



WA DNR Timber Cruising on State Lands

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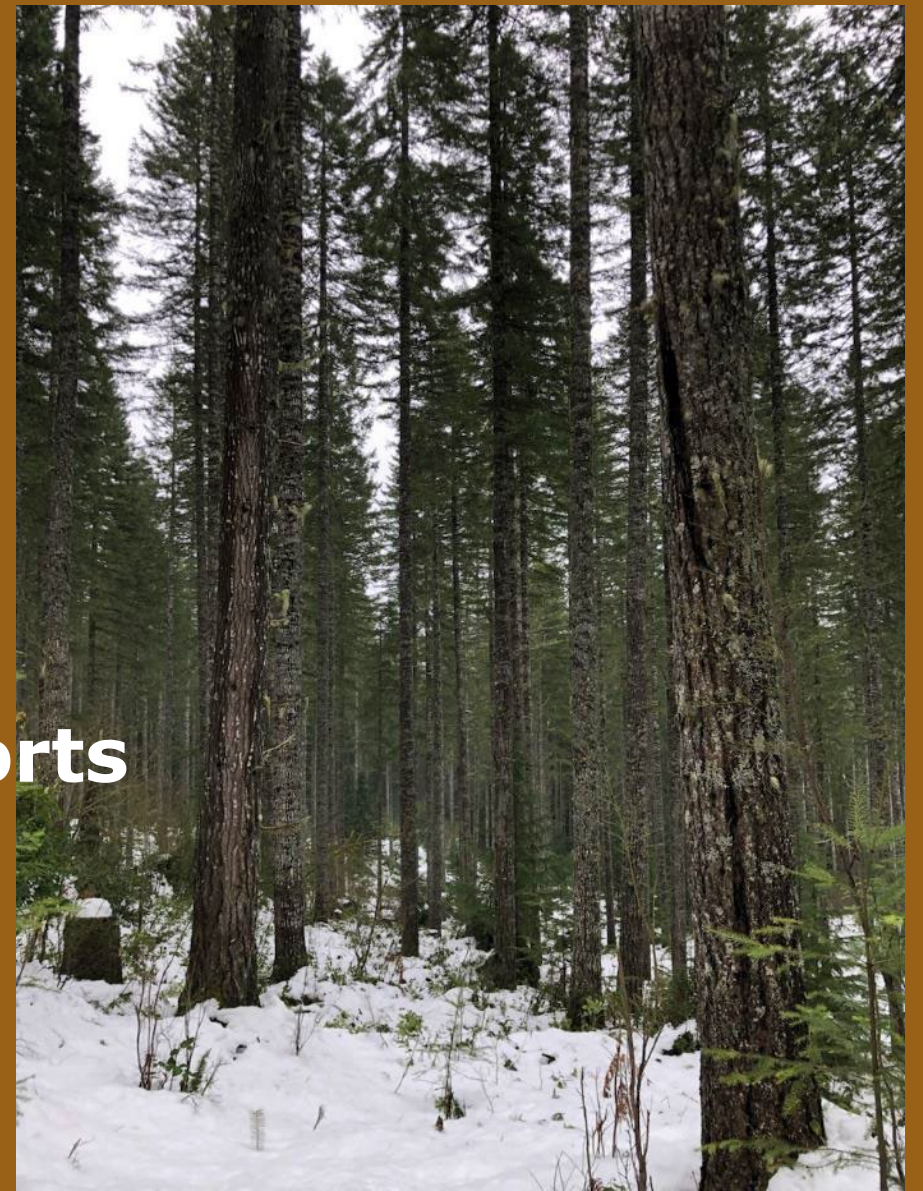
Topics for this Lightning Talk

- Cruising 101
- DNR's TRIS Cruise Program
- Cut Out Reporting



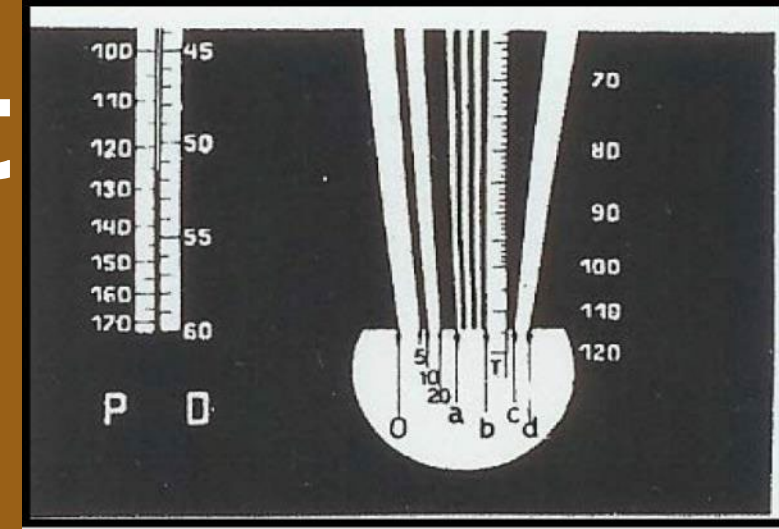
Cruising 101

- Variable Radius Plot Cruising
- Sampling standards
- Log merchandizing and utilization
- Sample statistics and volume reports



Variable Radius Plot Sampling

- Used where 100% sampling is not feasible.
- This method selects sample trees with a probability that is proportional to tree size.
- Using a Relaskop and basal area factor (BAF) sample 4-7 trees sampled per plot.
- Randomized plots.
- Sampling error. (<10%)
- A sound cruise design, sampling accuracy/consistency and acceptable plot intensity allows us to extrapolate data across a large stand to determine volume.



Plot Data Taken on Sampled Trees

- Red and white ribbon
- "In" and "out" (BAF)
- Species
- Diameter at breast height (DBH)
- Form factor
- Bole height
- Logs are merchandised



Logs are merchandised to bole height



DBH 4.5'

Form Factor 16' up tree

Bole Height is measured (40%DOB)

66' away from tree



Timber Resource Inventory System (TRIS)

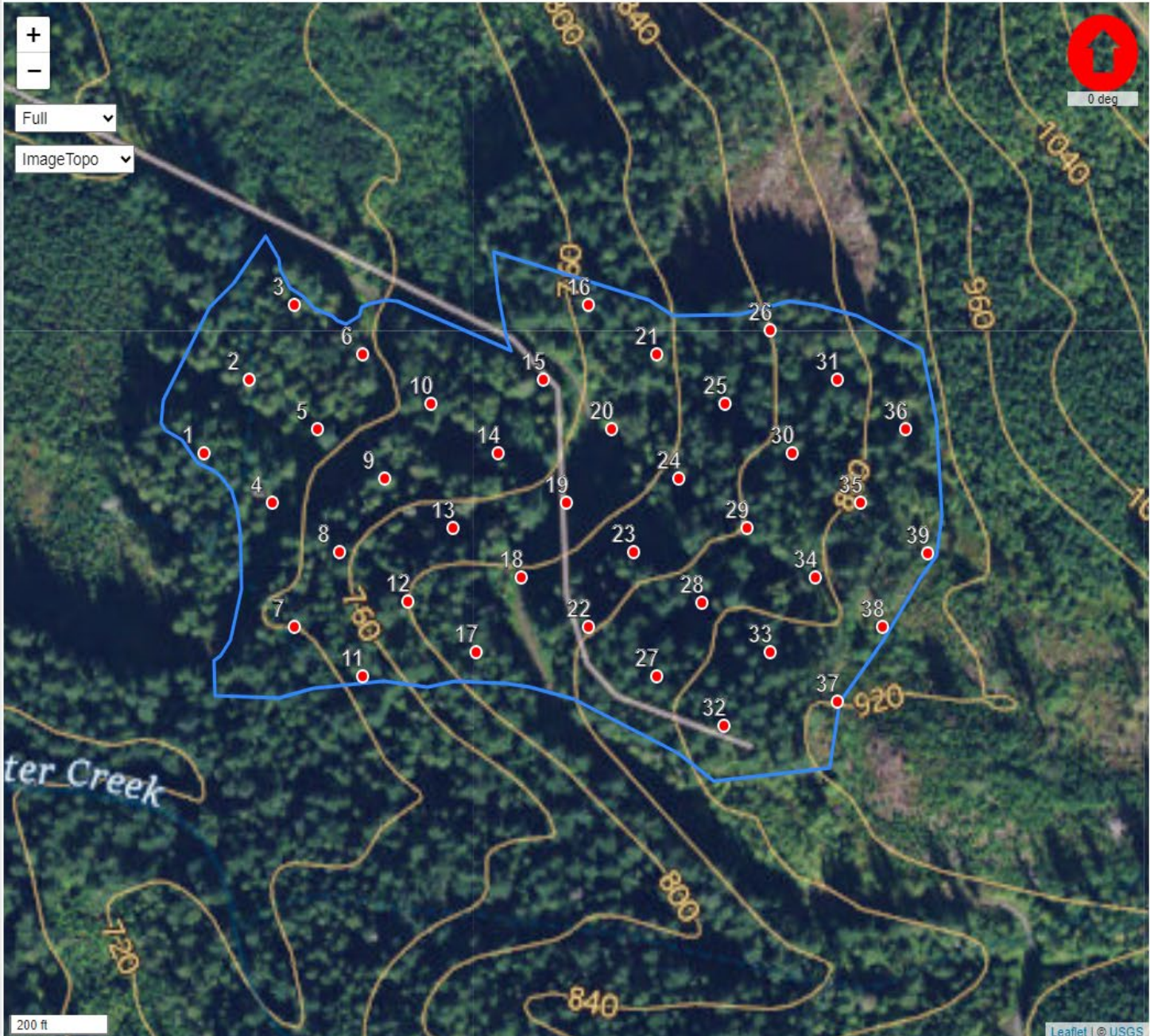




- Backyard - NW**
- ● BACKYARD U1
 - Setup Cruise
 - Add Data
 - Edit Data
 - ● BACKYARD U2
 - Setup Cruise
 - Add Data
 - Edit Data
 - Report
 - Admin

Sample Grids							
Created	Name	N Plots	Times ...	Side	Design	BAF1	BAF2
2023/08...	BACKY...	39	2	W	B2	62.5	40

Record ID: fbd9187-cc54-4bb0-aef9-c7d3d673666 1-1 of 1





Backyard - NW

BACKYARD U1

Setup Cruise

Add Data

Edit Data

BACKYARD U2

Setup Cruise

Add Data

Edit Data

Report

Admin

Plots (Design:B2 B1:62.5 B2:40 Sighting Ht:4.5)

All Fields Search + Add New x Delete

Recorder	Plot	Count	Done	Notes	Tree Recs
msly490	1	N	Y		7
msly490	2	N	Y		9
msly490	3	N	Y		9
msly490	4	N	Y		4
msly490	5	N	Y		2
msly490	6	N	Y		11
msly490	7	N	Y		5
msly490	8	N	Y		2
msly490	9	N	Y		4
msly490	10	N	Y		3
msly490	11	N	Y		10
mlllo490	12	N	Y		3
mlllo490	13	N	Y		0
mlllo490	14	N	Y		1
mlllo490	15	N	Y		2
mlllo490	16	N	Y		6
mlllo490	17	N	Y		3
mlllo490	18	N	Y		2
mlllo490	19	N	Y		3
mlllo490	20	N	Y		2
mlllo490	21	N	Y		3
mlllo490	22	N	Y		2
mlllo490	23	N	Y		0
mlllo490	24	N	Y		1
mlllo490	25	N	Y		6
mlllo490	26	N	Y		8
mlllo490	27	N	Y		6
mlllo490	28	N	Y		5
mlllo490	29	N	Y		1
mlllo490	30	N	Y		8

Record ID: 036f7252-8d4a-42b0-8b08-1c524040ac46 1-30 of 38

Trees (Plot: 3)

All Fields Search + Add New x Delete

N	PT	Ct	Cd	Rx	Sp	DBH	FF	BL	Top	DMc	THT	Ring...	Age	BFg	BFn	TPA	Note
1	B2	1	L	C	RA	16	77	60	FP40	4.7	73			119	119	28.65	
2	B1	1	L	C	WH	30	85	90	FP40	9.6	113			995	890	12.73...	
3	B1	1	L	C	WH	24	85	83	FP40	7.7	104			539	539	19.89	
4	B1	1	L	C	WH	12	85	35	FP40	3.9	41			33	33	79.58	
5	B1	1	L	C	RC	46	82	95	FP40	14.3	122			2509	2417	5.42	
6	B1	1	L	C	RC	32	82	85	FP40	10	108			1016	933	11.19	
7	B1	1	L	C	RC	32	82	85	FP40	10	108			1009	988	11.19	
8	B1	1	L	C	RC	12	82	40	FP40	3.7	48			34	34	79.58	
9	B1	1	L	C	RC	36	82	85	FP40	11.2	108			1365	1365	8.84	

Record ID: 34913e05-f1f2-4f41-b438-0b51d3394441 1-9 of 9

Segments (Tree: 2)

All Fields Search + Add New x Delete

N	Sort	Grade	Len	DedT	DedV	SD	BFn	Note
1	D	2S	32	L	3	21.9	551	SK
2	D	2S	32	L	3	16.1	290	SW
3	D	4S	16	L	3	11.8	49	OSK

Record ID: 2df68861-05e9-4472-8799-41570a3a4c6c 1-3 of 3

Timber Sale Cruise Report Ham Hock

Sale Name: HAM HOCK

Sale Type: LUMP SUM

Region: SO PUGET

District: RAINIER

Lead Cruiser: Aaron Coleman

Other Cruisers:n/a

Cruise Narrative:

This sale consists of 2 variable retention harvest (VRH) units and 1 variable density thinning (VDT) unit located off the 1 & 2 road in the Tahoma State Forest. No keys were need for access and all roads are in good condition.

The primary species for this sale is as follows:

Douglas-fir (72%) with an average diameter of 24 inches.

Western hemlock (18%) with an average diameter of 17 inches.

Noble fir (3%) with an average diameter of 30 inches.

Western red cedar (3%) with an average diameter of 25 inches.

All units contain pole-quality trees, which were captured on VP plots. Only "natural" poles were sampled. All units have also had previous harvest activity. Units 2 & 3 were previously thinned to an RD of 25 and 40, respectively. This has created openings within both units that has affected stocking levels and log quality. There are multiple paint colors on trees leftover from the thinning. Yellow bands were used on the leave trees in units 2 & 3.

Unit 3 is to be thinned down to a RD 48, as outlined in Schedule A.

Most commonly observed defect was logging/mechanical damage, cat-face. Trees adjacent to the end of the interior roads in units 2 & 3 have "lead poisoning." To account for the bullet damage, a 20 foot segment of every tree sampled there was culled.

Timber Sale Notice Volume (MBF)

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	Spec Mill	2 Saw	3 Saw	4 Saw
DF	24.8	8		2,455	94	1,983	345	33
WH	17.3			616		437	139	40
NF	30.7			124		117	7	0
RC	25.5			108			94	14
BC	30.5			61		61		
RA	15.4			17		5		12
ALL	21.6			3,381	94	2,603	584	100



Timber Sale Notice Weight (tons)

Sp	Tons by Grade				
	All	Spec Mill	2 Saw	3 Saw	4 Saw
DF	15,624	508	12,056	2,786	275
WH	5,290		3,636	1,247	407
RC	1,009			872	137
NF	776		717	57	2
BC	402		402		
RA	170		48		122
ALL	23,271	508	16,860	4,962	943

Timber Sale Overall Cruise Statistics

BA (sq ft/acre)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR SE (%)	Net Vol (bf/acre)	Vol SE (%)
194.8	4.4	211.0	2.5	41,114	5.1

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
HAM HOCK U1	B1C: VR, 1 BAF (54.44) Measure/ Count Plots, Sighting Ht = 4.5 ft	31.8	37.1	31	18	2
HAM HOCK U2	B1C: VR, 1 BAF (54.44) Measure/ Count Plots, Sighting Ht = 4.5 ft	51.1	57.3	50	29	2
HAM HOCK U3	B1C: VR, 1 BAF (46.94) Measure/ Count Plots, Sighting Ht = 4.5 ft	3.3	3.3	10	7	0
All		86.2	97.6	91	54	4

Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
BC	LIVE	2 SAW	Domestic	18.1	40	897	710	20.9	401.8	61.2
DF	LIVE	2 SAW	Domestic	17.6	39	11,535	10,713	7.1	5,635.7	923.5
DF	LIVE	2 SAW	HQ-B	17.0	40	7,813	7,368	5.7	3,881.5	635.1
DF	LIVE	2 SAW	Pole	16.3	40	5,009	4,922	1.7	2,538.9	424.3
DF	LIVE	3 SAW	Domestic	8.8	37	2,615	2,570	1.7	1,877.5	221.5
DF	LIVE	3 SAW	HQ-B	9.9	40	978	966	1.2	639.7	83.3
DF	LIVE	3 SAW	Pole	10.9	40	460	460	0.0	268.5	39.7
DF	LIVE	4 SAW	Domestic	5.9	25	386	386	0.0	274.7	33.3
DF	LIVE	CULL	Cull	19.0	18	453	0	100.0	0.0	0.0



Timber Sale Cut Out Data

- Contract Harvest Timber Sales
 - 39 contract harvest sales since 2020.
 - Cruise cut out percentage of 98.43%

- Stumpage & Lump Sum Timber Sales
 - 266 Timber sales since 2020.
 - DOR cut out data on 75 sales.
 - Cruise cut percentage of 98.84%



Questions?



