

MWP – Young Researcher Abstract 2024

Project title: Long-term effects of ash fertilization on soil microbiome in drained peatland forests	
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Abstract (approx. 200 words): <p>Every year, more than 10 000 ha of Finnish forests are fertilized with ash. Increasing ash-fertilization of drained peatland forests is one of the measures in the climate plan for the land use sector to improve the annual carbon capture. While ash has long lasting impact on tree growth, its impact on soil greenhouse gas dynamics and microbial communities remains unclear. The changes in pH, nutrients, ground vegetation, and litter quality can influence soil microbiome. In my research, I investigate the effects of ash-fertilization on soil microbial communities.</p> <p>Microbial communities play a crucial role in the decomposition of organic matter, nutrient cycling, and carbon storage in the soil. Microbial metabolism releases and sequesters greenhouse gases, and the carbon stored in microbial biomass can form persistent carbon compounds in the soil. The diversity of soil microorganisms has a great role in shaping the biodiversity of terrestrial ecosystems. Changes in microbial communities due to ash-fertilization can thus impact soil greenhouse gas cycling, carbon storage, and overall biodiversity. Therefore, forest management decisions aimed at improving carbon capture in forests must consider the impacts of these actions on soil processes and soil microbial communities, which my research will illuminate.</p>	
Key words: Drained peatland forest, ash fertilization, soil microbiome, greenhouse gas balance	