

Student Sample 9/63

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Table 1. Quantitative Analysis by Point-Centered Quarter Method. 20 Sampling Points, one at every 10m in random direction as determined by stick-toss, starting at fallen pine along both slopes. Raw data, May 10, 1996.

<u>Sample Point</u>	<u>Quarter Number</u>	<u>Distance (m)</u>	<u>species</u>	<u>diameter at base (cm)</u>
1	1	3.9	Jeffrey pine	0.8
	2	3.05	incense cedar	0.54
	3	2.3	Jeffrey pine	0.59
	4	4.5	canyon oak	0.21
2	1	5.2	Jeffrey pine	0.27
	2	7.5	Jeffrey pine	0.35
	3	2.7	Ponderosa pine	1.23
	4	1.95	Canyon oak	0.1
3	1	4.5	Jeffrey pine	0.48
	2	3.7	canyon oak	0.07
	3	4.05	canyon oak	0.52
	4	15.35	Jeffrey pine	0.25
4	1	5.3	Jeffrey pine	0.16
	2	3.6	Jeffrey pine	0.51
	3	5.65	Jeffrey pine	0.26
	4	8.3	Jeffrey pine	0.43
5	1	5.5	Jeffrey pine	0.46
	2	4.1	Jeffrey pine	0.22
	3	9.6	Jeffrey pine	0.49
	4	3.25	Jeffrey pine	0.62
6	1	1.6	Jeffrey pine	0.35
	2	4	Jeffrey pine	0.24
	3	2.2	incense cedar	0.11
	4	1.9	Jeffrey pine	0.14

Table 1. Quantitative Analysis by Point-Centered Quarter Method. 20 Sampling Points, one at every 10m in random direction as determined by stick-toss, starting at fallen pine along both slopes. Raw data, May 10,1996.

7	1	0.9	Jeffrey pine	0.14
	2	6.9	Jeffrey pine	1.1
	3	8.2	Jeffrey pine	0.49
	4	4	Jeffrey pine	1.1
8	1	6.1	Jeffrey pine	0.08
	2	9.1	Jeffrey pine	0.24
	3	3.3	incense cedar	0.27
	4	10	Jeffrey pine	0.23
9	1	3.3	canyon oak	0.16
	2	4.8	Jeffrey pine	0.33
	3	3.4	Jeffrey pine	0.22
	4	10.6	Jeffrey pine	0.75
10	1	2.8	Jeffrey pine	0.18
	2	3.55	Jeffrey pine	0.54
	3	4	Jeffrey pine	0.26
	4	5.2	Jeffrey pine	0.37
11	1	3.26	Coulter pine	0.76
	2	5.35	Jeffrey pine	0.21
	3	2.95	Jeffrey pine	0.85
	4	11.35	incense cedar	0.14
12	1	3.05	Jeffrey pine	0.23
	2	10.9	sugar pine	0.64
	3	8.2	black oak	0.16
	4	4.6	Jeffrey pine	0.46

Table 1. Quantitative Analysis by Point-Centered Quarter Method. 20 Sampling Points, one at every 10m in random direction as determined by stick-toss, starting at fallen pine along both slopes. Raw data, May 10,1996.

13	1	4.4	Jeffrey pine	0.22
	2	4.4	Jeffrey pine	0.27
	3	9.6	Jeffrey pine	0.12
	4	3.2	white fir	0.18
14	1	6.7	Jeffrey pine	0.5
	2	8.1	incense cedar	0.32
	3	7.05	incense cedar	0.29
	4	4.8	Jeffrey pine	0.32
15	1	2.5	sugar pine	0.33
	2	1.6	Ponderosa pine	0.16
	3	3.25	canyon oak	0.08
	4	3.75	incense cedar	0.32
16	1	3.85	Jeffrey pine	0.24
	2	7.75	white fir	0.14
	3	6.6	sugar pine	1.02
	4	0.8	Jeffrey pine	0.36
17	1	2.6	white fir	0.2
	2	5.15	white fir	0.16
	3	3.1	white fir	0.08
	4	2.5	white fir	0.19
18	1	8.7	canyon oak	0.16
	2	4.55	Jeffrey pine	0.18
	3	5.5	Jeffrey pine	0.14
	4	3.4	Jeffrey pine	0.21

Table 1. Quantitative Analysis by Point-Centered Quarter Method. 20 Sampling Points, one at every 10m in random direction as determined by stick-toss, starting at fallen pine along both slopes. Raw data, May 10,1996.

19	1	3.8	incense cedar	0.4
	2	2.36	Jeffrey pine	0.08
	3	2.9	Coulter pine	0.08
	4	7.8	Jeffrey pine	0.17
20	1	5	Jeffrey pine	0.29
	2	7.1	black oak	0.32
	3	2.5	Jeffrey pine	0.32
	4	9.55	incense cedar	0.38
	TOTAL 404.26			
<b>Results:</b>				
Mean distance $[\frac{404.26}{80} = 5.05\text{m}]$				
Absolute density Area/ $D^2$				
$\# \text{ of trees per } 10,000 \text{ m}^2 = 10,000 / [5.05]^2 = 10,000 / 25.5 = 392.16$				
<b>species</b>	<b># in quarters</b>	<b># of trees in 10,000 m<sup>2</sup></b>		
Jeffrey pine	4/80=.61	.61 x 392.2 = 239.2		
Coulter pine	2/80=.025	.025 x 392.2 = 9.8		
black oak	2/80=.025	.025 x 392.2 = 9.8		
canyon oak	7/80=.0875	.0875 x 392.2 = 34.3		
Ponderosa pine	2/80=.025	.025 x 392.2 = 9.8		
white fir	6/80=.075	.075 x 392.2 = 29.4		
sugar pine	3/80=.038	.0375 x 392.2 = 14.7		
incense cedar	9/80=.11	.11 x 392.2 = 44.1		
		total 391.1		

Table 2. Mean basal area by species for the trees 80 trees shown in Table 1.

<b>JEFFREY PINE</b>			
<b>Diameter [cm]</b>	<b>BA [cm<sup>2</sup>]</b>	<b>Diameter</b>	<b>BA [cm<sup>2</sup>]</b>
80	5024	22	379.9
59	2732.6	75	4415.6
27	63.6	18	254.3
35	961.6	54	2289.1
48	1808.6	26	530.7
25	490.6	37	1074.7
16	201	21	346.2
51	2042	85	5671.6
26	530.7	23	415.3
43	1451.5	46	1661.1
46	1661	22	379.9
22	379.9	27	572.3
49	1884.8	12	113
62	3017.5	50	1962.5
35	961.6	32	803.8
24	452.2	24	452.2
14	153.9	36	1017.4
14	153.9	18	254.3
110	9498.5	14	153.9
49	1884.8	21	346.2
110	9498.5	8	50.24
8	50.24	17	226.9
24	452.16	90	6358.5
23	415.3	40	1256
33	854.9		
total ba :77610.6			
mean ba: 1583.89			

Table 2. Mean basal area by species for the trees 80 trees shown in Table 1.

<b>INCENSE CEDAR</b>		<b>WHITE FIR</b>	
Diameter [cm]	BA [cm <sup>2</sup> ]	Diameter [cm]	BA [cm <sup>2</sup> ]
54	2290	18	254
11	95	14	154
27	57	20	314
14	154	16	201
32	804	8	50
28	616	19	284
32	804		
40	1257		
38	1134		
Total BA: 7727		Total BA: 1257	
Mean BA: 859		Mean BA: 209.5	
<b>COULTER PINE</b>		<b>PONDEROSA PINE</b>	
Diameter[cm]	BA [cm <sup>2</sup> ]	Diameter [cm]	BA [cm <sup>2</sup> ]
76	4534.2	123	11882.3
8	50.24	16	201.1
Total BA: 4584.4		Total BA: 12083.4	
Mean BA: 2292.2		Mean BA: 6041.7	
<b>SUGAR PINE</b>		<b>BLACK OAK</b>	
Diameter [cm]	BA [cm <sup>2</sup> ]	Diameter [cm]	BA [cm <sup>2</sup> ]
64	3215	16	200.96
33	854.8	32	803.8
102	8167.1		
Total BA: 12236.9		Total BA: 1004.8	
Mean BA: 4078.9		Mean BA: 502.4	

Table 2. Mean basal area by species for the trees 80 trees shown in Table 1.

<b>CANYON OAK</b>			
Diameter [cm]	BA [cm <sup>2</sup> ]		
21	346.19		
9.9	76.94		
7	38.47		
52	2122.6		
16	200.96		
32	803.84		
16	200.96		
Total BA: 3789.96			
Mean BA: 541.4			
Absolute dominance = mean ba per tree x # of trees in species			
<u>dominance of</u>		<u>dominance rank</u>	
Jeffrey pine	1583.9 x 239.2 = 378868.9 cm <sup>2</sup>	1	
incense cedar	859 x 44.1 = 37881.9 cm <sup>2</sup>	4	
white fir	209.5 x 29.4 = 6159.3 cm <sup>2</sup>	7	
Coulter pine	2292.2 x 9.8 = 22463.6 cm <sup>2</sup>	5	
Ponderosa pine	6041.7 x 9.8 = 59208.7 cm <sup>2</sup>	3	
sugar pine	4078.9 x 14.7 = 59959.8 cm <sup>2</sup>	2	
black oak	502.4 x 9.8 = 4923.5 cm <sup>2</sup>	8	
canyon oak	541.4 x 34.3 = 18570 cm <sup>2</sup>	6	
	588035.7 cm <sup>2</sup> / 10,000 m <sup>2</sup>		
absolute frequency = # of points with species / total points X 100			
Jeffrey pine	18/20 X 100 = 90%		
incense cedar	8/20 X 100 = 40%		
white fir	3/20 X 100 = 15%		
Coulter pine	2/20 X 100 = 10%		
Ponderosa pine	2/20 X 100 = 10%		
sugar pine	3/20 X 100 = 15%		
black oak	2/20 X 100 = 10%		
canyon oak	6/20 X 100 = 30%		
	220%		

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Relative density = # individuals of species / total # of individuals X 100		
Jeffrey pine		239.2 / 392.2 X 100 = 61%
incense cedar		44.1 / 392.2 X 100 = 11.2%
white fir		29.4 / 392.2 X 100 = 7.5%
Coulter pine		9.8 / 392.2 X 100 = 9.8%
Ponderosa pine		9.8 / 392.2 X 100 = 9.8%
sugar pine		14.7 / 392.2 X 100 = 3.75%
black oak		9.8 / 392.2 X 100 = 2.5%
canyon oak		34.3 / 392.2 X 100 = 8.75%
relative dominance = dominance of species /		
dominance total species X 100		
Jeffrey pine		378868.9 / 588035.7 X 100 = 64.4%
incense cedar		37881.9 / 588035.7 X 100 = 6.4%
white fir		6159.3 / 588035.7 X 100 = 1.0%
Coulter pine		22463.6 / 588035.7 X 100 = 3.8%
Ponderosa pine		59208.7 / 588035.7 X 100 = 10.1%
sugar pine		59959.8 / 588035.7 X 100 = 10.2%
black oak		4923.5 / 588035.7 X 100 = 0.8%
canyon oak		18570 / 588035.7 X 100 = 3.2%
Relative frequency = frequency of species /		
sum frequency of all species X 100		
Jeffrey pine		90 / 220 X 100 = 40.9%
incense cedar		40 / 220 X 100 = 18.2%
white fir		15 / 220 X 100 = 6.8%
Coulter pine		10 / 220 X 100 = 4.5%
Ponderosa pine		10 / 220 X 100 = 4.5%
sugar pine		15 / 220 X 100 = 6.8%
black oak		10 / 220 X 100 = 4.5%
canyon oak		30 / 220 X 100 = 13.6%

importance value = sum of relative density, relative dominance, and relative frequency					
	RELATIVE DENSITY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	* I.V.	I.V. RANK
Jeffrey pine	61	64.4	40.9	166.3	1
incense cedar	11.2	6.4	18.2	35.8	2
white fir	7.5	1	6.8	15.3	6
Coulter pine	2.5	3.8	4.5	10.8	7
ponderosa pine	2.5	10.1	4.5	17.1	5
sugar pine	3.75	10.2	6.8	20.75	4
black oak	2.5	0.8	4.5	7.8	8
canyon oak	8.75	3.2	13.6	25.55	3

\* 25.55 = 10.8 + 13.6 + 1.15