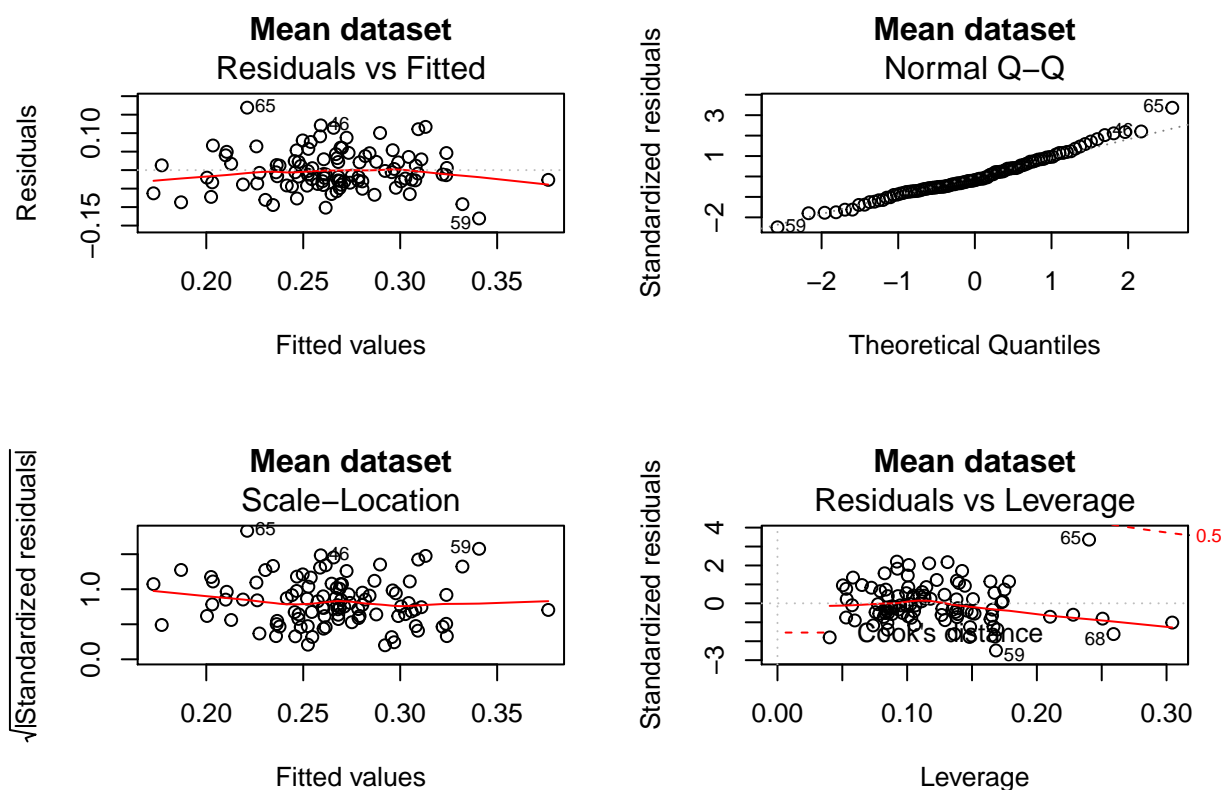


Analysng the effect of abiotic factors on z

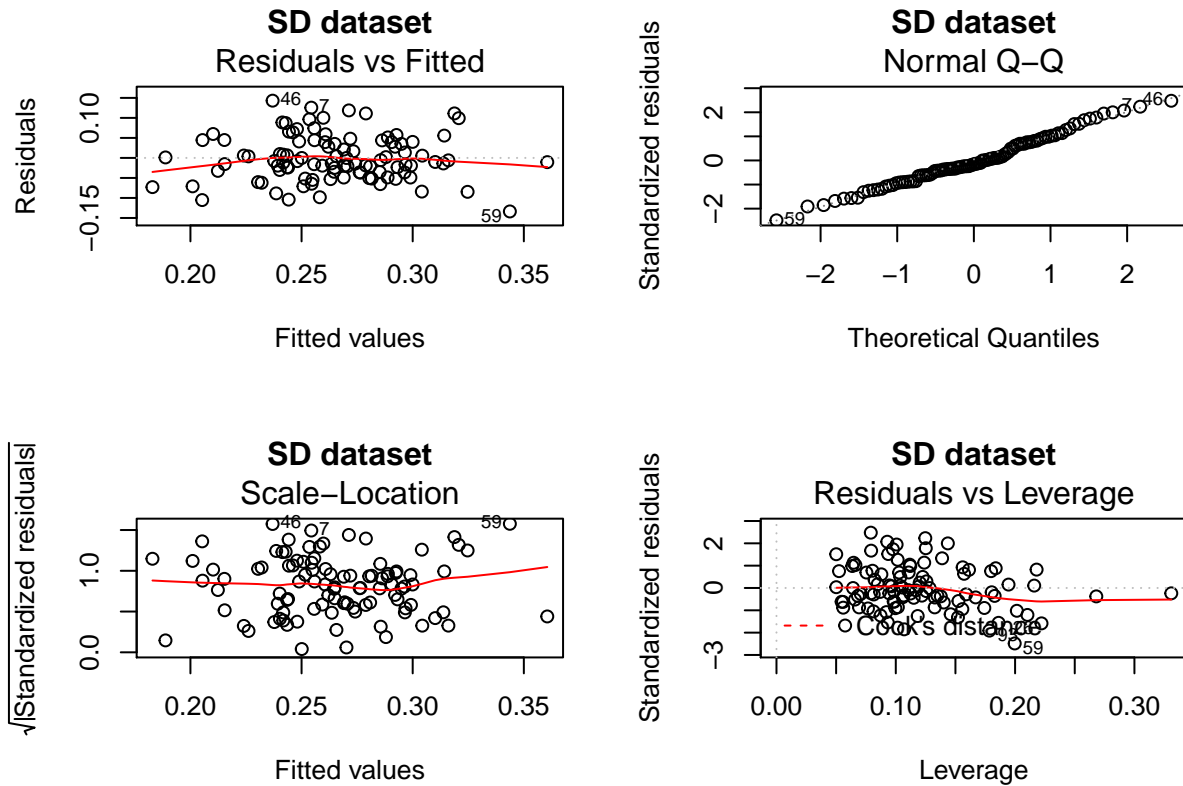
Petra Guy

10 May 2018

Species area curves were generated at nest level, that is, $4m^2$ to $200m^2$. A log/log linear mixed effects model was used to fit species area curves across the nests with plot as the random variable. the slopes of these linear fits are modelled against the abiotic variables. The data is split in the same way, and outliers from area and PHI are removed.



The two site with the highest values of PHI had high leverage in this model and were therefore removed from the data in order to give normally distributed residuals, the plots above were created after these values were removed.



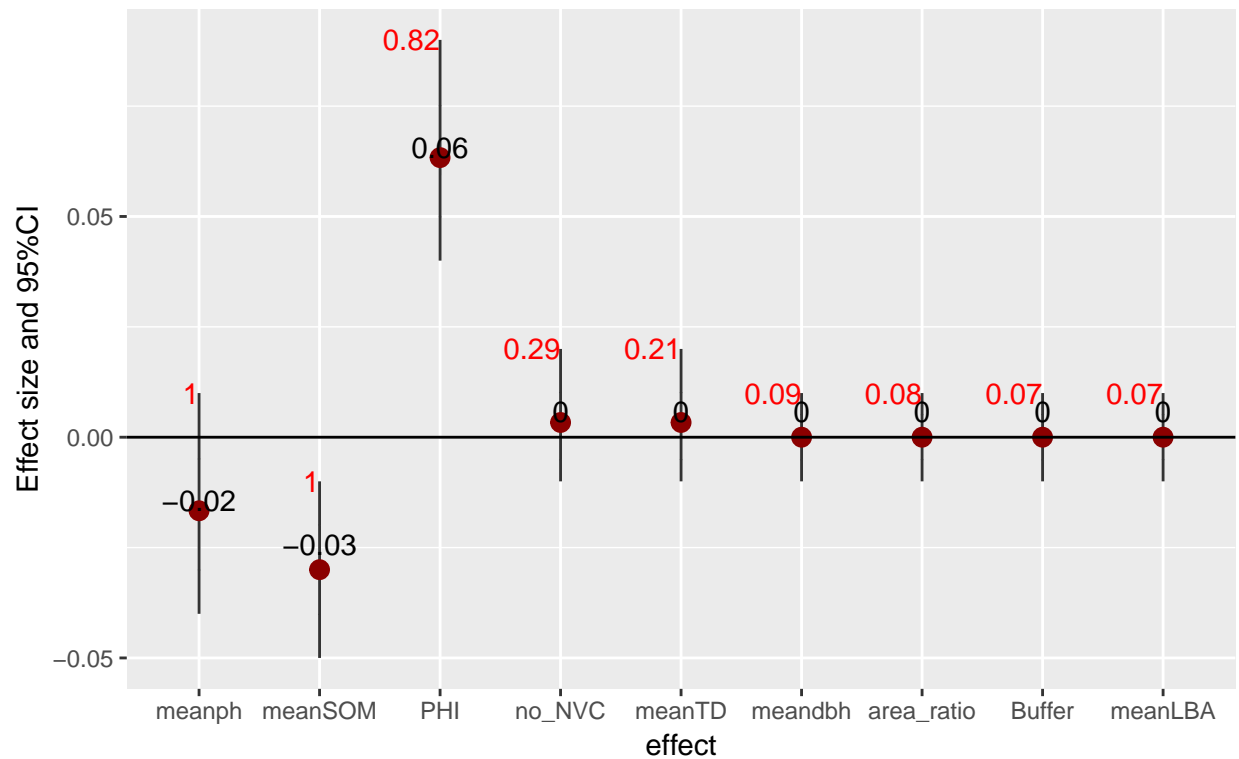
```
## Northing      PHI      meandbh      meanph      Buffer      meanSOM
## 1.721261  1.219326  2.031493  1.356264  1.816954  1.158692
## meanLBA      meanTD area_ratio      no_NVC      no_MSG
## 1.708121  1.955180  1.230977  1.292059  1.263801

## Northing      PHI      Buffer      no_MSG      no_NVC      sd_pH
## 1.713097  1.275714  1.860168  1.241747  1.277452  1.328220
## sd_SOM      sd_LBA sd_meandbh      sd_TD area_ratio
## 1.412783  1.188175  1.521227  1.501602  1.257226
```

The models with a delta <2 were selected from the MuMin dredge funtion as the top model set.

Model averaged results for delta <2, Nest Zs, Mean dataset

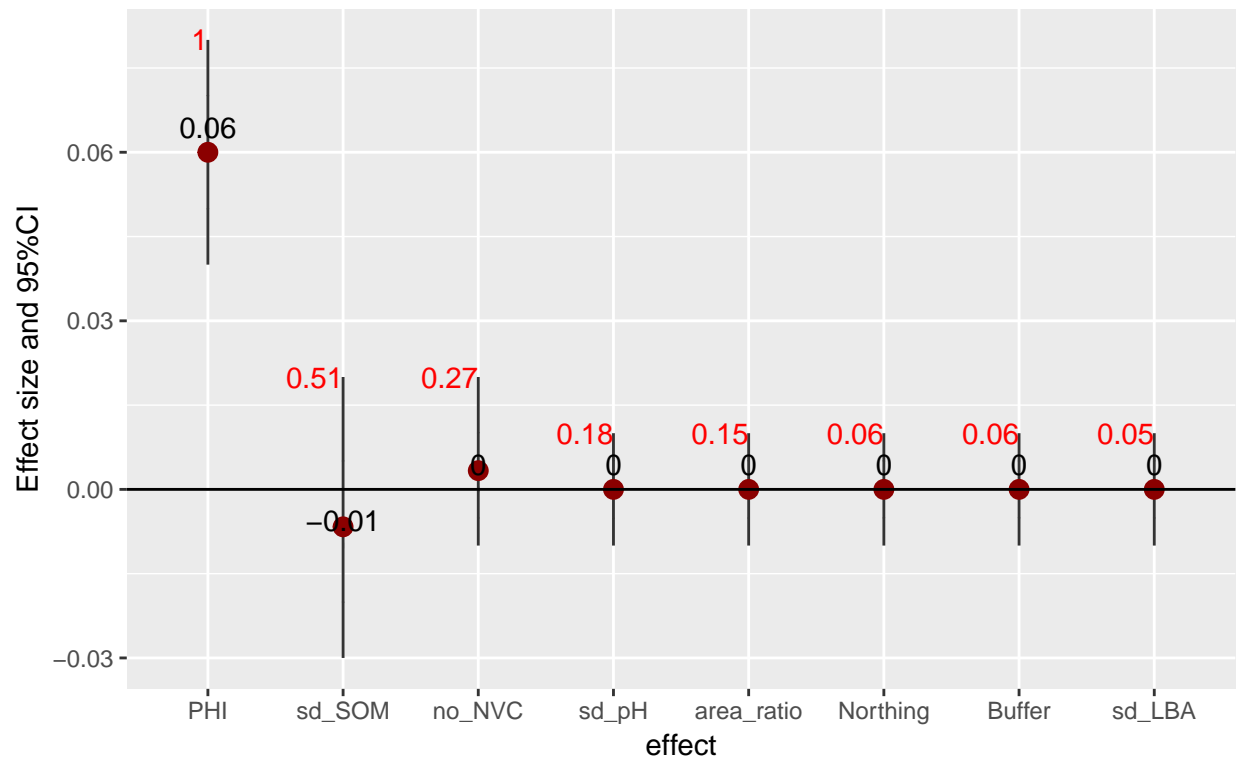
numbers in red are variable importance



The graph shows the averaged effect sizes of the model with delta < 2. PHI and soil organic matter can be seen to effect the value of z.

Model averaged results for delta <2, Nest Zs, SD dataset

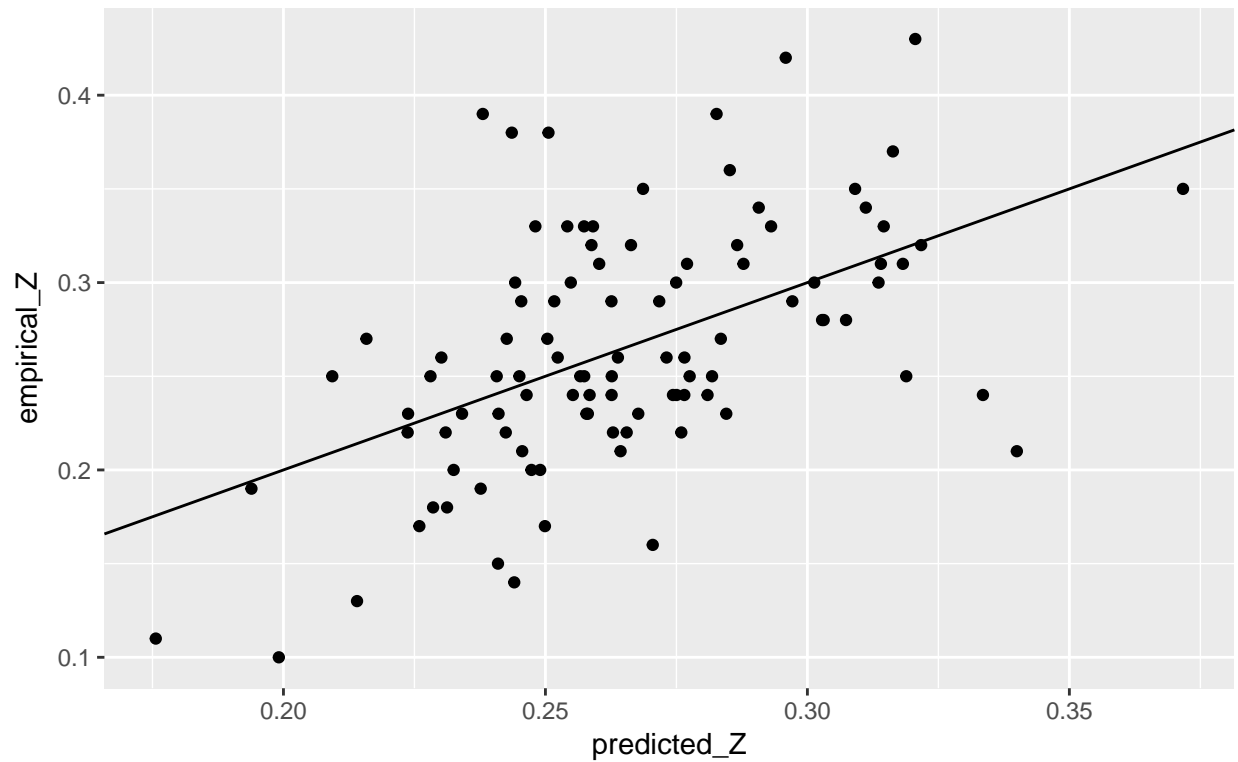
numbers in red are variable importance



Using the model for prediction

Observed versus predicted data, mean dataset

$R^2 = 0.28$



Observed versus predicted data, sd dataset

$R^2 = 0.22$

