



Bachelor thesis

Influence of light availability and ungulate browsing on earthworms in temperate forests

Background

Climate change-related natural disturbances in forests are very likely to increase in intensity and frequency in the future. These include windstorms, bark beetle outbreaks and droughts. The death of (many) trees is always accompanied by an opening of the tree crown, which allows more light to reach the forest floor and abruptly changes the microclimate within a forest stand. This has a very strong effect on natural tree regeneration and thus, shaping future forests. Another smaller "disturber" is the roe deer (*Capreolus capreolus*), which is represented by a high density in Germany. It also has a major impact on tree regeneration, as browsing causes seedlings and young trees to die. Similarly, forest soils harbor diverse earthworm populations that, as ecosystem engineers, play a prominent role in nutrient cycling and understory vegetation formation, thus directly affecting tree seedling establishment. Here we want to investigate hidden interactions and cascade effects between earthworms, natural regeneration, light and shade as well as browsing pressure in a field experiment.

Project

The thesis will be carried out on the experimental plots of the BETA-FOR experiment in the university forest of the University of Würzburg near Sailershausen. Here, canopies were opened by interventions and a 6x6 meter fence was erected to exclude ungulate browsing. The 90 plots are distributed over open and closed forest stands, which ensures to disentangle the effects of light and shade, as well as ungulate browsing and non-browsing. We will study earthworms inside and outside the fences. The field work will take place in the Uniwald near Sailershausen and the lab work in iDiv, Leipzig. You will learn the associated methodologies (e.g. identification of earthworms) and statistical approaches to analyze your data as well as gain insights into forest ecology and experimental interaction ecology. FIELD WORK WILL HAPPEN BETWEEN 30. SEP – 20. OCT 2024.

Profile

You are interested in Biodiversity – Ecosystem functioning (BEF) research, plant ecology, soil ecology, or forest ecology. You have worked in the field and a lab before and you are interested in learning new methods.

Supervision

The bachelor thesis will be supervised by Dr. Christian Ristok (iDiv / UL) and Ludwig Lettenmaier (University Würzburg).

If the project has piqued your interest and/or you have further questions about the project, please contact us at any time via mail (christian.ristok@idiv.de ; ludwig.lettenmaier@uni-wuerzburg.de).

Contact

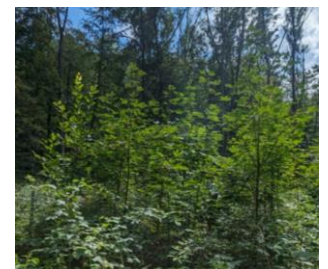
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