

Topics for study projects or BSc/MSc theses

- 1. Initial processes of soil formation on Relict Charcoal Hearths (RCH) in the Tauersche Forst, Brandenburg – Acidification and Podzolization**
- 2. Initial processes of soil formation on Relict Charcoal Hearths (RCH) in the Tauersche Forst, Brandenburg – Accumulation of Soil Organic Matter (SOM)**

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Lab analysis and data interpretation of soil samples from Relict Charcoal Hearth (RCH) sites in the Tauersche Forst, Brandenburg. Samples will be taken presumably in April/May 2021 on 6 sites: (A) 3 sites pine forest (RCH soil + reference soil), (B) 3 sites oak forest (RCH soil + reference soil).

The aims of the projects are for 1. to identify small-scale acidification processes on RCH platforms and to characterize initial podzolization under different tree cover, and for 2. to identify small-scale humification processes on RCH platforms and to characterize initial accumulation rates of SOM under different tree cover.

Field fresh soil samples are provided for further lab analyses to be conducted by the candidate. Students may assist during field campaigns depending on Covid 19 situation and regulations.

Methods / Software: statistical analyses of lab data, MSEXcel, R (optional), literature review

Basic tasks:

- Literature review
- Lab analyses (pH, SOM content)
- Statistical analyses and data interpretation

Additional tasks will be specified depending on the candidate's interest and qualification (BSc/MSc)

References:

Bonhage, A., Hirsch, F., Schneider, A., Raab, A., Raab, T., Donovan, S. 2020. Long term anthropogenic enrichment of soil organic matter stocks in forest soils - Detecting a legacy of historical charcoal production. Forest Ecology and Management 459. <http://dx.doi.org/10.1016/j.foreco.2019.117814>

Hirsch, F., Schneider, A., Bauriegel, A., Raab, A., Raab, T. (2018): Formation, Classification, and Properties of Soils at Two Relict Charcoal Hearth Sites in Brandenburg, Germany. - Frontiers in Environmental Sciences 6: 94. <https://doi.org/10.3389/fenvs.2018.00094>