

## **The hidden benefits of decaying deadwood on soil health - BDHSoil**

Assessing soil health is crucial for understanding dynamic changes in soil, facilitating rational soil management. This assessment involves using various physical, chemical, and biological indicators to represent the overall condition of the soil. For the purposes of this application, we define forest soil health as a collection of soil physical, chemical and biochemical properties that sustain the biodiversity, processes and activity of soil biota. The aim of the proposed research is to determine the impact of decaying wood on the physical, chemical and biological properties of forest soils. Our research will allow us to obtain a comprehensive picture of the impact of deadwood on the properties of forest soils and to understand the depth of this impact, which is crucial for soil health and effective management of forest ecosystems. An attempt will be made to determine the extent of the impact of components released from decaying wood into the profile. Additionally, the research will take into account different sizes of deadwood logs and the impact of this factor on shaping soil properties will be assessed. A new element of research, not yet investigated, will be the assessment of the impact of deadwood on water retention. The research will complement the knowledge of the ecology of temperate forest ecosystems, biogeochemistry and soil microbiology. The knowledge gained from this research can contribute to the development of more sustainable forest management practices that will increase the resilience of ecosystems to climate change and ensure their long-term health and productivity. Our research will answer the key question: How to use knowledge of the complexity and dynamism of forests soils to inform intelligent land management decisions that achieve positive outcomes – soil health?