



MARTIN-LUTHER-UNIVERSITÄT
HALLE-WITTENBERG



Soil Science Colloquium - Halle

Prof. Dr. Michael Bonkowski

Universität zu Köln, Terrestrial Ecology, Inst. of Zoology

04. Juni 2026 - 4pm

Julius-Kühn-Hörsaal, Theodor-Lieser-Straße 9, Halle

What is a healthy soil? A search for biological indicators for soil functioning and carbon storage

Abstract:

Soil health is the capacity of soil to function as a living ecosystem that supports plants, animals, humans, and sustainable land management. Soils provide key ecosystem services, including carbon storage, nutrient cycling, water purification, structural stability, and biodiversity support. Yet over 60% of European soils are degraded, largely due to unsustainable land use. The EU Biodiversity Strategy for 2030 recognizes soil health as geo-strategic, calling for protection of soil fertility, reduction of erosion, and increased soil organic matter, with a goal that all EU soils be healthy by 2050. Achieving this requires restoring degraded soils, defining criteria for good ecological soil status, and improving monitoring. But what constitutes “good soil status”? Are universal biological indicators possible? Using a 50-year soil recultivation chronosequence, I explore biological thresholds of soil recovery and the difficulty of identifying robust biological indicators of soil health.