



FREP

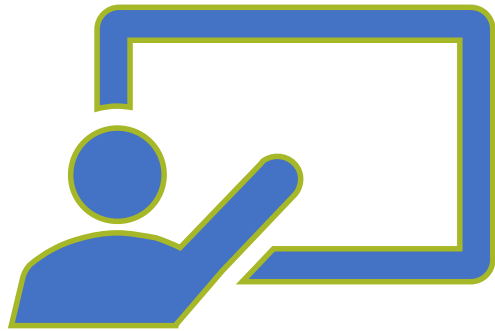
**Forest & Range
Evaluation Program**

Pre-Training Course: Stand-Level Retention (Biodiversity)





Pre-Field Training Course: Stand-Level Retention (SLR)



Mandatory completion before
attending the field-centered training
session

On-line Landscape Planning session will
be hosted by Doug Lewis.



District Training Format



FREP
Forest & Range
Evaluation Program

Mandatory pre-training study
Field directed learning



Preparing for Field Work

District FREP Kit

Truck(s) booked

Safety Check (File Itinerary)

Confirm access

Alternate FREP site package



Field Equipment & Supplies

District FREP Kit

Personal Field Gear

Bag lunch & refreshments

Layered clothing

Ankle support boots



Monitoring... WHY?

To determine if
forestry and
range practices
are effective

- Support forest ecosystem functions that provide habitat, and
- Conserve stand-level biodiversity
- Apply both short term and long-term focus
- Promote Continuous Improvement



Risk Rating SL Retention Practices

- How close do the practices align with guidance targets?
- Provides useful feedback on forest practices

8 QUESTIONS are scored from 1 – 4
Cumulative score results in a ranking, from Very Unlikely to Exceeding targets.



How are SLR Practices Assessed?

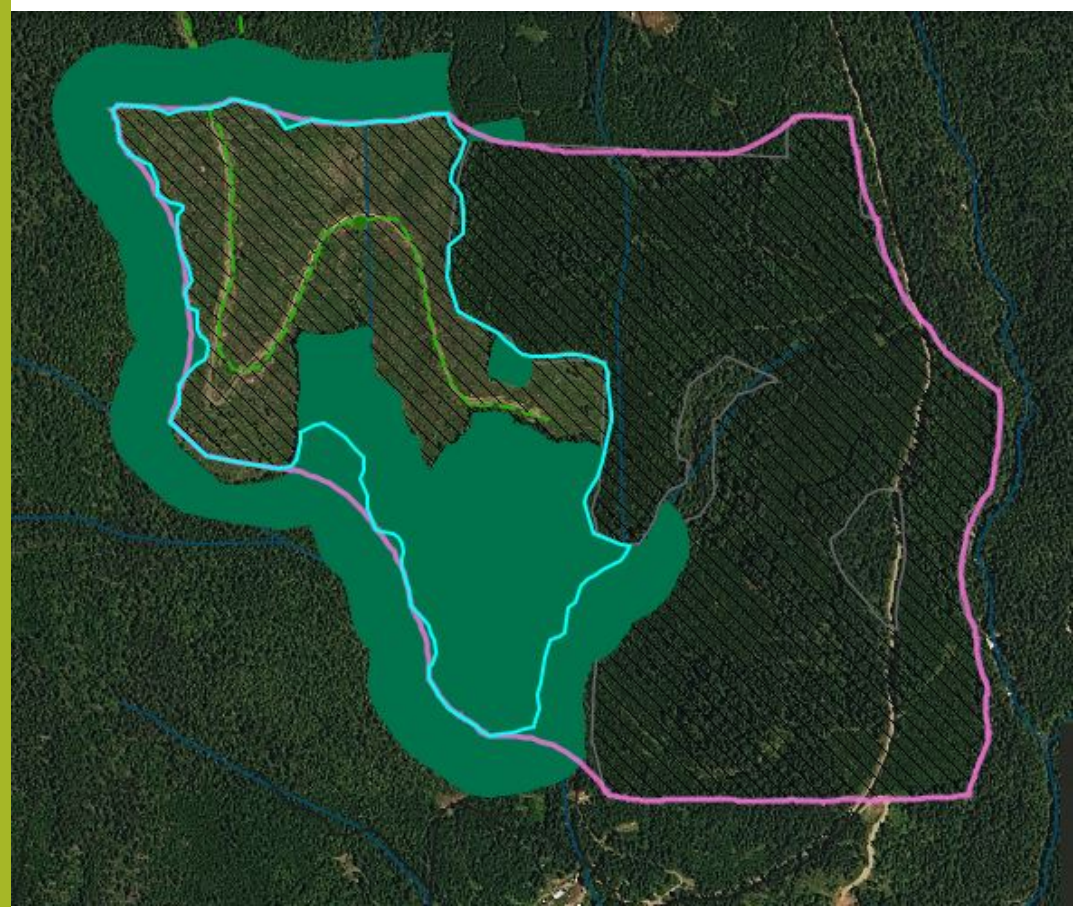
Likelihood rating	Estimated probability of Occurence	Description
Very Likely-	>90%	<i>Very Likely</i> that stand-level retention provides the range of habitats with the structural attributes understood as necessary for maintaining the species dependent on wildlife trees and CWD
Likely	>66%	<i>Likely</i> that stand-level retention <i>provides the range of habitats...</i>
Somewhat Likely	33-66%	<i>Somewhat Likely</i> that stand-level retention <i>provides the range of habitats...</i>
Unlikely	<33%	<i>UnLikely</i> that stand-level retention provides the range of habitats...
Very Unlikely	<10%	<i>Very Unlikely</i> that stand-level retention provides the range of habitats ...

Case Study



FREP Map to see the Opening ID and context

How did this site score?



Q5 – Standing Live+Dead WT's = Below

Q6 – WTRA configuration = Exceeding

Q7 – CWD Dispersion = Meeting

Q8 – Size + Dispersion of CWD = Exceeding

Overall – Very Likely



FREP

**Forest & Range
Evaluation Program**

Introduction to Field Indicators and Field Data Collection



Sample Plot Conventions

Harvest Area: 3 plots total

Retention Reserves: 1 plot/hectare,
max. 5 plots/reserve

Trees captured by fixed area, prism
or full count

CWD captured by 2 x 15m
transects per plot

Forest and Range
Evaluation Program

Stand-level Biodiversity
Resource Stewardship Monitoring
Plot Information – Form A Side 1

[illegible]

FS 1244-A1 HFP 2009/02

* Decimal place means measured

Data Form A - Page 1 (Trees)

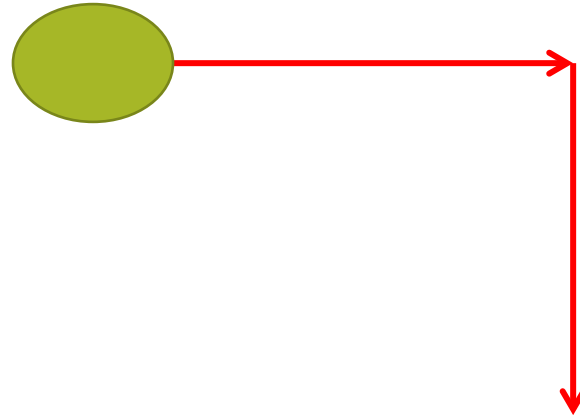
Several recording conventions



Vertex is NOT needed for routine assessments!

SLBD Plots

- Standing tree tallies at EACH plot (Prism, Fixed Radius, Full Count)
- CWD transect – 2 transect legs at 15-m for EACH plot





Form B Stratum ID conventions

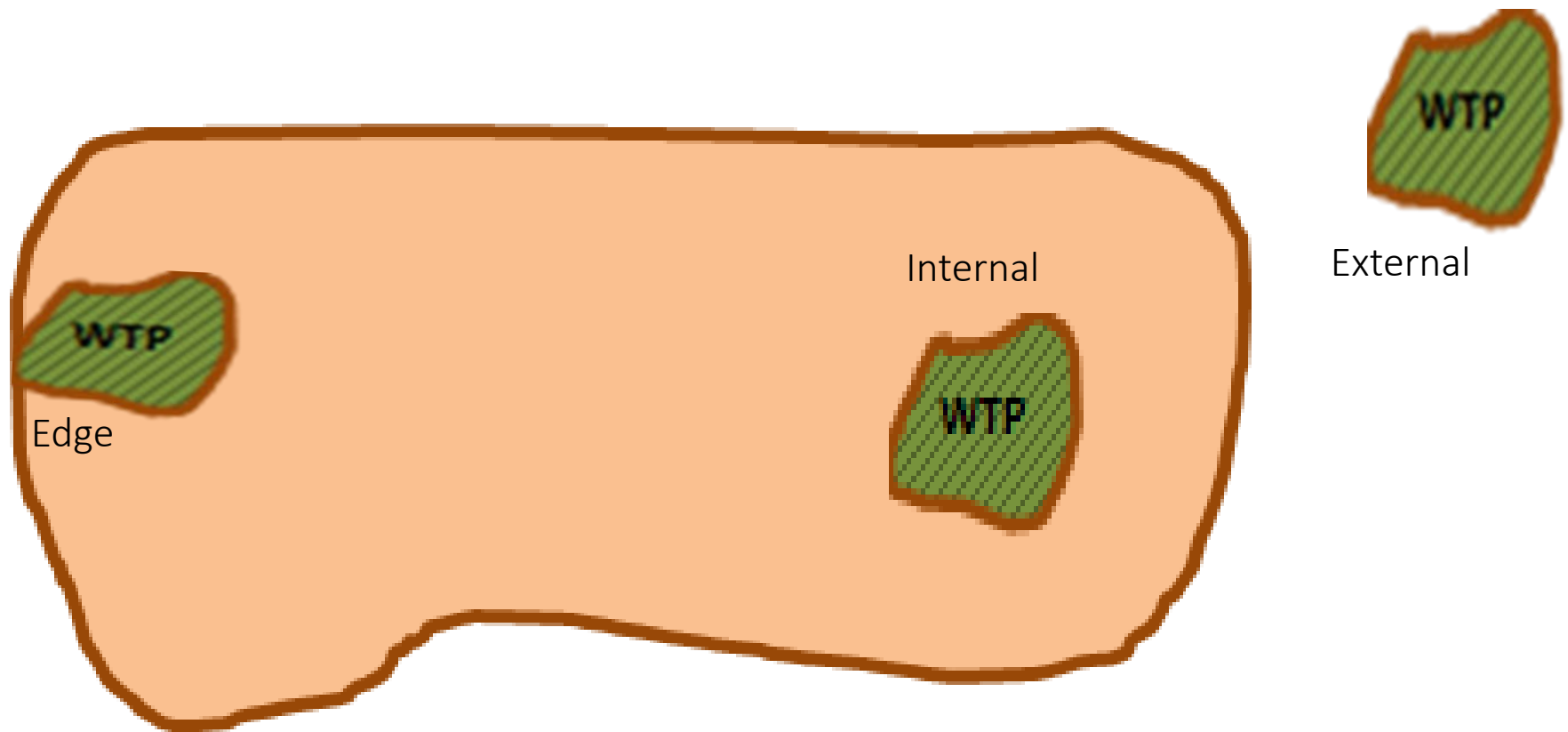
Stratum ID – an office exercise to label each stratum. Examples, NAR, WTP1, WTP2

Stratum Type – characterizes the nature and function of the Strata. Naming convention of Type followed by Function. Examples, PR = Patch Riparian

Patch locations – note that INTERNAL is only if the entire perimeter was logged around. Any anchoring to timbered edges are called EDGE.



Patch Retention Conventions





CWD Metrics

Coarse Woody Debris (CWD)
>7.5cm diameter

Not self supporting

Decay log classes 1-4

Valuable CWD: >20cm
diameter and >10m length

CWD pile/windrow:
dimensions of 2m x 3m and
height >1m with pieces
>12.5cm diameter



Standing Tree Metrics

Tree >12.5cm diameter

Significant tree: >30cm diameter and >10m height

Decay classification for live and dead trees



SLR Site Selection

Site Selection Process:

- Number of cutblocks assessed depends upon the District's annual objective.
- Cutblocks from District random list regardless of WTRA presence;
- Drop if previously sampled or burnt since harvest completion;
- Harvested with at least 1 winter and greater than 2 hectares



Wildlife Tree Classes

Wildlife Tree Class								
Live			Dead					Dead Fallen
			Hard →		Spongy	→ Soft		Not Sampled
1	2	3	4	5	6 ≈ 2/3 original height	7 ≈ 1/2 original height	8 ≈ 1/3 original height	9
								
Live			Dead					Dead Fallen
			Hard →		Spongy	→ Soft		Not Sampled
1	2	3	4	5	6			
								



Wildlife Tree Classes – What is your guess?



Class 2



Class 4



Class 4



Class 8

Wildlife Tree Classes

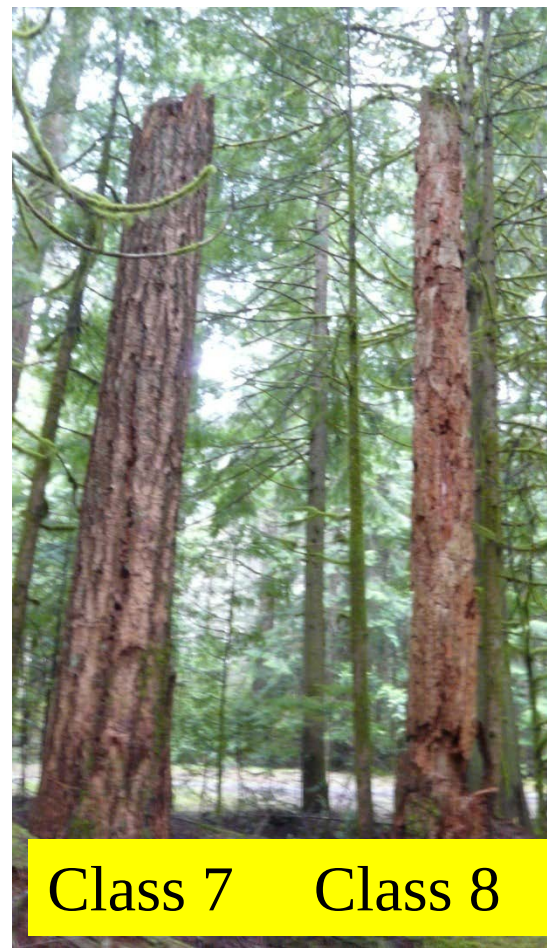


Class 2

Class 3



Class 2



Class 7

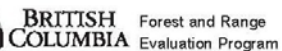
Class 8



Class 5



Class 9



Stand-level Biodiversity
Resource Stewardship Monitoring
Plot Information – Form A Side 2

[illegible]

Data Form A –
Page 2 (CWD)

Several conventions to remember...



CWD diameter and class are taken at the midpoint of the transect x-ing



DBH tape is a measurement to 1 decimal.



A carpenter is an accurate estimate



CWD metrics



CWD Decay Class

CWD Decay Class				
				
Log class 1	Log class 2	Log class 3	Log class 4	Log class 5
Hard	Sap rot (but still hard)	Advanced decay (spongy)	Extensive decay (crumbles/mushy)	Many small pieces, soft
Bark firm	Loose bark	Bark trace/absent	Bark absent	Bark absent
Elevated	Sagging	Sagging to settled on ground	Fully settled on ground	Partly sunken in ground
Hard branches with twigs	Soft branches	Branches stubs/ absent	No branches	No branches
Supports person	May not support person	Breaks easy	Shape collapses when stepped on	Collapsed oval
No invading roots	No invading roots	Roots in sapwood	Roots in heartwood	Roots in heartwood



CWD Classes





CWD piles





CWD windrows



SLBD – Checklist Form B



BRITISH COLUMBIA Forest and Range Evaluation Program

Stand-level Biodiversity Resource Stewardship Monitoring Stratum Summary- Form B Side 1

5 Stratum Summary (one card per Stratum)			
Date <u>2009</u> / <u>10</u> / <u>12</u> Opening ID <u>103807</u>			
Assessed by <u>IB/WB</u>			
Stratum ID <u>WTP2</u>		Stratum type <u>PR</u>	
# of plots in stratum <u>3</u>		Mapped Stratum size (ha) <u>3.1</u>	
BEC subzone variant and site series <u>SBS mc2 01</u>			
Stratum location and size consistent with map? ☒ Yes ☐ No ☐ Not mapped			
If 'no' or 'not mapped', estimated size (ha) _____			
Tick one of: ☐ Harvest area with no retention ☐ Harvest area with dispersed retention			
☒ Patch Reserve			
6 Patch/Dispersed Summary			
Estimated age of oldest trees in reserve (other than Vets) <u>120</u>			
Patch location: ☐ Internal to block ☒ Edge of block			
☐ External/not touching block ☐ NA			
% of total trees in reserve windthrown: <u>7</u> %			
Distribution of windthrow: ☒ Edge ☒ Internal ☐ NA			
Windthrow treatment: ☐ Feathering ☐ Topping ☒ Both ☐ None ☐ Other _____			
7 Reserve Constraints	% of reserve	Ecological Anchors	stratum estimate
None	☐	None	☐
Wetsite		Bear Den	stratum count
RMZ	<u>10</u>	Hibernaculum	stratum count
RRZ		Vet tree/ha	0, 1-10, 10-20, etc.
Rock outcrop		Mineral lick	stratum count
Non-commercial brush	<u>15</u>	Large stick nest	stratum count
Non (or low) merch timber		Cavity nest	stratum count
Sensitive terrain or soil		Large hollow tree	stratum count
UWR / WHA		Large witches broom	stratum count
OGMA		Karst feature	Y N
Visuals		Largest tree for site (not Vets)	Y N
Cultural heritage feature		CWD heavy natural concentration	Y N
Recreation feature		Active wildlife trails	Y N
Other:		Active WLT/CWD feeding	<u>Y</u> N
		Uncommon tree species	Y N
Total constrained	<u>15</u>	Other:	
Comments:			

✓ Form B is required for EACH stratum!
Do NOT lump reserves into one group summary

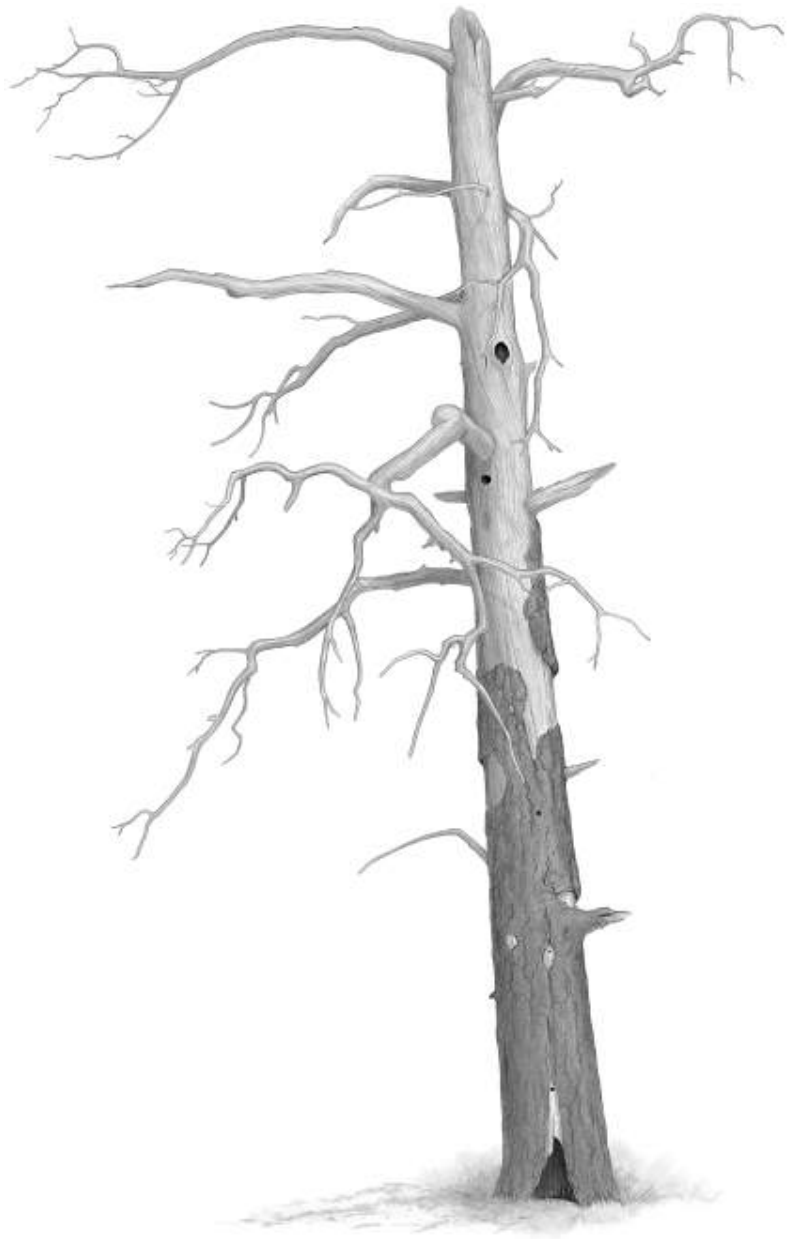
✓ If the stratum is a CC then only section 5 is completed

✓ If there are trees retained and you do NOT want to call it a CC, then sections 5-7 are completed

✓ Patch location – if it touches an edge it is EDGE

✓ Total Constraints – NOT an addition

✓ Make notes of high value WT and CWD you observed



Wildlife trees.... any standing dead or live tree with SPECIAL CHARACTERISTICS that provide habitat for wildlife





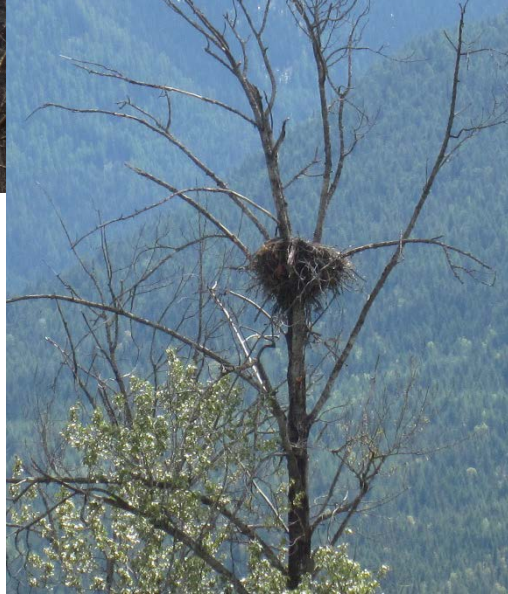
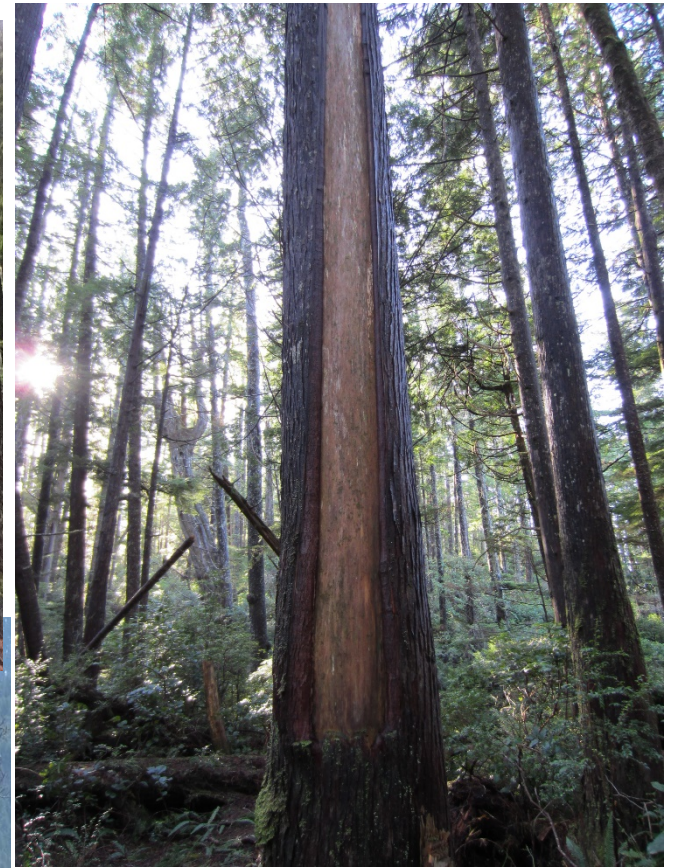
Ecological Anchors – look for them

Bear Den



Eagle Nest

Ecological Anchors – look for them





Ecological Anchors – active Cavity
Nest (Western Bluebird)



Ecological Anchors — Wildlife Tree Foraging



Ecological
Anchors –
Large Broom
($>50\text{cm}$ diam)



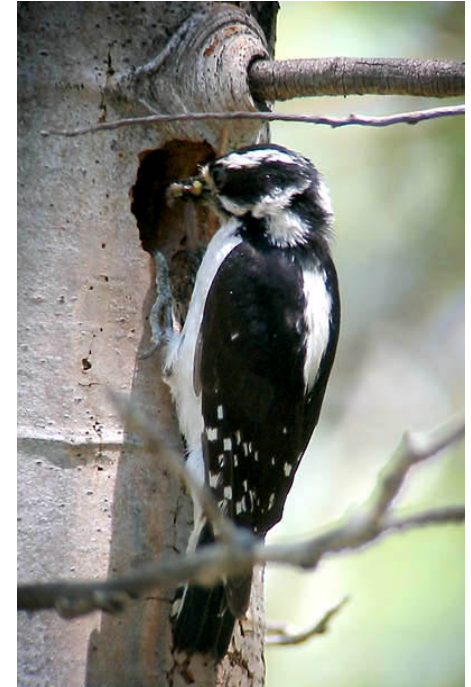
Ecological
Anchors –
Active
wildlife trail

Ecological Anchors – look for them!

Large Hollow Tree



Cavity Nests



SLBD – Checklist Form C



**BRITISH
COLUMBIA**

Forest and Range
Evaluation Program

Stand-level Biodiversity
Resource Stewardship Monitoring
Block Information – Form C Side 1

11 Opening Identification

Opening # 93 L 018 112 Opening ID 103807
Licence # A16828 CP# 473 Block PARRSX10
Licensee Canfor District DND
Location Description 24 Km Parrott West
NAR 47.7 Gross area (ha) 67.6 Override _____

12 Innovative Practices

Were any innovative and/or unique forest practices used on this block?
Please describe:
No

13 Invasive Plants

Were invasive plant species present on this block? ☒ Yes ☐ No ☐ Don't know
If Yes, please complete the Invasive Plants Field Card (FS 1316)

14 Evaluator Opinion/Comments

To what extent did the practices on this cutblock maintain stand-level biodiversity, given the opportunities that were likely available?

☐ Poorly ☒ Moderately ☐ Well ☐ Very Well ☐ Don't know

Rationale:

Good amount, plus number of patches – primarily the wet areas. S3 reserve mostly dead or windthrown.

✓ A Form C is required for every block; and COMPLETED!

✓ Confirm Gross size and NAR from RESULTS

✓ Override – where the SP gross size did not include the WTP sizes

✓ If a patch was NOT sampled, you MUST summarize EACH on section 16

✓ Invasive Plants – Species Code, Distribution, UTM coordinates (Separate Invasive Plant Data Card)

Form C – Section 16



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Forest and Range
Evaluation Program

Stand-level Biodiversity
Resource Stewardship Monitoring
Block Summary – Form C Side 2

15 Photo Notes

DO NOT use section 16 if the Reserve was plotted!

16 Stratum Summary When No Plots Established (S.16 or Form B, not both for each stratum ID)

Stratum ID	Stratum type	Size (ha)	BEC	Patch Location			Total Constrained %	Ecological Anchor (count by stratum unless otherwise noted)								Windthrow %
				Internal	Edge	External		Vets / (ha)	Large Stick Nest	Cavity Nest	Large Broom	Lgst Tr Y/N	Uncom Tree Species Y/N	Other	None	
WTP1	PW	0.6	SBSmc2 06	✓			50								✓	<5
WTP5	PW	0.7	SBSmc2 06	✓			50								✓	5-15

Do not use section 16 for Dispersed Strata

17 Quality Check: Sum of patch area + Sum of dispersed + CC + NP + Other = Cutblock gross area



1. Identification

Date Opening ID
Assessed by District
Range Unit/Pasture ID

2. Invasive Plant Presence

Were FRPA-listed Invasive Plant Species present on this site? ☐ Yes ☐ No ☐ Don't know

If you answered, "Don't know" in Section 2, was a specimen collected and sent to Invasive Plant Specialist? If "Yes", please include: ☐ Yes ☐ No

If "No", please explain:

UTM Zone:

DATE SENT	ID #	PHOTO ID	L CODE	AREA (m ²)	EASTING	NORTHING
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

3. General Comments

4. Location Code Chart (For reference. Please place appropriate letter in L Code)

- | | | |
|---|---|---|
| ☐ a Block Perimeter | ☐ f Out of Block Right of Way | ☐ j Seismic Lines |
| ☐ b In Block Reserve | ☐ g In Block Roads/Skid Trails | ☐ k Riparian |
| ☐ c In Block Harvest Area | ☐ h Landings | ☐ l Grassland/Meadow |
| ☐ d Borrow/Gravel Pits | ☐ i Utility Right of Way | ☐ m NP Natural |
| ☐ e Other <input type="text"/> | ☐ n Range Use Feature | |

5. Location Comments (Please provide specific information pertaining to the L Code)



6. Invasive Plants Observed - Species List

If Invasive Plants Species were observed, please fill out the chart provided below.

UTM Zone:

WEED SPECIES		CODE	L CODE	AREA m ²	UTM	
					EASTING	NORTHING
☐ Anchusa	<i>Anchusa officinalis</i>	AO	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Baby's Breath	<i>Gypsophila paniculata</i>	BY	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Black Knapweed	<i>Centaurea nigra</i>	BL	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Blueweed	<i>Echium vulgare</i>	BW	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Brown Knapweed	<i>Centaurea jacea</i>	BK	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Bull Thistle	<i>Cirsium vulgare</i>	BT	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Canada Thistle	<i>Cirsium arvense</i>	CT	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Common Burdock	<i>Arctium minus</i>	CB	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Common Tansy	<i>Tanacetum vulgare</i>	TC	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Dalmation Toadflax	<i>Linaria dalmatica</i>	DT	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Diffuse Knapweed	<i>Centaurea diffusa</i>	DK	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Field Scabious	<i>Knautia arvensis</i>	FS	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Giant Knotweed	<i>Fallopia sachalinensis</i>	GK	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Gorse	<i>Ulex europaeus</i>	GO	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Hoary Alyssum	<i>Berteroa incana</i>	HA	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Hoary Cress	<i>Cardaria draba</i>	HC	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Hound's-Tongue	<i>Cynoglossum officinale</i>	HT	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Japanese Knotweed	<i>Fallopia japonica</i>	JK	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Leafy Spurge	<i>Euphorbia esula</i>	LS	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Marsh Plume Thistle	<i>Cirsium palustre</i>	MT	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Meadow Hawkweed	<i>Hieracium caespitosum</i>	MH	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Meadow Knapweed	<i>Centaurea debeauxii</i>	MK	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Nodding Thistle	<i>Carduus nutans</i>	NT	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Orange Hawkweed	<i>Hieracium aurantiacum</i>	OH	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Oxeye Daisy	<i>Leucanthemum vulgare</i>	OD	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Perennial Pepperweed	<i>Lepidium latifolium</i>	PP	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Plumeless Thistle	<i>Carduus acanthoides</i>	PT	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Puncture Vine	<i>Tribulus terrestris</i>	PV	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Purple Loosestrife	<i>Lythrum salicaria</i>	PL	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Rush Skeletonweed	<i>Chondrilla juncea</i>	RS	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Russian Knapweed	<i>Acroptilon repens</i>	RK	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Scentless Chamomile	<i>Matricaria perforata</i>	SH	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Scotch Broom	<i>Cystisus scoparius</i>	SB	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Scotch Thistle	<i>Onopordum acanthium</i>	ST	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Spotted Knapweed	<i>Centaurea biebersteinii</i>	SK	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ St. John's-Wort	<i>Hypericum perforatum</i>	SJ	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Sulphur Cinquefoil	<i>Potentilla recta</i>	SC	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Tansy Ragwort	<i>Senecio jacobaea</i>	TR	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Teasel	<i>Dipsacus fullonum</i>	TS	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Yellow Iris	<i>Iris pseudacorus</i>	YI	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Yellow Starthistle	<i>Centaurea solstitialis</i>	YS	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
☐ Yellow Toadflax	<i>Linaria vulgaris</i>	YT	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

L CODE = LOCATION CODE

SLBD – Checklist references



BRITISH COLUMBIA

Forest and Range
Evaluation Program

Stand-level Biodiversity
Resource Stewardship Monitoring
Reference – Form D Side 1

Wildlife Tree Class								
Live			Dead					Dead Fallen
1	2	3	Hard	5	Spongy	7	8	9
			4	6	7	8	Not Sampled	
				≈ 2/3 original height	≈ 1/2 original height	≈ 1/3 original height		
Live			Dead					Dead Fallen
1	2	3	Hard	4	Spongy	5	Not Sampled	

CWD Decay Class				
Log class 1	Log class 2	Log class 3	Log class 4	Log class 5
Hard	Sap rot (but still hard)	Advanced decay (spongy)	Extensive decay (crumbles/mushy)	Many small pieces, soft
Bark firm	Loose bark	Bark trace/absent	Bark absent	Bark absent
Elevated	Sagging	Sagging to settled on ground	Fully settled on ground	Partly sunken in ground
Hard branches with twigs	Soft branches	Branches stubs/absent	No branches	No branches
Supports person	May not support person	Breaks easy	Shape collapses when stepped on	Collapsed oval
No invading roots	No invading roots	Roots in sapwood	Roots in heartwood	Roots in heartwood

Plot Radius Factor							
PRF = $\frac{1}{2\sqrt{BAF}}$							
BAF	PRF	BAF	PRF	BAF	PRF	BAF	PRF
1	.500	6	.204	11	.151	16	.125
2	.354	7	.189	12	.144		
3	.289	8	.177	13	.139	18	.118
4	.250	9	.167	14	.134		
5	.224	10	.158	15	.129	20	.112



BRITISH COLUMBIA

Forest and Range
Evaluation Program

Stand-level Biodiversity
Resource Stewardship Monitoring
Reference – Form D Side 2

British Columbia Tree Code List					
NATIVE CONIFERS			NATIVE HARDWOODS		
Cedar	Thuja	C	Alder	Alnus	D
western redcedar	T. plicata	Cw	red alder	A. rubra	Dr
Cypress	Chamaecyparis	Y	Apple	Malus	U
yellow-cedar	C. nootkatensis	Yc	Pacific crab apple	M. fusca	Up
Douglas-fir	Pseudotsuga	F	Arbutus	Arbutus	R
Douglas-fir	P. menziesii	Fd	Arbutus	A. menziesii	Ra
coastal Douglas-fir	P. menziesii var. menziesii	Fdc	Aspen, Cottonwood, Poplar	Populus	A
interior Douglas-fir	P. menziesii var. glauca	Fdi	or Poplar		
Fir (Balsam)	Abies	B	poplar	P. balsamifera	Ac
amabilis fir	A. amabilis	Ba	balsam poplar	P. b. ssp. balsamifera	Acb
grand fir	A. grandis	Bg	black cottonwood	P. b. ssp. trichocarpa	Act
subalpine fir	A. lasiocarpa	Bl	hybrid poplars	P. spp.	Ax
Hemlock	Tsuga	H	trembling aspen	P. tremuloides	At
mountain hemlock	T. mertensiana	Hm	Birch	Betula	E
western hemlock	T. heterophylla	Hw	Alaska paper birch	B. neolaskana	Ea
mountain x western	T. mertensiana x		Alaska x paper		
Hxm	heterophylla		birch hybrid	B. x winteri	Exp
hemlock hybrid			paper birch	B. papyrifera	Ep
			water birch	B. occidentalis	Ew
Juniper	Juniperus	J	Cascara	Rhamnus	K
Rocky Mtn. juniper	J. scopulorum	Jr	cascara	R. purshiana	Kc
Larch	Larix	L	Cherry	Prunus	V
alpine larch	L. laricina	La	bitter cherry	P. emarginata	Vb
tamarack	L. laricina	Lt	choke cherry	P. virginiana	Vv
western larch	L. occidentalis	Lw	pin cherry	P. pensylvanica	Vp
Pine	Pinus	P	Dogwood	Cornus	G
jack pine	P. banksiana	Pj	Pacific dogwood	C. nuttallii	Gp
limber pine	P. flexilis	Pf	Maple	Acer	M
lodgepole pine	P. contorta	Pi	bigleaf maple	A. macrophyllum	Mb
lodgepole pine	P. contorta var. latifolia	Pli	vine maple	A. circinatum	Mv
lodgepole x jack pine hybrid	P. x murraybanksiana	Pxj	Oak	Quercus	Q
ponderosa pine	P. ponderosa	Py	Garry oak	Q. garryana	Qg
shore pine	P. contorta var. contorta	Pw	Willow	Salix	W
western white pine	P. monticola	Pw	Bebb's willow	S. bebbiana	Wb
whitebark pine	P. albicaulis	Pa	Pacific willow	S. lucida	Wp
Spruce	Picea	S	peachleaf willow	S. amygdaloides	Wa
black spruce	P. mariana	Sb	pussy willow	S. discolor	Wd
Engelmann spruce	P. engelmannii	Se	Sculer's willow	S. scouleriana	Ws
Sitka spruce	P. sitchensis	Ss	Sitka willow	S. sitchensis	Wt
white spruce	P. glauca	Sw	UNKNOWN		X
spruce hybrid	Picea cross	Sx	Unknown conifer		Xc
Engelmann x white	P. engelmannii x glauca	Sxw	Unknown hardwood		Xh
Sitka x white	P. x lutzii	Sxl			
Sitka x unknown	P. sitchensis x ?	Sxs	OTHERS		
hybrid			Other tree, not on list		Z
Yew	Taxus	T	Other conifer		Zc
western yew	T. brevifolia	Tw	Other hardwood		Zh



Field Data

- Plot data
- Transects
- Observations

Review FREP Random List in IMS

FREP IMS

[District Random List](#)[Accepted Sites](#)[Search](#)[Reports](#)[Links](#)[Admin](#)

UserName: IDI

FREP100 - District Random List

Master List:

2022/2023 ▼

Org Unit:

DSI - South Island Natural Resource Dist ▼

Go

[Export to Excel](#)Printer
Version Result Pages: 1 [2](#) [3](#) [4](#) [Next](#)

400 rows returned

★ - Use Ctrl-F to quickly find an Opening

DSI - South Island Natural Resource District

of Sites Accepted - Biodiversity: Cultural Heritage: Riparian: Water:

Reviewed	Opening	Org Unit	Opening ID	Licence	CP	Blk	Exhibit A (ha)	Harvest Start Date	Harvest Complete Date	Mgmt. Unit	Gross Area (ha)	Net Area (ha)	Existing Checklists	
☐	92C 079 0.0 342	DSI	1724657 K5U	2	3099		16.1959	2018-11-06	2019-01-11	C	18.4	15.4		Map Site Details
☐	92C 096 0.0 1060	DSI	1737922 K3N	010	961216		7.8852	2019-03-13	2020-01-09	C	8.1	6.5		Map Site Details
☐	92C 076 0.0 234	DSI	1741867 TFL44	555	763333		13.1384	2019-01-18	2020-11-17	T - 44	25.8	23.4		Map Site Details
☐	92F 016 0.0 127	DSI	1742300 N1C	002	4		45.6505	2018-12-01	2019-03-01	M	45.7	34.1		Map Site Details
☐	92F 024 0.0 1008	DSI	1721298 K2D	011	K1		8.3505	2018-05-14	2018-10-20	C	8.3	6.8		Map Site Details
☐	92C 086 0.0 238	DSI	1740455 TFL44	554	861239		7.5412	2019-06-04	2020-09-29	T - 44	8.7	7.1		Map Site Details

Select your Sampling Block in IMS

This step creates ACCEPTED SITES for the data entry step

FREP IMS

District Random ListAccepted SitesSearchReportsLinksAdmin

FREP110 - Site Details

Master List:2022/2023Client:00173748Opening:92F 016 0.0 127Licence No:N1CFSP:Year of Harvest:2019-03-01

Org Unit:DSI - South Island Natural Resource DistrictName:CISAA FORESTRY CORPORATIONOpening Id:1742300CP:002Cut Block:4

Back

Green Indicates Checklist is Submitted

Resource Value:	Accept:	Reject:	Target:	Rejection Reason:	Rationale:	Other Comments:
Cultural Heritage	☐	☒	☐	Site not in target population		
Riparian	☒	☐	☐			
Biodiversity	☒	☐	☐			
Water	☒	☐	☐			

Save

What did the licensee report?

RESULTS

[Search](#)
[Inbox](#)
[Openings](#)
[Projects](#)
[Data Submission](#)
[Admin](#)
[Event Tracking](#)
[Reports](#)

[Opening Inquiry](#)
[Multi-Tenure](#)

Org Unit:

Client: JRBLACKM 00

Opening: 82G 002

Licence No: A94602

Exhibit A Area (ha): 70.2305

Opening Inquiry

Multi-Tenure

Stocking Standards

Activities

Projects

Forest Cover

Milestones

Land Status

Attachments

Activities

Projects

Forest Cover

Milestones

Land Status

Attachments

Status: APP - Approved

Name: BLACKMORE, JONATHON ROY

Opening Id: 1715873

CP:

0 NAR (ha): 53.6 Forest Cover Area (ha): 70.1 Opening Gross Area (ha): 70.2

SP Map

Map View

History

FTA

RESULTS320 - Forest Cover Summary

[Back](#)
[Delete Forest Cover](#)
[New Forest Cover](#)
[Forest Cover History](#)

Last Action Date: 2022-01-17 Comments: [No](#) [Forest Cover Map](#)

SU	Polygon ID	Non-Mapped Area	Layer	Polygon Area		Stocking		Reference Year	Species Code		
				Gross	Net	Stat	Type				
1	1a		I	11	11	IMM	ART	2018	PLI	SX	LW
1	1a		S	11	11	IMM	ART	2018	PLI	LW	SX
1	1b		I	42.5	42.5	IMM	ART	2021	PLI	BL	LW
1	1b		S	42.5	42.5	IMM	ART	2021	PLI	LW	FDI
	PAS			1.5	1.5	NP	RD	2018			
	WTRA		I	15.1	15.1	MAT	NAT	2018	PLI	LW	FDI



Step 1

Prepare the Field Map

- Collect SP information about the cutblock
- Identify your strata
- Randomly position the plots
- Gather the necessary FIELD CARDS (Forms A, B, C)



Create Plot Map

Check RESULTS & FREP Map

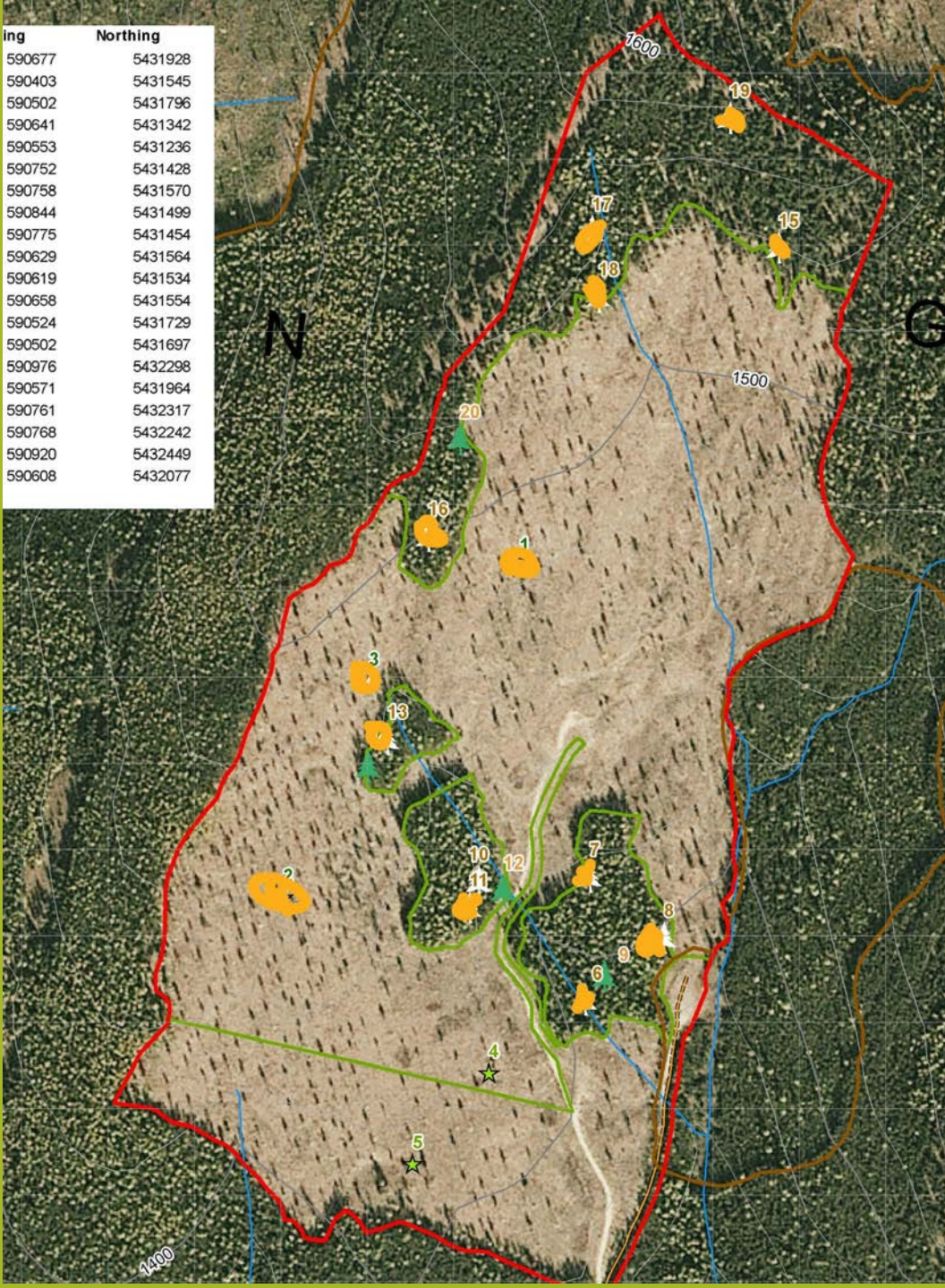
- Confirm Opening boundary
- Confirm associated retention patches
- Determine Patch Sizes

Identify the sampling strata



- NAR – gets 3 plots
- WTRA's labelled
- Reserves plot at 1plot /ha of reserve

ing	Northing
590677	5431928
590403	5431545
590502	5431796
590641	5431342
590553	5431236
590752	5431428
590758	5431570
590844	5431499
590775	5431454
590629	5431564
590619	5431534
590658	5431554
590524	5431729
590502	5431697
590976	5432298
590571	5431964
590761	5432317
590768	5432242
590920	5432449
590608	5432077



Create Plot Map

- Generate potential plots by stratum
- Randomly select the plots

NAR = 53.6ha = 3 plots

WTP1 = 9.5ha = 5 plots

WTP2 = 0.7ha = 1 plot

WTP3 = 1.7ha = 1 or 2 plots

WTP4 = 3.1ha = 3 plots

Dissecting WTP's by narrow cuts (roads) – can call ONE patch



RSM Field Overview – if 25% of block has DW then Max Distance is reduced by 100m

Table 4: Recommended Max. distance between retention areas to surrounding landscape retention.		Percent (%) Forest Disturbance Percent of LU/BGC subzone harvested pre-1995, early seral forest and/or medium-high severity disturbance		
Percent of THLB in LU/BGC subzone		<33%	33-66%	>66%
	<33%	<500m ^a	<400m	<300m
	33-66%	<400m	<300m	<200m
	>66%	<300m	<200m	<150m

Block Admin entry in IMS

FREP IMS

[District Random List](#)[Accepted Sites](#)[Search](#)[Reports](#)[Links](#)[Admin](#)

FREP301 - Checklist : Administration

Master List: 2022/2023 Org Unit: DSI - South Island Natural Resource District
Client: 00173748 Client Name: CISAA FORESTRY CORPORATION
Opening: 92F 016 0.0 127 Opening Id: [1742300](#) Checklist ID: 43152
Licence No: [N1C](#) Cutting Permit: 002 Cut Block: 4
Evaluator: Evaluation Date:

[Back](#)[Submit](#)[Print Checklist](#)[Administration](#) [Opening](#) [Stratum Summary](#) [Plots](#) [Notes](#) [Attachments](#)[Save](#)Evaluation Date(YYYY-MM-DD):

Access type, time spent, and people on Block

Access type: (hrs. access time + hrs. on block) x people on block = 0.0 total hours[Save](#)

Evaluation Team

District User Drop List

DSI - South Island Natural Resource District

Evaluator:

Selected Evaluators

Team Lead:

Team Member(s):

Date of Visit, Timecard info and Team Lead and Members

IMS – Form C

FREP IMS

[District Random List](#)[Accepted Sites](#)[Search](#)[Reports](#)[Links](#)[Admin](#)

FREP210 - Checklist: Biodiversity - Opening (Form C)

Master List:	2021/2022	Org Unit:	DKA - Thompson Rivers Natural Resource District		
Client:	00165693	Client Name:	TULEE CONTRACTING LTD.		
Opening:	92P 059 0.0 5978	Opening Id:	1650486	Checklist ID:	43083
Licence No:	A91251	Cutting Permit:		Cut Block:	DE84D
Evaluator:	IDIR/DMCGEOUG	Evaluation Date:	2021-09-30		

[Back](#)[UnSubmit](#)[Print Checklist](#)[Administration](#)[Opening](#)[Stratum Summary](#)[Plots](#)[Notes](#)[Attachments](#)[Save](#)

Opening Identification

FSP:		Harvest Complete Date:	2017-02-28		
Net Area To Be Reforested (ha):	24.7	Gross Area (ha):	42.7	FREP Gross Area Override(ha):	<input type="text"/>
Location Description:	<input type="text" value="Demers"/>				

Innovative Practices

Were any innovative and/or unique forest practices used on this block?

Please describe.

Evaluator Opinion/Comments

To what extent did the practices on this cutblock maintain stand-level biodiversity, given the opportunities that were likely available.

Rating:

Rationale:

Dispersed trees and CWD piles, as well as large CWD scattered. WTP are both providing good habitat.

Invasive Plants

Were invasive plant species present on this block?

IMS – Form B

Stratum Entries

- NAR – very basic detail
- Reserves – Summary, Windthrow Constraints + Ecological Anchors

FREP IMS						
District Random List	Accepted Sites	Search	Reports	Links	Admin	
Stratum Id: <input type="text" value="WTP1"/>	Stratum type: <input type="text" value="PR - Patch Riparian"/>	NAR: <input type="text" value="24.7"/>				
# of Plots In Stratum: <input type="text" value="1"/>	# of Plots Completed: <input type="text" value="1"/>	Mapped Stratum size (ha): <input type="text" value=".8"/>				
BEC:						
BGC Zone <input type="text" value="IDF"/>	BGC Subzone <input type="text" value="mw"/>	Variant <input type="text" value="2"/>	Phase <input type="text" value=""/>	Site Series <input type="text" value="01"/>	Site Phase <input type="text" value=""/>	Serial <input type="text" value=""/>
Stratum location and size consistent with map? ☒ Yes ☐ No ☐ Not Mapped						
If 'no' or 'not mapped', estimated size (ha): <input type="text" value=""/>						
Tick one of: ☐ Harvest area with no retention ☐ Harvest area with dispersed retention ☒ Patch Reserve						
Patch/Dispersed Summary						
Estimated age of oldest trees in reserve (other than Vets) <input type="text" value="160"/>						
Patch location: ☐ Internal to block ☒ Edge of block ☐ External/not touching block ☐ N/A						
% of trees in reserve windthrown: <input type="text" value="0"/>						
Distribution of windthrow: ☐ Edge ☐ Internal ☐ Both ☒ N/A						
Windthrow treatment in reserve: ☐ Feathering ☐ Topping ☒ None Other: <input type="text" value=""/>						
Reserve Constraints	% of reserve	Ecological Anchors		Stratum estimate		
None	☐	None		☐		
Wetland	<input type="text" value=""/>	Bear den	count	<input type="text" value=""/>		
RMZ	<input type="text" value=""/>	Hibernaculum	count	<input type="text" value=""/>		
RRZ	<input type="text" value=""/>	Vet tree/ha (Estimate mid point: 1-10, 10-20, etc.)		<input type="text" value="1"/>		
Rock outcrop	<input type="text" value=""/>	Mineral lick	count	<input type="text" value=""/>		
Non-commercial brush	<input type="text" value=""/>	Large stick nest	count	<input type="text" value=""/>		
Non (or low) merch timber	<input type="text" value="10"/>	Cavity nest	count	<input type="text" value="3"/>		
Sensitive terrain or soil	<input type="text" value=""/>	Large hollow tree	count	<input type="text" value="1"/>		
UWR	<input type="text" value=""/>	Large witches broom	count	<input type="text" value=""/>		
WHA	<input type="text" value=""/>	Karst feature		☐		
OGMA	<input type="text" value=""/>	Largest tree for site (not Vets)		☒		
Visuals	<input type="text" value=""/>	CWD heavy natural concentration		☒		

IMS – Form A

Data Entry by Plot

- Select TREES exist to create Stand Table
- Select CWD exists to create CWD table
- Now enter each data row (TAB to create new row)
- **SAVE** plot before leaving Page!!

FREP IMS

District Random List | **Accepted Sites** | **Search** | **Reports** | **Links** | **Admin**

Plot # Evaluated By:

No UTM Signal Available ☐

Zone: Easting: Northing:

Plot Information

Trees Exist: ☒

Fill In one of:

BAF: Fixed Area Radius (m): Full Count Area(ha):

CWD In transect: ☒

Bearing 1st Leg: 2nd Leg:

Comments:

Stand Table(trees)

Tree #	Spp.	WT Class	DBH (cm)	Ht (m)
1	FDI - interior Douglas-fir	4	55	32.6
2	CW - western redcedar	2	45.9	28
3	CW - western redcedar	1	34	25
4	CW - western redcedar	1	31	24
5	EP - paper birch	1	22	21

Coarse Woody Debris(30 m transect)

Bearing 1st Leg: 2nd Leg:

Log #	Spp.	Decay Class	Dis (cm)	Length(m)
1	SX - spruce hybrid	1	23.6	28.9
2	SX - spruce hybrid	1	12	14
3	FDI - interior Douglas-fir	3	42	17
4	FDI - interior Douglas-fir	4	10	4
5	SX - spruce hybrid	2	11	8
6	CW - western redcedar	3	15	6



Determine Plot Type

- FULL COUNT
- FIXED AREA PLOT (circular plot)
- VARIABLE AREA PLOT (prism sweep)
- GOAL: find 6-10 trees per plot per stratum

Special Considerations

- Adjacent reserves – plot or not? Only sample the WTRA's that you confirmed in RESULTS to be designated to the cutblock.
- If the SP splits a WTRA into a WTP and RRZ but they share a common edge, we will consider it to be one WTRA reserve for this assessment (e.g., PR)
- Road cut thru a WTRA does not create 2 reserves, even if the licensee labels them as separate WTRA's.
- Minor timber extraction – if trees are felled and removed from within a treed patch then it is considered to be part of NAR (clustered retention)
- Big Blocks (gross area >100hectares) are sampled with additional; each 100ha equates to 1 district sample (a 450ha opening counts as 5 sample sites)
- If the site burned after it was harvested, then it is dropped (check FREP Map for wildfire polygons)
- If plot lands in/near a different stratum then I should be moved to become wholly inside the stratum (e.g., roadside plot)
- WTRA Plots on boundary – move or conduct a ½ plot



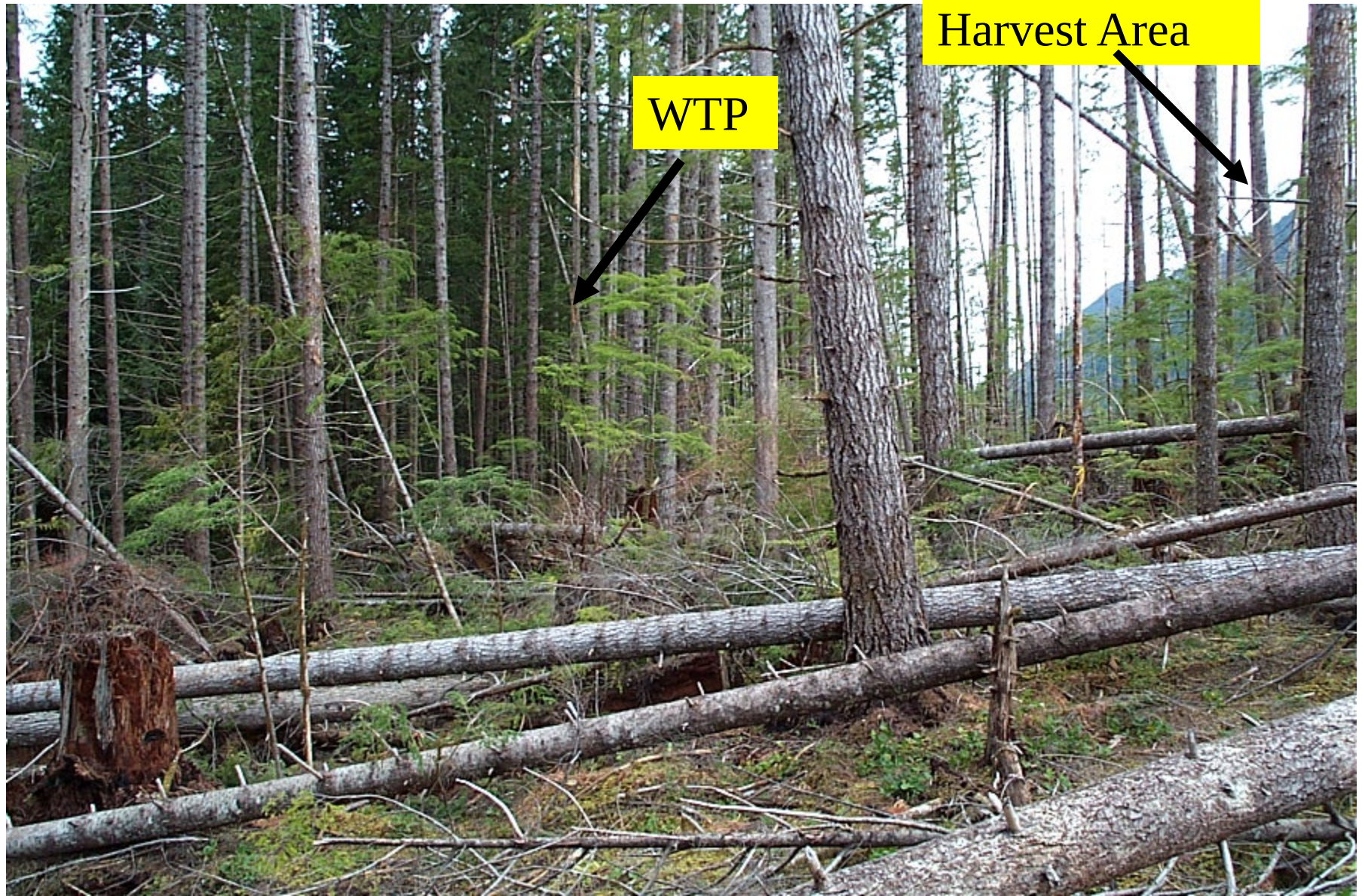
SLBD Monitoring – BIG blocks

Modified Sample Plan if Gross size >100 ha:

- 3 randomly selected HARVEST AREA plots for first 60-ha, then 1 plot per 20-ha to MAX of 15 plots
- Stratify the Reserves – Riparian versus Upland; Pine versus Spruce
- Assign plots for each Reserve Stratum: 1 plot per hectare for 1st 5-ha and then 1 plot per 10-ha (round UP!) to a MAX of 15 plots per reserve stratum
- At EACH plot - Standing tree tallies (Prism, Fixed Radius, Full Count) and CWD Transects

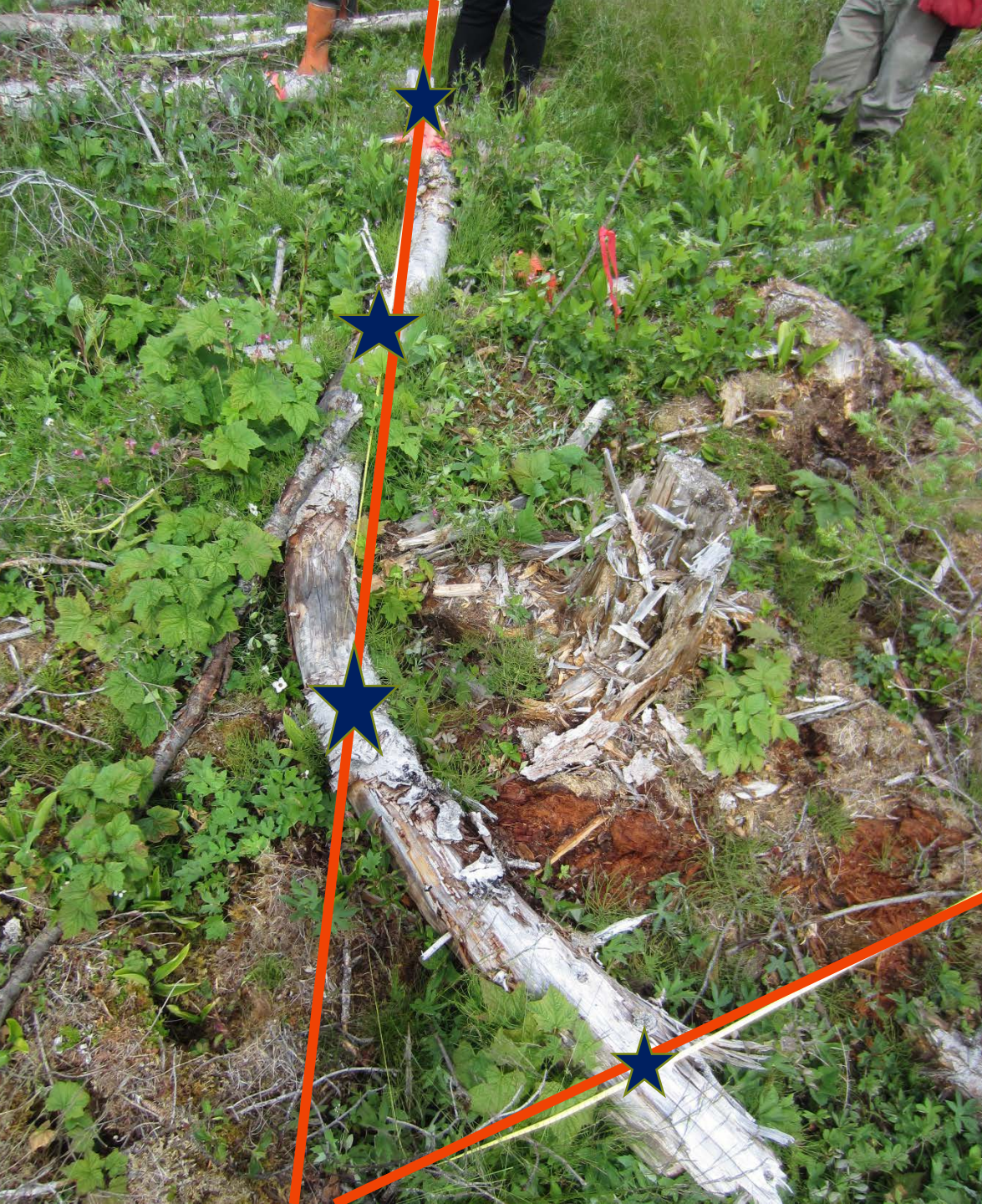


Windthrow Estimation



WTP

Harvest Area



CWD tallies

- Each line intercept is a NEW piece of CWD
- Each intercept has its own diameter
- Decay class based upon the transect crossing



Cracked CWD

If it is truly separated, then 2 pieces

If it is a slab – average thickness and width



Stubbed Trees

- Tally if captured by your plot
- State “stub” as comments; typically WT class 3



Forked or Twin Trees

- Forks below DBH and therefore 2 separate trees



Reviewing Retention Practices





Closing...

Training
Protocol
Field Guide
Checklist forms
Digital SLR data entry
a future plan