	2	0.5	0	3.5	Fail
04	No	No	0	1	1	2.5	1	0	5.5	Fail
05	No	No	0.5	0	1	2.5	0.5	0.5	5	Fail

FOREST ATTRIBUTE

A total of 4 core samples were taken, the age of the stand's matrix (dominant age of the stand) is between 80-95 years (Table 3).

- The VRI puts the lower portion of the block at 134 years, but the core samples indicated that the age of the area is between 80 and 90 years old. The VRI appears inaccurate and an overestimate in this area.
- The one western redcedar VOT was cored and was estimated to be 250+ years, this cedar is located on top of knoll where it appears some selective logging may have occurred in the past.
- The one large Douglas-fir was not cored but had the characteristics of a VOT, notably larger in both diameter and height with distinctive furrowed bark, branching, and crown form. However, it may be a residual tree from previous harvest and under the 200-year threshold. Regardless of age, it would be a valuable retention tree.

Table 3: Species, diameter, cored age, and estimated age of the VRI for trees cored within the HM64.

Plot	Species	DBH (cm)	Sampled Age (years)	VRI Projected Age Class 1 (years)
03	Douglas-fir	101.5	96	134
04	Hemlock	60	84	134
No Plot	Douglas-fir	70	75	134
05	Western Redcedar	81	+250	84

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<p>ECOSYSTEM CLASSIFICATION AND FEATURES</p>	<p>General notes were taken on the site series composition of the block as well as any ecosystem features of the block that may have importance. General observations are as follows:</p> <ul style="list-style-type: none"> • The block is a mixture of 01 (Hw - Flat moss) with richer areas of 05 (Cw - Sword fern) located near Wakefield Creek. • A small patch of 12 (CwSs - Skunk cabbage) is in the southwestern corner of the block just north of the Baby Beaver trail (not indicated by TEM). • A small patch of 07 (Cw - Foamflower), as indicated by the presence of Devil’s club (<i>Oplopanax horridus</i>), in the very northeastern portion of the block.
<p>WILDLIFE OBSERVATIONS</p>	<p>Wildlife observations were not exhaustive but rather based on incidental observations during forest attribute assessment field work in the block. Observations included:</p> <ul style="list-style-type: none"> • Pileated woodpecker (<i>Dryocopus pileatus</i>) use was noted throughout the block with an abundance of excavated cavities. • Game trails were observed throughout the block, largely made by elk (<i>Cervus canadensis</i>) as evidence by the presence of droppings and tracks. • Evidence of ungulate browsing in a small western redcedar-skunk cabbage patch located in the southwestern portion of the block. • No evidence (calls or nests) of the presence of Northern Goshawk (<i>Accipiter gentilis</i>). The search was not exhaustive, and no call playbacks were conducted, as field work occurred outside of the appropriate season.
<p>RECREATION OBSERVATIONS</p>	<p>Recreation observations included:</p> <ul style="list-style-type: none"> • Well established hiking/biking trail, Baby Beaver • No other walking trails were noted in the block.
<p>FIELD RESULTS MAP AND PHOTOS</p>	<ul style="list-style-type: none"> • Appendix II provides an illustrated version of our field results. • Appendix III provides representative photos of block conditions
<p>IMPLICATIONS AND CONSIDERATIONS</p>	
<p>OLD FOREST (OF) CONSIDERATIONS</p>	<p>None of the areas within the block meet the OF criteria set forth by LMH 72. However, a few areas of note were documented within the block, recommendations are as follows:</p> <ul style="list-style-type: none"> • Retain the western redcedar VOT located on a small rocky knoll. • Retain the large Douglas-fir left from previous harvesting, as it would make an excellent retention tree.
<p>SUFFICIENTLY ESTABLISHED (SE) CONSIDERATIONS</p>	<p>None of the areas within the block meet the SE criteria set forth by LMH 72. However, a few areas of note were documented within the block that would help promote ecological integrity, recommendations are as follows:</p> <ul style="list-style-type: none"> • Creation of a small retention patch surrounding the small patch of 12-site series (CwSs - Skunk cabbage) to help maintain its ecological importance and function. <ul style="list-style-type: none"> ○ Concentrated animal use (browsing) was noticed within this area. ○ It also drains into Wakefield Creek during the times of heavy rainfall. • Creation of a small retention patch or adjustment of block boundary to exclude the patch of 07-site series (Cw - Foamflower). <ul style="list-style-type: none"> ○ This site series is relatively uncommon within the SCCF tenure area and is one of the few sites that have been documented.
<p>WILDLIFE HABITAT</p>	<p>An additional assessment of the designated Critical Habitat for the Coastal Painted Turtle population surrounding Wakefield Creek was conducted by Cassidy Collins, a McTavish Resource Management Ltd. (McTavish) Biologist, please refer to Appendix IV for results and discussion.</p> <ul style="list-style-type: none"> • The report recommends a minimum 10 m buffer be established around Beaver Pond, the Beaver Pond stream, and Wakefield Creek.

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LANDSCAPE CONSIDERATIONS

A high-level overview analysis was completed of the block (HM64) and block HM66-1A as they are within proximity of one another, as indicated by the SCCF's Operation Plan for Halfmoon Bay. If harvesting of these two blocks coincides with one another in the same year or even same decade or two, then considerations on the distribution of early seral within Halfmoon Bay is needed (Appendix V). Considerations could include:

- Increase internal retention in either the block (HM64) or HM66-1A.
- Redesign the upper portion of HM66-1A to create reserve corridor through the block.

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LANDSCAPE REVIEW

Ecological integrity can be assessed in variety of ways; however, NatureServe and the BC CDC assess ecological integrity based on a ranking system of combined attributes (condition, size, and landscape context) (Banner et al. 2019). Assessing ecological integrity is beneficial when considering the spatial pattern of ecological communities for conservation and planning but is not necessarily practical when implementing it at the operational level due to harvesting constraints (Banner et al. 2019).

Within the block there are four ecological communities, no areas within the block qualified as SE. As such none of them met the requirements for protection under LMH 72. Despite not being SE, the ecological communities can still have important value in a given context, thus the ecological integrity of each ecological community was reviewed (Table 4).

- Overall, all the plant communities within the block are largely well-developed with good conditions and excellent landscape context.
- The block is largely a matrix of 01/05 and is part of larger continuation of mature stands in the southern portion of the tenure, as such it is given a C ranking for size.
- The 07 ecological community is considered to have a large patch size but has a D rating for its overall size, in this instance of approximately 2 ha. Despite its small size, it is close to the draft reserve network and would make a good candidate for addition to the draft reserve network.
- The 12 ecological community is considered to have a large patch but has a D rating for its overall size of approximately 0.7 ha. A minimum reserve size of 1 ha for the plant community would attempt to meet the ecological viability/integrity objective as discussed within LMH 72.

Table 4: Overview of HM64's attributes (condition, landscape context, and size) influencing their ecological integrity based on Appendix 7 of LMH 72.

Site Sires (Ecological Community)	Spatial Distribution Pattern	Influence Factors of Ecological Integrity		
		Condition	Landscape Context	Size
01/05	Matrix (13.9 ha)	Good	Excellent	C
07	Large Patch (2.0 ha)	Good	Excellent	D
12	Large Patch (0.7 ha)	Good	Excellent	D

The block is a good representation of 01/05 ecological communities but doesn't meet the standards of OF or SE due to the lack of VOTs and Snags and the 01/05 is well represented in the draft reserve network for a 30% ecological respiration target. However, there are two minor ecological communities (07 and 12), despite their small size it would be beneficial to include the communities in either the reserve network or in a retention patch. This will help maintain ecological function associated with mature forest and increase representation of these richer ecosystems..

ECOLOGICAL INTEGRITY

Block HM64 – Forest Attribute Assessment

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SCCF RESERVE
DESIGN DRAFT
AND EBM
CONTEXT

Deciding if the block or portions of the block is/are suitable candidate(s) for addition to a reserve network aimed at protection and recruiting OF requires knowing other recruitment options that are available to meet conservation targets the SCCF is implementing. The methods outlined in LMH 72 have been used within the SCCF tenure area for the last two years to try and determine the best options available through a tenure wide assessment conducted in 2021 (Yuill et al., 2021) and ongoing block assessments of the 2021-2025 Operation Plan.

- A total of 120 FAS plots have been established across the entire tenure area (Figure 2)
 - 42 plots have been established during tenure wide reconnaissance assessments.
 - 78 plots have been established as part of block assessments, which are conducted at a higher density in each area than reconnaissance assessments.
- 22 plots have passed the FAS score (> 6) within the SCCF.

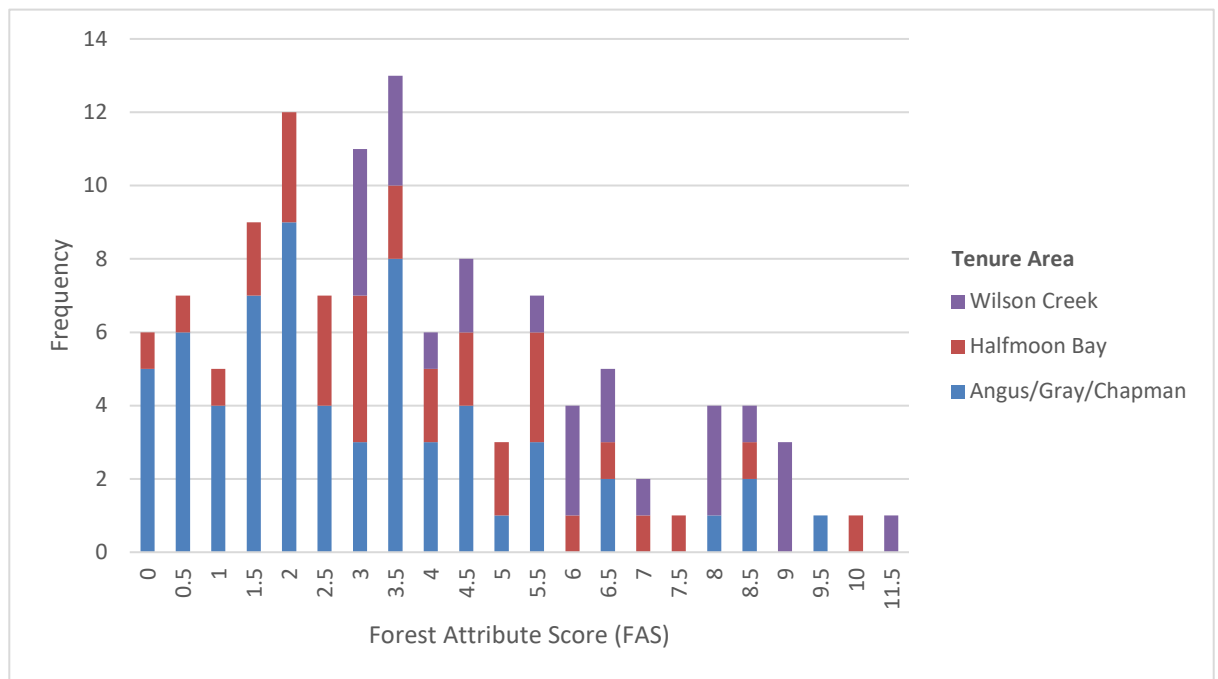


Figure 2: Frequency distribution of all Forest Attribute Scores (FAS) conducted to date, November 29, 2022, per tenure area.







Many of the ecological communities visited within the tenure area do not meet the criteria for being SE or OF. However, despite this, the methods and application of LMH 72 allow for the ecosystems that were visited to be ranked for their ecological characteristics. This allows for stands that may have more ecological integrity and/or function than other stands to be considered for inclusion into a reserve network. This is especially useful where good examples of mature and OF are not present or in sufficient quantity to maintain biodiversity. In areas where there are limited OF or SE communities, these younger stands may be the best examples left and may be suitable for protection.

The SCCF has been working towards a broader tenure-wide assessment that aims at designing a draft reserve network with the intention of meeting a 30% retention target of the forested landbase. The assessment of HM64 has contributed to this work by providing additional areas that have been assessed especially within Halfmoon Bay. As such, the proposed block was reviewed in context to the ongoing design and existing FAS scores. As indicated by Figure 2 above, the overall score of 3.5 for the block fits within the most frequent scoring category for the entire tenure area sampled thus far. While the whole block was not considered for recruitment into the draft reserve network areas on the edges of the block that have been incorporated into in the most recent draft reserve design (V10).

- A 50 m buffer has been applied to either side of Wakefield Creek, (more than the usual legal standards). This allows for a larger functioning riparian corridor and inclusion of Western Painted Turtle

Block HM64 – Forest Attribute Assessment

June 7, 2023

	<p>management recommendations. Additionally, it allows for a larger corridor that connects the upper portion of Wakefield Creek to the lower portion providing habitat security and promoting movement for various wildlife species.</p> <ul style="list-style-type: none">• In the most recent reserve design (V10) a corridor through HM66-1A has been added to capture mature forest within the CWHdm, provide a break in the distribution of early seral that would be created should the block (HM64) and HM66-1A be harvested within the same rotation, and provide a wildlife corridor that encompasses a wetted area.		
ATTACHMENTS	<ul style="list-style-type: none">• Appendix I: Supplied Block Plan• Appendix II: Block Assessment Results - illustrated version of our field results.• Appendix III: Representative Photos provides representative photos of block conditions.• Appendix IV: Painted Turtle Critical Habitat Assessment.		
PREPARED BY:			
SIGNATURES	<table border="1"><tr><td data-bbox="297 651 917 909"><p>Anna Yuill, M.Sc., R.P.Bio, F.I.T McTavish Resource Management and Consulting Ltd.</p></td><td data-bbox="917 651 1546 909"><p>Laurie Kremsater, M.Sc., R.P.Bio, R.P.F. LLK Consulting</p></td></tr></table>	 <p>Anna Yuill, M.Sc., R.P.Bio, F.I.T McTavish Resource Management and Consulting Ltd.</p>	 <p>Laurie Kremsater, M.Sc., R.P.Bio, R.P.F. LLK Consulting</p>
 <p>Anna Yuill, M.Sc., R.P.Bio, F.I.T McTavish Resource Management and Consulting Ltd.</p>	 <p>Laurie Kremsater, M.Sc., R.P.Bio, R.P.F. LLK Consulting</p>		

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DATA SOURCES	
	<p>Timberline Natural Resource Group. 2008. <i>Terrestrial Ecosystem Mapping Sechlet Landscape Unit</i> [Data set]. Ministry of Environment. https://a100.gov.bc.ca/pub/acat/public/viewReport.do?reportId=35895</p> <p>Forest Analysis and Inventory Branch. 2021. <i>VRI – 2021 – Forest Vegetation Composite Polygons</i> [Data set]. VRI - 2021 - Forest Vegetation Composite Polygons - Datasets - Data Catalogue (gov.bc.ca)</p> <p>Forest Science, Planning and Practices Branch. 2003. <i>Results – Openings svw</i> [Data set]. RESULTS - Openings svw - Datasets - Data Catalogue (gov.bc.ca)</p> <p>Environment Canada. 2019. <i>Critical Habitat for federally-listed species at risk (posted)</i> [Data set]. Critical Habitat for federally-listed species at risk (posted) - Datasets - Data Catalogue (gov.bc.ca)</p>
SPATIAL DATASETS	<p>Ecosystems. 2003. <i>Species and Ecosystems at Risk – Publicly Available Occurrences - CDC</i> [Data set]. Species and Ecosystems at Risk - Publicly Available Occurrences - CDC - Datasets - Data Catalogue (gov.bc.ca)</p> <p>Ecosystems. 2003. <i>Species and Ecosystems at Risk – (Masked Secured) Publicly Available Occurrences - CDC</i> [Data set]. Species and Ecosystems at Risk - (Masked Secured) Publicly Available Occurrences - CDC - Datasets - Data Catalogue (gov.bc.ca)</p> <p>Knowledge Management. 2012. <i>Wildlife Species Inventory Incidental Observations – Non-secured</i> [Data set]. Wildlife Species Inventory Incidental Observations - Non-secured - Datasets - Data Catalogue (gov.bc.ca)</p> <p>Knowledge Management. 2012. <i>Wildlife Species Inventory Survey Observations – Non-sensitive</i> [Data set]. Wildlife Species Inventory Survey Observations - Non-sensitive - Datasets - Data Catalogue (gov.bc.ca)</p>
REFERENCES	<p>Banner, A., D. Meidinger, R.N. Green, and S.C. Saunders. 2019. Guidelines to support implementation of the Great Bear Rainforest Order with respect to Old Forest and Listed Plant Communities. Prov. B.C., Victoria, B.C. Land Manag. Handb. 72. https://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/LMH72.htm</p> <p>British Columbia Ministry of Environment. 2006. Standards for mapping ecosystems at risk in British Columbia: an approach to mapping ecosystems at risk and other sensitive ecosystems. Version 1.0. Prepared by Ecosys. Br. For Resources Inf. Stand. Committee, Victoria, B.C. https://www.env.gov.bc.ca/fia/documents/standards_for_mapping_ear_version1.pdf</p> <p>Green, R.N., and K. Klinka. 1994. A field guide to ecosystem classification and identification for the Vancouver Forest Region. Prov. B.C., Victoria, B.C. Land Manag. Handb. 28.</p> <p>NatureServe. 2002. Element occurrence data standard. https://www.natureserve.org/products/element-occurrence-data-standard</p> <p>Yuill, A., Girard, A., Kremsater, L. 2021. Old Forest and At-Risk-Ecological-Communities: Interpretations and TEM Analysis for the Sunshine Coast Community Forest. Madrone Environmental Services Ltd. for the Sunshine Coast Community Forest.</p>

Block HM64 – Forest Attribute Assessment

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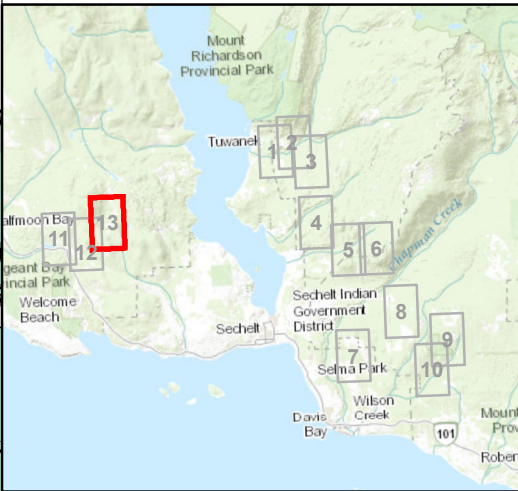
Appendix I. Supplied Block Plan



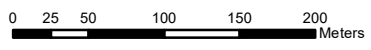
2021 Planned Harvesting Sunshine Coast Community Forest Sunshine Coast, British Columbia (Page 13 of 13)

Block Status

- Engineered
- Harvested
- Planted
- Free Growing
- 2021 Planned Harvest
- 2022 Planned Harvest
- 2023 Planned Harvest
- 2024 Planned Harvest
- 2025 Planned Harvest
- Community Forest
- Community Stewardship Area
- Block Retention/WTRA
- Protected Area (OGMA/WHA/UWR)
- Park or Protected Area
- Lake
- Stream
- Highway
- Paved Road
- K3F Tenure Road
- Forest Service Road
- Permit Road
- Existing Road
- Proposed Road
- Mountain Bike Trail

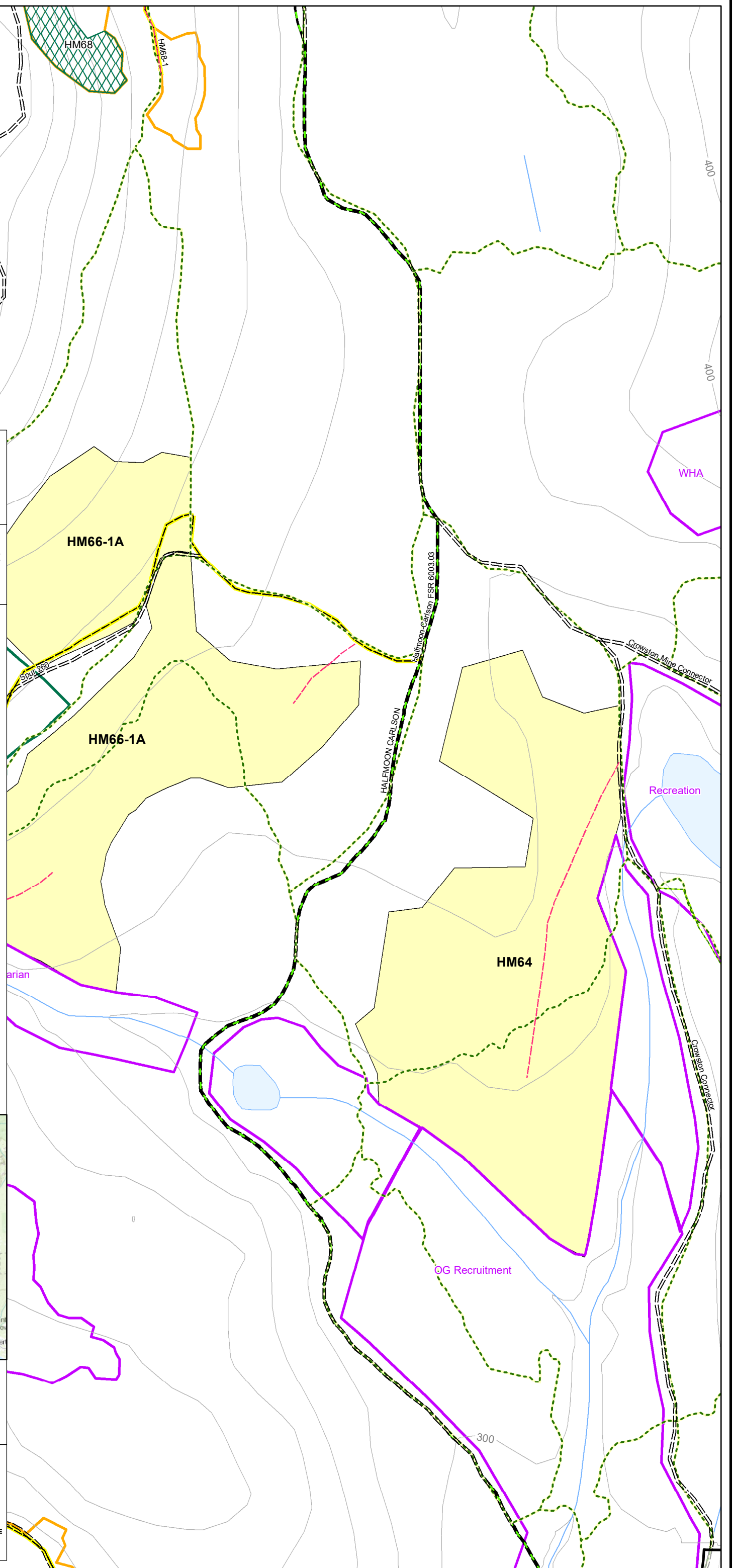


**DRAFT for
PUBLIC REVIEW**



Scale: 1:5,000
Projection: NAD 1983 UTM Zone 10N
Date: 2021-04-23

Digital Mapping By:



Block HM64 – Forest Attribute Assessment

June 7, 2023

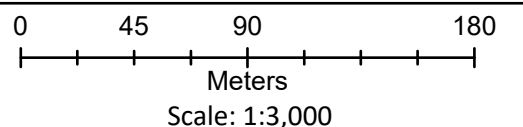
Appendix II. Block Assessment Results

Legend

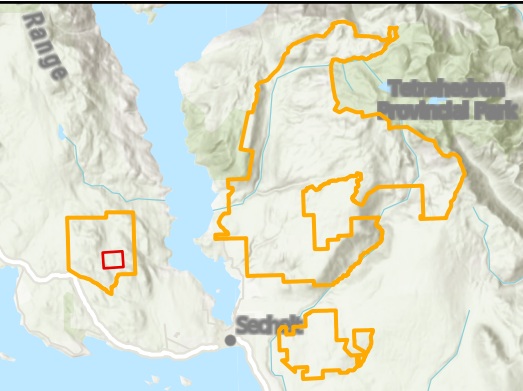
- Assessed Block (HM64)
 - Assessment Plot Centre
 - Area of Note
- Forest Attributes**
- Veteran Overstory Tree
 - Tree of Note
 - Possible Retention Tree
 - Water Feature
 - Animal Evidence
 - Western Painted Turtle Setback (10 m)

Background Information

- Tenure Area
- Draft Reserve Network (V10)
- Planning Blocks 2021 - 2025
- Critical Habitat (BC CDC)
- Streams
- Existing Roads
- Mtn. Bike Trails



Project: OT-58
Landscape Reserve DRAFT Version: 11/07/2022 V10
Drawn By: Anna Yuill
Date Exported: 2023-05-01 3:51 PM



Forest Attribute Assessment Results: HM64

Summary Comments

- Site assessment occurred on September 9, 2022.
- The block is predominantly of site series 01 (Hw - Flat moss) with richer areas of 05 (Cw - Sword fern) near Wakefield Creek, a small patch of 12 (CwSs - Skunk cabbage) located in the southwest corner, and a small area of 07 (Cw - Foamflower) located in the northeastern portion of the block.
- Five FAS plots were established; scores varied from 1.5 to 5.5. The presence of understory within the plot caused a noticeable increase from the typical 1.0-3.5 score to a 5.5 score.
- The flagged block boundary has been significantly altered from the 2021 - 2025 Operations Plan. Changes include the block boundary being pulled back from Wakefield Creek allowing for a larger riparian corridor, adjustment in the northeast corner around the 07 site series, and adjustment of the block boundary around HM64-05 to exclude a rocky knoll.
- The multi-use trail "Baby Beaver" that bisects through the lower portion of the block is very well established. Recreation use and visual quality should be considered during block planning.
- Incidental wildlife observations included the presence of elk tracks, ungulate trails, scat, and animal browsing.

Area is a 07-site series, noted by the presence of devil's club. The current field flagged falling boundary has largely excluded this area and follows wetted boundary. There are a few areas where flagging is located directly over the wetted area, would consider pulling them back.

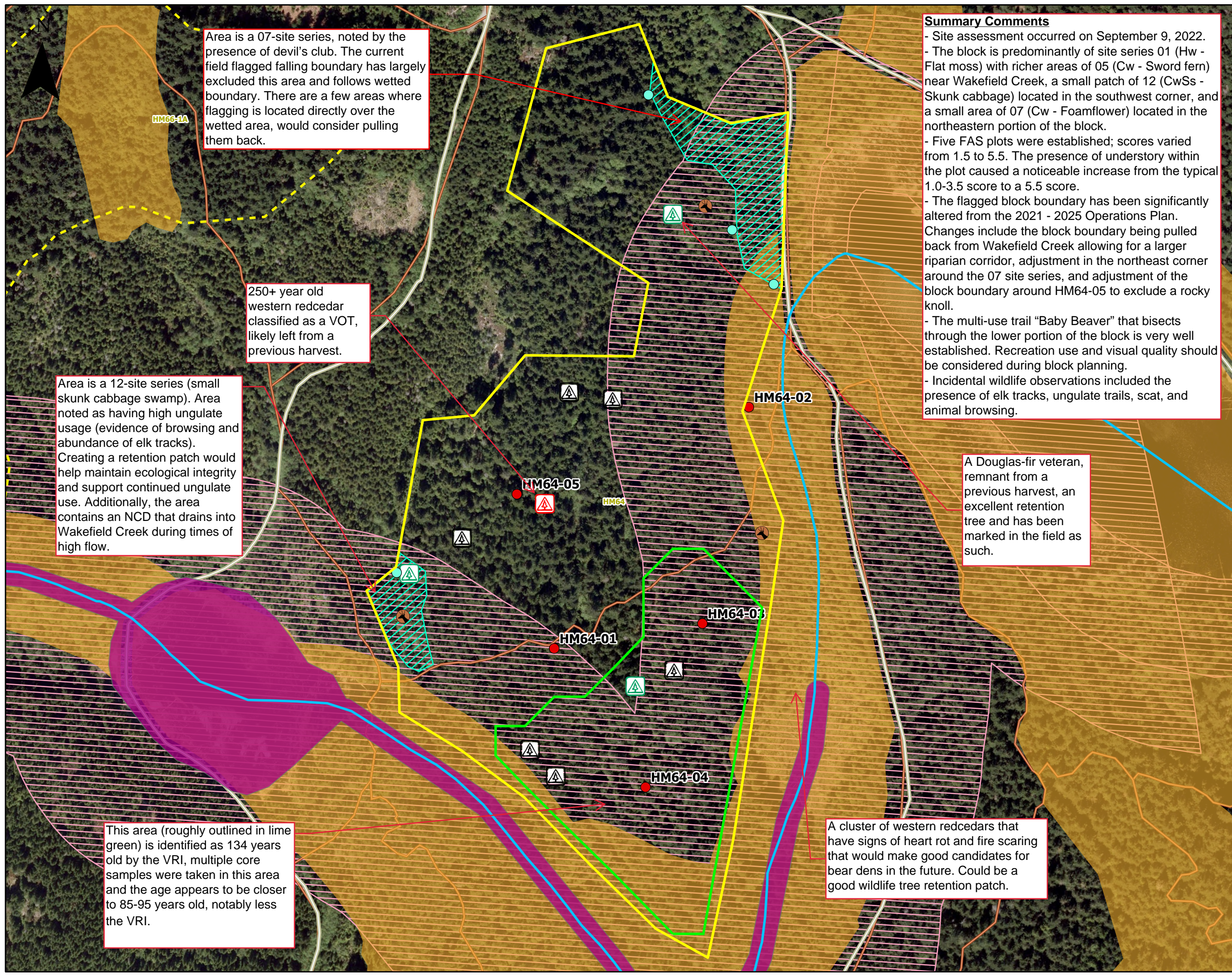
250+ year old western redcedar classified as a VOT, likely left from a previous harvest.

Area is a 12-site series (small skunk cabbage swamp). Area noted as having high ungulate usage (evidence of browsing and abundance of elk tracks). Creating a retention patch would help maintain ecological integrity and support continued ungulate use. Additionally, the area contains an NCD that drains into Wakefield Creek during times of high flow.

A Douglas-fir veteran, remnant from a previous harvest, an excellent retention tree and has been marked in the field as such.

This area (roughly outlined in lime green) is identified as 134 years old by the VRI, multiple core samples were taken in this area and the age appears to be closer to 85-95 years old, notably less the VRI.

A cluster of western redcedars that have signs of heart rot and fire scarring that would make good candidates for bear dens in the future. Could be a good wildlife tree retention patch.





Block HM64 – Forest Attribute Assessment

June 7, 2023



Appendix III. Representative Photos

Representative site photo of HM64 taken on September 9, 2022.

Site Photo	Description
	<p>Overview of typical stand structure, understory coverage, and coarse woody debris coverage of HM64.</p>
	<p>Overview east of plot 03 where understory development is considered well-developed with sword fern (FAS = 3.5).</p>



Block HM64 – Forest Attribute Assessment

June 7, 2023

Site Photo	Description
	<p>Overview east of plot 05, with single western redcedar VOT, well developed understory, and moderate canopy complexity (FAS = 3.5).</p>
	<p>Overview of the western redcedar skunk cabbage swamp (sites series 12) located in the southwestern portion of the block. Notable animal use included browsing and elk tracks. Would make a highly valuable retention patch.</p>

Block HM64 – Forest Attribute Assessment

June 7, 2023

Site Photo	Description
	<p>Overview of the western redcedar foamflower (sites series 07) located in the northeastern portion of the block. Abundance of devil's club and drainage pathways were noted here. Flagged block boundary has largely excluded this ecosystem for the harvest plan.</p>
	<p>Western redcedar tree that may eventually become a suitable bear den.</p>

Block HM64 – Forest Attribute Assessment

June 7, 2023

Appendix IV. Painted Turtle Critical Habitat Assessment

Date: February 23, 2023

Attention: Warren Hansen c/o Sunshine Coast Community Forest

Re: Western Painted Turtle Pacific Coast Population (*Chrysemys picta bellii*) Critical Habitat Suitability Assessment for the Sunshine Coast Community Forest Blocks HM64 and HM66-1A

1.0 Introduction

McTavish Resource & Management Consultants Ltd. (McTavish) was retained by the Sunshine Coast Community Forest (SCCF) to assess critical habitat suitability for Western Painted Turtle Pacific Coast Population (*Chrysemys picta bellii*; WPT) within an unnamed tributary of Wakefield Creek in Halfmoon Bay, British Columbia (BC).

The intent of the critical habitat suitability assessment is to outline the presence or absence of aquatic and terrestrial biophysical attributes associated with overlapping critical habitat to inform timber harvest planning and cut block layout for two (2) proposed SCCF cut blocks: HM64 and HM66-1A (the “site”; **Figure 1**).



Figure 1. Project Overview Map



2.0 Methods

Assessment of mapped critical habitat for WPT included desktop and field assessment. Prior to conducting field assessment, a desktop assessment was conducted to determine habitat suitability through review of imagery (*i.e.*, vegetation types, significant aquatic features/drainages, and habitat connectivity) and available mapping/database resources, as well as historical occurrence records.

Field reconnaissance was conducted in November 2022 by Cassidy Collins (RPBio) of McTavish and was limited to assessment of biophysical attributes of mapped critical habitat. Abundance or presence/not detected surveys were not deemed feasible based on seasonality (*i.e.*, overwintering status). Assessment of biophysical attributes was conducted in accordance with the definitions outlined in the federal recovery strategy for WPT, and as summarized below (ECCC, 2021; **Table 1**).

Table 1. Summary of Biophysical Attributes of Critical Habitat for WPT (adapted from ECCC, 2021).

LIFE STAGE	FUNCTION	FEATURE(S)	ATTRIBUTES
Neonates, juveniles and adults	Basking	Aquatic or shoreline habitat	Areas with aquatic vegetation surrounded by deeper waters, or shoreline areas with supports to rest on (<i>e.g.</i> , logs, emergent objects, floating mats/islands, rocks, man-made objects, etc.).
Neonates, juveniles and adults	Daily Movements and Dispersal	Aquatic habitat	Slow-moving watercourse/waterbodies that do not contain barriers for movement.
Juveniles and adults	Dispersal	Terrestrial habitat	Traversable habitat in open fields, forests, old-field habitat, shrub thickets, etc. with no barriers to movement (dispersal).
Neonates, juveniles and adults	Foraging	Aquatic habitat	Shallow, slow moving, or stagnant water (< 2 m depth) with organics/fine substrates and instream vegetation.
Neonates, juveniles and adults	Breeding	Aquatic habitat	Shallow margins of waterbodies /watercourses (< 3 m depth) with silty/sandy substrates and warm water temperatures.
Eggs, hatchlings, neonates and adults	Nesting	Terrestrial habitat	Open areas with exposed soils and little to no vegetation.
Neonates, juveniles and adults	Overwintering/brumation	Aquatic habitat	Watercourses or waterbodies with adequate depth (0.5-3 m) near the shoreline with organic/fine substrates; supports dense emergent vegetation mats and submerged large woody debris.



3.0 Results

Desktop Assessment

Critical habitat overlapping the site is part of WPT Population Unit 32 (Trout Lake/Halfmoon Bay; ECCC, 2021). Critical habitat is defined as the aquatic and terrestrial habitat within 150 m of associated watercourses/waterbodies with historical occurrence/nesting observations and connected suitable instream habitat as defined by the recovery team (ECCC, 2021). At the site, critical habitat is associated with Wakefield Creek and an unnamed tributary to Wakefield Creek.

No historical occurrences of WPT have been documented/reported within Wakefield Creek, its tributaries, or headwaters (BC CDC, 2023). The closest historical occurrence documented is within Trout Lake, located approximately 2.0 km southwest of the site (BC CDC, 2023). Publicly available information on population abundance includes documentation of eight (8) individuals within Trout Lake and an estimated population size between 10-50 (BC CDC, 2014). Spatially, the site has poor connectivity to suitable habitat downstream (Trout Lake), and the unnamed tributary and Wakefield Creek is bounded by steep slopes making dispersal potential low. The best path of terrestrial dispersal from Trout Lake to the Wakefield Creek drainage system was considered to occur along the BC Hydro transmission line right-of-way (ROW) over a 2.8 km linear area of land, which undergoes regular operational and maintenance activities of existing power infrastructure.

Field Assessment

The site was assessed on foot by a qualified environmental professional (QEP) to document aquatic and terrestrial habitat suitability for WPT within mapped critical habitat.

Within the site, terrestrial habitat was characterized as mature forest (MF), with a closed canopy and open understory with a significant amount of windfall and downed LWD. Steep terrain was documented around all aspects of the site, confirming low dispersal potential identified during desktop assessment. Nesting habitat associated with terrestrial habitat was limited to the HALFMOON CARLSON Forest Service Road (FSR); however, was considered low potential due to substrate/road surface compaction.

Within the site, aquatic habitat features included small streams, wetland complexes, and a beaver pond. Habitat and biophysical attributes of critical habitat for WPT varied between aquatic features and is further outlined in **Table 2** below.

Table 2. Summary of Assessed Aquatic Habitat for WPT within the Site

FUNCTION	FEATURE(S)	DOCUMENTED HABITAT	HABITAT SUITABILITY
UNNAMED TRIBUTARY			
Basking	Aquatic or shoreline habitat	Stream is frequently confined within a channel and enclosed within forest with dense canopy cover. Low light levels occur within the aquatic and terrestrial habitat. Aquatic habitat is not deemed suitable for basking, and	None



FUNCTION	FEATURE(S)	DOCUMENTED HABITAT	HABITAT SUITABILITY
		the stream lacks developed/open shorelines.	
Daily Movements and Dispersal	Aquatic habitat	Stream channel definition and water depths do not support WPT aquatic dispersal and daily movement. Average channel width within the site was approximated as 2.0 m wide, with average wetted depth of 0.10-0.30 m measured from the channel bed to the surface of the water.	None
Foraging	Aquatic habitat	Stream channel characteristics (cobble, gravel, boulder substrates; lack of instream vegetation; inadequate water depths) and biophysical attributes defined in Table 1 were not present within the aquatic environment of the unnamed channel.	None
Breeding	Aquatic habitat	Stream channel characteristics (cobble, gravel, boulder substrates; lack of instream vegetation; inadequate water depths) and biophysical attributes defined in Table 1 were not present within the aquatic environment of the unnamed channel.	None
Overwintering/ brumation	Aquatic habitat	Stream channel characteristics (cobble, gravel, boulder substrates; lack of instream vegetation; inadequate water depths) and biophysical attributes defined in Table 1 were not present within the aquatic environment of the unnamed channel.	None
BEAVER POND (UNNAMED TRIBUTARY)			
Basking	Aquatic or shoreline habitat	Suitable areas of open shoreline surrounding a pond (open water). Abundant natural objects (stumps, partially submerged logs, rocks, and small vegetated mounds) occur throughout the aquatic feature. This feature was deemed to have met the biophysical attributes of aquatic habitat and basking.	High
Daily Movements and Dispersal	Aquatic habitat	Feature itself provides suitable area of daily movement and dispersal between habitat uses within the feature	Low <i>(Dispersal from Aquatic Feature;</i>



FUNCTION	FEATURE(S)	DOCUMENTED HABITAT	HABITAT SUITABILITY
		(basking, overwinter, breeding, nesting). Aquatic habitat connection to the unnamed tributary and Wakefield Creek is not considered suitable or to meet the biophysical attributes for WPT aquatic dispersal.	<i>within Feature considered High</i>
Foraging	Aquatic habitat	Aquatic habitat was deemed to meet the biophysical attributes of foraging for WPT as defined in Table 1. It is expected an abundance of food source is supported by the aquatic ecosystem within this feature.	High
Breeding	Aquatic habitat	Aquatic habitat was deemed to meet the biophysical attributes of breeding for WPT as defined in Table 1. Substrates associated with the wetland/pond complex were comprised of organic/fines. Water depths around the pond are expected to range from 0.5-1.0 m in depth, with depths > 3 m assumed within the center of the feature.	High
Overwintering/ brumation	Aquatic habitat	Aquatic habitat was deemed to meet the biophysical attributes of overwintering/brumation for WPT as defined in Table 1. Substrates associated with the wetland/pond complex were comprised of organic/fines. Water depths around the pond are expected to range from 0.5-1.0 m in depth, with depths > 3 m assumed within the center of the feature.	High
WAKEFIELD CREEK WETLAND			
Basking	Aquatic or shoreline habitat	Full wetland assessment was not completed on this feature to site class; however, the complex was characterized high level as wetland swamp bounding the floodplain of Wakefield Creek. Surface water depths at the time of the assessment were confined to a small channel (< 3.0 m wide) with < 0.10 m in wetted depth, and substrates were comprised of	None



FUNCTION	FEATURE(S)	DOCUMENTED HABITAT	HABITAT SUITABILITY
		muck organics. Floodplain within the wetland complex was vegetated with native rushes, sedges, and other emergent herbaceous and shrub staged vegetation. Based on the lack of suitable aquatic habitat; basking was considered nil.	
Daily Movements and Dispersal	Aquatic habitat	Stream channel definition and water depths were considered to provide low quality aquatic dispersal and daily movement function, based on the stream channel information outlined under basking.	Low
Foraging	Aquatic habitat	Wetland and stream complex do not meet the biophysical attributes of habitat for WPT foraging as described under basking.	Low
Breeding	Aquatic habitat	Wetland and stream complex do not meet the biophysical attributes of habitat for WPT breeding as described under basking.	None
Overwintering/brumation	Aquatic habitat	Wetland and stream complex do not meet the biophysical attributes of habitat for WPT overwintering/brumation as described under basking.	None

4.0 Summary and Recommendations

WPT have a provincial conservation rank as assigned by the BC Conservation Data Centre (BC CDC) of S1S2; as such, are considered provincially red-listed (*i.e.*, any species or ecosystem that is at risk of being lost (extirpated, endangered, or threatened)). WPT are federally listed as Threatened under Schedule 1 of the *Species at Risk Act* (SARA).

No formal protection of WPT habitat itself is legislated under the BC *Wildlife Act* and federal SARA and associated regulations; however, harm or movement of WPT and/or changes in and about a stream (CIAS) require further assessment and protection/mitigation considerations under the BC *Wildlife Act* and BC *Water Sustainability Act/ Forest, Range and Practices Act* and associated regulations.

The intent of the below recommendations is to provide protection to habitat with high ranked critical habitat suitability and consideration for the long-term maintenance of future WPT dispersal and connective habitat.



Recommended Setbacks

Two (2) areas within the site were identified to contain biophysical attributes of critical habitat for WPT as defined in the federal recovery strategy (ECCC, 2021).

- **Area A:** The Beaver Pond, a wetland complex (pond/marsh) connected to the unnamed tributary to Wakefield Creek; and
- **Area B:** The unnamed tributary to Wakefield Creek and Wakefield Creek itself.

Area A as defined above was considered to provide full biophysical attributes and critical habitat suitability for WPT was considered high. Area B as defined above was considered to provide partial biophysical attributes and critical habitat suitability for WPT was considered low.

It is recommended that the entire area of the wetland complex (marsh/pond) defined as **Area A** and a minimum 10 m buffer established off the unnamed tributary to Wakefield Creek and Wakefield Creek defined as **Area B** is incorporated into future timber harvest planning and cut block layout, in efforts to protect 1) high critical habitat suitability; and/or 2) maintain potential future dispersal of WPT and natural drainage patterns that support connected high functioning habitat. **Figure 2** below illustrates the recommended setback for WPT critical habitat within the site.



#203 – 19292 60 Avenue
Surrey BC
V3S 3M2



Figure 2. Recommended Protection Setback



5.0 Closing

I trust this is the information that you require at this time. Please contact the undersigned at 604-236-6881 if you have any questions or require additional information.

Sincerely,

MCTAVISH RESOURCE & MANAGEMENT CONSULTANTS LTD.

PER:



Cassidy Collins, R.P.Bio
Technical Lead, Environment (Partner)
cassidy@mctavishconsultants.ca

Attachments (1)

Attachment 1 – Selected Site Photographs



6.0 References

[ECCC] Environment and Climate Change Canada. 2021. Recovery Strategy for the Western Painted Turtle (*Chrysemys picta bellii*) Pacific Coast population in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. 2 parts, 31 pp. + 59 pp.

[BC CDC] B.C. Conservation Data Centre. 2014. Occurrence Report Summary, Shape ID: 37002, Painted Turtle - Pacific Coast Population. B.C. Ministry of Environment. Available: <http://maps.gov.bc.ca/ess/hm/cdc>, (accessed Feb 24, 2023)

[BC CDC] B.C. Conservation Data Centre. 2023. CDC iMap . <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/conservation-data-centre/explore-cdc-data/species-and-ecosystems-explorer>



Attachment 1 Selected Site Photographs



Photograph 1. Representative photograph of the terrestrial habitat associated with the site (November 17, 2023)



Photograph 2. Representative photograph of the instream habitat associated with the unnamed tributary to Wakefield Creek (November 17, 2023)



Photograph 3. Representative photograph of the instream habitat associated with the Beaver Pond, which was rated as high critical habitat suitability (November 17, 2023)



Photograph 4. Representative photograph of the instream habitat associated with the Beaver Pond, which was rated as high critical habitat suitability (November 17, 2023)



Photograph 5. Representative photograph of the instream habitat associated with Wakefield Creek (November 17, 2023)

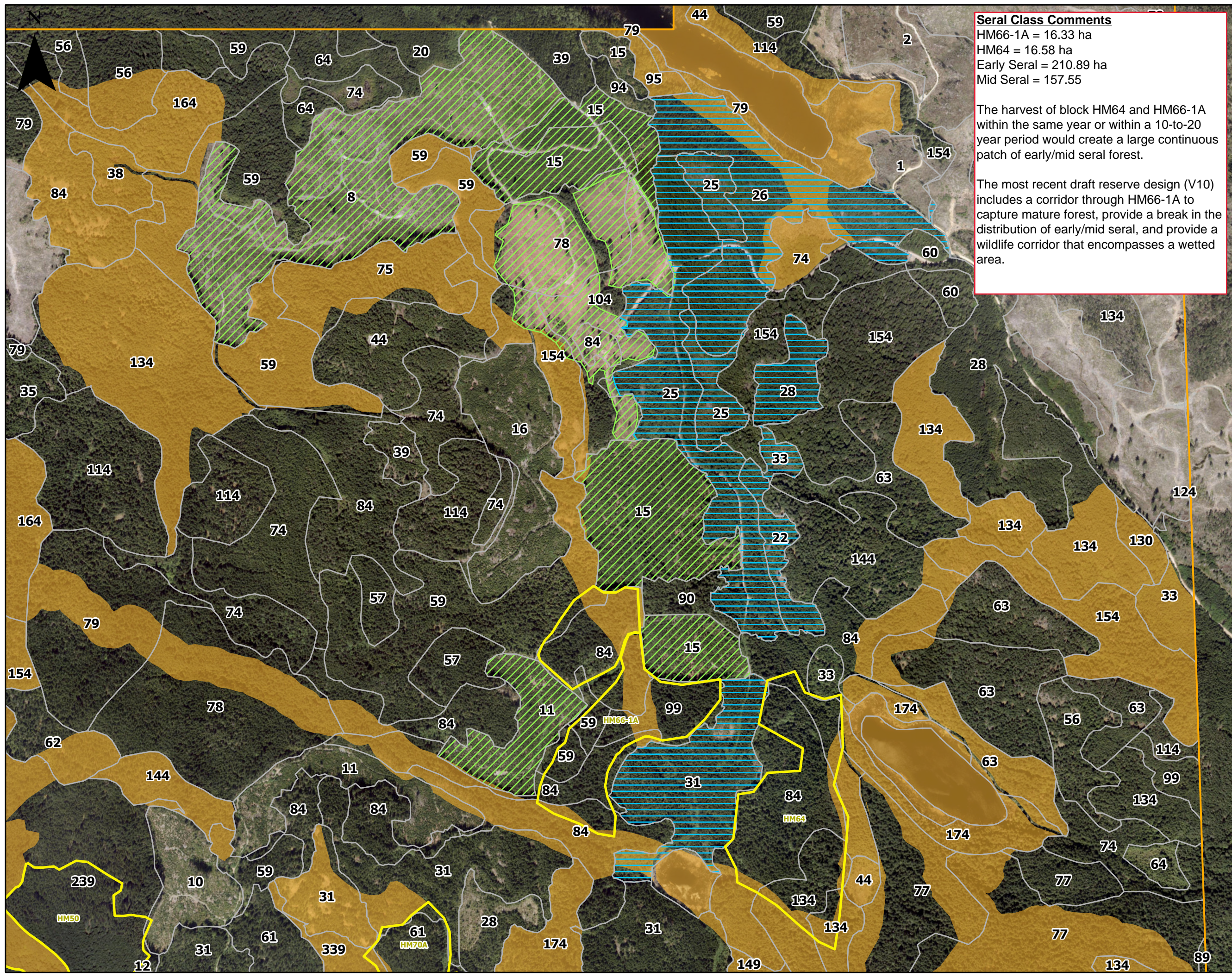


Photograph 6. Representative photograph of the habitat associated with the wetland complex surrounding Wakefield Creek (November 17, 2023)

Block HM64 – Forest Attribute Assessment

June 7, 2023

Appendix V. Seral Class Distribution



Seral Class Comments
 HM66-1A = 16.33 ha
 HM64 = 16.58 ha
 Early Seral = 210.89 ha
 Mid Seral = 157.55

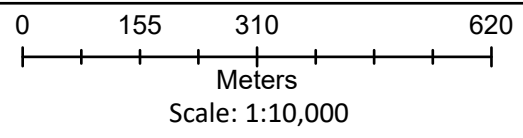
The harvest of block HM64 and HM66-1A within the same year or within a 10-to-20 year period would create a large continuous patch of early/mid seral forest.

The most recent draft reserve design (V10) includes a corridor through HM66-1A to capture mature forest, provide a break in the distribution of early/mid seral, and provide a wildlife corridor that encompasses a wetted area.

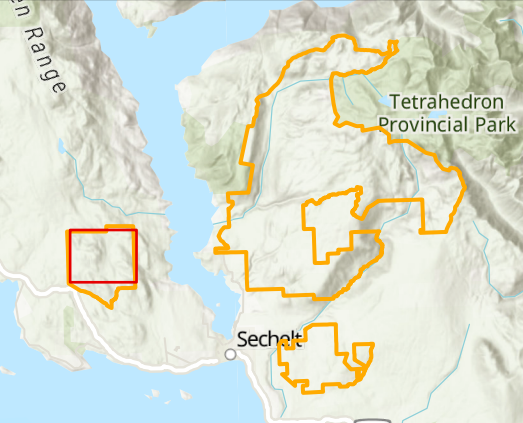


Legend

- Tenure Area
- Planning Blocks 2021 - 2025
- VRI (2021)
- Draft Reserve Network
- Seral Class (VRI)**
- Early Seral
- Mid Seral



Project: OT-58
 Landscape Reserve DRAFT Version: 11/07/2022 V10
 Drawn By: Anna Yuill
 Date Exported: 12/6/2022 10:21 AM



**Seral Class Review:
 HM64 and HM66-1A**