

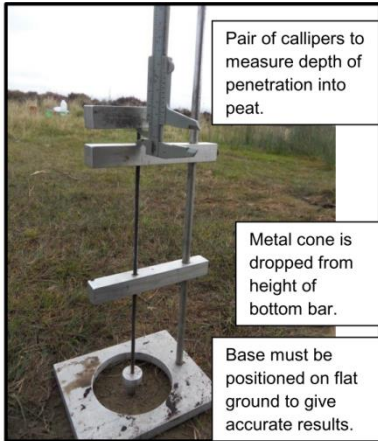
Quantitative Methods: Student Work

The aim of the project

I explored the factors affecting the vulnerability of peat to erosive forces. The North York Moors (NYM) was used as a case study area for trialling several methodologies in an attempt to create an overall map of peat vulnerability.



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Pair of callipers to measure depth of penetration into peat.

Metal cone is dropped from height of bottom bar.

Base must be positioned on flat ground to give accurate results.

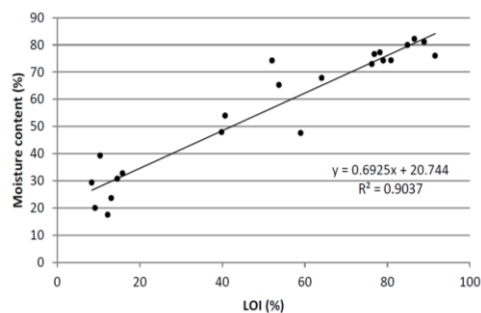
Image demonstrating the use of the drop-cone penetrometer in the field.

My fieldwork

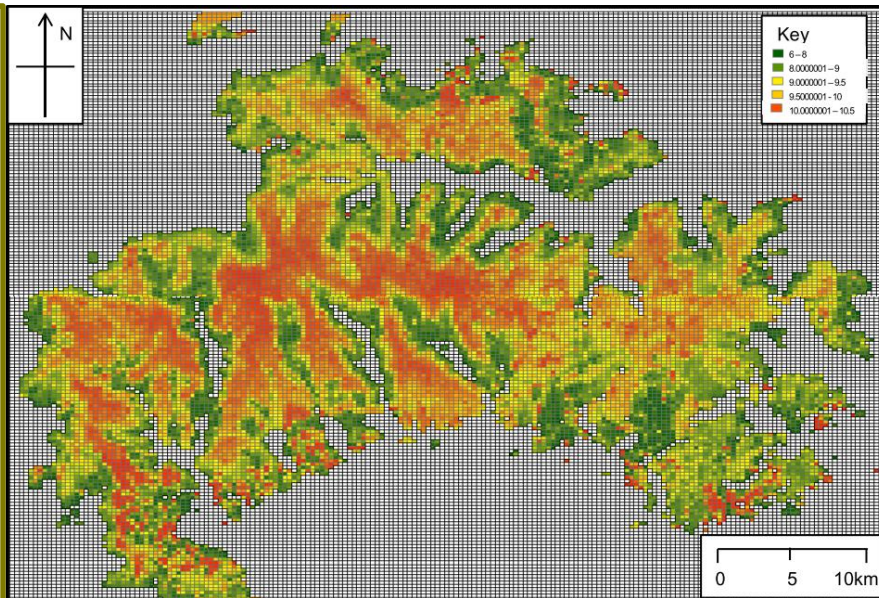
Twenty three sites across the North York Moors were selected, based on a grid pattern in order to give unbiased coverage of the whole area and to show up any spatial trends. At each site infiltration tests were performed; a drop-cone penetrometer was used to assess peat condition; altitude, slope and vegetation cover were measured, and a small sample of peat was taken for moisture analysis. These procedures were carried out at the beginning and end of the summer, giving two data sets to compare.

Quantitative Methods

The relationships between all the measured variables were assessed using a variety of statistical and graphical methods, and the correlations used to create a model which could estimate the vulnerability of peat from remotely sensed data.



Graph showing the relationship between LOI and moisture content of the peat.



Model output showing predicted erosion vulnerability (penetrometer values) across the NYM.

Conclusion

There are strong links between vegetation cover, altitude, and peat condition. In particular, the moisture content of peat is a major factor in determining the vulnerability of peat to erosive forces; dry peat erodes at a faster rate than moisture rich peat.