

*The **ECOSPHERE research group** aims to study aquatic and valley ecosystems that are continuously challenged by natural and anthropogenic stressors. The research focuses on acquiring fundamental and applied knowledge at different levels of structural and functional organisation in order to underpin environmental management decisions.*

MASTER THESIS SUBJECT 2026-2027

Biodiversity of macro-invertebrate communities in a nature reserve

Research group: ECOSPHERE

Hosting laboratory: ECOSPHERE

Promotor(s): Prof. Dr. Lieven Bervoets & Prof. Dr. Bart Van de Vijver



Sampling in the nature reserve Hageven-Plateaux (@Marjel VandenBoer)

- This topic mostly contains ☒ literature study, ☒ lab work, ☒ field work, ☐ experimental work, ☐ GIS, ☐ numerical modelling, ☐ other:
- Possession of driver's license B is ☐ needed, ☒ recommended, ☐ not needed
- Possession of certificates needed: ☐ FELASA C, ☐ other:



National Park Bosland is a nature reserve of approximately 5,000 hectares in the Limburg Campine region of northern Belgium, spanning the municipalities of Lommel, Pelt and Hechtel-Eksel. The park encompasses coniferous and deciduous forests, heathlands, inland dunes and forest ponds and fens. Many of these aquatic habitats occur on nutrient-poor sandy soils and are vulnerable to changes in hydrology, nutrient inputs and climate.

The park aims to implement management measures to restore the hydrological conditions of its nutrient-poor sandy landscapes and aquatic habitats. Long-term monitoring is essential to assess the ecological status of these ecosystems, track changes over time and evaluate the effectiveness of restoration measures. Especially for ponds and fens that face pressures such as drying out and eutrophication.

To support the long-term monitoring of aquatic ecosystems and the evaluation of future restoration measures, National Park Bosland plans to launch a citizen-science project involving schools from the 2027–2028 academic year onwards. The project will involve pupils in monitoring water quality and aquatic biodiversity over time. This thesis will help identify ponds and fens of ecological and chemical interest for inclusion in this long-term monitoring initiative. By assessing their current ecological status and physicochemical characteristics, the study will provide a scientific basis for selecting suitable monitoring sites and establishing a baseline against which future changes can be evaluated.

The work will consist of 1. Inventorying the possible water bodies and their chemical and physical characteristics (including nutrients), 2. Sample the aquatic macro-invertebrate communities in the selected waterbodies and characterise their geochemical features, 3. Study the aquatic macro-invertebrate communities.

Several approaches (temporal, spatial) can be suggested and will be discussed together with possible candidates.

This project will be done in close collaboration with Natuurpunt (Jolien Claes) and the Agency of Nature and Forests (ANB), the owners of the nature reserves. The scientific coordinator of National Park Bosland will aid during the sampling and help with the interpretation of the results.

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