

# EU SOIL DAY

#EUsoilDay

Establish a living lab on urban soil management – Flanders  
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PXL University of Applied sciences and Arts

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#EUsoilDay



# Solutions for degraded soils: applied research in a quadruple helix model

Multi-level governance and stakeholder engagement  
in PXL BIO-Research



Alain De Vocht  
PXL BIO-Research/UHasselt-CMK

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## Context

- Solution-oriented applied research in Biodiversity and Urban ecosystems
- Stakeholders: Flemish governmental organisations (ANB, VLM, VMM), provinces, cities and municipalities, private companies, students, citizens, ...
- Application of drone imagery (multispectral, LiDAR), AI, DNA-technology
- Quadruple helix approach in projects



# Soils: living ecosystems



- Urban tree management: stop soil sealing, conserve soil organic carbon stocks, and improve soil structure to enhance soil biodiversity
- Management of roadside verges: conserve soil organic carbon stocks, improve soil structure to enhance soil biodiversity
- Reducing the environmental impact of horse keeping: improve soil literacy in society, improve soil structure to enhance soil biodiversity, animal health
- Ecological restoration of quarries/landfills: improve soil structure to enhance soil biodiversity, restore protected habitats
- Common hamster preservation: importance of soil OM and soil biota

# Management of roadside verges in Hasselt

- JRC Science meets Regions - City of Hasselt
  - Science-based management (soil – biodiversity – ESS)
- Citizen engagement
  - Innovation camp – JRC (November 18<sup>th</sup> 2022)
  - Impetus proposal (civil science): engaging citizens and students for soil sampling, biodiversity, pollinators and carbon storage



Competence Centre on  
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# Reducing the environmental impact of horse keeping in Flanders

- Interrelation soil - grass quality - horse health
- Circularity by composting or fermentation of horse manure
- Solution-oriented: partnership with consultancy companies, vets, regional and agricultural organisations, municipalities, citizens,...
- Circularity, closing the loop
- Soil cafes to improve soil literacy in society



# Ecological restoration of quarries and landfill covers

- Science-based restoration – starting from soil restoration
- Importance of soil food web (eDNA)
- Creating Nature 2000 habitats or breeding habitat for protected bird species on landfill covers
- Feasible goals for habitat restoration in quarries (EU-wide - Student Honours program): soil dependant
- Engaged citizens: guided tours to communicate results

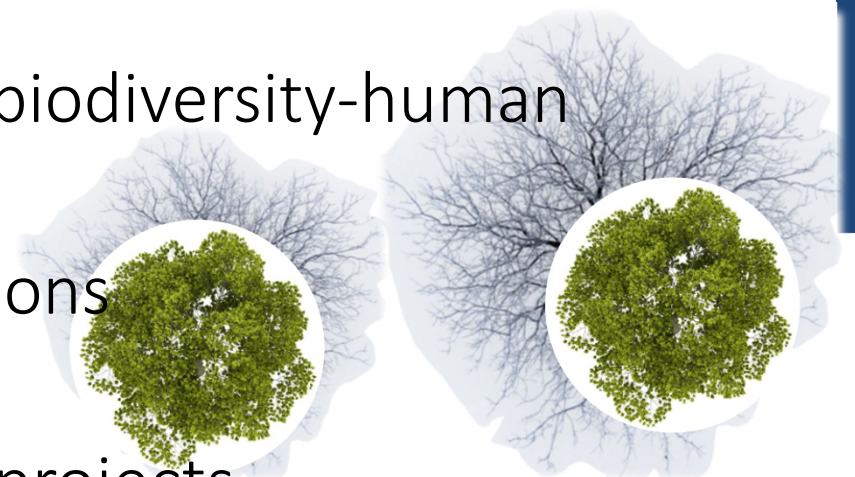
# Living lab: Herk and Mombeek

- Partner in Regional Park 'Hart van Haspengouw'
- Soil management shift: sponge function of the landscape
- Importance of organic matter and soil biota
- Multi-partner/stakeholder approach (Flemish administrations, municipalities, NGOs in nature conservation, NGOs in agriculture)
- Application of new technologies (drones, AI, metabarcoding) to support healthy soils



# Soil management in Flanders: opportunities

- Living lab in urban/peri-urban area in creating a sponge landscape
- State-of-the-art research methods
- City of Hasselt and Regional Landscape Haspengouw en Voeren
  - Establishing living labs in soil-biodiversity-human interactions
- Flemish governmental organisations  
Provinces, municipalities  
NGO and citizen engagement in projects



# Contact information



## Solutions for degraded soils: applied research in a quadruple helix model

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