Open Soil Workshop

A Joint ENABLS & ECHO Initiative at the Learn in Nature Lab - NBS101 Session 4 (Summer 2025)

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About ENABLS & ECHO

What is soil? *Is it the dirt under your shoes, or the sand by the ocean? Is it the surface plants grow on, or the particles that fill in the cracks between our wooden floors?*

ENABLS and ECHO, two EU and UKRI (UK research and innovation) funded projects came together to explore this often-invisible ecosystem beneath our feet with an **'Open Soil Workshop' at the University of Hohenheim!**

This workshop is a collaborative effort between two EU-supported initiatives. **ECHO (Engaging Citizens in Soil Health) is a research and innovation action funded by the European Union's Horizon Europe programme and UK Research and Innovation (UKRI)**. Running from 2023 to 2027, ECHO focuses on **empowering citizens to actively protect and restore soils by building practical knowledge**, contributing to data collection, and fostering long-term behavioural change across Europe. **ENABLS (Enabling society to bend the curve for Biodiversity) lays the groundwork for stronger networks and transdisciplinary collaboration to better integrate Nature-Based Solutions (NBS) and biodiversity concepts into higher education, vocational training, and society at large.**

Through the **Learn-in-Nature Living Lab (LNL)** at the University of Hohenheim, ENABLS is working to reshape how NBS is taught, moving away from abstract methods and towards more immersive, nature-connected, and practice-oriented learning. The Open Soil Workshop as a part of the **LNL NBS101 series** reflects this shared commitment by both these EU initiatives by engaging participants in direct, sensory, and meaningful experiences with the living world beneath our feet.

Figure 1: Open Soil Workshop at the University of Hohenheim.

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ECHO
ENGAGING CITIZENS IN SOIL SCIENCE: THE ROAD TO HEALTHIER SOILS
Co-funded by the European Union
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The Open Soil Workshop

The workshop was organised on the **3rd of June, 2025 at the University of Hohenheim, Stuttgart, led by Johanna Schaal (ECHO), and supported by the LNL team (eNaBLS).** The group of participants was heterogeneous, as students, children with their parents, and residents from a retirement home took part. The aim of the workshop was to **raise awareness of the importance of soil among people of different age groups and backgrounds, and to actively involve them in a shared learning and exchange process.**

Soils are complex, living systems that provide essential ecosystem services. They store water and carbon, host a vast array of organisms, ensure food security, and influence the global climate. Despite their importance, knowledge about soils remains limited in the general public. The workshop sought to address this gap by offering low-threshold access to knowledge about soil functions and processes, while also encouraging participants to build a personal connection to the topic and promoting awareness of sustainable soil use (Löbmann et al., 2023, Pino et al., 2022).

A particular focus was placed on **an interactive, interdisciplinary, and bilingual approach** that invited participants to engage as researchers themselves. The workshop also introduced **methods of citizen science, in line with the goals of the ECHO project,** which aims to actively involve all kind of citizens in the collection and evaluation of soil data.

Figure 2: Open Soil Workshop at the University of Hohenheim.

The workshop was deliberately designed to be **dialogue-oriented and hands-on**. It began with a "**Soil Bingo**" activity, inspired from the NBS101 Bingo Activity (Shah & Fender, 2025) in which participants exchanged stories about their everyday experiences with soil. They were given several prompts such

as **"Find someone who can define what soil is"** or **"Find someone who can share a personal experience involving soil."** This informal introduction proved to be an effective way to create an open and inclusive atmosphere.

In the following plenary session, participants collectively explored the question **"What is soil?" through scientific definitions and perspectives from geology, biology, chemistry, and physics.** One key insight was that soil can be understood as **an interdisciplinary system at the intersection of several natural sciences** (Blumen et al., 2019).

A central part of the workshop was the **practical soil analysis**, where participants used the **'texture-by-feel'** method to examine four local soil samples. Together, they identified the soil texture and learned to differentiate between soil types and their characteristic horizon development. Participants engaged directly with the soil **by touching, shaping, and smelling it**, which proved particularly exciting not only for the younger attendees! **The connection between soil texture, soil type, vegetation cover, fauna, and site-specific soil properties was explained and experienced through direct observation** (Hellberg-Rode, 2004).

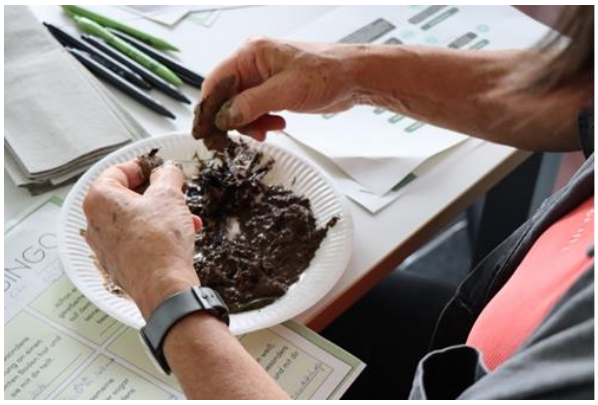

Figure 3 & 4: Participants engaging with soil using 'texture-by-feel' method

The topic was further deepened through **microscopic investigation of soil biology**. Using binocular microscopes, participants observed various soil organisms including **springtails (Collembola), earthworms (Lumbricidae), mites (Acari), and ants (Formicidae).** With the help of identification guides, they explored the biological diversity and physiological adaptations of these organisms, such as the clitellum of earthworms as a reproductive structure, or the spring mechanism of Collembola enabled by the furca (Zorn & Breuer, 2007).

To conclude, the participants reflected on the role that soil plays in their own lives, whether as gardeners, consumers, walkers, or farmers. It became clear how many aspects of daily life are directly or indirectly influenced by the condition of our soils.

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Figure 5 & 6: Looking into the soil using binocular microscopes.

Feedback from the participants was overwhelmingly positive. The interactive and hands-on approach was especially appreciated, and many participants expressed the desire for more events like this in the future.

The diversity of the group stood out as a key strength. Although there were initial doubts whether such a heterogeneous group could be addressed effectively, those concerns quickly gave way to enthusiasm. **The mix of students, children, adults, and seniors created a unique atmosphere that encouraged dialogue and mutual curiosity**. From an outside perspective, it was clear that participants enjoyed learning not only about soil, but also from each other.

Figure 7 & 8: Participants exploring the soil in different ways at the workshop.

Key Take-aways from the 'Open Soil Workshop'

- **Soil is Alive!**

Participants discovered that **soil is not just dirt, but a vibrant, living ecosystem full of organisms from worms and mites to microbes that play essential roles** in sustaining life on Earth.

- **Hands-On Learning Deepens Understanding**

Through activities like the DIY soil texture test and binocular exploration of soil fauna, **participants gained practical insights into soil properties and biodiversity.**

- **Soil Connects to Our Daily Lives**

Group discussions highlighted the **crucial role of soil in food systems, climate regulation, water cycles, and human health** making it a key part of building resilient and sustainable communities.

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The session created space for **open dialogue and reflection, showing how even a short, interactive experience can spark greater awareness, curiosity, and care for the natural systems we often overlook**. No prior knowledge was needed to join. The session emphasised that protecting soil health is not just for scientists, but citizens, students, and educators alike have a role to play in restoring and stewarding soil.

The workshop was a small demonstration on how sensory and experience-based approaches like those promoted by ENABLS and ECHO can make nature-based education more engaging, memorable, and impactful.

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