

Whither the species? *Phytophthora* taxa, MOTUs and barcodes in the world of metagenomics

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The study of ecosystem diversity is being transformed by high throughput sequencing technology that allows an unparalleled depth of sampling of DNA barcode sequences. The opportunities are great at this fascinating interface of pathology, ecology, taxonomy and molecular biology but there are pitfalls. It is important to consider the potential for bias at all steps in the process from sampling through to data analysis. Increasingly *Phytophthora* diversity is being examined by metabarcoding of the PCR-amplified rDNA ITS regions from soil, water or plant sample DNA. We have applied baiting and isolation, cloning and Sanger sequencing and Illumina MiSeq analysis to a time-series of filtered water samples from several Scottish streams within a UK-wide sampling network. These data, the literature and other presentations in this session will be explored in a critical analysis of the field. A specific focus will be placed on exploring the range of species and their boundaries, the potential for species quantification and possible benefits of the technology for plant health legislation.