

Alternet 2025 conference, Aveiro, Portugal, 13-16th May: “Achieving transformative change for biodiversity”

Session proposed by Olga Ameixa

Session title: “Hidden Guardians: The Crucial Role of Soil Biota in Resilient Ecosystems for Transformative Change”

Aim of session: To highlight the need to assess the interdependencies between soil biodiversity, soil functions and ecosystem services.

Co-chairs: Jacob Keizer, Sónia Rodrigues

Duration: Half day - 2 hours and 40 minutes

Format: Presentations with plenaries with inspiring case-studies and shorter offered talks. A round-table with a mix of soil scientists, agronomists, ecologists, and agricultural experts, to discuss the need to support soil health and soil biota in agricultural practices. Interactive discussions will encourage attendees to share their experiences, challenges, and insights.

Part 1: 15:15 – 16:15 (60 mins)

1. **Ana Caroline Royer** – Metagenomic Insights into Bacterial and Fungal Succession During Two-Phase Olive Pomace Composting: Implications for Sustainable Agriculture (10 + 5 min Q&A)
2. **Sofia Teixeira da Silva** – Age-dependent effects of tillage on soil microbial communities in olive groves (10 + 5 min Q&A)
3. **Sofia Teixeira da Silva** – Effect of Natural Vegetation Cover on Soil Microbial Communities in Olive Groves (10 + 5 min Q&A)

Coffee Break: 16:15 – 16:45 (30 mins)

Part 2: 16:45 – 18:05 (80 mins)

1. **Teresa José Lopes** – Do Chemical Parameters Influence the Rhizospheric Microbial Composition in Cowpea? (10 + 5 min Q&A)
2. **Cátia Fidalgo** – Assessing the effects of a mycotechnosoil and mulching on the soil microbiome of recently burnt forest stands in north-central Portugal and north-western Spain (10 min + 5 min Q&A)
3. **Martinho Martins** – Assessing the impact of bench terracing on ground-dwelling arthropod communities in eucalypt plantations (10 + 5 min Q&A)
4. **Olga Ameixa** – Life after fire: response of arthropod communities to fire in different types of forests (10 + 5 min Q&A)

Round Table Discussion – 17:45 – 18:05 (20 mins)

Description (200-300 words):

Soil biota can be defined as encompassing soil microorganisms such as bacteria and fungi, photo synthetisers such as lichens and plants, as well as micro-, meso- macro- and mega-fauna that spend their lives (or part of) within the organic and/or mineral soil layers or on the soil surface.

As terrestrial ecosystems face increasing pressure from land use changes, pollution, biodiversity loss, and climate change, it is urgent to recognize the critical role that soil biota typically play in soil functions and the associated soil-mediated ecosystem services, such as plant growth and health, nutrient cycling, carbon sequestration and water cycle regulation. Likewise, it is increasingly urgent to better understand how soil influences soil-dependent biodiversity.

Various initiatives, such as the EU Biodiversity Strategy, the 'Soil Deal for Europe' Mission, and more recently, the Nature Restoration Law, aim to reverse global trends of environmental degradation and biodiversity loss. However, a major challenge lies in integrating the outcomes of these initiatives. Understanding these interdependencies between soil and soil biodiversity is key to driving effective transformative changes.

This multidisciplinary session aims to bring together recent advances in assessing the intricate relationships between soil, soil-dependent biodiversity, and ecosystem services -including food production - as drivers of transformative change. The session has a special interest in presentations that deal with measures and scenarios that have been tested/predicted under real-world conditions and beyond the scale of scientific experiments, e.g., at the landscape scale. Also, presentations on methodological advances for large-scale assessments/predictions of soil biological activity, abundance and diversity are most encouraged. Insights from cutting-edge research linking soil health to broader ecosystem services, fostering the transition to more sustainable and regenerative land-use systems.