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ENVIRONMENTAL DNA SEQUENCING REVEALS DIFFERENTIAL RESPONSES OF BRYOPHILLUS AND PLANT PATHOGENIC FUNGI TO FORESTRY TREATMENTS

Különböző erdőművelésmódok hatása briofil és növénypatogén gombaközösségekre környezeti DNS-szekvencia adatok alapján

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This research was started in 2014, led by the Pilis Forestry Systems Experiment (PFSE), a long-term ecological study established in the Pilis Mountains that investigaties the effects of the forestry treatments on forest site, regeneration and multi-taxon biodiversity. We compared the effects of different treatments of rotation and selection systems on the fungi of mature (>80 y) sessile oak-hornbeam forest stand. We carried out DNA metabarcoding of fungi from soil samples to study the effect of different forestry treatments on the richness and community composition.

Samples were collected in between 2020 and 2021, here, we present the first insights regarding the compositional dynamics of plant pathogenic and bryophillus fungi under the above forestry treatments.

In the case of bryophillus fungi, forest treatments do not affect species richness, but the species composition of fungi communities. There is a significant difference in the composition of fungi communities that cbriofil species, forest treatments explain 19.43% of the difference in composition between samples. So, there is no difference between each treatment in alpha diversity, but it is in beta diversity

Richness and proportional abundance of plant pathogens were highest in clear-cuts and gaps and correlated positively with herb cover and soil moisture. Community composition of plant pathogenic fungi correlated strongly with treatment type, with significant differences observed in all forestry treatments when compared to the control and to each other. These differences in habitat preference were already evident at genus level. Finally, the data presented here provide an unprecedented insight into the diversity and niche-based habitat partitioning of plant pathogenic fungi that is presumably driven in part by the altered abiotic conditions and changes in understory vegetation.