University of Antwerp
Faculty of Science

ECOSPHERE

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

Monitoring of adult Biting midges and effectiveness of management

Research group: ECOSPHERE

Hosting laboratory: CDE – building C

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Midges are caught with UV traps in tidal marshes and counted manually. Above is one our traps and below a big trap from De Vlaamse Waterweg.

- **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: ……**

Summary Many tidal wetlands are being restored along the Scheldt river. These designated areas serve as storage reservoirs for water during storm surges in the estuary. At the same time, they provide valuable opportunities for the restoration of tidal habitats (tidal flats and tidal marshes). Although such habitats are a natural component of the estuary, the newly created areas sometimes experience massive appearances of midges. These small stinging flies can cause significant nuisance for people living nearby when their numbers become very high. This nuisance may undermine societal support for this type of nature restoration. It is, however, likely that the outbreaks are only a temporary phenomenon in an ecosystem that has not yet reached equilibrium.

To effectively manage these populations, we need to know where the midges occur, how abundant they are, and how their numbers change over time. For this reason, classic traps (using light and/or CO_2) are deployed both within the restored areas and in the gardens of local residents. The midges stick to adhesive plates, which are collected after several days. In addition, De Vlaamse Waterweg—the agency partially responsible for the restoration of these areas—has installed large traps intended to reduce midge nuisance. However, it is still unclear whether these traps function effectively, and your research will contribute to evaluating their performance.

You will assist our field technicians in setting out and collecting the traps. In the lab the midges will be counted. You will also set up experiments to test the trap's performance. The goal is to create guidelines for an optimal position of the traps around a midge hotspot. Afterwards, the results are mapped and linked to environmental variables to help water managers and decision-makers better control midge outbreaks. This thesis is ideal for someone with an interest in management and organism identification. Most of the work is performed indoors, behind a stereoscope or a computer, and computer tasks can be done from home if desired. A good eye for detail and perseverance are recommended.

This project contributes directly to the successful restoration of tidal areas along the Scheldt. By improving our understanding of midge population dynamics and evaluating different management methods—including the effectiveness of large traps used by De Vlaamse Waterweg—your work will support well-informed decisions that help balance ecological restoration with the wellbeing of nearby communities.

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