

PROJECT TITLE

Phenotyping natural Sphagnum genotypes in relation to water availability

CONSORTIUM

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SUMMARY OF THE REPORT

Three *Sphagnum* peatmoss species, *S. quinquefarium*, *S. inundatum* and *S. papillosum*, were subjected to a range of drought periods on the instrumented platforms at the National Plant Phenomics Centre (NPPC), Aberystwyth, UK. These species belong to different taxonomical divisions within the genus, and are thought to have varying degrees of drought tolerance as they occupy different ecological niches. This experiment aims to identify and quantify differences in drought tolerance between these species through a combination of image-based and biological data collection with the aim of extending such studies to many more species. Over the course of the drought periods, the plants were imaged twice weekly using a modified version of an existing NPPC-rig designed for imaging of root columns. Three different imaging methods were used: standard RGB, chlorophyll fluorescence and multispectral waveband imaging. At each imaging timepoint, three biological samples were collected from each experimental unit to measure chlorophyll, pigment and water content. The work indicates that tolerance to intermittent drying is related to species and perhaps reflects adaptation of different species to local ground water availability.