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Photo Series for Quantifying Forest Residues in Managed Lands of the Medicine Bow National Forest

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Abstract

This photo series presents a visual representation of a range of fuel loading conditions specifically found on the Medicine Bow National Forest. The photos are grouped by forest type and past management practices. This field guide describes the distribution of different types of woody fuels and includes some vegetation data.

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Information presented in this guide

This photo series presents a visual representation of a range of fuel loading conditions. It was designed in collaboration with personnel on the Medicine Bow National Forest. The guide is designed specifically for the Medicine Bow National Forest.

The purpose of this guide is to help field crews assess and monitor the amount and nature of fuels in actively managed areas. The categories used here were developed by Medicine Bow NF staff. The photos are grouped by forest types and past management practices, and each category contains one or more photos which are ordered by increasing fuel loads. This photo series should provide an easy way to check compliance with several aspects of the Forest Plan, including timber harvesting, wildlife constraints, and downed woody biomass estimates, as well as firefighting concerns.

Fuels plots for this photo series were established in 2004 and 2005 in the Medicine Bow and Sierra Madre mountains using the standards established by Brown in 1974¹. The photographs used here were taken at these fuels transects, with the associated data reflecting the actual forest conditions at each specific plot. This information describes the distribution of different types of woody fuels. Each data page includes a title describing the general stand condition and past fuels treatment. There is a section containing information on the sample plot used to describe each category, including its UTM coordinates and slope. Fuel loadings in tons per acre are broken out by size (diameter) class. The classes of 0 – 0.25", 0.26 – 1.0", 1.1 – 3.0", and > 3.0" correspond to 1-, 10-, 100-, and 1000-hour fuels categories used in fire behavior models. The largest category is split into sound and rotten logs. These data are also displayed in a bar graph. The last section includes fuel height, duff and litter depth, and percent of the transect covered by woody fuels.

In addition to fuels information, vegetation data were collected at most of these plots. Average values for percent canopy closure, tree height, and basal area (ft²/acre) by species have been included where available. Coordinates of the transects' starting points were collected using the NAD27 georeferencing system. For this publication, the coordinates were converted to NAD83 and are in UTM Zone 13.

How to use this guide.

This guide allows field personnel with minimal training to quickly estimate fuel levels. First determine which general category to start with, based on forest type and past management activity, if known. Then look through the photos within that category and choose the one looking most like the stand being examined. If the stand falls between two photos, the numbers from both plots can be averaged.

¹ Brown, James K. 1974. Handbook for identifying downed woody material. USDA For. Serv. Gen. Tech. Rep. INT-16, 24 p., illus. Intermountain Forest and Range Experiment Station, Ogden, Utah.

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CATEGORY 1

Clearcut in lodgepole pine sawlogs with slash treatment as lop and scatter



CLEARCUT IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT SPECIFIED AS LOP AND SCATTER (1A)

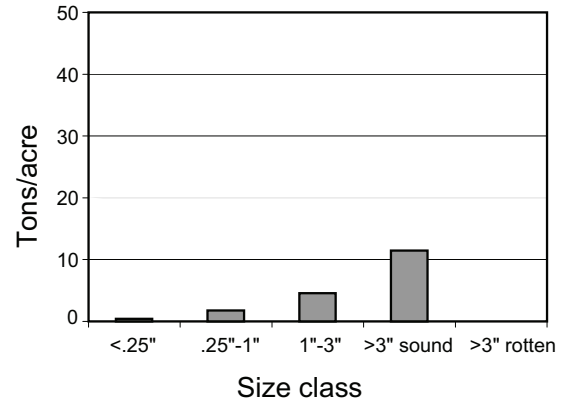
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
56	390277	4558776	0	0

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
0	0	0	0	0

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.44	1.75	4.56	6.75

> 3" sound	> 3" rotten	> 3" total	Grand Total
11.46	0.00	11.46	18.21

OTHER FUELS DATA	
% ground covered by fuels	4
Average fuels height (in.)	1.0
Average duff depth (in.)	0.0
Average litter depth (in.)	0.0





CLEARCUT IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT SPECIFIED AS LOP AND SCATTER (1B)

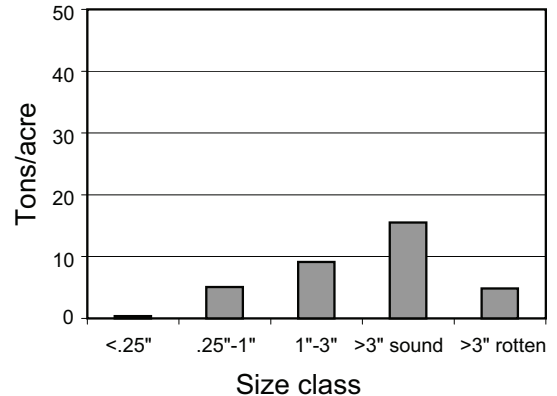
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
51	387816	4543143	0	0

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
0	0	0	0	0

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.39	5.07	9.12	14.57

> 3" sound	> 3" rotten	> 3" total	Grand Total
15.51	4.84	20.35	34.92

OTHER FUELS DATA	
% ground covered by fuels	9
Average fuels height (in.)	1.0
Average duff depth (in.)	0.7
Average litter depth (in.)	0.0





CLEARCUT IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT SPECIFIED AS LOP AND SCATTER (1C)

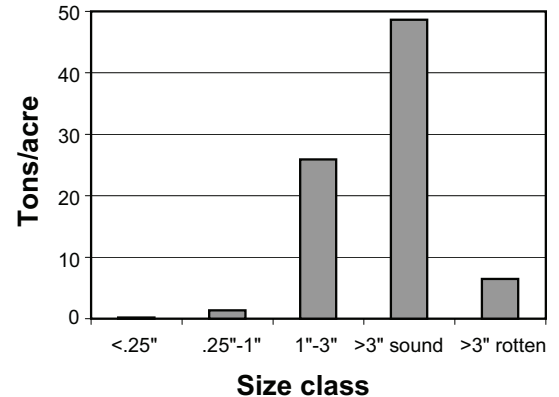
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
28	405127	4577666	0	0

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
0	0	0	0	0

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.17	1.37	25.94	27.48

> 3" sound	> 3" rotten	> 3" total	Grand Total
48.63	6.44	55.07	82.55

OTHER FUELS DATA	
% ground covered by fuels	20
Average fuels height (in.)	1.3
Average duff depth (in.)	0.0
Average litter depth (in.)	0.0



CATEGORY 2

Clearcut in lodgepole pine sawlogs with slash treatment as whole tree skid (slash piled at landing)



CLEARCUT IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT SPECIFIED AS WHOLE TREE SKID (2A)

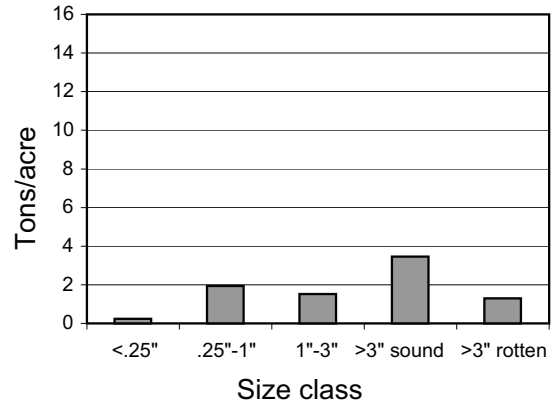
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
97	321798	4576050	N/A	N/A

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
N/A	N/A	N/A	N/A	N/A

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.24	1.94	1.52	3.70

> 3" sound	> 3" rotten	> 3" total	Grand Total
3.46	1.30	4.76	8.47

OTHER FUELS DATA	
% ground covered by fuels	1
Average fuels height (in.)	3.0
Average duff depth (in.)	0.5
Average litter depth (in.)	0.8





CLEARCUT IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT SPECIFIED AS WHOLE TREE SKID (2B)

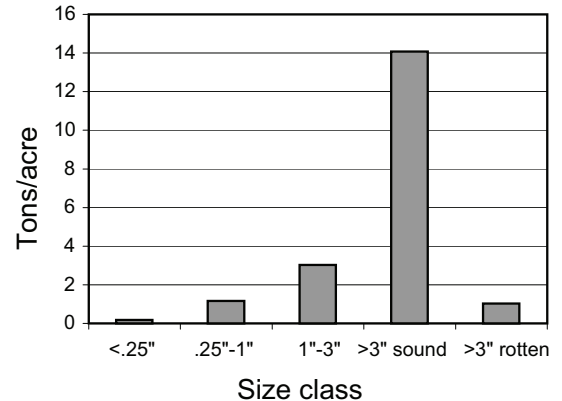
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
95	321556	4575835	N/A	N/A

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
N/A	N/A	N/A	N/A	N/A

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.18	1.17	3.03	4.38

> 3" sound	> 3" rotten	> 3" total	Grand Total
14.08	1.03	15.10	19.48

OTHER FUELS DATA	
% ground covered by fuels	1
Average fuels height (in.)	4.0
Average duff depth (in.)	0.2
Average litter depth (in.)	0.3



CATEGORY 3

Clearcut in lodgepole pine sawlogs with slash treatment as pile in unit and burn



CLEARCUT IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT SPECIFIED AS PILE IN UNIT AND BURN (3A)

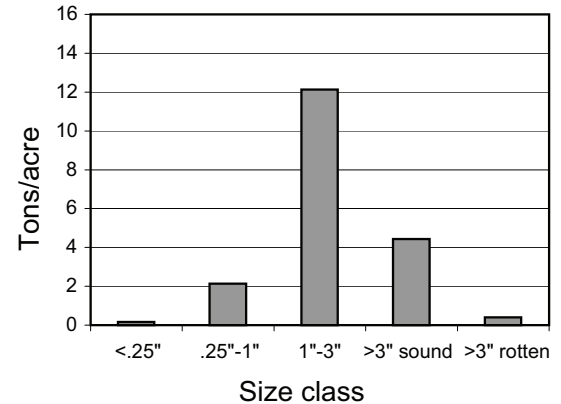
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
91	322216	4574825	0	0

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
0	0	0	0	0

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.16	2.14	12.12	14.42

> 3" sound	> 3" rotten	> 3" total	Grand Total
4.43	0.40	4.83	19.25

OTHER FUELS DATA	
% ground covered by fuels	1
Average fuels height (in.)	1.8
Average duff depth (in.)	0.5
Average litter depth (in.)	0.8





CLEARCUT IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT SPECIFIED AS PILE IN UNIT AND BURN (3B)

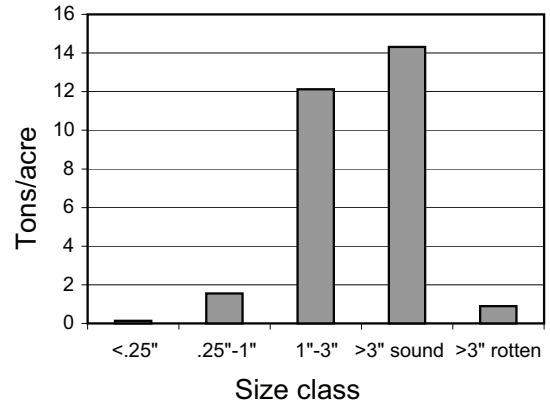
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
89	322116	4575033	0	0

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
0	0	0	0	0

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.13	1.55	12.12	13.80

> 3" sound	> 3" rotten	> 3" total	Grand Total
14.32	0.90	15.22	29.02

OTHER FUELS DATA	
% ground covered by fuels	2
Average fuels height (in.)	1.5
Average duff depth (in.)	0.5
Average litter depth (in.)	0.5



CATEGORY 4

Precommercial thin in lodgepole pine regeneration with slash treatment specified as lop and scatter



**PRECOMMERCIAL THIN IN LODGEPOLE PINE REGENERATION WITH SLASH TREATMENT
SPECIFIED AS LOP AND SCATTER (4A)**

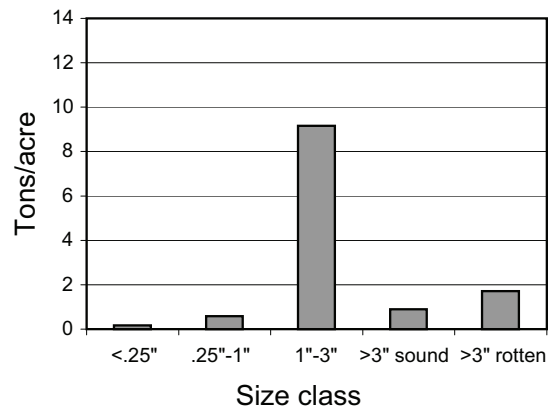
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
58	383216	4558455	93	58

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
162	0	0	0	162

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.17	0.59	9.15	9.91

> 3" sound	> 3" rotten	> 3" total	Grand Total
0.90	1.71	2.61	12.53

OTHER FUELS DATA	
% ground covered by fuels	2
Average fuels height (in.)	1.3
Average duff depth (in.)	0.3
Average litter depth (in.)	3.3





**PRECOMMERCIAL THIN IN LODGEPOLE PINE REGENERATION WITH SLASH TREATMENT
SPECIFIED AS LOP AND SCATTER (4B)**

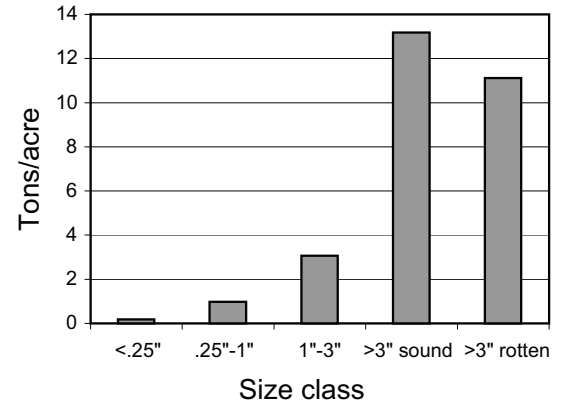
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
45	405580	4545619	78	56

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
160	0	0	0	160

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.18	0.98	3.06	4.23

> 3" sound	> 3" rotten	> 3" total	Grand Total
13.18	11.12	24.30	28.53

OTHER FUELS DATA	
% ground covered by fuels	7
Average fuels height (in.)	2.3
Average duff depth (in.)	1.3
Average litter depth (in.)	0.7





**PRECOMMERCIAL THIN IN LODGEPOLE PINE REGENERATION WITH SLASH TREATMENT
SPECIFIED AS LOP AND SCATTER (4C)**

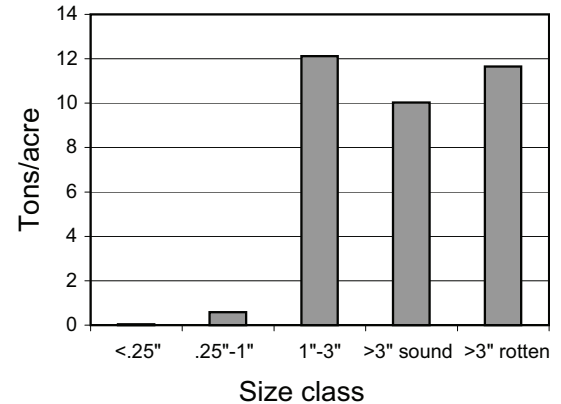
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
19	391673	4556239	54	24

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
69	0	4	2	62

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.04	0.58	12.12	12.74

> 3" sound	> 3" rotten	> 3" total	Grand Total
10.04	11.65	21.68	34.43

OTHER FUELS DATA	
% ground covered by fuels	8
Average fuels height (in.)	0.0
Average duff depth (in.)	0.7
Average litter depth (in.)	0.7



CATEGORY 5

Individual tree mark in lodgepole pine sawlogs with slash treatment specified as lop and scatter



**INDIVIDUAL TREE MARK IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT
SPECIFIED AS LOP AND SCATTER (5A)**

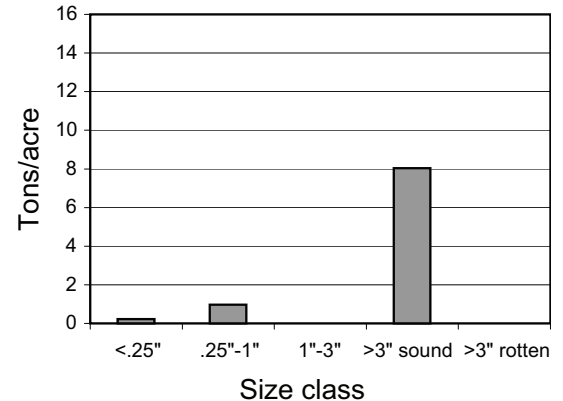
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
79	388044	4595822	80	74

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
98	0	4	0	93

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.22	0.98	0.00	1.20

> 3" sound	> 3" rotten	> 3" total	Grand Total
8.03	0.00	8.03	9.23

OTHER FUELS DATA	
% ground covered by fuels	3
Average fuels height (in.)	0.3
Average duff depth (in.)	0.3
Average litter depth (in.)	0.3





**INDIVIDUAL TREE MARK IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT
SPECIFIED AS LOP AND SCATTER (5B)**

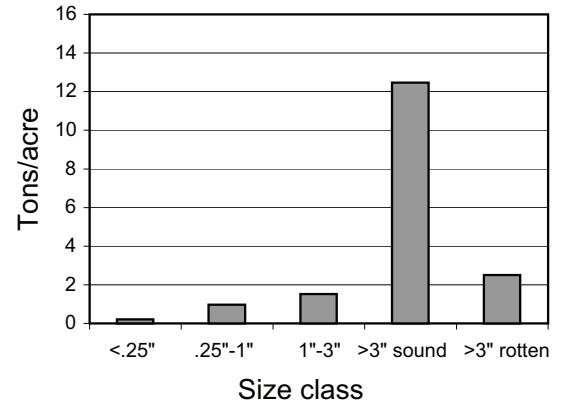
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
22	398421	4591034	53	57

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
118	0	2	4	111

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.21	0.97	1.52	2.71

> 3" sound	> 3" rotten	> 3" total	Grand Total
12.47	2.51	14.97	17.68

OTHER FUELS DATA	
% ground covered by fuels	8
Average fuels height (in.)	0.7
Average duff depth (in.)	1.0
Average litter depth (in.)	0.5





**INDIVIDUAL TREE MARK IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT
SPECIFIED AS LOP AND SCATTER (5C)**

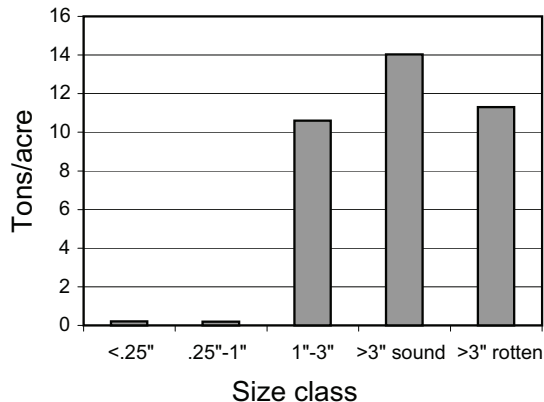
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
49	401988	4556528	95	57

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
164	0	4	22	138

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.20	0.19	10.60	11.00

> 3" sound	> 3" rotten	> 3" total	Grand Total
14.03	11.30	25.33	36.33

OTHER FUELS DATA	
% ground covered by fuels	9
Average fuels height (in.)	3.0
Average duff depth (in.)	1.0
Average litter depth (in.)	1.0



CATEGORY 6

Individual tree mark in lodgepole pine sawlogs with slash treatment specified as whole tree skid (slash piled at landing)



**INDIVIDUAL TREE MARK IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT
SPECIFIED AS WHOLE TREE SKID (6A)**

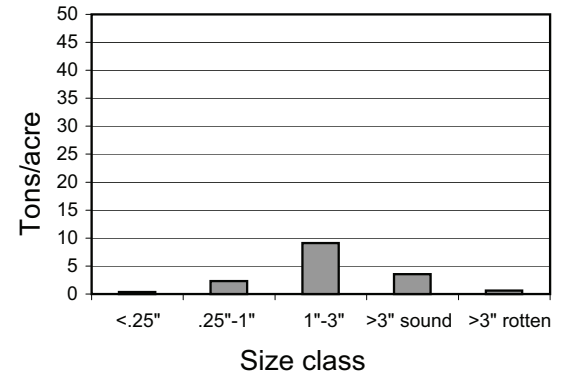
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
93	321310	4575633	N/A	N/A

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
N/A	N/A	N/A	N/A	N/A

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.38	2.33	9.09	11.81

> 3" sound	> 3" rotten	> 3" total	Grand Total
3.57	0.62	4.20	16.00

OTHER FUELS DATA	
% ground covered by fuels	1
Average fuels height (in.)	1.7
Average duff depth (in.)	0.7
Average litter depth (in.)	0.3





**INDIVIDUAL TREE MARK IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT
SPECIFIED AS WHOLE TREE SKID (6B)**

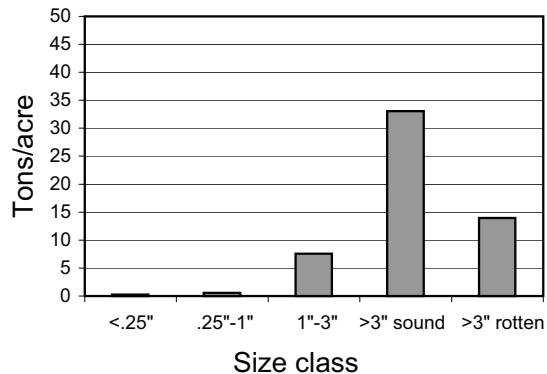
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
63	393495	4565466	77	63

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
140	0	0	0	140

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.26	0.58	7.57	8.42

> 3" sound	> 3" rotten	> 3" total	Grand Total
33.03	13.95	46.98	55.40

OTHER FUELS DATA	
% ground covered by fuels	10
Average fuels height (in.)	1.0
Average duff depth (in.)	0.7
Average litter depth (in.)	0.7





**INDIVIDUAL TREE MARK IN LODGEPOLE PINE SAWLOGS WITH SLASH TREATMENT
SPECIFIED AS WHOLE TREE SKID (6C)**

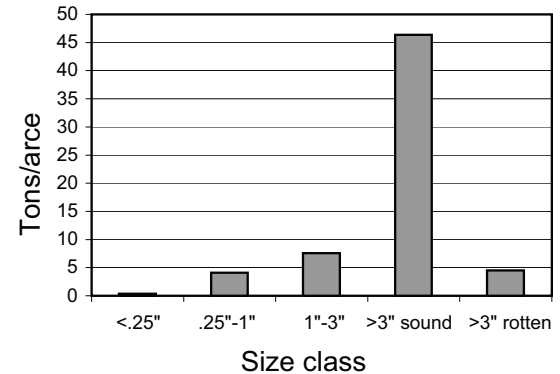
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
92	321285	4575595	N/A	N/A

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
N/A	N/A	N/A	N/A	N/A

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.34	4.08	7.58	12.00

> 3" sound	> 3" rotten	> 3" total	Grand Total
46.36	4.50	50.86	62.86

OTHER FUELS DATA	
% ground covered by fuels	15
Average fuels height (in.)	25.0
Average duff depth (in.)	0.7
Average litter depth (in.)	2.3



CATEGORY 7

**Individual tree mark in lodgepole pine pole sized timber
with slash treatment specified as lop and scatter**



**INDIVIDUAL TREE MARK IN LODGEPOLE PINE POLE SIZED TIMBER WITH SLASH TREATMENT
SPECIFIED AS LOP AND SCATTER (7A)**

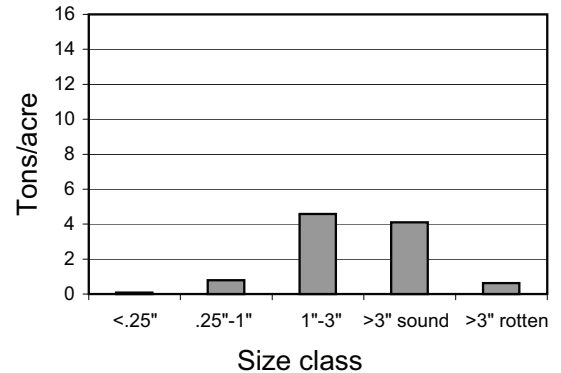
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
2	380726	4595722	88	51

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
253	0	0	0	253

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.08	0.78	4.59	5.46

> 3" sound	> 3" rotten	> 3" total	Grand Total
4.11	0.63	4.74	10.20

OTHER FUELS DATA	
% ground covered by fuels	2
Average fuels height (in.)	1.2
Average duff depth (in.)	0.0
Average litter depth (in.)	0.5





**INDIVIDUAL TREE MARK IN LODGEPOLE PINE POLE SIZED TIMBER WITH SLASH TREATMENT
SPECIFIED AS LOP AND SCATTER (7B)**

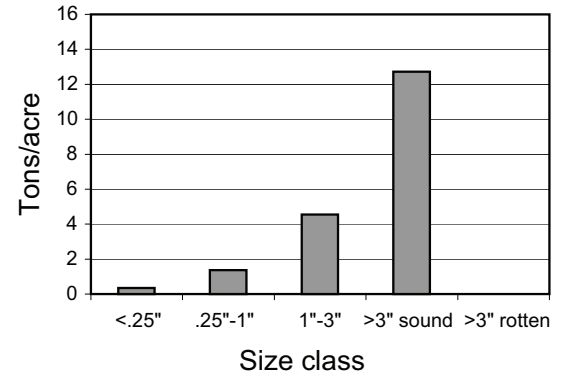
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
71	383977	4594231	90	68

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
218	0	0	0	218

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.34	1.36	4.55	6.25

> 3" sound	> 3" rotten	> 3" total	Grand Total
12.72	0.00	12.72	18.98

OTHER FUELS DATA	
% ground covered by fuels	6
Average fuels height (in.)	0.7
Average duff depth (in.)	0.7
Average litter depth (in.)	0.7





**INDIVIDUAL TREE MARK IN LODGEPOLE PINE POLE SIZED TIMBER WITH SLASH TREATMENT
SPECIFIED AS LOP AND SCATTER (7C)**

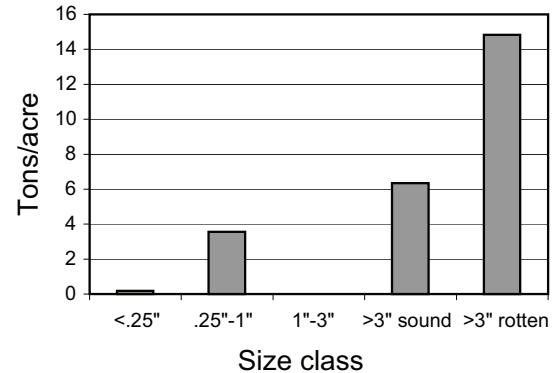
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
1	373275	4585793	95	69

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
296	0	2	11	282

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.18	3.57	0.00	3.74

> 3" sound	> 3" rotten	> 3" total	Grand Total
6.34	14.83	21.17	24.91

OTHER FUELS DATA	
% ground covered by fuels	25
Average fuels height (in.)	2.3
Average duff depth (in.)	0.8
Average litter depth (in.)	0.5



CATEGORY 8

Individual tree mark in lodgepole pine pole sized timber with slash treatment specified as whole tree skid (slash piled at landing)



**INDIVIDUAL TREE MARK IN LODGEPOLE PINE POLE SIZED TIMBER WITH SLASH TREATMENT
SPECIFIED AS WHOLE TREE SKID (8A)**

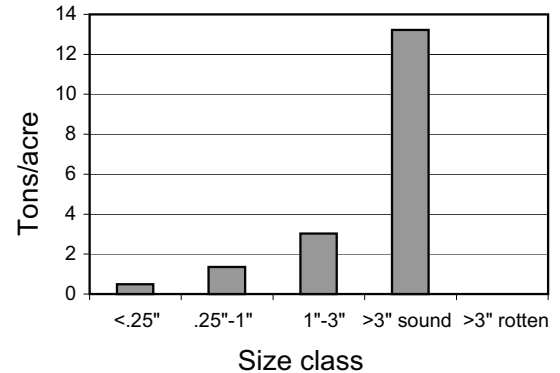
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
100	321711	4576225	N/A	N/A

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
N/A	N/A	N/A	N/A	N/A

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.50	1.36	3.03	4.89

> 3" sound	> 3" rotten	> 3" total	Grand Total
13.22	0.00	13.22	18.11

OTHER FUELS DATA	
% ground covered by fuels	1
Average fuels height (in.)	2.3
Average duff depth (in.)	0.5
Average litter depth (in.)	0.6



CATEGORY 9

**Individual tree mark in mixed conifer with slash treatment
specified as whole tree skid (slash piled at landing)**



INDIVIDUAL TREE MARK IN MIXED CONIFER WITH SLASH TREATMENT SPECIFIED AS WHOLE TREE SKID (9A)

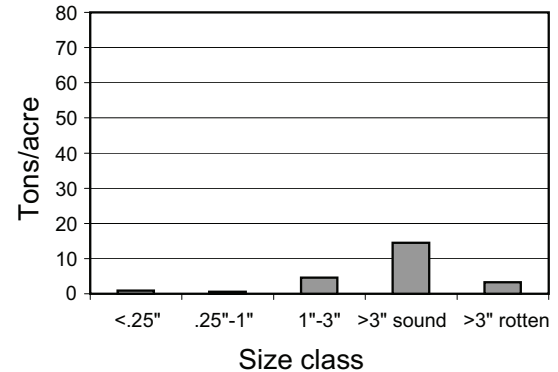
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
74	376730	4577488	81	53

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
82	0	0	13	69

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.90	0.59	4.60	6.08

> 3" sound	> 3" rotten	> 3" total	Grand Total
14.48	3.23	17.72	23.80

OTHER FUELS DATA	
% ground covered by fuels	5
Average fuels height (in.)	0.0
Average duff depth (in.)	1.3
Average litter depth (in.)	0.0





INDIVIDUAL TREE MARK IN MIXED CONIFER WITH SLASH TREATMENT SPECIFIED AS WHOLE TREE SKID (9B)

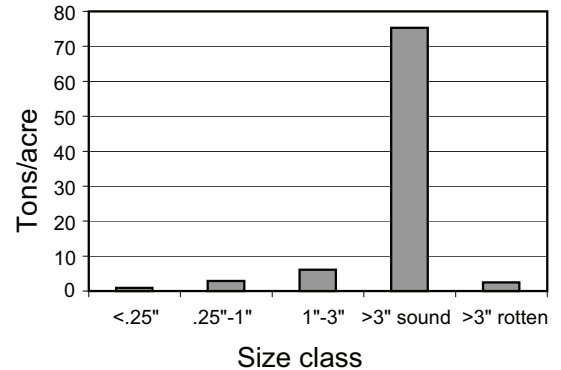
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
31	393389	4591087	73	91

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
160	0	84	76	0

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.94	2.92	6.06	9.91

> 3" sound	> 3" rotten	> 3" total	Grand Total
75.32	2.50	77.82	87.73

OTHER FUELS DATA	
% ground covered by fuels	11
Average fuels height (in.)	5.0
Average duff depth (in.)	1.7
Average litter depth (in.)	1.0



CATEGORY 10

Individual tree mark in mixed conifer with slash treatment specified as lop and scatter



INDIVIDUAL TREE MARK IN MIXED CONIFER WITH SLASH TREATMENT SPECIFIED AS LOP AND SCATTER (10A)

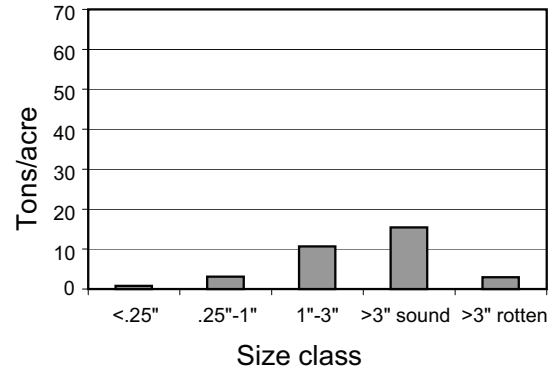
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
76	378302	4574577	53	60

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
73	0	0	69	4

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.79	3.12	10.64	14.55

> 3" sound	> 3" rotten	> 3" total	Grand Total
15.41	2.93	18.34	32.89

OTHER FUELS DATA	
% ground covered by fuels	4
Average fuels height (in.)	0.3
Average duff depth (in.)	1.0
Average litter depth (in.)	0.0





INDIVIDUAL TREE MARK IN MIXED CONIFER WITH SLASH TREATMENT SPECIFIED AS LOP AND SCATTER (10B)

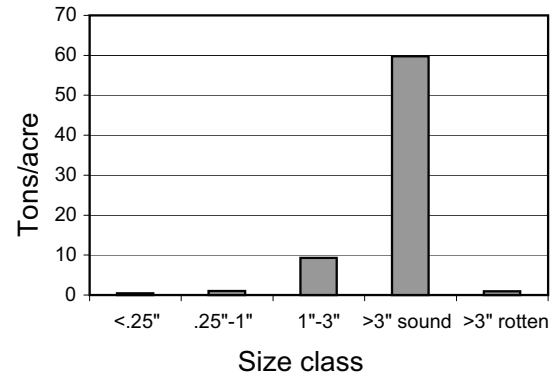
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
83	378034	4582686	64	67

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
147	0	93	27	27

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.41	0.99	9.27	10.67

> 3" sound	> 3" rotten	> 3" total	Grand Total
59.73	0.92	60.64	71.32

OTHER FUELS DATA	
% ground covered by fuels	15
Average fuels height (in.)	2.3
Average duff depth (in.)	2.0
Average litter depth (in.)	0.7





INDIVIDUAL TREE MARK IN MIXED CONIFER WITH SLASH TREATMENT SPECIFIED AS LOP AND SCATTER (10C)

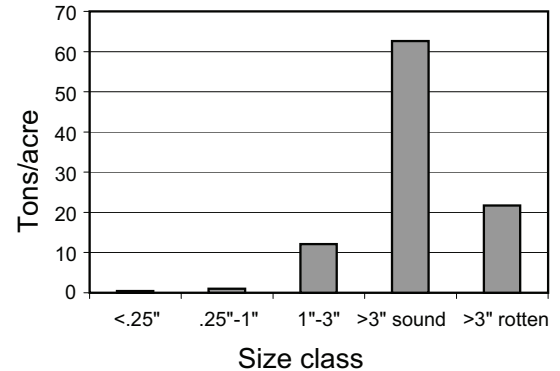
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
55	391350	4560332	49	78

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
73	0	58	11	4

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.43	0.97	12.13	13.54

> 3" sound	> 3" rotten	> 3" total	Grand Total
62.65	21.72	84.37	97.91

OTHER FUELS DATA	
% ground covered by fuels	17
Average fuels height (in.)	6.0
Average duff depth (in.)	1.7
Average litter depth (in.)	0.3



CATEGORY 11

Older regenerated lodgepole pine stands



OLDER REGENERATED LODGEPOLE PINE STANDS (11A)

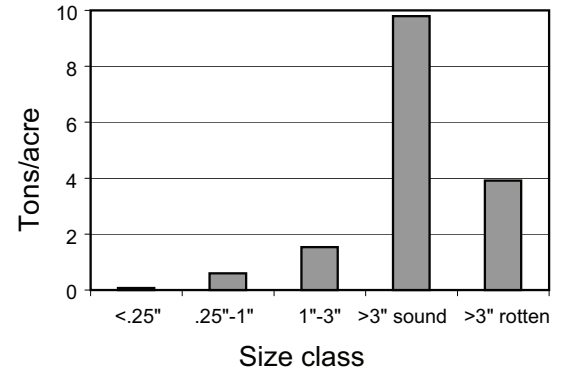
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
102	373907	4585092	N/A	N/A

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
N/A	N/A	N/A	N/A	N/A

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.07	0.59	1.54	2.20

> 3" sound	> 3" rotten	> 3" total	Grand Total
9.80	3.91	13.71	15.91

OTHER FUELS DATA	
% ground covered by fuels	1
Average fuels height (in.)	1.0
Average duff depth (in.)	0.6
Average litter depth (in.)	0.9



CATEGORY 12

Older regenerated spruce-fir stands



OLDER RENERATED SPRUCE-FIR STANDS (12A)

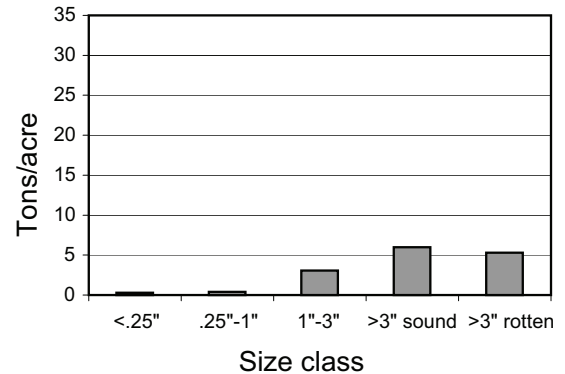
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
73	377760	4588828	92	62

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
189	0	16	60	113

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.29	0.39	3.06	3.74

> 3" sound	> 3" rotten	> 3" total	Grand Total
5.99	5.31	11.30	15.04

OTHER FUELS DATA	
% ground covered by fuels	5
Average fuels height (in.)	2.7
Average duff depth (in.)	0.7
Average litter depth (in.)	0.0





OLDER RENERATED SPRUCE-FIR STANDS (12B)

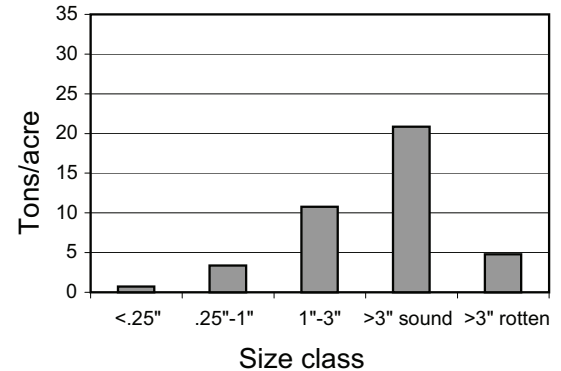
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
67	398802	4572982	76	63

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
169	0	120	44	4

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.72	3.36	10.77	14.85

> 3" sound	> 3" rotten	> 3" total	Grand Total
20.86	4.80	25.66	40.51

OTHER FUELS DATA	
% ground covered by fuels	6
Average fuels height (in.)	2.7
Average duff depth (in.)	2.7
Average litter depth (in.)	1.0





OLDER RENERATED SPRUCE-FIR STANDS (12C)

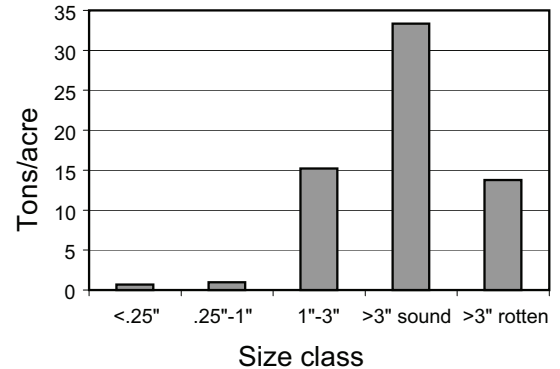
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
59	384372	4557677	97	93

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
211	0	133	49	29

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.70	0.98	15.21	16.88

> 3" sound	> 3" rotten	> 3" total	Grand Total
33.35	13.78	47.12	64.01

OTHER FUELS DATA	
% ground covered by fuels	11
Average fuels height (in.)	3.0
Average duff depth (in.)	2.3
Average litter depth (in.)	0.3



CATEGORY 13

Old growth in lodgepole pine



OLD GROWTH IN LODGEPOLE PINE (13A)

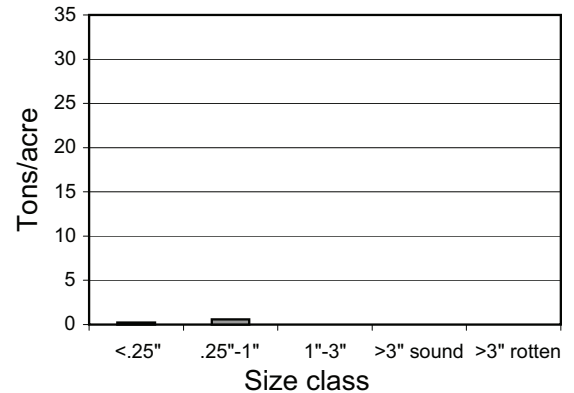
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
48	408240	4546993	86	37

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
140	0	0	0	140

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.24	0.58	0.00	0.83

> 3" sound	> 3" rotten	> 3" total	Grand Total
0.00	0.00	0.00	0.83

OTHER FUELS DATA	
% ground covered by fuels	3
Average fuels height (in.)	0.0
Average duff depth (in.)	0.0
Average litter depth (in.)	0.0





OLD GROWTH IN LODGEPOLE PINE (13B)

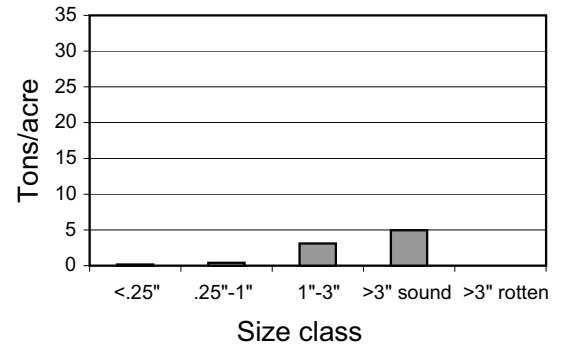
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
15	394805	4541319	84	44

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
149	0	0	0	149

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.14	0.40	3.10	3.64

> 3" sound	> 3" rotten	> 3" total	Grand Total
4.94	0.00	4.94	8.58

OTHER FUELS DATA	
% ground covered by fuels	1
Average fuels height (in.)	0.7
Average duff depth (in.)	0.8
Average litter depth (in.)	0.2





OLD GROWTH IN LODGEPOLE PINE (13C)

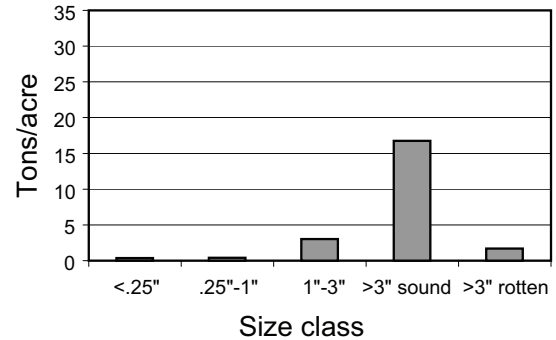
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
41	402561	4547424	77	61

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
140	0	0	0	140

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.36	0.39	3.03	3.78

> 3" sound	> 3" rotten	> 3" total	Grand Total
16.75	1.70	18.45	22.23

OTHER FUELS DATA	
% ground covered by fuels	5
Average fuels height (in.)	1.3
Average duff depth (in.)	1.0
Average litter depth (in.)	0.3





OLD GROWTH IN LODGEPOLE PINE (13D)

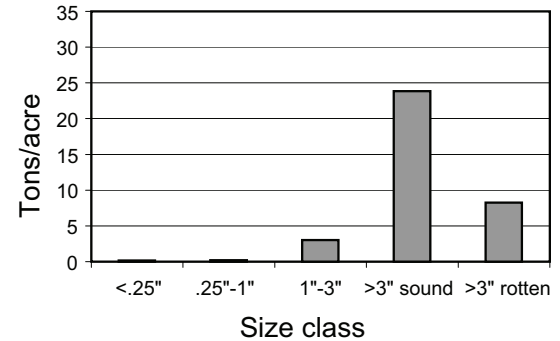
PLOT DATA				
Plot	utm_x	utm_y	Canopy Closure (%)	Average Tree Height (ft.)
12	397357	4562015	76	59

Basal Area (ft²/ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
149	0	0	0	149

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.14	0.19	3.03	3.37

> 3" sound	> 3" rotten	> 3" total	Grand Total
23.82	8.27	32.10	35.46

OTHER FUELS DATA	
% ground covered by fuels	9
Average fuels height (in.)	0.0
Average duff depth (in.)	0.0
Average litter depth (in.)	0.8





OLD GROWTH IN LODGEPOLE PINE (13E)

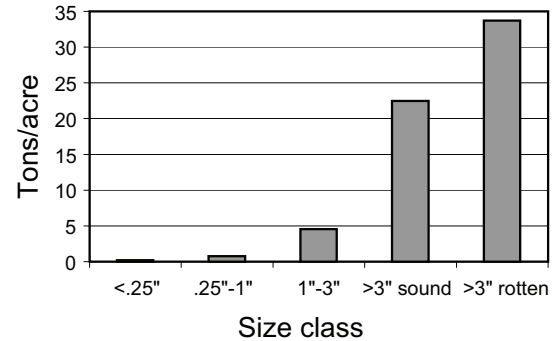
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
54	400884	4545582	89	28

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
102	0	7	11	84

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.18	0.78	4.54	5.50

> 3" sound	> 3" rotten	> 3" total	Grand Total
22.46	33.72	56.18	61.68

OTHER FUELS DATA	
% ground covered by fuels	16
Average fuels height (in.)	2.7
Average duff depth (in.)	0.7
Average litter depth (in.)	0.3



CATEGORY 14

Old growth in spruce-fir



OLD GROWTH IN SPRUCE-FIR (14A)

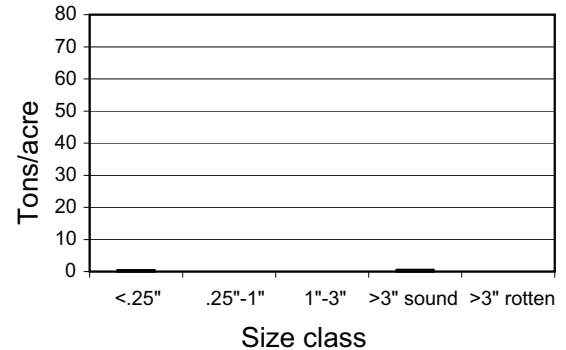
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
85	396115	4581219	81	61

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
282	0	160	122	0

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.47	0.00	0.00	0.47

> 3" sound	> 3" rotten	> 3" total	Grand Total
0.57	0.00	0.57	1.04

OTHER FUELS DATA	
% ground covered by fuels	1
Average fuels height (in.)	0.3
Average duff depth (in.)	1.0
Average litter depth (in.)	0.3





OLD GROWTH IN SPRUCE-FIR (14B)

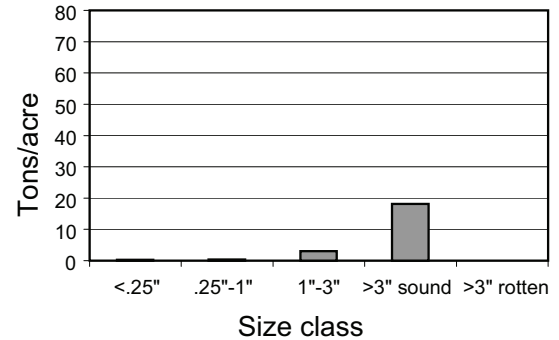
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
78	379087	4573062	72	78

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
136	9	36	40	51

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.25	0.39	3.07	3.71

> 3" sound	> 3" rotten	> 3" total	Grand Total
18.12	0.00	18.12	21.83

OTHER FUELS DATA	
% ground covered by fuels	5
Average fuels height (in.)	2.3
Average duff depth (in.)	1.3
Average litter depth (in.)	1.0





OLD GROWTH IN SPRUCE-FIR (14C)

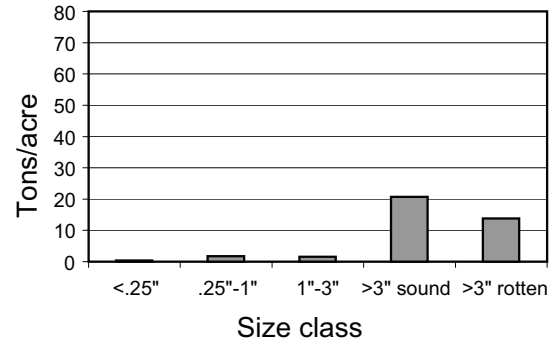
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
13	403057	4559688	89	64

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
193	0	129	64	0

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.33	1.78	1.54	3.64

> 3" sound	> 3" rotten	> 3" total	Grand Total
20.76	13.76	34.52	38.16

OTHER FUELS DATA	
% ground covered by fuels	11
Average fuels height (in.)	1.0
Average duff depth (in.)	3.7
Average litter depth (in.)	1.3





OLD GROWTH IN SPRUCE-FIR (14D)

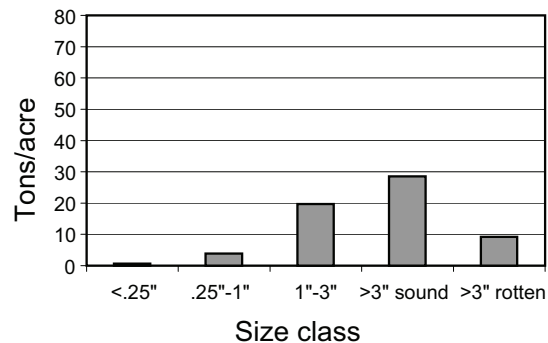
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
64	392050	4567488	78	65

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
198	0	122	0	76

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.67	3.89	19.73	24.29

> 3" sound	> 3" rotten	> 3" total	Grand Total
28.51	9.19	37.70	61.99

OTHER FUELS DATA	
% ground covered by fuels	11
Average fuels height (in.)	12.0
Average duff depth (in.)	1.7
Average litter depth (in.)	0.3





OLD GROWTH IN SPRUCE-FIR (14E)

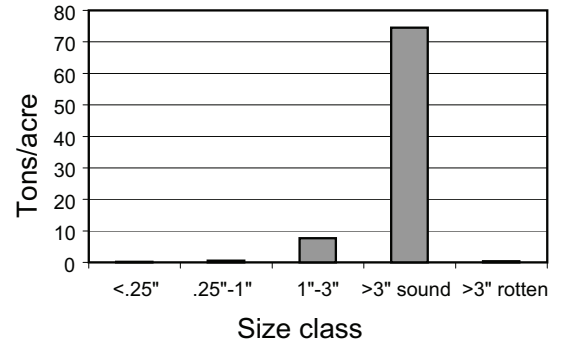
PLOT DATA				
Plot	utm _x	utm _y	Canopy Closure (%)	Average Tree Height (ft.)
21	396292	4591526	74	62

Basal Area (ft ² /ac) by Species				
Total	aspen	spruce	subalpine fir	lodgepole pine
173	0	76	89	9

FUEL LOADING (tons/ac)			
0 - 0.25"	0.26 - 1"	1.1 - 3"	0 - 3"
0.20	0.59	7.68	8.48

> 3" sound	> 3" rotten	> 3" total	Grand Total
74.51	0.41	74.92	83.40

OTHER FUELS DATA	
% ground covered by fuels	11
Average fuels height (in.)	0.0
Average duff depth (in.)	1.3
Average litter depth (in.)	0.2





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