ZOOMING INTO THE WORLD OF ANIMALS
ZOOlogy
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ARTIS
GROOTE MUSEUM
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Interreg
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TransAgroBat
ERDF/FEDER: 1.144.535€
Duration 42 months

TransAgroBat: Harnessing bats for biodiversity, pest control, and agroecological transition

The members of the TransAgroBat research project*

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BACKGROUND

Agricultural landscapes

❖ Strong **agricultural** & **industrial intensification** leading to landscape homogenisation
❖ Fragmentation of semi-natural habitats leading to decline in **biodiversity** and **ecosystem services**
❖ High **soil and water pollution**, notably due to synthetic pesticides

Why bats?

❖ Insectivorous bats may consume large quantities of **agricultural pests**
❖ They are **bioindicators** of environmental quality
❖ Bat species (24 sp. in BE and northern FR) move freely across borders, requiring **coordinated management** and **conservation strategies**

PROJECT OBJECTIVES

To study and promote the ecological role of bats in agroecosystems & support land-management strategies

Ecological and ecotoxicological analyses
• Characterize bat **diet** in agricultural landscapes.
• Identify **landscape** features influencing bat activity and colony dynamics.
• Detect **pesticide** and **heavy metal** accumulation in bats.

Conservation & land management
• Propose **ecological infrastructure improvements** (hedges, corridors)
• Co-design agroecological **solutions** with local actors

Communication & outreach
• Produce **dissemination** materials (comics, videos)
• **Engage** farmers, policymakers, and the public

APPROACH & METHODOLOGY

Study sites in northern France & Belgium
Long-term data collection
New sampling (2026-2028)

Ecology and behaviour: Guano sampling from maternity and hibernation colonies across regions, DNA metabarcoding on various bat species to identify prey items and diet.

Integration with local pest pressures, landscape structure (e.g., *3D remote sensing*) and acoustic activity data on hunting sites.
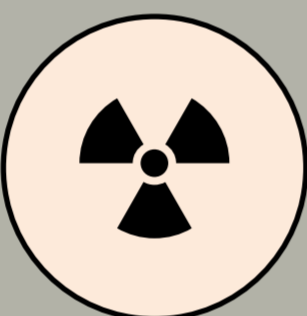
Ecotoxicology: Chemical analyses of pesticides and trace metals in hair, guano and tissues through specifically-developed workflows. Inter-landscape comparison of pollutant exposure patterns.
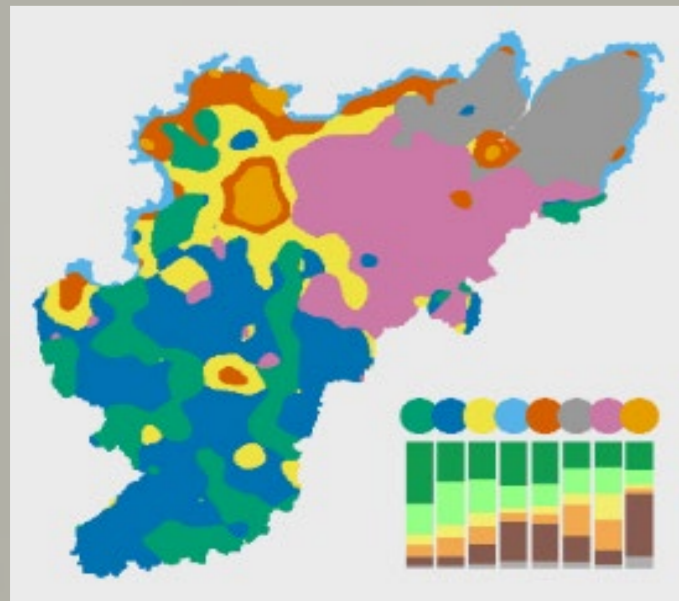
Conservation: Mapping of agricultural mosaics, hedgerows and wooded elements, and habitat connectivity. Designing eco-landscapes for better prediction.

SCIENTIFIC OUTPUTS

Cross-border dietary maps of agricultural bat species

Assessment of key pollutant cocktails accumulated by bats

Predictive ecological models combining diet, movement, and landscape structure

OPERATIONAL OUTPUTS

Recommendations and workflow for improving agroecological infrastructures, habitat continuity, landscape planning for bat conservation

Identification of pollution hotspots and risk zones to better inform policy-making

SOCIETAL OUTPUTS

Educational materials: illustrated comic, videos, posters, guidelines

A COMIC ABOUT BATS

Public events and farm demonstration days

Strengthening bat-monitoring networks across EU

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