

*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

Growth and Stress Tolerance of Young Mangrove Seedlings under Changing Environmental Conditions

Research group: ECOSPHERE

Hosting laboratory: CDE

Promotor(s): Ken Schoutens, Ignace Pelckmans

Daily supervision: Ken Schoutens, Ignace Pelckmans



Figure 1: This thesis investigates how young mangrove seedlings respond to environmental stressors such as salinity and inundation, aiming to improve understanding of their survival, growth, and restoration potential through controlled mesocosm experiments at the UAntwerpen Mesodrome facility

- 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:

Mangrove forests are among the most efficient ecosystems in sequestering carbon, are crucial for coastal protection against storm surges and tsunamis and act as local biodiversity hotspots. As such, mangrove conservation and restoration are increasingly being proposed as a nature-based solution for climate mitigation and adaptation. However, their survival and growth are increasingly threatened by environmental stressors such as increasing salinity and inundation stress, which can be induced by sea level rise. This thesis aims to investigate how young mangrove seedlings respond to such stressors, improving our understanding of mangrove seedling survival and growth. Such information is crucial to improve future restoration and cultivation strategies.

The research will involve cultivating mangrove seedlings into young trees in the Mesodrome experimental greenhouse facility at Campus Drie Eiken (UAntwerpen). The student will help design and build the experimental setup to simulate different environmental conditions (e.g. salinity or inundation frequency). You will be responsible for monitoring and maintaining the mesocosm systems, collecting environmental (e.g. salinity, temperature, etc.) and biological data (e.g. shoot length, number of leaves, shoot diameter, photosynthetic activity, etc.) including morphological and physiological traits.

We are looking for an enthusiastic student with a passion both for tropical ecology and for getting dirty hands. This thesis will be split over two semesters, starting in the second semester of Ma1. The work itself required practical tasks (fabricating an improvised tropical greenhouse in a larger greenhouse for instance), followed by frequent experimental measurements on campus. We ask for a flexible schedule and intrinsic motivation for ecological work but offer close supervision and our own enthusiasm in return.

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