QUANTIFYING THE DESMID DIVERSITY OF SCOTTISH BLANKET MIRES

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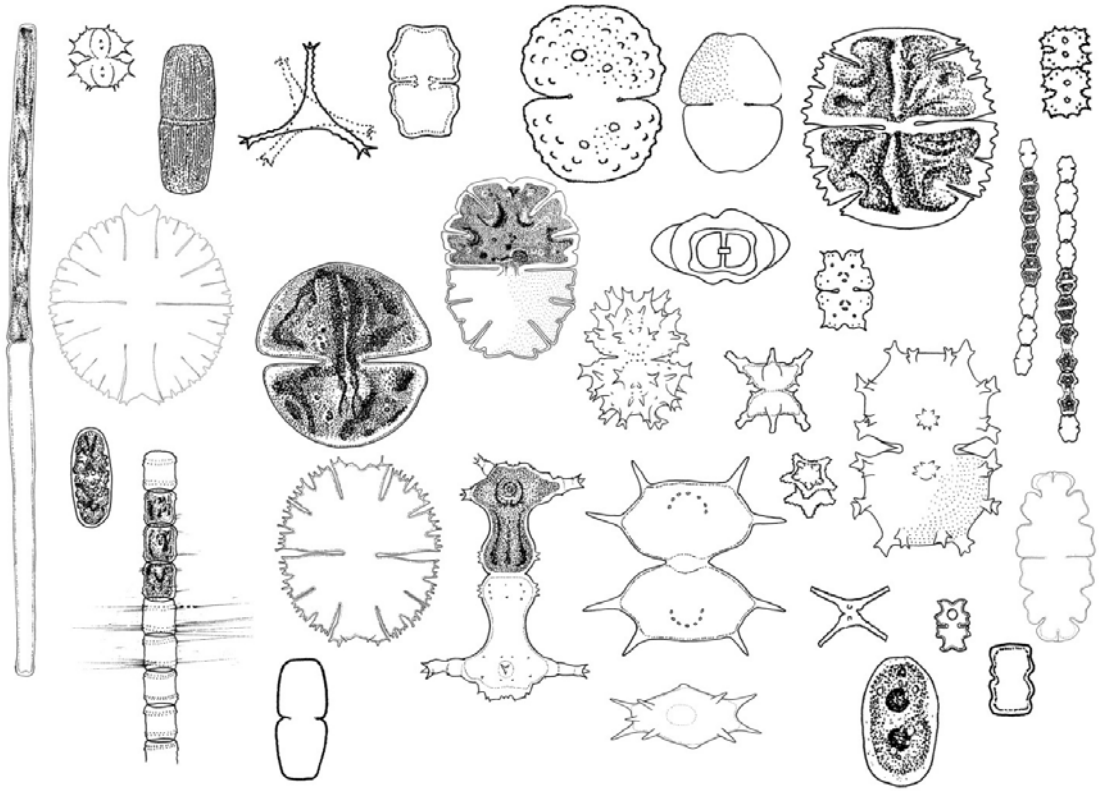

University of the Highlands and Islands
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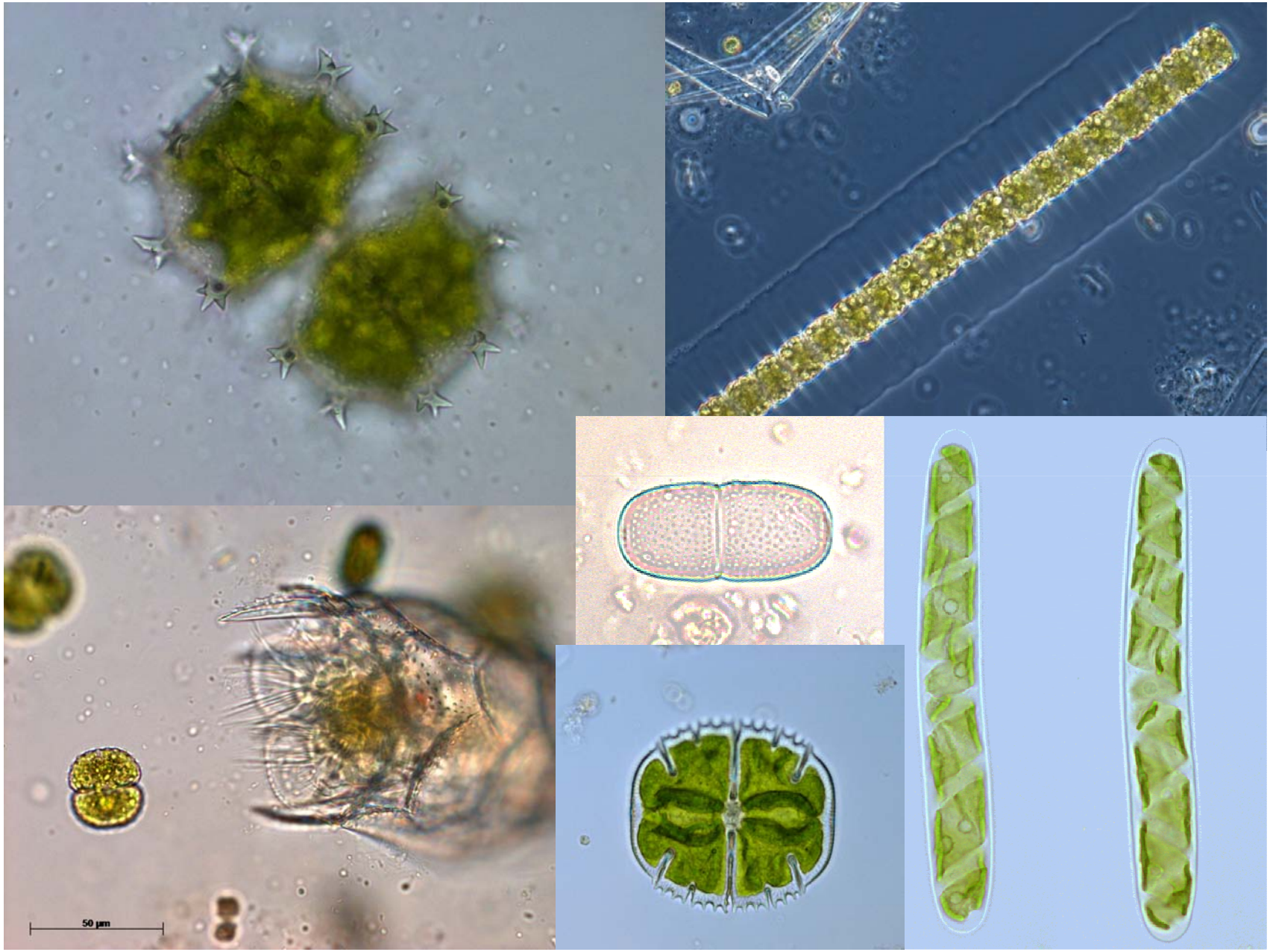
Royal Botanic Garden Edinburgh

SEPA Scottish Environment Protection Agency

Scottish Natural Heritage
All of nature for all of Scotland


50 µm

Why peatlands?

•Biodiverse habitats under threat from poor land management and climate change.

•Desmid rich- nutrient poor status of the surface water found in most natural mires.

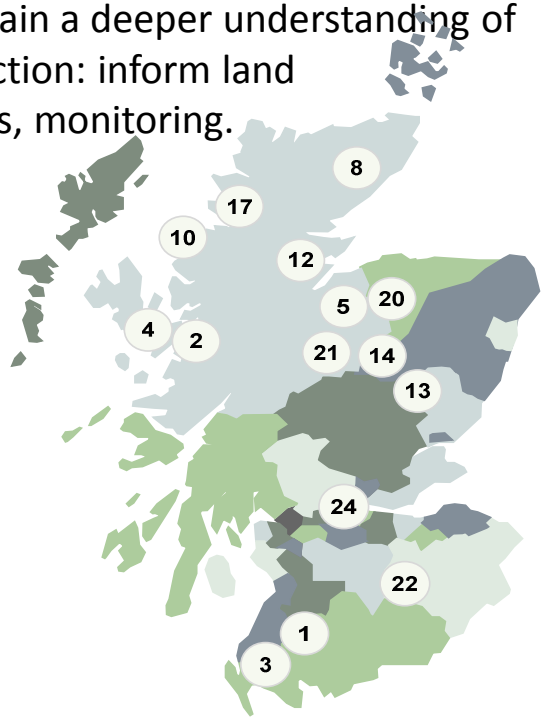
•Two thirds of the algal species outlined in the 2007 important plant areas (IPA) for algae report were desmids. 'Red-list' desmid species which are particularly sensitive to rising nutrient levels and climatic changes

Project scope

1. Quantification of taxonomic diversity: Checklist of desmids in Scottish blanket mires

2. Sampling and analysis of desmid community structure, especially with respect to the peatland water table and water chemistry (e.g. pH, nutrient enrichment) so as to gain a deeper understanding of desmid ecological function: inform land management decisions, monitoring.

3. To assess the effect of land management practices upon desmid communities e.g. Peatland drainage and restoration through blocking.

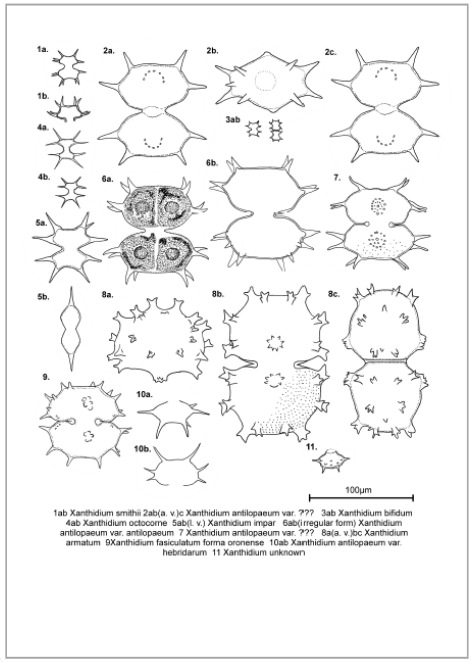


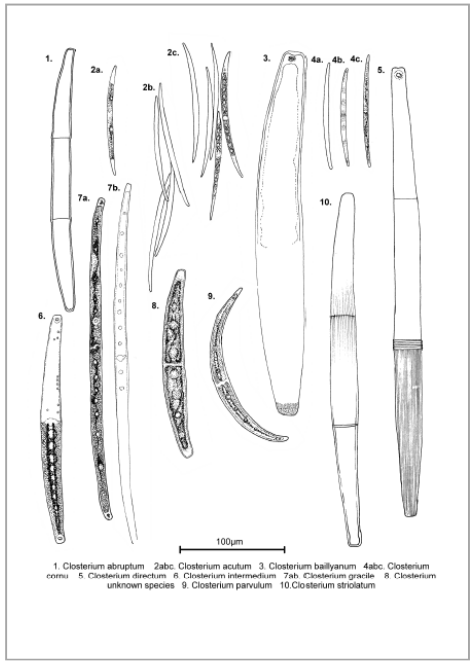
202 taxa identified

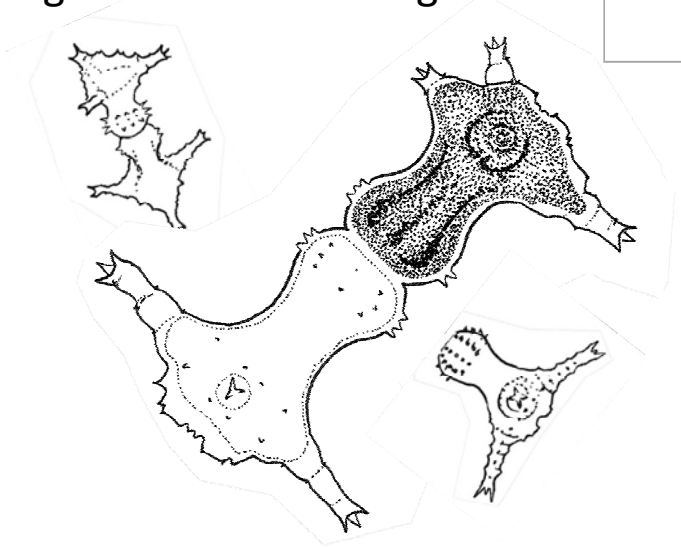
Richest sample 64 species in just 80µl volume of sample!

One new species-Welsh and Scottish material

Indicator species analysis.
E.g. Staurastrum elongatum.

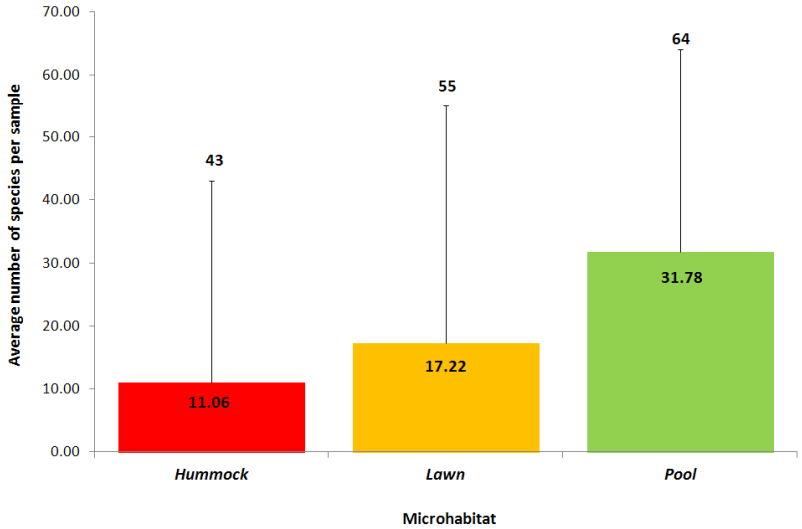


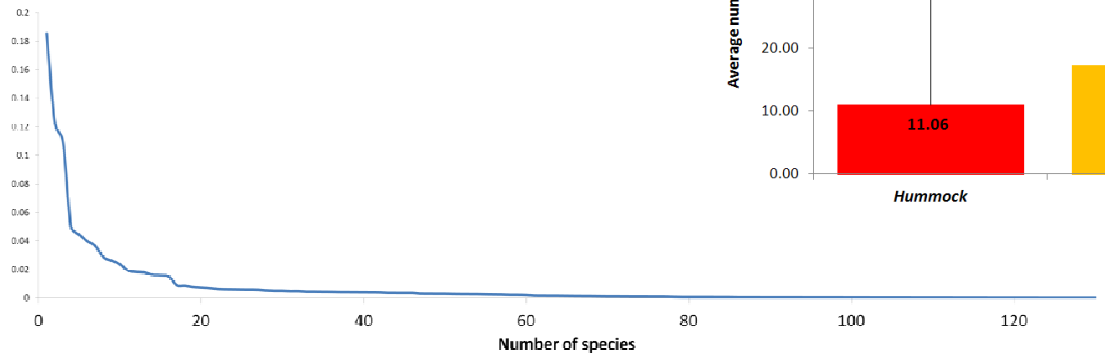


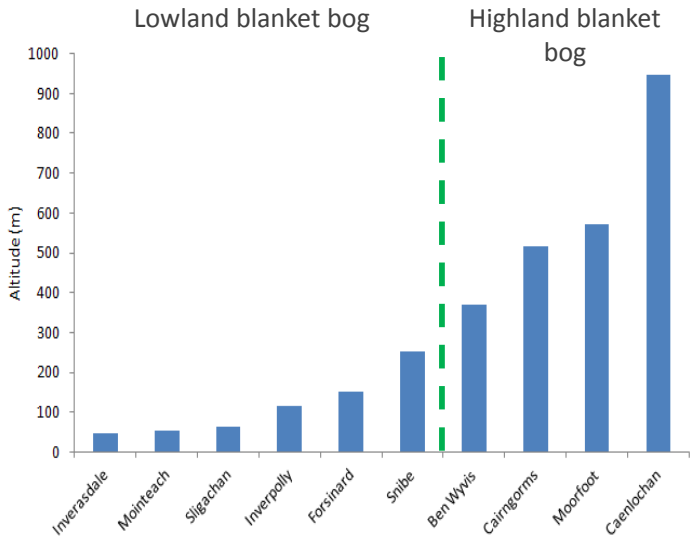


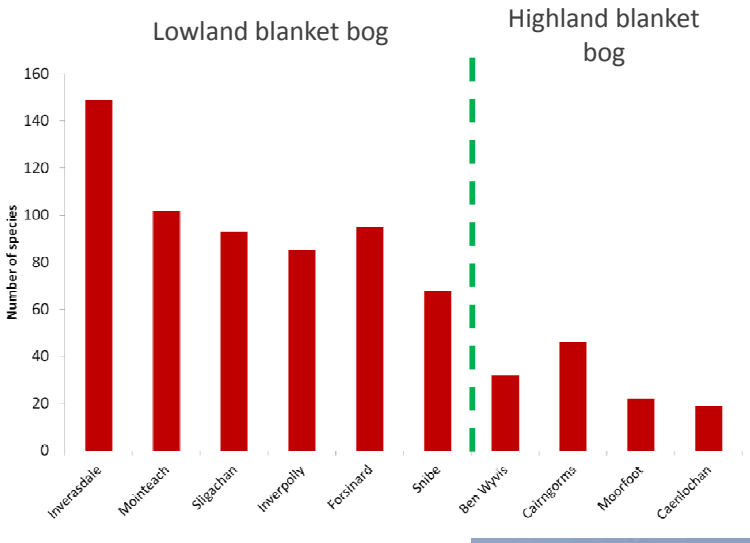
Communities with a high degree of richness in stable environments

Communities partitioned by effects of pH and microhabitat-partially co-dependent variables but also hydrological regime





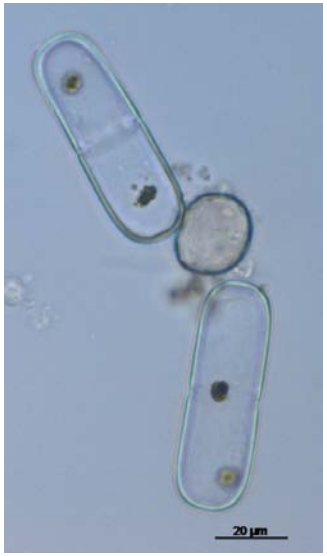




Trends observed correlating high richness with low altitude.

Natural variation in blanket bog type with altitude?

Habitat quality? Dispersal limitations? Stability of hydrology?



Summary

We now have a baseline data set for desmid:

1. Species distribution within Scottish blanket bog
2. Species richness
3. Ecological requirements of some indicator species (potential for monitoring?)

Potential to develop some of these species/ species groups and a micro-organism monitoring tool for peatland quality and habitat stability/ change.