

**Small Fry
FY 2016
TIMBER CRUISE REPORT**

1. **Sale Area Location:** Areas 1 through 7 are located in portions of Sections 29, 30, 31, and 32 T4N, R8W, and a portion of Section 36 T4N, R9W ; W.M., Clatsop County, Oregon.

All timber sale areas are posted with ODF "Timber Sale Boundary", signs and pink ribbon.

2. **Fund Distribution:** **Fund:** BOF (100%)
 Tax Code: 8-01 (70%)
 10-04 (30%)

3. **Sale Acreage by Area:**

Area	Harvest Type	Gross Acres	New R/W Acres	Stream Buffer Acres	Existing R/W Acres	GTRA	Net Acreage
1	MC	3	-	-	-	-	3
2	MC	3	-	-	-	-	3
3	MC	4	-	1	-	-	3
4	MC	24	-	1	-	4	19
5	MC	10	-	1	1	-	8
6	R/W	4	4	-	-	-	4
7	MC	3	-	-	-	-	3
TOTALS		51		3	1	4	43

4. **Cruisers and Cruise Dates:** Areas 1, 2, and 4 were cruised by Andrew Arvin, John Choate, Bryce Rogers, and John Tillotson. Area 3 was cruised by Jon Long. Area 5 was cruised by Ed Holloran. Area 6 R/W was cruised by Andrew Arvin, John Choate, Bryce Rogers, and Jon Long. Area 7 was cruised by Andrew Arvin, John Choate, and Bryce Rogers in December 2015. Areas 1-5, and 6 R/W were cruised in July, 2015.
5. **Cruise Method and Computation:** Cruises used Corvallis MicroTechnology (CMT) data collectors, and were downloaded to the Atterbury Super A.C.E. program in District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

Areas 1-5 & 7 were variable plot cruised with a 40 BAF. 47 plots were sampled on a 2 by 4.5 chain spacing, with a count/cruise ratio of 1:1.

Area 6 R/W was variable plot cruised with a 40 BAF. 21 plots were sampled on a 3 chain spacing, with a count/cruise ratio of 2:1.

<u>AREAS</u>	<u>PROJECT</u>	<u>TRACT</u>	<u>CRUISE TYPE</u>
1-5 & 7	SMALLFRY	1	00CC, TAKE
6 R/W	SMALLFRY	2	00RW

6. **Timber Description:**

Areas 1-5 & 7 (Modified Clearcut) – This a mixed conifer stand approximately 60 years old, consisting of hemlock red alder, Douglas-fir, and spruce. The stands average 15 inches in DBH, with an average height of 42 feet to a merchantable top (6" D.I.B. or 40% of the diameter at 16 feet). The average (net) volume to be harvested is approximately 25 MBF/acre.

Area 6 R/W – This stand is approximately 60 years old, consisting of mostly hemlock with patches of red alder and other conifers. This stand averages 16 inches in DBH, with an average height of 52 feet to a merchantable top (6" D.I.B. or 40% of the diameter at 16 feet). The average (net) volume to be harvested is approximately 36 MBF/acre.

7. Statistical Analysis: (See also "Statistics Reports," attached.)

Area	Target CV	Target SE%	Actual CV	Actual SE%
1-5 & 7	55	10	48	7
6 R/W	50	11	48	11

8. Take Volumes by Species and Log Grades for All Sale Areas by MBF: (See "Species, Sort Grade-Board Feet Volumes (Project)" and the "Stand Table Summary" attached, of the thinning and regeneration harvest areas combined.) Volumes do not include "ingrowth." The majority of defect and breakage was culled out during the cruise.

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	% D & B	% Sale
Hemlock	16	733	467	211	55	8	65
Douglas-fir	18	182	136	37	9	3	16
Spruce	19	21	2	16	3	30	2

Species	DBH	Net Vol.	12"+	10"-11"	8"-9"	6"-7"	% D & B	% Sale
Red Alder	13	199	24	38	32	105	2	17

TOTAL VOLUME	1,135
---------------------	--------------

Sort breakdown:

Sort #	Species	Sort Specifications	Net MBF	Sale %
1	WH/fir	6"-11" Sawlogs	233	21
2	WH/fir	12"+ Sawlogs	500	44
3	DF	6"+ Sawlogs	182	16
7	RA	6"+ Sawlogs	199	17
8	SS	6"-20" Sawlogs	9	1
9	Pulp	2"+ Pulp (includes 11 MBF SS 21"+)	1,200 Tons	1 (OS SS)

Pulp Volume:

Species	Net Tons
All	1,200

*Pulp volume is based on approximately 10% of the saw log volume.

9. Prepared by: Jon Long

Date: January 5, 2016

10. Approved by: 

Date: JANUARY 5, 2016

11. Attachments:
- Cruise Plans & Maps (4 pages)
 - Species, Sort, Grade Reports (3 pages)
 - Statistics Reports (3 pages)
 - Stand Table Summary Reports (3 pages)
 - Take - Log Stock Table Reports (3 pages)

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Small Fry **Area(s)** 1-6

Harvest Type: (MC) Modified Clearcut

Approx. Cruise Acres: 38 **Estimated CV%** 55 Net BF/Acre **SE% Objective** 10 Net BF/Acre

Planned Sale Volume : 1,200 MBF **Estimated Sale Area Value/Acre:** \$12,000/Ac
(32 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 100 conifer and 15 hardwood trees
(b) Sample 40 cruise plots (1 grade/1 count); (c) Other goals (Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF 40 (Full point; Half point) (circle one)
Cruise Line Directions See Map
Cruise Line Spacing 4 1/2 (chains)
Cruise Plot Spacing 2 (chains)
Grade/Count Ratio 1/1

Take plots as marked on cruise map. All cedar will be reserved. Grade all alder (not camprun).
Record all snags as SN.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.
- 5. Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

6. Species, Sort, and Grade Codes:

- A. **Species:** Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- B. **Sort:** Use code "1" (Domestic).
- C. **Grade:** A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
- D. **Alder Grades:** 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.

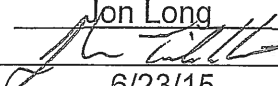
7. Deductions: Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. Standard Field Procedures: Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. Cruising Equipment: Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. Attachments: A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Jon Long

Approved by: 

Date: 6/23/15

SMALL FRY CRUISE MAP
341-16-32
Portions of Sections 29, 30, 31, and 32
of T4N, R8W, and Portions of Section 36,
of T4N, R9W, W.M., Clatsop County, Oregon



25

T4N R9W

36

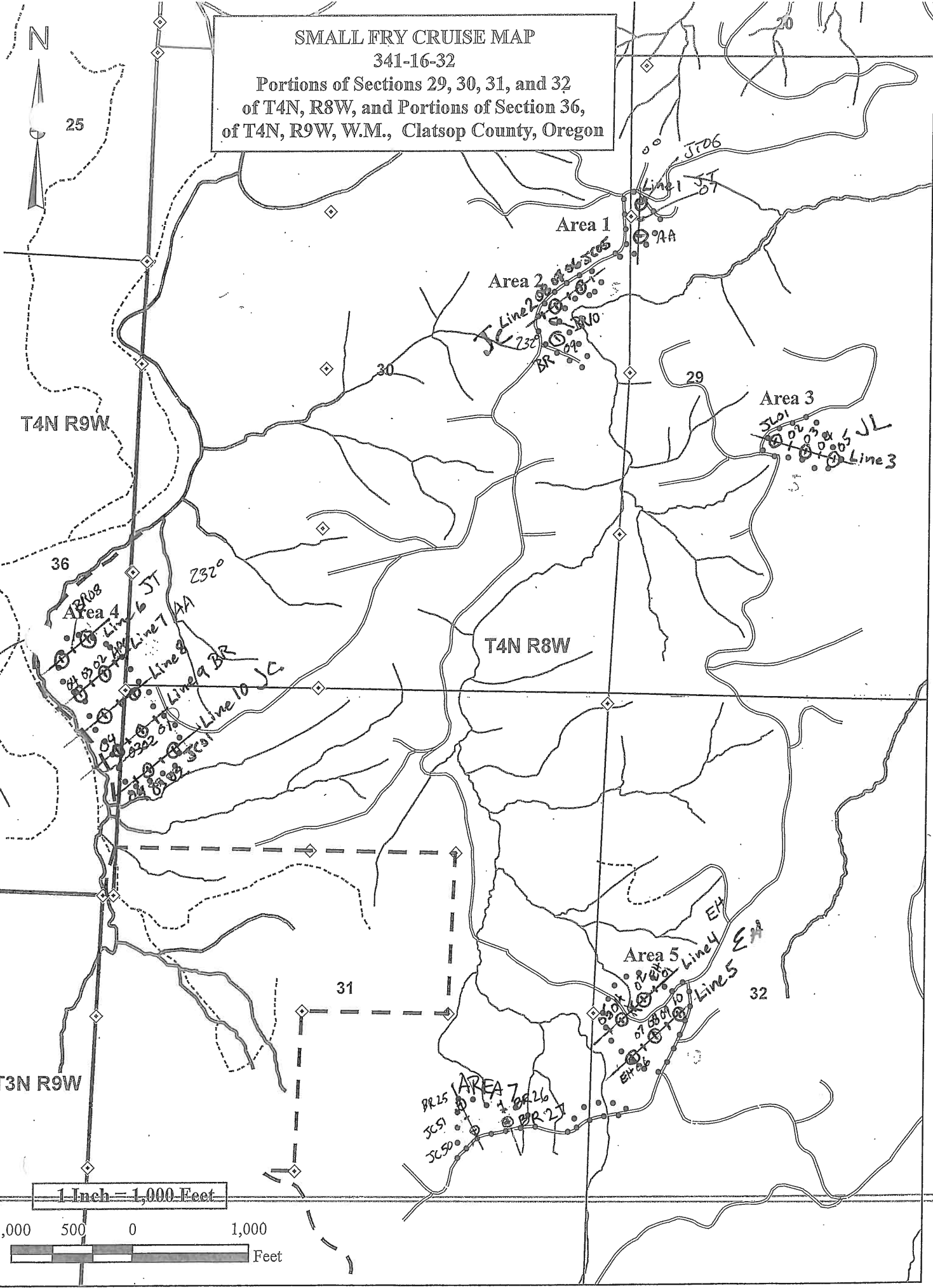
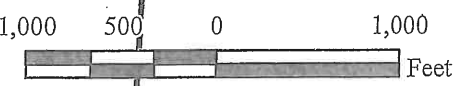
T4N R8W

31

32

T3N R9W

1 Inch = 1,000 Feet



**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Small FryArea(s) Area 6 R/W

Harvest Type: (MC) Clearcut

Approx. Cruise Acres: 5 Estimated CV% 50 Net BF/Acre SE% Objective 13 Net BF/AcrePlanned Sale Volume : 150 MBF Estimated Sale Area Value/Acre: \$12,000/Ac
(30 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 50 conifer and 10 hardwood trees
(b) Sample 24 cruise plots (1 grade/2 count); (c) Other goals (Determine "automark" thinning standards; Determine log grades for sale value; Determine snag and leave tree species and sizes.

B. Cruise Design:

- 1. Plot Cruises:** BAF 40 (Full point; Half point) (circle one)
Cruise Line Directions See Map
Cruise Line Spacing _____ (chains)
Cruise Plot Spacing 3 (chains)
Grade/Count Ratio 1/2

Take plots near centerline of road right-of-way. In trees may be outside of posted R/W. Grade all alder (not camprun).

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.
- 5. Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

6. Species, Sort, and Grade Codes:

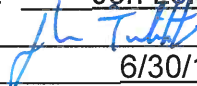
- A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- B. Sort: Use code "1" (Domestic).
- C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
- D. Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.

7. Deductions: Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. Standard Field Procedures: Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. Cruising Equipment: Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. Attachments: A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Jon Long
Approved by: 
Date: 6/30/15

SMALL FRY

341-16-32

Portions of Sections 29, 30, 31, and 32
of T4N, R8W, and Portions of Section 36,
of T4N, R9W, W.M., Clatsop County, Oregon

N



Pt. 1A

Area 1

JL24

JL25

AA23

AA22

AA21

AA24

JL23

JL22

JL21

JL20

Pt. 1B

Area 2

30

29

Area 3

T4N R8W

Pt. 3B

BR24

BR25

JC24

JC23

JC22

JC21

JC20

BR20

BR21

BR22

BR23

Pt. 3A

31

32



TC PSTATS				PROJECT STATISTICS					PAGE	1		
				PROJECT		SMALLFRY			DATE	1/5/2016		
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
04N	08	29	1	TAKE		43.00	68	439	1	W		
04N	08W	29	2	00RW								
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			68	439	6.5							
CRUISE			34	204	6.0	8,440	2.4					
DBH COUNT												
REFOREST												
COUNT			34	214	6.3							
BLANKS												
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK			123	107.6	16.0	46	37.7	151.0	18,604	17,058	5,102	4,846
R ALDER			50	70.2	13.2	35	18.4	66.8	4,726	4,637	1,576	1,574
DOUG FIR			27	14.9	18.2	59	6.3	26.9	4,359	4,233	1,061	1,050
S SPRUCE			4	3.6	19.3	39	1.7	7.3	689	477	194	159
TOTAL			204	196.3	15.3	43	64.3	252.0	28,378	26,404	7,932	7,629
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL	68.1	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK			117.8	10.6	304	340	376					
R ALDER			90.3	12.8	79	90	102					
DOUG FIR			91.6	18.0	507	618	729					
S SPRUCE			127.9	73.1	162	600	1,038					
TOTAL			130.2	9.1	291	321	350	677	169	75		
CL	68.1	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK			102.2	12.4	94	108	121					
R ALDER			148.1	17.9	58	70	83					
DOUG FIR			352.3	42.7	9	15	21					
S SPRUCE			350.0	42.4	2	4	5					
TOTAL			70.7	8.6	179	196	213	200	50	22		
CL	68.1	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK			91.3	11.1	134	151	168					
R ALDER			143.2	17.4	55	67	78					
DOUG FIR			279.6	33.9	18	27	36					
S SPRUCE			326.1	39.5	4	7	10					
TOTAL			60.3	7.3	234	252	270	145	36	16		
CL	68.1	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK			90.7	11.0	15,183	17,058	18,932					
R ALDER			151.0	18.3	3,789	4,637	5,485					
DOUG FIR			271.9	32.9	2,838	4,233	5,627					
S SPRUCE			337.6	40.9	282	477	672					
TOTAL			65.3	7.9	24,313	26,404	28,495	171	43	19		

STATISTICS
PROJECT SMALLFRY

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	29	1	TAKE	39.00	47	293	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	47	293	6.2		
CRUISE	26	158	6.1	7,674	2.1
DBH COUNT					
REFOREST					
COUNT	21	126	6.0		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	85	105.5	15.9	45	36.5	145.5	17,556	15,998	4,845	4,587
R ALDER	45	72.2	13.3	35	19.1	69.8	4,915	4,835	1,650	1,648
DOUG FIR	25	15.1	17.9	56	6.2	26.4	4,255	4,115	1,029	1,017
S SPRUCE	3	3.9	18.9	38	1.8	7.7	713	479	200	162
TOTAL	<i>158</i>	<i>196.8</i>	<i>15.2</i>	<i>42</i>	<i>63.9</i>	<i>249.4</i>	<i>27,440</i>	<i>25,427</i>	<i>7,725</i>	<i>7,414</i>

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
WHEMLOCK		123.1	13.3	278	321	364			
R ALDER		90.8	13.5	80	92	105			
DOUG FIR		92.7	18.9	513	633	752			
S SPRUCE		162.7	112.6		577	1,226			
TOTAL		<i>137.2</i>	<i>10.9</i>	<i>276</i>	<i>310</i>	<i>344</i>	<i>752</i>	<i>188</i>	<i>84</i>

CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
WHEMLOCK		85.8	12.5	92	106	119			
R ALDER		122.7	17.9	59	72	85			
DOUG FIR		314.4	45.8	8	15	22			
S SPRUCE		292.1	42.6	2	4	6			
TOTAL		<i>47.5</i>	<i>6.9</i>	<i>183</i>	<i>197</i>	<i>210</i>	<i>90</i>	<i>22</i>	<i>10</i>

CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
WHEMLOCK		77.2	11.3	129	146	162			
R ALDER		115.5	16.8	58	70	82			
DOUG FIR		257.4	37.5	16	26	36			
S SPRUCE		280.6	40.9	5	8	11			
TOTAL		<i>36.8</i>	<i>5.4</i>	<i>236</i>	<i>249</i>	<i>263</i>	<i>54</i>	<i>14</i>	<i>6</i>

CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
WHEMLOCK		80.2	11.7	14,129	15,998	17,867			
R ALDER		123.2	18.0	3,967	4,835	5,704			
DOUG FIR		251.7	36.7	2,606	4,115	5,625			
S SPRUCE		302.6	44.1	268	479	690			
TOTAL		<i>48.5</i>	<i>7.1</i>	<i>23,632</i>	<i>25,427</i>	<i>27,223</i>	<i>94</i>	<i>23</i>	<i>10</i>

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	SMALLFRY		DATE	1/5/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	08W	29	2	00RW	4.00	21	146	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	21	146	7.0							
CRUISE	8	46	5.8		766		6.0			
DBH COUNT										
REFOREST										
COUNT	13	88	6.8							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK	38	128.0	17.1	57	49.3	203.8	28,819	27,392	7,605	7,374
R ALDER	5	50.5	11.8	30	11.1	38.1	2,876	2,703	852	852
DOUG FIR	2	12.3	21.9	87	6.9	32.4	5,375	5,375	1,372	1,372
S SPRUCE	1	.7	32.0	62	0.7	3.8	457	457	130	130
TOTAL	46	191.5	16.3	52	68.8	278.1	37,527	35,927	9,958	9,727
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	108.3	17.5	314	381	448					
R ALDER	86.8	43.2	42	74	106					
DOUG FIR	1.6	1.5	428	435	442					
S SPRUCE										
TOTAL	109.5	16.1	299	357	414	479	120	53		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	75.0	16.8	107	128	149					
R ALDER	152.0	34.0	33	50	68					
DOUG FIR	177.4	39.7	7	12	17					
S SPRUCE	315.8	70.6	0	1	1					
TOTAL	49.4	11.0	170	191	213	102	26	11		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	63.6	14.2	175	204	233					
R ALDER	146.5	32.8	26	38	51					
DOUG FIR	177.4	39.6	20	32	45					
S SPRUCE	315.8	70.6	1	4	6					
TOTAL	37.4	8.4	255	278	301	59	15	7		
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	69.0	15.4	23,170	27,392	31,614					
R ALDER	146.4	32.7	1,819	2,703	3,588					
DOUG FIR	177.4	39.7	3,243	5,375	7,506					
S SPRUCE	315.8	70.6	134	457	780					
TOTAL	48.3	10.8	32,051	35,927	39,803	98	24	11		

Stand Table Summary

T04N R08W S29 TyTAKE 39.00
T04N R08W S29 Ty00RW 4.00

Project **SMALLFRY**
Acres **43.00**

Time: **12:49:07PM**
Grown Year:

S Spec T	Sample				Trees/ Acres	BA/ Acres	Logs Acres	Average Log		Tons/ Acres	Net Cu.Ft. Acres	Net Bd.Ft. Acres	Totals		
	DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
H	8	1	76	17	4.449	1.55				.31			13		
H	9	5	80	29	16.041	6.71	8.16	7.7	25.7	2.29	63	210	99	27	9
H	10	3	86	40	4.677	2.55	4.68	9.8	29.8	1.04	46	139	45	20	6
H	11	7	87	43	14.874	9.82	15.63	12.1	39.0	4.43	188	609	190	81	26
H	12	2	89	64	2.612	2.05	3.25	17.4	58.0	1.32	57	189	57	24	8
H	13	7	82	46	11.930	10.87	11.93	17.4	46.8	4.17	208	559	179	90	24
H	14	3	87	38	3.372	3.60	1.92	26.6	80.3	1.69	51	154	73	22	7
H	15	5	86	59	3.750	4.60	4.56	26.2	71.6	2.29	120	327	98	51	14
H	16	4	85	67	4.449	6.21	7.79	24.4	81.4	4.44	190	634	191	82	27
H	17	7	86	73	4.890	7.71	7.81	31.0	96.7	5.28	242	755	227	104	32
H	18	13	87	81	9.038	15.97	15.44	37.3	120.4	13.07	576	1,859	562	248	80
H	19	9	89	95	5.492	10.81	10.98	42.4	151.5	11.81	466	1,664	508	200	72
H	20	7	87	88	3.533	7.71	6.13	38.2	132.9	7.54	234	814	324	101	35
H	21	8	86	93	4.727	11.37	10.10	45.4	162.5	12.17	458	1,641	523	197	71
H	22	11	87	90	5.273	13.92	10.55	50.3	182.5	14.34	530	1,925	616	228	83
H	23	3	88	100	1.615	4.66	3.23	61.7	236.7	5.65	199	764	243	86	33
H	24	7	86	97	2.118	6.65	4.57	59.6	225.3	7.62	272	1,030	328	117	44
H	25	2	85	91	.293	1.00	.59	67.7	237.5	.97	40	139	42	17	6
H	26	5	88	107	1.248	4.60	3.19	67.5	281.9	6.54	215	899	281	93	39
H	27	3	86	109	.907	3.60	2.33	71.9	293.6	4.79	168	684	206	72	29
H	28	2	83	83	.726	3.11	1.09	80.3	286.7	2.92	88	312	126	38	13
H	29	1	77	99	.339	1.55	.68	63.5	235.0	1.59	43	159	68	18	7
H	34	1	86	99	.246	1.55	.49	133.0	535.0	1.93	66	264	83	28	11
H	35	2	87	61	.307	2.05	.38	135.9	332.6	.89	52	127	38	22	5
H	38	1	88	107	.197	1.55	.39	155.5	755.0	2.59	61	298	112	26	13
H	39	2	89	107	.374	3.11	.94	124.6	568.0	4.86	117	532	209	50	23
H	50	1	85	126	.114	1.55	.34	237.7	853.3	2.92	81	292	125	35	13
H	51	1	80	116	.035	.50	.07	228.5	1150.0	.76	16	81	33	7	3
H	Totals	123	85	59	107.627	150.95	137.20	35.3	124.3	130.23	4,846	17,058	5,600	2,084	733
A	9	3	87	23	7.972	3.52	7.97	5.6	24.0	1.30	45	191	56	19	8
A	10	1	87	29	2.579	1.41	2.58	8.0	20.0	.32	21	52	14	9	2
A	11	6	86	40	11.731	7.74	11.73	11.7	32.7	2.53	138	384	109	59	17
A	12	10	86	38	17.020	13.37	17.02	13.8	36.3	3.86	236	618	166	101	27
A	13	4	87	56	6.104	5.63	7.63	18.0	54.0	2.58	137	412	111	59	18
A	14	7	86	65	8.558	9.15	10.54	21.7	63.1	4.16	228	665	179	98	29
A	15	5	86	52	5.731	7.03	5.73	29.8	66.0	2.36	171	378	102	73	16
A	16	3	87	64	3.022	4.22	5.04	25.4	80.0	2.58	128	403	111	55	17
A	17	2	87	74	1.342	2.12	2.68	26.8	88.3	1.48	72	237	64	31	10
A	18	4	87	69	3.184	5.63	6.37	29.4	95.0	3.88	187	605	167	80	26
A	19	1	86	62	.714	1.41	1.43	30.5	105.0	.94	44	150	40	19	6
A	21	3	87	69	1.754	4.22	2.92	45.0	144.0	2.70	132	421	116	57	18
A	24	1	86	54	.448	1.41	.90	41.5	135.0	.84	37	121	36	16	5
A	Totals	50	86	47	70.158	66.84	82.54	19.1	56.2	29.53	1,574	4,637	1,270	677	199
D	8	1	85	21	2.742	.96	2.74	4.0	10.0	.36	11	27	15	5	1
D	12	3	87	68	3.656	2.87	4.87	15.0	50.0	1.58	73	244	68	31	10
D	13	1	85	61	1.038	.96	1.04	22.0	60.0	.40	23	62	17	10	3
D	14	1	88	77	.895	.96	1.79	16.5	55.0	.64	30	98	28	13	4
D	17	1	86	82	.607	.96	1.21	25.5	75.0	.67	31	91	29	13	4
D	19	1	88	121	.486	.96	1.46	30.7	116.7	1.11	45	170	48	19	7
D	20	1	85	84	.439	.96	1.32	22.7	93.3	.86	30	123	37	13	5
D	21	4	87	114	1.820	4.38	5.46	35.4	143.8	5.23	193	785	225	83	34
D	23	1	89	103	.522	1.51	1.04	57.5	215.0	1.46	60	224	63	26	10

Stand Table Summary

T04N R08W S29 TyTAKE 39.00
T04N R08W S29 Ty00RW 4.00

Project **SMALLFRY**
Acres **43.00**

Time: **12:49:07PM**
Grown Year:

S Spec T	Sample DBH	Trees	Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
			FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
D	25	2	86	112	.562	1.91	1.40	58.2	224.0	2.10	82	314	90	35	14
D	26	2	87	117	.519	1.91	1.30	65.4	264.0	2.23	85	343	96	37	15
D	27	1	92	108	.241	.96	.72	58.3	260.0	1.22	42	188	52	18	8
D	28	1	88	125	.224	.96	.67	70.7	326.7	1.43	47	219	61	20	9
D	29	2	84	126	.417	1.91	1.25	65.2	281.7	2.60	82	353	112	35	15
D	30	1	85	103	.195	.96	.39	94.0	355.0	.91	37	138	39	16	6
D	33	1	85	125	.161	.96	.48	93.0	420.0	1.32	45	203	57	19	9
D	38	2	87	128	.243	1.91	.61	150.6	732.0	2.89	92	445	124	39	19
D	40	1	82	126	.110	.96	.33	132.3	620.0	1.33	44	204	57	19	9
D	Totals	27	86	78	14.877	26.94	28.10	37.4	150.6	28.33	1,050	4,233	1,218	451	182
S	15	1	78	43	1.887	2.32	1.89	16.0	30.0	.79	30	57	34	13	2
S	17	1	83	45	1.469	2.32	1.47	32.0	40.0	.53	47	59	23	20	3
S	32	1	83	74	.063	.35	.13	95.0	335.0	.26	12	43	11	5	2
S	47	1	74	111	.192	2.32	.38	180.5	830.0	2.56	69	319	110	30	14
S	Totals	4	80	48	3.612	7.30	3.87	41.0	123.3	4.14	159	477	178	68	21
Totals		204	85	56	196.274	252.03	251.70	30.3	104.9	192.23	7,629	26,404	8,266	3,280	1,135

Log Stock Table - MBF

T04N R08W S29 TyTAKE 39.00
T04N R08W S29 Ty00RW 4.00

Project: SMALLFRY
Acres 43.00

Page 1
Date 1/5/2016
Time 12:49:08PM

Spp	S T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
A		DO CU	2	0	100.0														
A		DO 1S	30	18	5.1	17	8.3					6	11						
A		DO 1S	40	7		7	3.7					7							
A		DO 2S	30	5		5	2.6					5							
A		DO 2S	40	34	1.0	33	16.7					33							
A		DO 3S	30	6		6	3.1					6							
A		DO 3S	32	3		3	1.3					3							
A		DO 3S	40	24		24	11.9					17	6						
A		DO 4S	16	18	4.8	17	8.7			17									
A		DO 4S	18	1		1	.3			1									
A		DO 4S	20	11		11	5.7			11									
A		DO 4S	24	7		7	3.5			7									
A		DO 4S	28	2		2	1.2			2									
A		DO 4S	30	30	3.0	29	14.8			29									
A		DO 4S	32	6	7.7	5	2.6			5									
A		DO 4S	34	7		7	3.4			7									
A		DO 4S	36	5		5	2.7			5									
A		DO 4S	40	19		19	9.6			19									
A		Totals		203	1.9	199	17.6			105	20	46	11	18					
H		DO CU	4	0	100.0														
H		DO CU	6	5	100.0														
H		DO CU	8	3	100.0														
H		DO CU	10	6	100.0														
H		DO CU	12	5	100.0														
H		DO CU	16	22	100.0														
H		DO CU	20	6	100.0														
H		DO CU	35	2	100.0														
H		DO 2S	16	2		2	.2					2							
H		DO 2S	18	2	12.5	1	.2					1							
H		DO 2S	32	55		55	7.5				20	25			10				
H		DO 2S	36	7	3.8	7	.9					7							
H		DO 2S	40	410	1.9	402	54.8			1		2	133	98	130	16	20	3	
H		DO 3S	20	1		1	.1					1							
H		DO 3S	24	0		0	.0					0							

Log Stock Table - MBF

T04N R08W S29 TyTAKE	39.00
T04N R08W S29 Ty00RW	4.00

Project: SMALLFRY
Acres 43.00

Spp	S T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D		DO 4S	28	1		1	.3				1								
D		DO 4S	30	1		1	.3				1								
D		Totals		187	2.9	182	16.0		2	16	13	16	20	32	43	21	19		
S		DO CU	6	3	100.0														
S		DO CU	8	5	100.0														
S		DO 2S	40	2		2	8.0							2					
S		DO 3S	36	4	33.3	3	12.3			3									
S		DO 3S	40	14		14	66.9					2				11			
S		DO 4S	20	0		0	.9				0								
S		DO 4S	26	2		2	11.9			2									
S		Totals		30	30.8	21	1.8		5		0	2	2			11			
Total		All Species		1,220	7.0	1,135	100.0		2	289	58	107	203	188	176	38	64	11	

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1								
		Project: SMALLFRY										Date 1/5/2016								
												Time 12:49:08PM								
T04N R08W S29 TTAKE										T04N R08W S29 TTAKE										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
04N	08W	29	1	TAKE	39.00	47	158	1	W											
Spp	So	Gr	%	Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
					Def%	Gross	Net		Log Scale Dia.			Log Length				Ln	Dia	Bd	CF/Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
H	DO	CU			00.0	1,197										12	9		0.00	22.3
H	DO	2S	63	1.8	10,327	10,146	396		0	70	29			13	87	39	14	307	1.92	33.0
H	DO	3S	29	3.0	4,859	4,714	184	83	11	6		0	2	25	73	36	7	79	0.80	60.0
H	DO	4S	8	3.1	1,174	1,138	44	93	7			40	26	29	6	22	6	31	0.49	36.2
H	Totals		63	8.9	17,556	15,998	624		31	48	20	3	2	18	77	30	9	106	1.01	151.6
A	DO	CU		00.0	9											2	12		0.00	.9
A	DO	1S	12	3.6	636	613	24			100			70	30		33	14	239	1.91	2.6
A	DO	2S	19	1.0	920	911	36	86	14				14	86		38	11	163	1.25	5.6
A	DO	3S	16		765	765	30	100					21	79		38	9	110	0.86	7.0
A	DO	4S	53	1.5	2,585	2,546	99	100				26	37	12	25	26	6	37	0.55	69.5
A	Totals		19	1.6	4,915	4,835	189		85	15		14	34	6	46	28	7	57	0.70	85.5
D	DO	CU		00.0	71											3	18		0.00	1.4
D	DO	2S	71	.5	2,969	2,955	115		1	33	66	4		7	88	36	16	406	2.50	7.3
D	DO	3S	24	2.5	979	955	37	2	86	12		1		75	24	34	8	86	0.76	11.2
D	DO	4S	5	12.8	235	205	8	15	81	5		72	28			19	6	22	0.43	9.3
D	Totals		16	3.3	4,255	4,115	161	1	25	27	47	7	1	23	69	28	10	141	1.24	29.1
S	DO	CU		00.0	202											6	15		0.00	2.3
S	DO	3S	86	7.2	449	417	16	16	15	70				100		37	9	204	1.71	2.0
S	DO	4S	14		62	62	2	100					100			26	6	30	0.62	2.1
S	Totals		2	32.8	713	479	19		27	13	61		13	87		22	10	75	1.13	6.4
Type Totals				7.3	27,440	25,427	992	0	40	38	22	6	9	16	70	29	8	93	0.94	272.6

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)								Page 1											
		Project: SMALLFRY								Date 1/5/2016											
										Time 12:49:08PM											
T04N R08W S29 T00RW										T04N R08W S29 T00RW											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
04N	08W	29	2	00RW	4.00	21	46	1	W												
S Sp	So T	Gr rt	%	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre		
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/ Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf		
H	DO	CU		100.0	1,008											13	15		0.00	7.3	
H	DO	2S	65	1.8	18,149	17,828	71		1	69	30		4		5	91	37	14	306	1.95	58.3
H	DO	3S	24		6,781	6,781	27		95	2	3			9	22	69	36	8	92	0.82	73.8
H	DO	4S	11	3.4	2,881	2,783	11		100				23	45		32	25	6	34	0.46	82.8
H	Totals		76	5.0	28,819	27,392	110		34	45	20		5	7	9	79	32	9	123	1.05	222.1
A	DO	2S	26		725	725	3		100						100		40	10	150	1.15	4.8
A	DO	3S	24		641	641	3		100					100			32	9	90	0.84	7.1
A	DO	4S	50	11.4	1,509	1,337	5		100			65	35				20	7	26	0.43	50.5
A	Totals		8	6.0	2,876	2,703	11		100			32	17	24	27		23	7	43	0.60	62.4
D	DO	2S	96		5,173	5,173	21		23	77				16	84		38	12	210	1.41	24.7
D	DO	4S	4		202	202	1		100			100					16	7	30	0.50	6.7
D	Totals		15		5,375	5,375	21		26	74		4		15	81		33	11	171	1.32	31.4
S	DO	2S	89		409	409	2			100				100			40	19	600	4.08	.7
S	DO	4S	11		48	48	0		100			100					20	10	70	1.35	.7
S	Totals		1		457	457	2		10	90		10		90			30	15	335	3.17	1.4
Type Totals				4.3	37,527	35,927	144		38	46	17		7	7	11	76	30	9	113	1.02	317.3

Species, Sort Grade - Board Foot Volumes (Project)

T04N R08W S29 TyTAKE	39.00
T04N R08W S29 Ty00RW	4.00

Project: SMALLFRY
Acres 43.00

Page 1
Date 1/5/2016
Time 12:49:08PM

Spp	So Gr T rt ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre	
							Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
							4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
A	DOCU		100.0	8											2	12		0.00	.8	
A	DO1S	12	3.6	577	556	24		100			70	30			33	14	239	1.91	2.3	
A	DO2S	19	.9	902	894	38		87	13		13	87			39	11	162	1.24	5.5	
A	DO3S	16		754	754	32		100			19	8	73		37	9	108	0.86	7.0	
A	DO4S	53	2.1	2,485	2,433	105		100			28	37	11	23	25	6	36	0.54	67.7	
A	Totals	18	1.9	4,726	4,637	199		85	15		15	33	7	44	27	7	56	0.69	83.3	
H	DOCU		100.0	1,179											12	10		0.00	20.9	
H	DO2S	63	1.8	11,054	10,860	467		1	70	29	1		12	88	38	14	307	1.93	35.4	
H	DO3S	29	2.6	5,038	4,907	211		84	10	6	0	3	25	72	36	7	80	0.80	61.2	
H	DO4S	8	3.1	1,332	1,291	55		95	5		36	30	23	11	23	6	32	0.48	40.6	
H	Totals	65	8.3	18,604	17,058	733		32	48	20	3	3	16	77	30	9	108	1.02	158.1	
D	DOCU		100.0	65											3	18		0.00	1.3	
D	DO2S	74	.4	3,174	3,162	136		4	40	56	4		9	88	36	15	355	2.21	8.9	
D	DO3S	21	2.5	888	866	37		2	86	12	1		75	24	34	8	86	0.76	10.1	
D	DO4S	5	11.8	232	205	9		13	82	4	75	25			18	6	23	0.44	9.1	
D	Totals	16	2.9	4,359	4,233	182		1	25	32	42	7	1	22	71	29	10	144	1.25	29.4
S	DOCU		100.0	183											6	15		0.00	2.1	
S	DO2S	7		38	38	2			100				100		40	19	600	4.08	.1	
S	DO3S	80	7.2	407	378	16		16	15	70			100		37	9	204	1.71	1.9	
S	DO4S	13		61	61	3		100			7	93			26	6	31	0.63	2.0	
S	Totals	2	30.8	689	477	21		25	12	63	1	12	87		23	10	80	1.18	5.9	
Totals			7.0	28,378	26,404	1,135		0	40	39	21	6	8	15	71	29	8	95	0.95	276.8