

Research Institute for Nature and Forest (INBO)

Luc De Bruyn

Species Diversity Group
UA – Evolutionary Ecology



Bats



All 17-19 species on the habitat directive

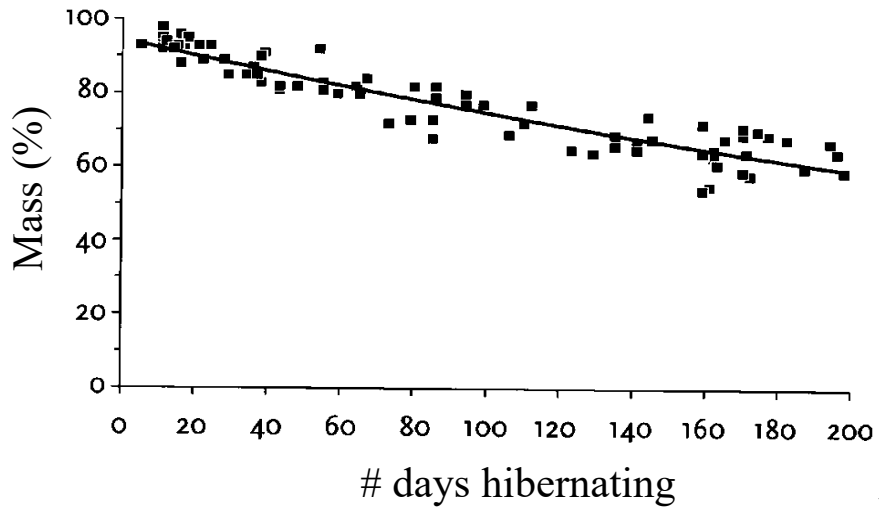
Life history

- Summer
 - Reproduction colony roosts (hollow trees, churches, ...)
 - Foraging areas (ponds, forests, ...)
 - Habitat connectivity, commuting
- Autumn
 - Mating swarms (near hibernacula)
- Winter
 - Hibernation (fortresses, bunkers, ...)
- External effects
 - Environmental conditions (Climate change)
 - Human impact (Habitat destruction, disturbance, light, ...)

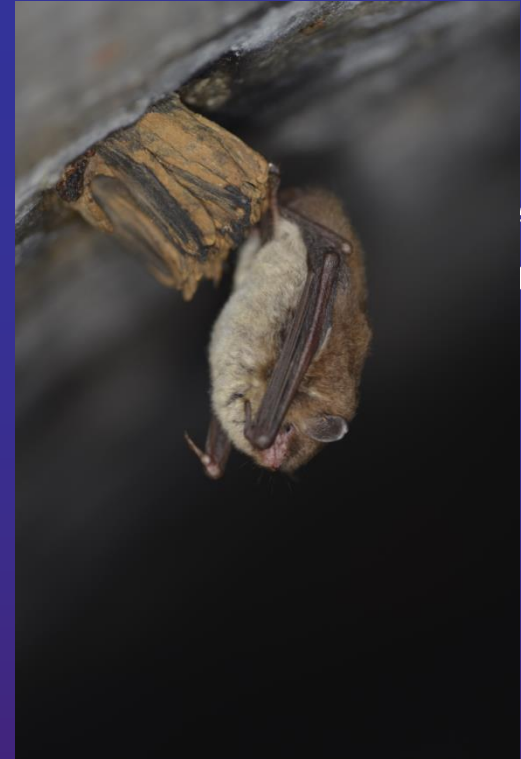


Bat Count - Hibernation disturbance

M. daubentonii



Dietz et al. 2009



Bat Count - Hibernation disturbance

Tasks

- Fortresses, bunkers, abandoned brick oven

Steendorp



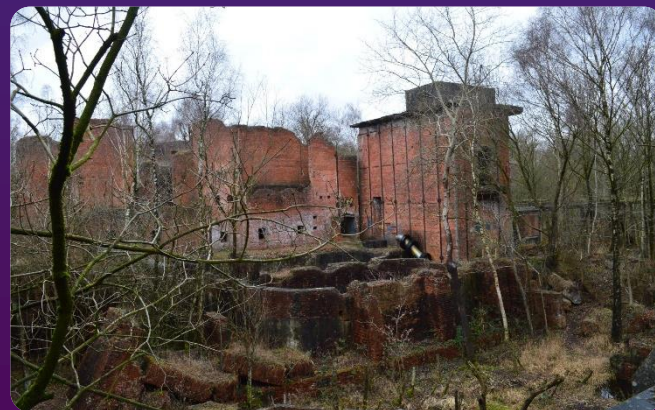
Schoten



Mastenbos



Turnhout



Bat Count - Hibernation disturbance

Tasks

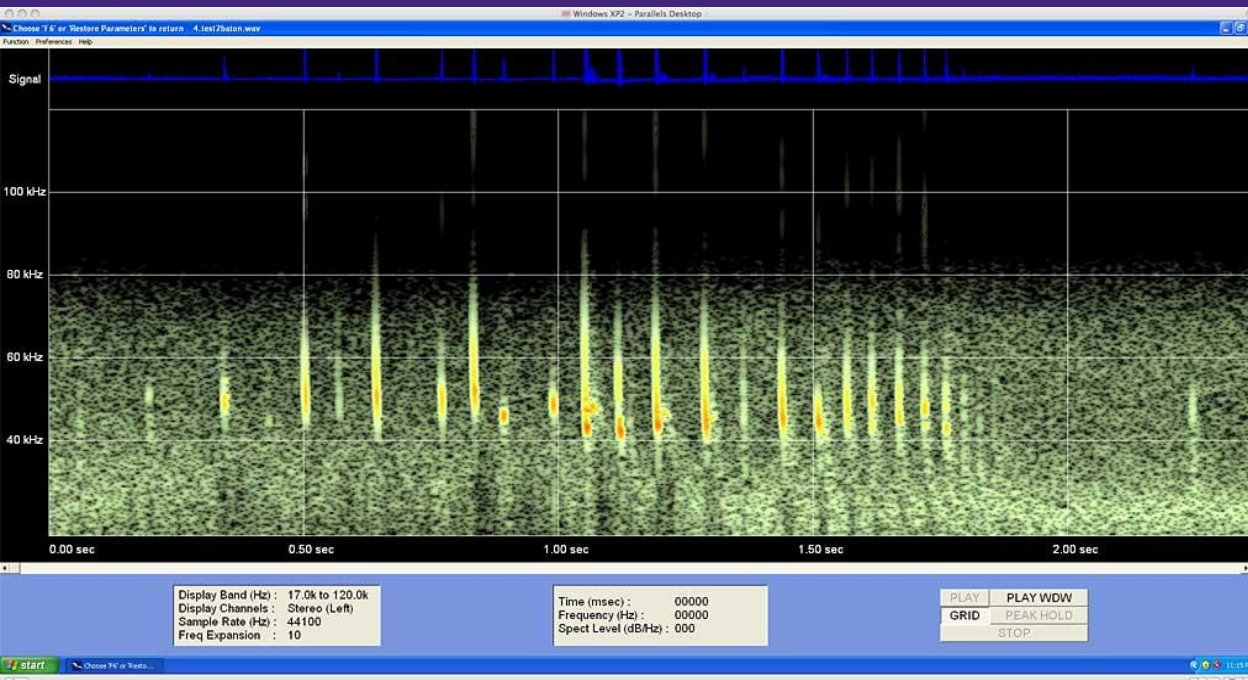
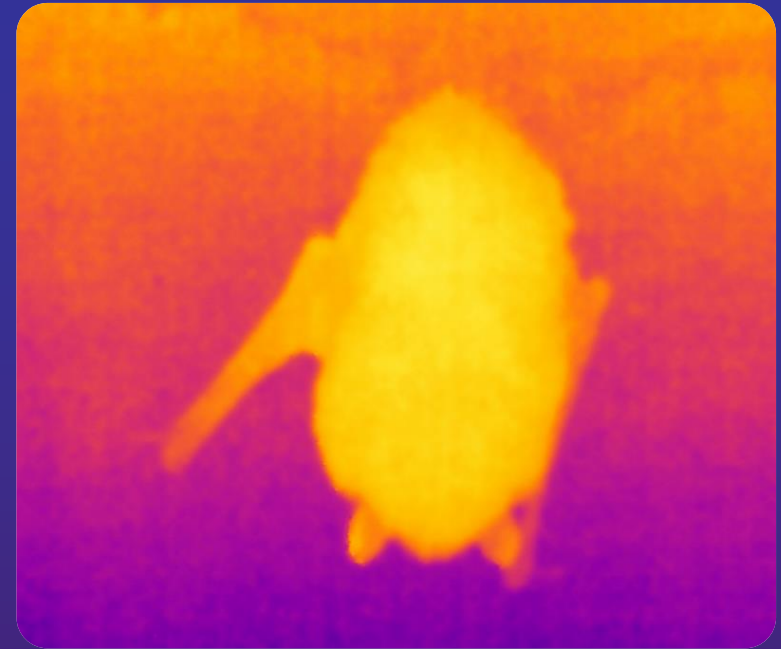
- Fieldwork November - January - March bat count
- Infrared camera before/after count
- Automatic bat detectors
- Temperature loggers



Bat Count - Hibernation disturbance

Tasks

- Analysis of thermal pictures
- Identification echolocations
- statistics



Bats and Biting midges

- River restoration, tidal mudflats
- Perfect breeding habitat
- Can bats help (ecosystemservice)



Tielrodenaar Eric Goers is overvloedig gestoken door de knijten
Foto: Pieter Van Hecke

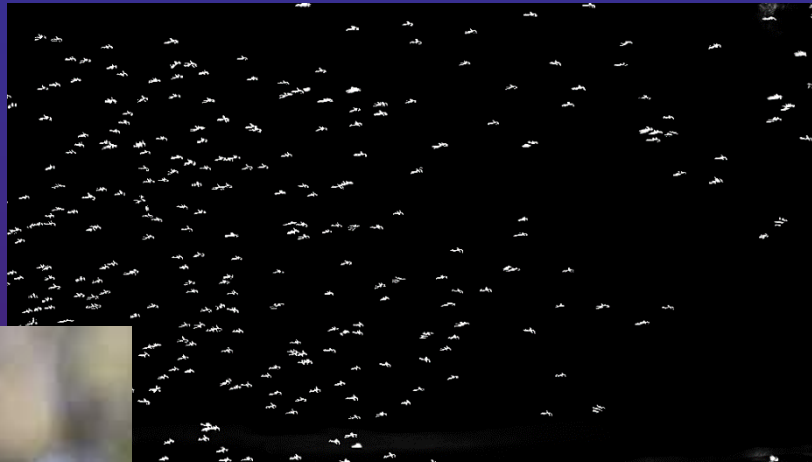
Knijtenplaag teistert Temse: "Bressen in de dijken moeten dicht"

Tielrode, een deelgemeente van Temse, gaat gebukt onder een knijtenplaag. Dat bleek op een infovergadering waar tientallen inwoners verhaal kwamen halen. "Sinds de aanleg van het getijdengebied is het een echte plaag. Doe de bressen in de dijk weer dicht", klonk het resoluut bij de inwoners.

Bats and Biting midges

Tasks

- Fieldwork summer period
 - o Automatic bat detectors
 - o Insect traps (sticky, UV-light)

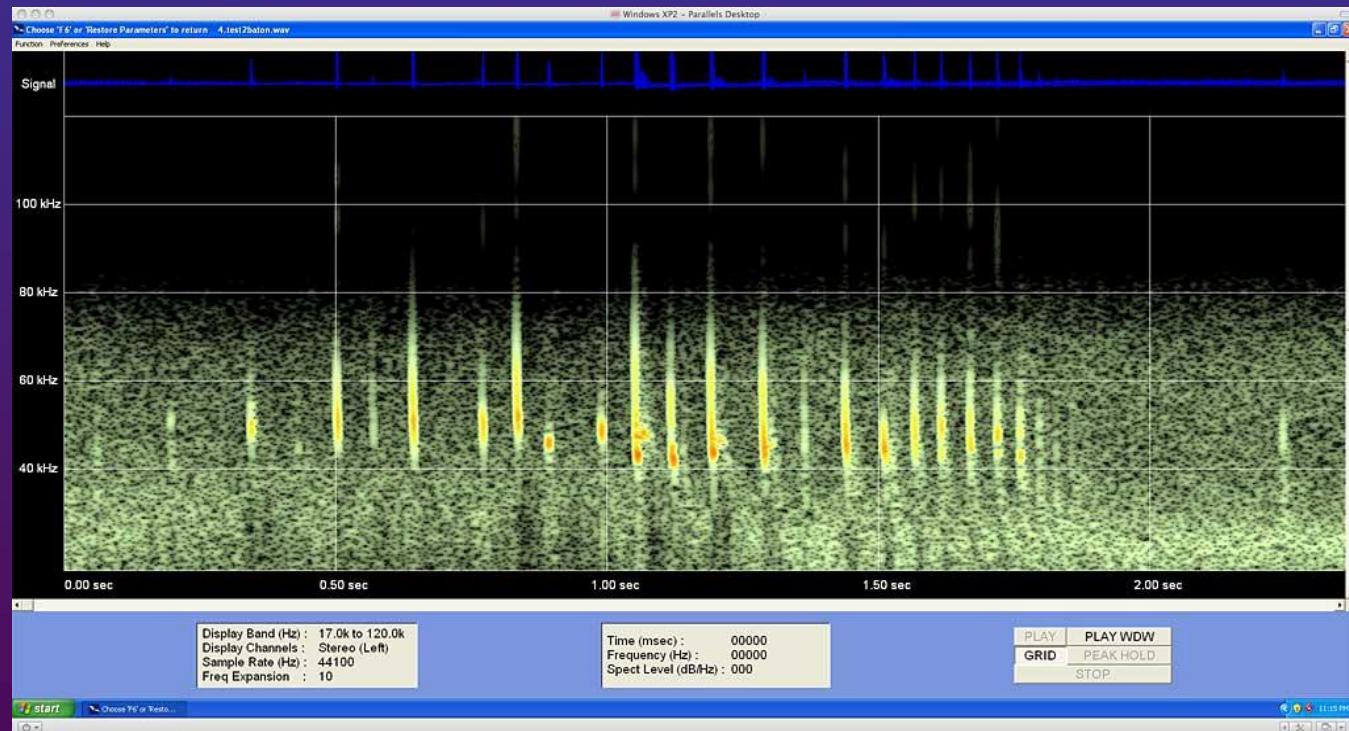


Bats and Biting midges

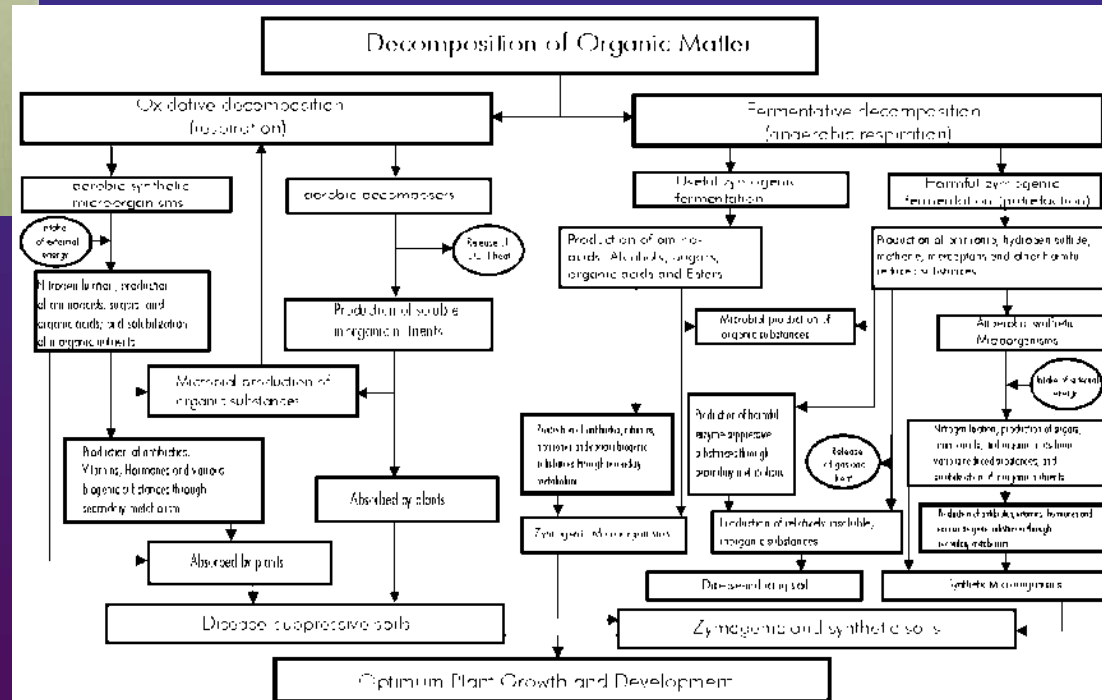
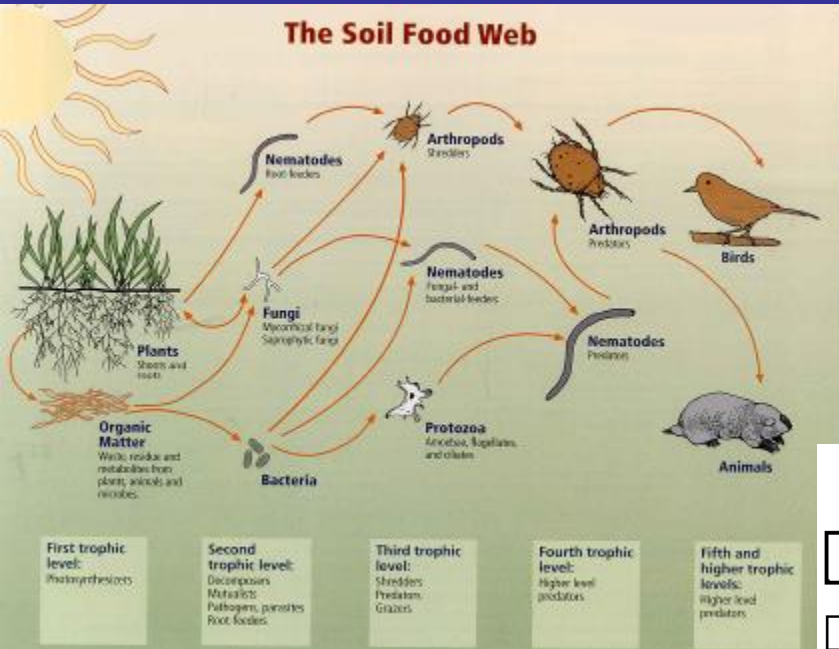


Tasks

- Lab
 - Analyses of sonograms
 - Insect identification (aquatic ecology)
 - Computer assisted photo analysis



Soil (functional) biodiversity



Agriculture and biodiversity

Intensification agriculture,
artificial fertilizers,
pesticides, ...

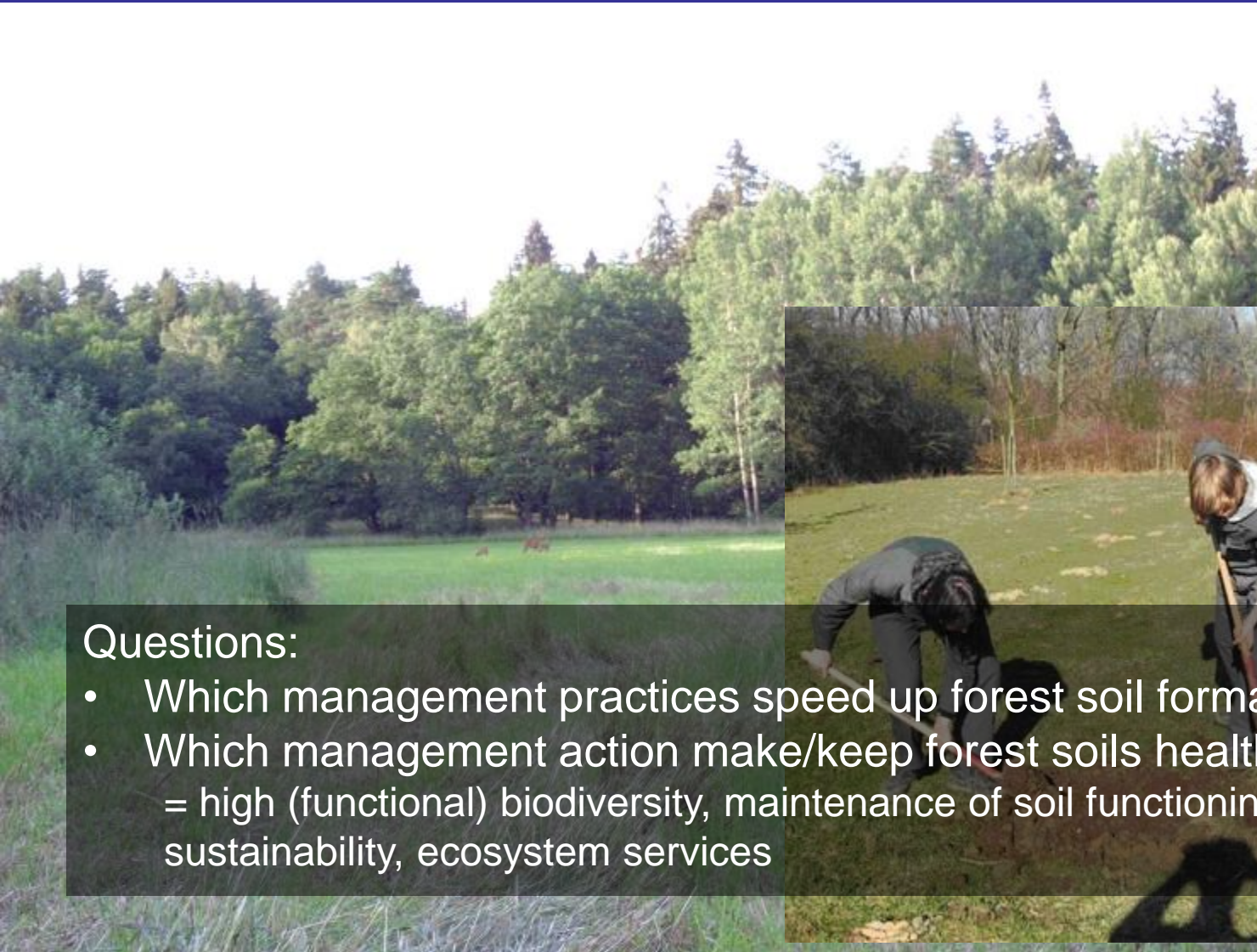
-> biodiversity loss



What can we do about it?

(Europe's New Green Deal)

Afforestation, management and forest soil (functional) biodiversity



Questions:

- Which management practices speed up forest soil formation?
- Which management action make/keep forest soils healthy?
= high (functional) biodiversity, maintenance of soil functioning, sustainability, ecosystem services

Farmland agreements

Farmland agreements

- Flower strips
- Controlled mowing

Organic farming

- Organic fertilizers
- Biological pest control
- Crop diversity



What are the effects on soil biodiversity?

Co-promotor: Rik Delhem

Soil (functional) biodiversity - Collembola

Fieldwork

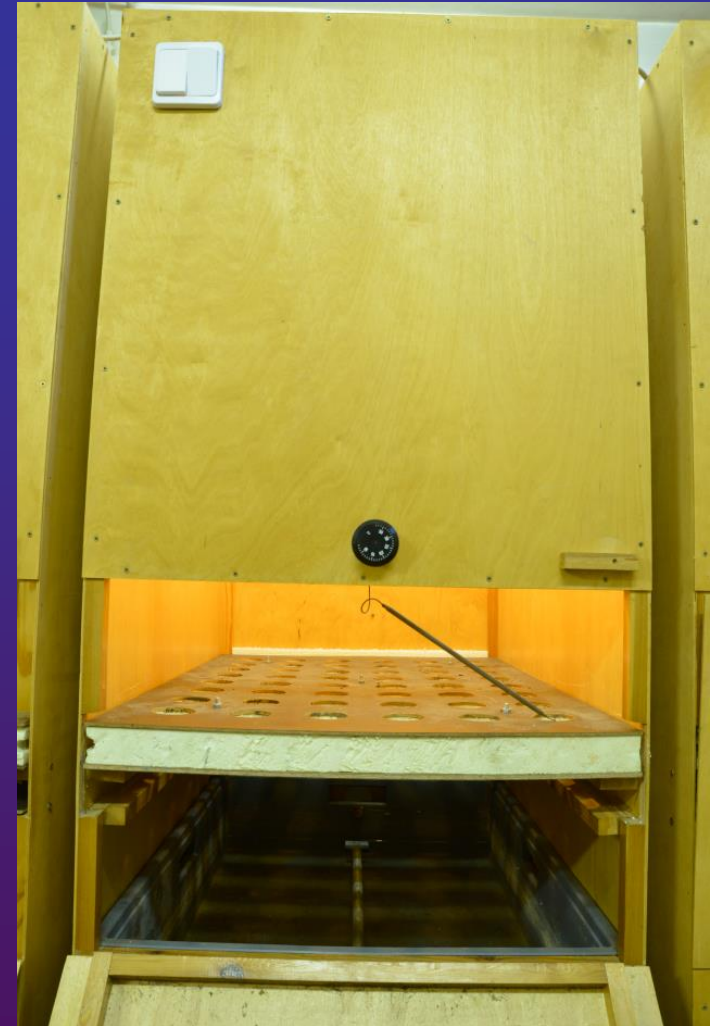
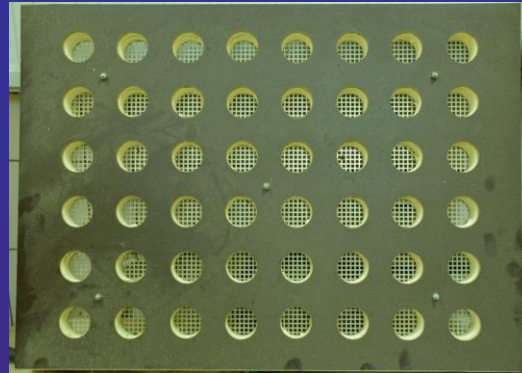
- Soil & litter samples



Soil (functional) biodiversity - Collembola

Animal extraction

- McFadyen apparatus



Soil (functional) biodiversity



Lab work

- Arthropods – Collembola
 - Identification
 - Functional grouping
- Soil chemical composition
- Vegetation changes



Co-promotor: Rik Delhem

Luc De Bruyn
University of Antwerpen, CDE
D-building, room D-150

0494/89.99.50
luc.debruyn@inbo.be