Macroecology
University of Potsdam

Master Thesis Topics

Temporal changes in tree species composition with and without forest disturbances

Temperate forests provide essential ecosystem functions, but their stable provision is increasingly challenged by shifts in tree species composition and functional biodiversity. Especially, forest disturbances – such as windthrow, insect outbreaks, or fire – will likely exert long-term effects on the functional composition of tree species communities. Yet, quantifications of long-term changes in functional composition in temperate forests are still scarce, especially changes occurring after forest disturbances. We address this gap in the *TempTurn* project by combining time series of tree species abundance data with functional trait data to examine temporal changes in functional diversity.

Data from various sources can be used to approach this topic:

- existing multi-decadal monitoring data from National Parks and reserves across Europe
- field-based re-survey data, which could potentially be complemented by own field-work
- model results from the literature on future species turnover
- tree species functional trait data from various databases

MSc thesis topics that could be addressed based on the above data include, but are not limited to:

- Changes in the functional composition of the tree regeneration after disturbances (e.g. as opposed to changes in the overstorey)
- Temporal changes in tree species composition and functional biodiversity after disturbances at selected sites
- Predicted future changes in functional composition of European temperate forests
- Changes in tree species functional composition depending on spatial scale of observation

Other related topics:

- How does tree sapling diversity affect deer browsing patterns in unmanaged forests?
- Intraspecific trait variation in trees – how does it vary with ontogeny and site conditions?

More information about the project context can be found here: https://www.uni-potsdam.de/en/ibb-macroecology/research/tempturn

Starting date: flexible (the thesis can also be combined with the Advanced module)

Language: English (preferred) or German

Prerequisites: Good understanding of R, interest in statistical analyses

Contact: Dr. Bettina Ohse (bettina.ohse@uni-potsdam.de)