

Improving the vitality and productivity of forests on poor sandy soils by introducing rich-litter species

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Due to the combined effects of land use changes since the Neolithic and more recent atmospheric deposition, many West-European forests are located on degraded and acidified soils. The adverse effects of soil acidity are far reaching, and have resulted in hampered ecosystem functioning and lower delivery of ecosystem services. Today, many of those forests are species poor, uniform and low productive stands. Choice of overstory tree species is a major forest management intervention that can accelerate or counteract soil acidification through the quantity and quality of litter input. The admixture of tree species with nutrient rich litter is hypothesized to restore the degraded soils and improve forest vitality, productivity and resilience. But what is “rich litter”? Most studies summarize litter quality by a single variable, C/N ratio, which proves not always the most relevant. In this study we explored the concept of “rich litter” as a soil restoration intervention and defined which litter properties contribute most to an improved belowground ecosystem functioning.