SUSSEX GILLS: PLANT HABITAT PREFERENCE LINKED TO SOIL PARENT MATERIAL.

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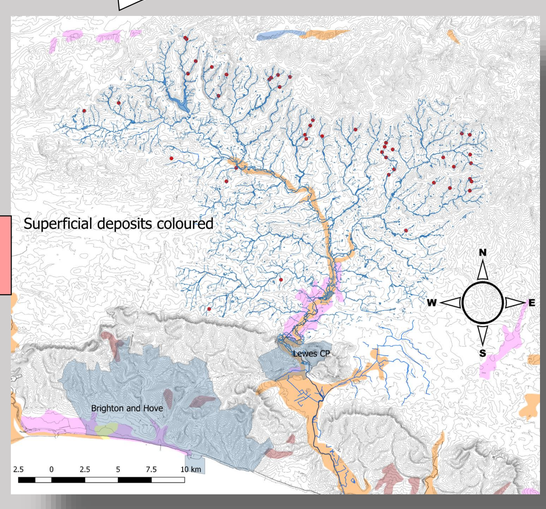
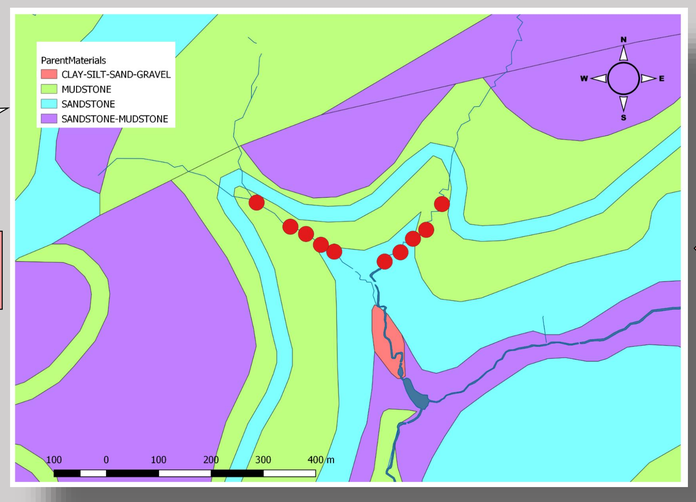
The Sussex gills are more or less steep sided valleys formed in the sandstones and mudstones of the Weald. They represent a relatively undisturbed habitat containing a rich ground flora especially bryophytes with a strong oceanic component (Rose and Patmore, 1997, Rose and Streeter, 2018).

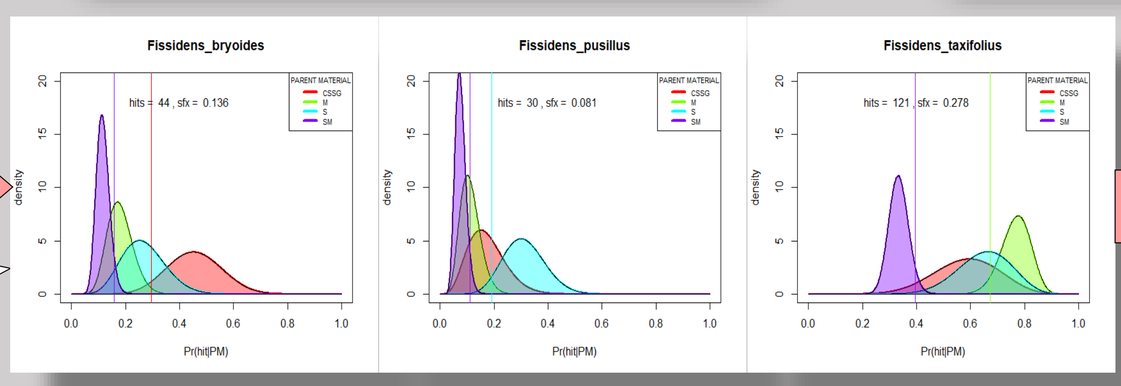
44 wooded streamside sites were sampled on the upper reaches of the Sussex Ouse. Several 30m samples of streamside vegetation were examined at each site, a total 257 samples. The data analysed here are for detections (hits) of 103 species of vascular and non-vascular ground flora occurring at sufficient frequency for habitat preferences to be established.



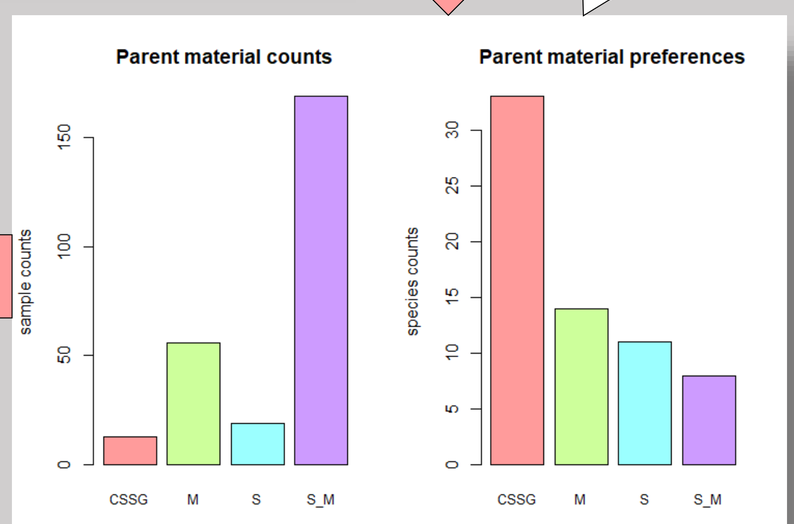
Two sites are shown here, each with five samples (red points) overlaid on the Soil Parent Material (PM) map. PM was determined for every sample. Four PM were found in the study area: CLAY-SILT-SAND-GRAVEL (CSSG), MUDSTONE (M) , SANDSTONE (S), SANDSTONE-MUDSTONE (S-M).



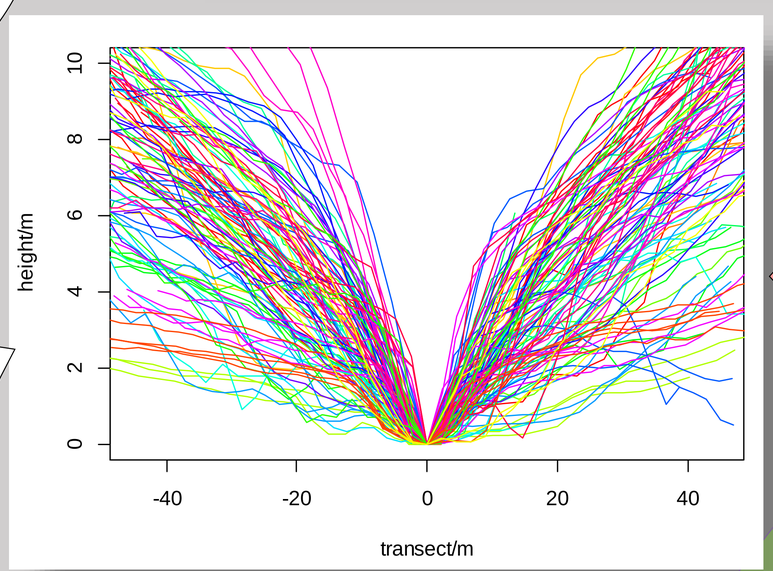
We analysed the probability of detecting plants in a sample, given the soil PM. Here, three related mosses exhibit strong preference for different soil PM (CSSG, S, M respectively). The vertical lines indicate the Credibility Intervals for the least and most favoured PM.



55 species exhibited strong PM preference. Clay-Silt-Sand-Gravel (CSSG) is uncommon but supports the most preferences. It has the richest ground flora, especially bryophytes



We extracted valley profiles for 110 of our samples for which LIDAR data are available. In contrast to the results for soil PM, we found no strong association between valley form (maximum steepness) and species detection probabilities.



We conclude that of the two factors investigated, soil parent material is the more important indicator of environmental preference.

This result was unexpected because Rose & Patmore (1997) suggested that valley form would favour the oceanic flora by influencing the microclimate.

Metanarrative: Citizen Science. Data for this study were collected by a team of skilled volunteers. The authors wish to thank them for their dedication – and for all the fun. www.sussex.ac.uk/riverouse/

References

Rose, F and Patmore J M (1997). Weald Gill Woodlands. Nature Conservancy Council 1997

Rose, F & Streeter, D (2018). The habitats and vegetation of Sussex. In Abraham, F, et al, The Flora of Sussex. Sussex Botanical Recording Society, 2018.

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