naturhistorisches museum wien

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**Press conference on the new exhibition**

## “The Thin Skin of the Earth - Our Soils”

**Tuesday, 18 June 2024, at 10.30 a.m. in the lecture hall and in room 21 of the NHM Vienna**

*“Our entire culture emanates from the soil, which is why agriculture is so aptly named. But we are losing fertile soil every day. This is a timely opportunity for the Natural History Museum Vienna to create a special exhibition to draw public attention to the topic of soil. The soil beneath our feet is alive! But very few people are aware that there are living creatures under the earth and that there are so many of them. The soil underpins life and, like water and air, is an indispensable resource. The topics covered in the exhibition range from soil formation, soil diversity and soil research to the destruction of fertile soils. The goal of this exhibition is to raise awareness among all visitors ages three and older to the importance of appreciating, protecting and researching our soil. By destroying soil**, we are depriving ourselves and future generations of an essential basis for life. Once the soil is sealed airtight and watertight, it is usually lost forever,” says* NHM Vienna Director General Dr. Katrin Vohland.

**Press conference programme:**

**Welcome and Introduction:**
**Dr. Katrin Vohland**, Director General and Scientific Director, NHM Vienna

**“The Thin Skin of the Earth - Our Soils”**
**Content, structure and mission of an international touring exhibition on soil**
**Prof. Dr. Willi Xylander,** former director of the Senckenberg Museum for Natural History Görlitz, project manager of the traveling exhibition)

**Soils, how they function and the threats they face: The situation in Austria**
**Prof. DI. Dr. Martin Gerzabek (BOKU Vienna)**, Deputy Director of the Institute of Soil Research

**The exhibition “The Thin Skin of the Earth - Our Soils” curatorial additions, framework programme, World Soil Day**
**Dr. Andreas Hantschk**, Department of Science Communication, NHM Vienna

*Projections from the microscope, soil organisms*
**Followed by** a tour of the new exhibition in room 21 (and 22)

**The ground beneath our feet is alive!**

For a long time, living creatures living below ground remained hidden in the annals of biology in the truest sense of the word. Even today, many people are not fully aware of just how important they are. For most of us, soil chiefly means the ground we stand on. However, soil encompasses so much more.

Unsealed soil provides life and – like clean water and oxygen-rich air – constitutes an indispensable resource.

The travelling exhibition from the *Senckenberg Museum for Natural History Görlitz* highlights the biodiversity and the interwoven existence of organisms in the soil, how they interact in a complex ecosystem, also spotlighting soil development, soil diversity, soil research and the destruction of fertile soils.

A special feature of the exhibition are lifelike, detailed models of the small creatures in our soil, such as predatory mites and pseudoscorpions.

The international travelling exhibition “The Thin Skin of the Earth – Our Soils” introduces visitors to the fascinating diversity of living organisms in the soil, how they function and are structured, with a focus on soils in Europe. Upon entering the exhibition, visitors are shrunk to the size of a woodlouse (around 17-20 millimetres). They experience one of the least researched habitats on earth hands-on and come face to face with its inhabitants.

We destroy fertile soil every day. The exhibition aims to draw attention to this loss and its consequences by bringing the topic of soil to the public’s attention. Soil is deserving of intensive research as well as our protection and highest appreciation.

By destroying soils, we are depriving future generations of an essential basis for life. Sealed soils can no longer store carbon, thereby accelerating climate change. And once soils are airtight and watertight, and therefore no longer able to breathe, they are usually lost forever and can no longer contribute to climate change mitigation.

From 2018 to 2021, Austria claimed an additional 11.3 hectares of land every day. And there is no end in sight to the land grab. You can find out more about current soil issues in the framework program for the exhibition “The Thin Skin of the Earth - Our Soils”.

Let’s be sure not give any ground on this issue!

Cooperation partners of the traveling exhibition:

GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung
Bundesministerium für Umwelt, Naturschutz, nukleare Sicherheit und Verbraucherschutz
GBIF
SENCKENBERG world of biodiversity

**Special exhibition from 19 June 2024 to 3 March 2025**

## Feststiege NHM Vienna

### Soil consumption in Austria

All experts agree that land use rates in Austria are far too high. We must act immediately to change this. Discussions have been ongoing for some time as to how best to solve the problem; however, a solution that meets with broad-based approval has yet to be found.

Austria-wide strategies for the conservation and usability of soil types for agriculture, nature conservation and climate mitigation must be implemented locally, and must be put into practice quickly, effectively and sustainably.

Land that is used for building or for trade and transport loses its natural character and is no longer available for agricultural and forestry use. This now applies to 6.7% of Austria's territory (as of the end of 2022).

A total of 52% of these "used" areas are sealed, i.e. permanently covered, making them airtight and watertight (e.g. asphalted).

Austria's sealed surface area corresponds to around 250,000 times the floor area of the NHM Vienna (1.19 hectares including inner courtyards).

In 2021, 10 hectares of land were newly zoned for building purposes or for trade and transport every day, corresponding to around 8.5 times the floor area of the NHM Vienna. Of this amount, 5.8 hectares were sealed, almost five times the floor area of the NHM Vienna, every day!

The Austrian federal government's sustainability target would entail a daily reclaiming of land amounting to "only" 2.5 hectares.

## Room 21

## The Focus of the Exhibition

The concept of soil as a habitat is alien to us, as are its inhabitants. The exhibition presents four thematic concepts: a) the incredible diversity of organisms in the soil, their communities and the benefits they contribute to the ecosystem, b) soil formation and diversity, and also c) the destruction of the soil and d) current research questions and approaches taken by scientists investigating organisms in the soil.

## Exhibition scenography

On entering the exhibition, visitors will be virtually shrunk to the size of a woodlouse (around 17-20 millimetres) and are transported into the porous space in the soil. Visitors enter one of the least explored habitats on Earth and come eye to eye with its inhabitants. They will learn about the biology of these organisms in the microcosm beneath our feet, barred to us due to our size, and how they function.

## CHAMBER OF LIFE

### Soil organisms and their biology

The Chamber of Life focuses on the biology, the diversity, the way of life and the ecological importance of soil organisms.

The organisms' beneficial contributions to the ecosystem, especially the recycling of nutrients in the soil, are visualized with the help of a saprotrophic food chain (a series of organisms that break down dead organic material and return the nutrients to the ecosystem); various examples illustrate this process. The exhibition uses detailed models to describe what the various armies of decomposers (bacteria and fungi, earthworms, insect larvae, isopods and mites) do and how they interact.

The central model of the exhibition (predatory mite preys on a springtail) represents the second theme in the Chamber of Life: The trophic levels and the predator-prey relationships in the soil.

This model is framed by panels that depict the various hunting strategies and defence mechanisms used by selected soil animals. A smelling station gives visitors the opportunity to experience the odours of various defence secretions.

The exhibition also details the diversity of habitats and the respective mechanisms soil organisms use to adapt to extreme conditions, as well as reproduction and brood care. Habitus images of various soil animals and detailed photos of special structures show the sometimes bizarre physical make-up of these creatures and the fascinating world of soil. Neobiota, or artificially introduced species, form the thematic transition to the Chamber of Secrets.

The "Chamber of Life" makes particular use of digital and hands-on exhibits to engage visitors.

## CHAMBER OF CRUMBS

### Soil types: Formation, diversity and structure

We humans take soil for granted; we hardly give it a second thought. And yet there are hundreds of different types of soil in nature. The **Chamber of Crumbs** shows soil not only as the result of geological and physicochemical processes, but also as a habitat, a food source and a water reservoir. It also focuses on soil formation resulting from various kinds of different parent rocks and environmental factors (climate, heat, moisture) as well as the contribution of soil organisms. The soil profile of a podzol (a type of soil that forms in cool, damp climate zones under acidic conditions) illustrates soil horizons and explains how they are formed. Visitors can interactively explore the topic of soil at hands-on stations.

## CHAMBER OF KNOWLEDGE

### Soils, soil biodiversity and humans

Little is known about the soil as a habitat. The Senckenberg Museum for Natural History Görlitz has been studying soil organisms and their interactions for many decades. Selected current research projects are presented in the **Chamber of Knowledge**, which will show how and why Senckenberg scientists are investigating the relationships between soil organisms and their habitats, and what contribution soil animals make toward maintaining soil's diverse functions. Research on extreme habitats, the colonisation of soil, the consequences of climate change or the creation of checklists are at the centre of the exhibit, as well as the genetic differentiation of the various species and ensuring that the obtained data is made available to the public. Soil organisms drawn in a comic book style present the information using simple language so as to make these topics accessible to children.

## CHAMBER OF HORRORS

### Soil endangerment

Healthy soils and functioning communities of soil organisms are essential for all material cycles found in terrestrial ecosystems. However, our soils have been subject to anthropogenic influences for many centuries: Factors such as erosion, eutrophication, drainage, pesticides, heavy metals, salts or other contaminants, as well as soil compaction and sealing, are egregiously detrimental to the soil ecosystem. Such negative impacts reduce biodiversity and the benefits afforded by the soil organisms. Humans also suffer: Soils are being drained of their natural richness due to erosion, agricultural land is shrinking and feeding a growing world population is becoming increasingly problematic. Water balance regulation is also hampered if, for example, moorland and alluvial soils are unable to act as a natural buffer. The Chamber of Secrets deals with how human influences are endangering soil ecosystems and what can be done to counteract this threat.

## CORRIDOR OF VISIONARIES

At interactive stations, visitors are introduced to visionaries who are committed to protecting the soil realm – in different regions and with different goals. They each advocate for their individual approaches that contribute to protecting the soil all over the world. The visionaries as role models encourage reflection and participation, urging everyone to “find their own path” for taking action in everyday life.

### Interactive level

Children and adults can explore the topic of soil using their senses at various interactive stations. In addition, a children’s level in the lower third of the panels invites younger visitors to discover, experience and explore, with hands-on stations for joining in and trying things out.

### Room 22

### Research pillars

Scientists from the NHM Vienna and the Austrian Federal Environment Agency provide insights into their research:

**Dr. Nesrine Akkari**
***Scientist, curator of the myriapod collection***
**Institution: Natural History Museum Vienna**
Research areas: In her current research, she focuses on different approaches to the systematic study of millipedes and centipedes. She combines standard methods, modern approaches and molecular data. She regularly publishes papers on taxonomy, systematics, phylogeny and evolutionary history of different groups of millipedes and centipedes. Nesrine Akkari has published more than 60 research articles and scientifically described about 65 new taxa.

**Christoph Hörweg**
***Biologist, curator of the arachnid collection***
**Institution: Natural History Museum Vienna**

Field of research: His research focuses on the biodiversity of pseudoscorpions. Austria has 71 species of this group of arachnids that are only millimetres in size. As predators of springtails and mites, they play an important role in the complex food web beneath our feet.

**Dr. Martin Schwentner**
***Biologist, curator of the crustacea collection***
**Institution: Natural History Museum Vienna**
Research areas: His research focuses on the biodiversity and evolution of crustaceans. The focus is on the relationships between species, speciation processes and the geographical distribution of species. He uses molecular genetic as well as classical morphological and taxonomic methods of research.

**DI. Dr. Barbara Birli**
***Expert in soil and land management***
**Institution: Austrian Federal Environment Agency**
Field of research: In her work at the Federal Environment Agency, she focuses on a central question: How is the soil in Austria doing and how can we protect it? For this purpose, she collects data on land use and soil quality.

A particular focal point of hers is imparting knowledge about soil, its important functions and how to protection this bedrock of life.

## FRAMEWORK PROGRAMME FOR THE EXHIBITION

**NHM lecture**
*Museum admission | free admission to lecture*

***Wed, 19 June 2024, 6:30 p.m.***
**Learning about Soil – The Basis of Our Life**
**Barbara Birli (Federal Environment Agency)**
Soil is built over every day in Austria. What do we lose when we seal soil? What benefits does soil afford to society if it remains undeveloped? The lecture also offers insights into the possibilities of communicating knowledge about the functions of soil to society.

***Wed, 9 October 2024, 6:30 p.m.***
**Healthy Soil, Healthy People – Focus on Soil**
**Andreas Baumgarten (Federal Office for Food Safety)**
Healthy soil is full of life and provides us with nourishing food. What makes soil healthy? What role do soil organisms, humus and nutrients or contaminants play? The lecture sheds light on soil quality as well as on contributions to preserving and protecting our soils in agriculture.

***Wed, 13 November 2024, 6:30 p.m.***
**Soil – A History of Humankind**
**Verena Winiwarter (Austrian Academy of Sciences)**
The history of soil and society is a shared history, a history of interactions. Since the Industrial Revolution, we have believed that we are disconnected from the soil. The environmental history of the irreplaceable resource that is soil ecosystems shows why this is a misconception.

***Wed, 4 December 2024, 6:30 p.m.***
**Invertebrates in the Soil – Unknown Diversity**
**Christoph Hörweg (3rd Zoology Department, NHM Vienna)**

A foray onto “foreign” terrain is aimed at bringing little-known creatures to the surface that we trample on almost daily. Be they isopods, mites, slugs, pseudoscorpions, earthworms or centipedes, their hidden lives are full of surprises.

***Wed, 11 December 2024, 6:30 p.m.***
**Our Soil, Our Health: Citizen Science for Soil Health**
**Taru Sanden, Anna Wawra, Sophia Götzinger (Federal Office for Food Safety)**
We will help you to stay grounded! We will explore the fabulous world of soils together using interactive soil apps (SoilPlastic, TeabagIndex). We will talk about the decomposition of organic substances and pollutants in soils, and you can learn methods of soil observation.

**NHM Topic**
*Museum admission | Guided tour ticket*

***Wed, 9 October 2024, 5 p.m.***
***Wed, 27 November 2024, 5 p.m.***
**The Soil Is Alive, and We Are Alive Thanks to the Soil**
**Katrin Vohland (Director General, NHM Vienna)**
Nevertheless, we continue to lose land that we need for nature conservation, food or renewable raw materials. Who should do what to preserve fertile soil?

***Wed, 23 October 2024, 5 p.m.***
***Wed, 15 January 2025, 5 p.m.***
***Wed, 12 February 2025, 5 p.m.***
**The Thin Skin of the Earth – Our Soils**
A guided tour through the traveling exhibition
(Department of Science Communication, NHM Vienna)

**NHM Behind the Scenes**
*Museum admission | Guided tour ticket. Limited number of participants, registration required*

***Wed, 4 December 2024, 5 p.m.***
**Snails, isopods, millipedes and other soil animals in the 3rd Zoology Department**
**Nesrine Akkari, Anita Eschner, Martin Schwentner (3rd Zoology Department, NHM Vienna)**

**NHM Meet a Scientist**
*Museum admission | Free admission to the event*

***Wed, 13 November 2024, 5 p.m.***
**Arachnids in the soil**
**Christoph Hörweg (3rd Zoology Department, NHM Vienna)**
Researchers tell their personal stories and provide insights into their day-to-day work.

**NHM Familie**
*All three programme tracks take place on the following days:*

***Sat, 7, 14, 21 and 28 September 2024***

***Sun, 8, 15, 22 and 29 September 2024***
***Sat, 23 and 30 November and 7 December 2024***
***Sun, 24 November and 1 and 8 December 2024***
***Sat, 11 and 18 January 2025***
***Sun, 12 and 19 January 2025***

Mini Get-Together ages three and older
**Discover, marvel, explore – for our youngest museum visitors on deck 50**

***11.15 a.m.***
**Going underground!**
What is creeping and crawling below ground? We visit our special exhibition and discover animals that spend their lives in the soil.

**NHM Kids & Co ages six and older**
**A short, guided tour of the exhibition and activities for you to discover and research on your own**
***2.00 p.m.***
**Going underground!**
The ground beneath our feet is a world of its own, inhabited by creatures large and small. In our special exhibition, we take a closer look and find out why this world in the soil is also valuable for us humans.

***11.45 a.m. - 3.30 p.m.***
**Open Deck**
Slip into the role of a lab scientist and let your creative imagination run wild.

**Save the date - Action Day at the NHM Vienna**
***Thursday, 5 December 2024***
World Soil Day on 5 December is an international day of action. The aim is to set an annual example highlighting the importance of soil as a natural resource and promoting soil protection.

**Flyer for the framework programme of the travelling exhibition:**

https://www.nhm-wien.ac.at/veranstaltungsprogramm

**Press material:**
https://www.nhm-wien.ac.at/presse/pressemitteilungen2024/pkboeden

The brochure accompanying the exhibition is available in the NHM store for EUR 6.90.

You can find the current summer issue of the magazine **Naturhistorisches** here: https://www.nhm-wien.ac.at/jart/prj3/nhm-resp/data/uploads/bildung/NHM_Magazin_2024_Sommer_LowRes_2024-06-17_1206980.pdf

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**Press pictures 1/4**

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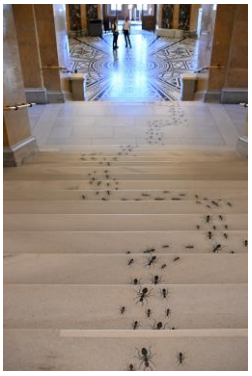
|  | **Title Motif Senckenberg**<br>© Bernd Poeppelmann |
|  | **Follow the ant trail into the exhibition**<br>© NHM Vienna, C. Potter |
|  | **Soil use in Austria**<br>© NHM Vienna, C. Potter |
|  | **Soil organisms in Austria**<br>© NHM Vienna, C. Potter |

## Press pictures 2/4

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|---|---|
|  | **Ant trail**<br>© NHM Vienna, C. Potter |
|  | **Our soil, mole**<br>© NHM Vienna, C. Potter |
|  | **Predatory mite preying on a springtail**<br>© NHM Vienna, C. Potter |
|  | **Our soil, NHM Vienna**<br>© NHM Vienna, C. Potter |

## Press pictures 3/4

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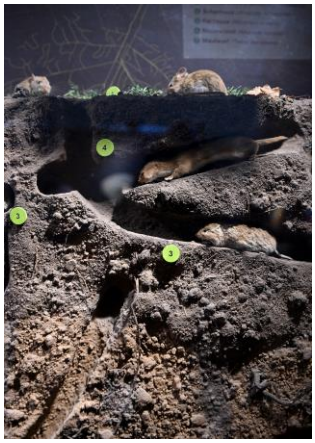
|---|---|
|  | **Chamber of Life**<br>© NHM Vienna, C. Potter |
|   | **Station "How many organisms are you standing on?"**<br>© NHM Vienna, C. Potter |
|  | **Soil profile with mammals**<br>© NHM Vienna, C. Potter |
|  | **Model of a tardigrade**<br>© NHM Vienna, C. Potter |

## Press pictures 4/4

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|---|---|
|  | **Our soil - models of soil organisms**<br>© NHM Vienna, C. Potter |
|  | **Research pillars in room 22**<br>© NHM Vienna, C. Potter |