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MWP – Young Researcher Abstract 2026

Project title: Nitrogen form shapes carbon allocation and root anatomy and morphology in boreal tree species.

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Abstract (approx. 200 words)**:**

The boreal forest is widely known to be nitrogen-limited, with the present nitrogen predominantly found in organic forms such as amino acids. Despite this, most research and fertilisation studies have focused on inorganic nitrogen (ammonium and nitrate). The traditional view is that the quantity of nitrogen affects plant growth, but less is understood about the impact of available nitrogen form. As a result, we may be overlooking how different nitrogen forms influence plant nutrient acquisition strategies.

My research investigates whether the form of available nitrogen, not only the quantity, influences carbon allocation, root architecture and nitrogen uptake strategies in boreal tree species. By understanding how trees respond to different nitrogen sources, we can better predict how nutrient availability and fertilisation practices affect plant growth, nutrient cycling, and ecosystem processes above and below ground.

With my studies, I aim to broaden current perspectives on nitrogen acquisition strategies and increase our understanding of plant biomass allocation and nitrogen limitation in the boreal forest. This can improve predictions of plant responses to different nutrient regimes, and further support the development of more sustainable forest management practices that minimise nutrient losses while maintaining forest productivity and ecosystem health.

Key words: Nitrogen, boreal forest, root morphology, root anatomy, carbon allocation