

**BIOL 475**  
**VEGETATION DESCRIPTION AND ANALYSIS**

**LABORATORY 5**  
**9 OCT 2006**  
**PLOT-COUNT METHOD**

Team Members \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

**OBJECTIVE**

The purpose of this lab is to familiarize you with the Plot Count Method. During this lab we will determine the following for each tree species in each of your relevés:

Density, basal area, height

**READING ASSIGNMENT**

Mueller-Dombois and Ellenberg. 1974. *Aims and Methods of Vegetation Ecology*. New York: John Wiley and Sons, page 93-120. "The Count-Plot Method and Plotless Sampling Techniques".

**A report on the Plot-count and PCQ method is due Mon Oct 16.**

**MATERIALS**

100-m tape  
Biltmore stick  
Clinometer  
Data sheets (this handout)  
Table of dbh to basal area conversions (Table 1, this handout)  
Pencil  
Hand calculator

**METHOD**

**Density and basal area**

Each team should measure the dbh and height of all trees and record the number of saplings of each species in each of the six 10 x 10-m relevés that you sampled.

1. Measure the dbh of each tree in the 10 x 10-m plot (be sure to note the tree species before measuring). Record the dbh values for each plot in the six tables below (separate page for each relevé). **Be sure to record the plot number in table header. You will need these data later in the course.**
2. Record the density per 100 m<sup>2</sup> and per ha.
3. Use the conversion table to convert dbh to basal area for each tree. Sum the basal areas for the trees and record the basal area for the plot (cm<sup>2</sup> per 100 m<sup>2</sup>).
4. Convert the basal area to m<sup>2</sup>/ha. There are 10<sup>4</sup> m<sup>2</sup> per ha.
5. Count the number of saplings of each species in each plot. Convert the density per 100 m<sup>2</sup> to density per ha.

**Table 1. Conversion of dbh to basal area.**

dbh (cm)	BA (cm <sup>2</sup> )	dbh (cm)	BA (cm <sup>2</sup> )	dbh (cm)	BA (cm <sup>2</sup> )	dbh (cm)	BA (cm <sup>2</sup> )
1	0.8	26	530.9	51	2042.8	76	4536.5
2	3.1	27	572.6	52	2123.7	77	4656.6
3	7.1	28	615.8	53	2206.2	78	4778.4
4	12.6	29	660.5	54	2290.2	79	4901.7
5	19.6	30	706.9	55	2375.8	80	5026.5
6	28.3	31	754.8	56	2463.0	81	5153.0
7	38.5	32	804.2	57	2551.8	82	5281.0
8	50.3	33	855.3	58	2642.1	83	5410.6
9	63.6	34	907.9	59	2734.0	84	5541.8
10	78.5	35	962.1	60	2827.4	85	5674.5
11	95.0	36	1017.9	61	2922.5	86	5808.8
12	113.1	37	1075.2	62	3019.1	87	5944.7
13	132.7	38	1134.1	63	3117.2	88	6082.1
14	153.9	39	1194.6	64	3217.0	89	6221.1
15	176.7	40	1256.6	65	3318.3	90	6361.7
16	201.1	41	1320.3	66	3421.2	91	6503.9
17	227.0	42	1385.4	67	3525.7	92	6647.6
18	254.5	43	1452.2	68	3631.7	93	6792.9
19	283.5	44	1520.5	69	3739.3	94	6939.8
20	314.2	45	1590.4	70	3848.5	95	7088.2
21	346.4	46	1661.9	71	3959.2	96	7238.2
22	380.1	47	1734.9	72	4071.5	97	7389.8
23	415.5	48	1809.6	73	4185.4	98	7543.0
24	452.4	49	1885.7	74	4300.8	99	7697.7
25	490.9	50	1963.5	75	4417.9	100	7854.0

### **Tree Heights**

1. Use the clinometer to record height of each tree in each plot. Be sure to record the species of each tree. Exclude saplings.
2. Calculate the mean tree height and standard deviation for each species.

**Relevé No. \_\_\_\_\_ (White spruce plot). Density and basal area data.**

Tree Species	Dbh (record for all within the plot) (cm)	Density (No. of trees/100 m <sup>2</sup> )	Density (no. of trees/ha)	Basal Area (cm <sup>2</sup> /100 m <sup>2</sup> )	Basal Area (m <sup>2</sup> /ha)	Saplings (no./100 m <sup>2</sup> )	Saplings (no./ha)

**Tree height data.**

Tree Species	Tree heights (m)	Mean tree height and standard deviation

**NOTES:**

**Relevé No. \_\_\_\_\_ (White spruce plot). Density and basal area data.**

Tree Species	Dbh (record for all within the plot) (cm)	Density (No. of trees/100 m <sup>2</sup> )	Density (no. of trees/ha)	Basal Area (cm <sup>2</sup> /100 m <sup>2</sup> )	Basal Area (m <sup>2</sup> /ha)	Saplings (no./100 m <sup>2</sup> )	Saplings (no./ha)

**Tree height data.**

Tree Species	Tree heights (m)	Mean tree height and standard deviation

**NOTES:**

**Relevé No. \_\_\_\_\_ (White spruce plot). Density and basal area data.**

Tree Species	Dbh (record for all within the plot) (cm)	Density (No. of trees/100 m <sup>2</sup> )	Density (no. of trees/ha)	Basal Area (cm <sup>2</sup> /100 m <sup>2</sup> )	Basal Area (m <sup>2</sup> /ha)	Saplings (no./100 m <sup>2</sup> )	Saplings (no./ha)

**Tree height data.**

Tree Species	Tree heights (m)	Mean tree height and standard deviation

**NOTES:**

**Relevé No. \_\_\_\_\_ (Black spruce plot). Density and basal area data.**

Tree Species	Dbh (record for all within the plot) (cm)	Density (No. of trees/100 m <sup>2</sup> )	Density (no. of trees/ha)	Basal Area (cm <sup>2</sup> /100 m <sup>2</sup> )	Basal Area (m <sup>2</sup> /ha)	Saplings (no./100 m <sup>2</sup> )	Saplings (no./ha)

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