MainProjDBH

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The purpose of this exploration is to examine the use of the DBH class interval and frequency distribution measurements to generate a metric which correlates with time since disturbance. The successional effect therefore expressed should correlate with species richness.

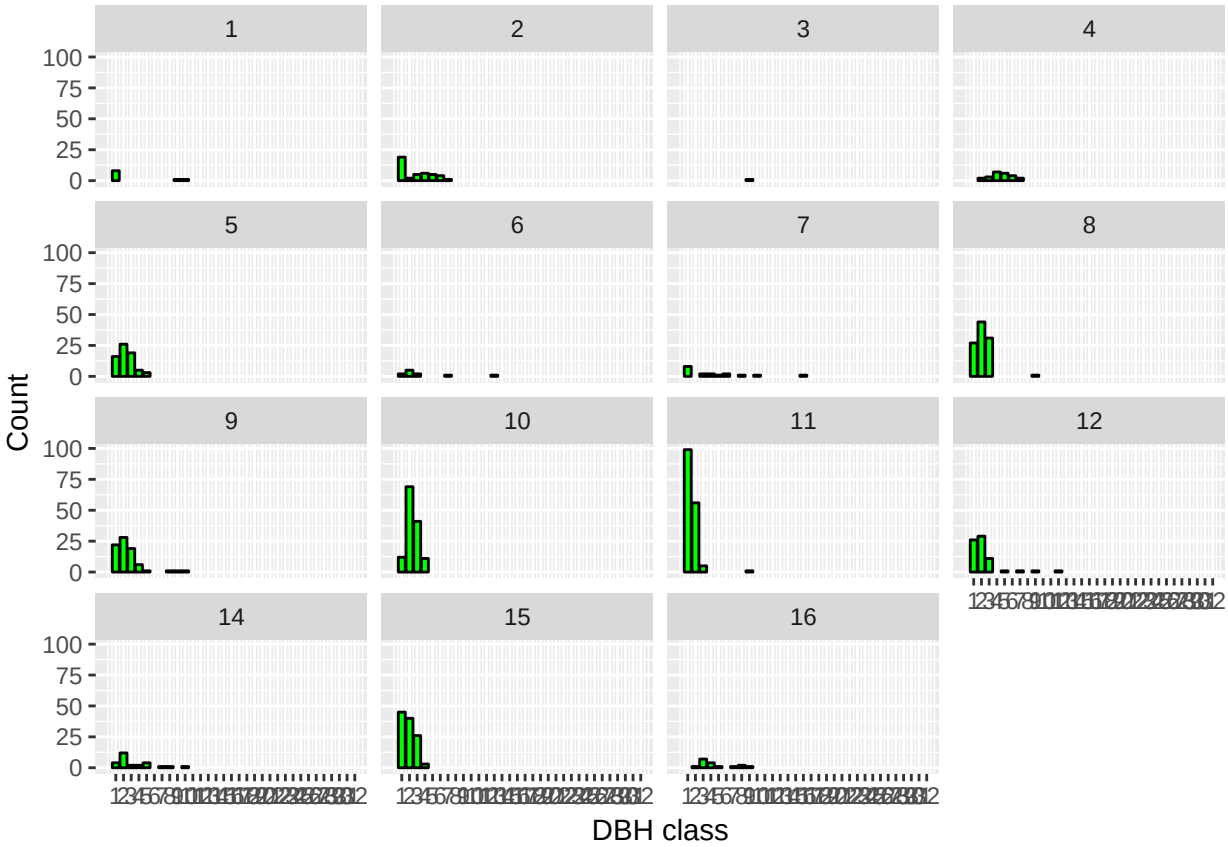
Initally we had thought of using a the sum of running differences in count between adjacent DBH classes. Using this calculation it can be seen that a high frequency of small dbh classes would be the first term in the sum. Subsequent subtractions of smaller values would result in a large positive value. A large positive would then represent an early succussion with lots of young saplings. The reverse would occur for a mature plot and a large negative number would be found.

To explore the usefullness and any potential problems with this metric the following analysis has been done. All the dbh data is imported from DBH_live_counts. This is filtered to just look at year 2. Since there are multiple species, each plot has multiple lines per DBH class per plot. These were therefore aggregated, so that this analysis is ignoring species.

The dbh classes in the raw data are recorded in 5cm intervals, class 1 is 0-5cm, class 2 is 5-10cm.

Consider site 2 plots 10 and 11

```
## NULL
```




```
##   DBH_class PLOT SITE Count
## 1         1   10    2    12
```

```
## 2         2   10    2    69
## 3         3   10    2    41
## 4         4   10    2    11
## 5         1   11    2    99
## 6         2   11    2    56
## 7         3   11    2     5
## 8         9   11    2     1
```

```
##   PLOT SITE Count
## 1   10    2  -109
## 2   11    2    37
```

The first table show the frequency data, the second sow the indices calculated for these two plots (unhelpfullly also displayed as Count)

Plots 10 and 11 have lots of smaller trees, and therefore show a similar time since an opening event. But they have indices of - 109 and 37 respectively. Plot 10 site 2 has the most negative index of all the plots, so we would want this number to imply a long time has occured since an opening event, which it does not.

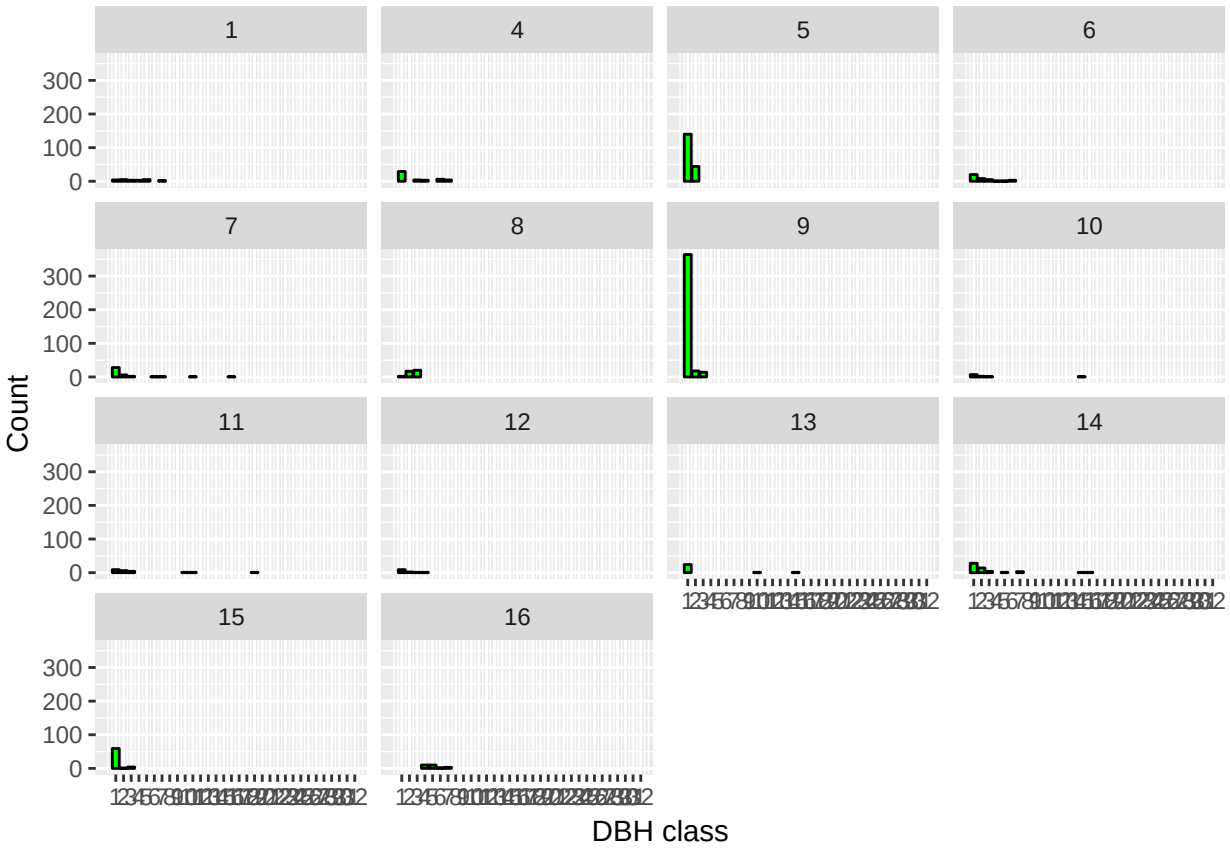
Looking at the counts, plot 10 has 12 in the first category and 69 in the next, therefore the first subtraction gives a relatively large negative value, the remaining values, all being smaller, result in a large negative index.

In plot 11, the numbers of trees in each DBH class gradually decreases giving the large positive that we want to imply many small plants.

The maximum index is seen in Site 79 plot 9, which shows a large negative as we require, but Site 2 plot 10 shows that that this calculation will not work for all dbh frequency distributions, particularly if the second dbh class has a higher frequency than the first.

```
##           PLOT SITE Count
## max index    9   79   332
## min index   10    2  -109
```

```
## NULL
```



Some summary statistics for the 103 woodlands.

Lets look at mean dbh as a metric for "time since disturbance". I will select a few sites.