



Soil of the Year 2010: Technosols/ Urban Soils

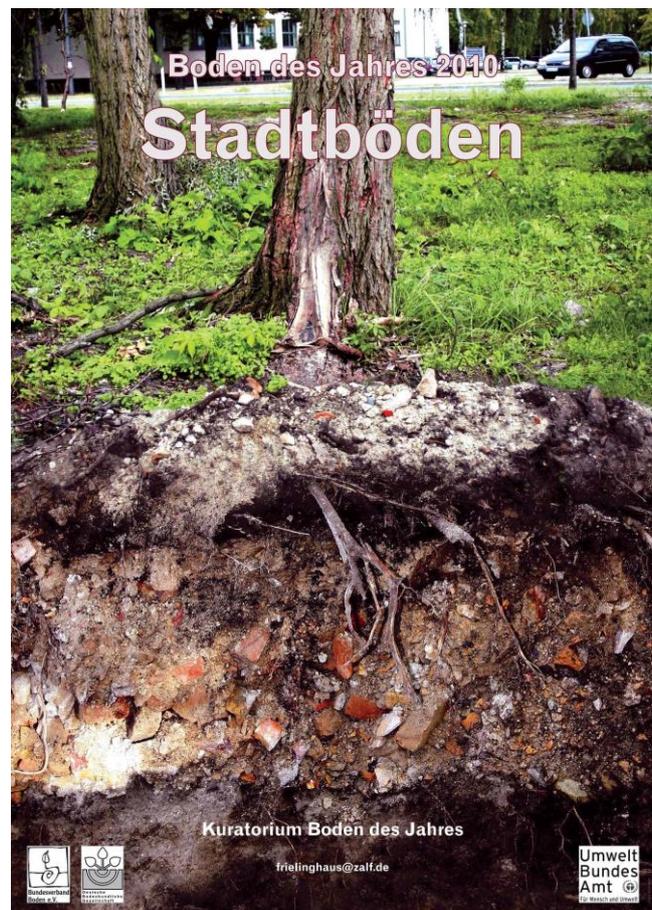


Proposal for 2010:

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Curatorship Soil of the Year



Soil formation within debris
(Foto: Mohsen Makki)



Soil of the Year 2010
(Foto: Mohsen Makki and Schlenther)

International classification (WRB): Technosols/ Urbic Anthrosols
German classification: Technosols, "Stadtböden"

Characteristics

What are urban soils?

As soils on agricultural and forestry land, the urban Technosols are part of the thin crust and vulnerable skin of our earth. The name "Technosols" encompasses the various soils of urban industrial areas. Human activity is the main element that contributes to the genesis of their parent

material, relief, climate, water balance, and vegetation. This strong impact from humans leads to distinct differences in their properties compared to soils of rural areas.

What are the functions of urban soils?

Urban soils have manifold functions which are often not evident at first glance. Soil is mostly noticed by urban dwellers in parks, gardens and green areas. Here, soils are not only the basis of recreation but also habitat for plants and animals. Furthermore, together with the vegetation, they create a well-tempered urban climate in winter and in summer. They form the green lung of the town which would not exist without soils!



Excavation in Essen after mine closure
(Foto: W. Burghardt)



Natural soil in the Boerde – the Black Soil (Chernozem)
(Foto: I. -Merbach)



Soil formation on debris in Berlin
(Foto: G. Wessolek)



Pararendzina on excavated soil with waste
(Foto: A. Lehmann)

The soils of the urban and suburban areas with partially extreme properties are often species-rich habitats. Often, they provide niches for rare plant and animal species.

Urban soils are the foundation of manifold buildings like houses, churches, shops, schools, theatres, and many more. In between this interface, soils form the ground of roads, squares, sports fields, as well as for graveyards, railroad tracks, and allotments. Soils interact with a dense network of supply and disposal lines which assures our daily urban life.

Unsealed soils ensure that water can infiltrate and percolate. Therefore, soils contribute to the discharge of the public drainage system and to flood prevention. Their filtering properties provide impedance of chemicals which improves groundwater quality.

Together with their plant cover, urban soils filter out harmful dust and aerosols, and fix them into their matrix to provide a better air quality in the urban areas.



City park as „green lung“ in Essen
(Foto: A. Lehmann)



Green waste land in Berlin
(Foto: G. Wessolek)



Sealed parking lot
(Foto: A. Lehmann)



Elbe flooding 2002
(Foto: www. bodenwelten.de)

What can we learn from urban soils?

Urban soils can tell fascinating stories. Every age of settlement leaves its own mark. For example, urban soils can preserve more than one thousand years of building rubble or can bear traces of middle-age town blasts. In many urban soils we can also find ruins from the two world wars, and bombs can frequently be found.

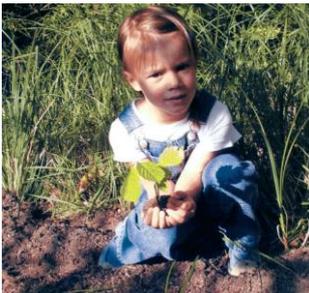
Buried settlement structures, ancient waste, and antique graves are witnesses of the past. They allow researchers and archaeologists to reconstruct the way of life of our ancestors. Trading, mining, and industry also leave their marks in soils. In times of uncontrolled waste disposal, many soils were so heavily loaded that they lost their filtering and buffering capacity. Nowadays, these areas have to be remediated with high efforts and costs.

What problems do urban soils face today?

A central problem of soil conservation in Germany is the consumption of land. About 12 % of the soils are covered with buildings and pavements. This seals their surface and limits their functionality regarding water infiltration and storage, as well as filtering of pollutants to a significant extent. Additionally, flora and fauna are losing their habitat. Therefore, the governmental aim of sustainability, to reduce further land consumption until 2020 to only 30 ha per day, should be explicitly accomplished. Simultaneously, sealed areas which are no longer in use should be unsealed.

Where can I experience urban soils?

There are many possibilities to discover and experience soils within urban areas. They can be found everywhere: playgrounds, school gardens, parks, allotments, botanical gardens, zoos, biking paths in the suburb, and on waste land and excavation pits. Be curious and raise your awareness of soils, it pays off. Urban soils have a lot to tell.



Event environmental centre of schools (Foto: K. Böhme)



Excursion with bicycle in Berlin (Foto: Mohsen Makki)



House garden in Stuttgart (Foto: A. Lehmann)



Children searching earthworms (Foto: B. Mekiffer)

Who provides more information?

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* Bodenkundlich orientierte Institute an Hoch- und Fachschulen sowie einschlägige Ämter in der Ad-hoc-AG Boden: www.bgr.bund.de

Where you can get material?

Flyer and CD's frielinghaus@zalf.de