

EGU22-7978

<https://doi.org/10.5194/egusphere-egu22-7978>

EGU General Assembly 2022

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Drought sensitivity of *Pinus sylvestris* L. on century old charcoal rich Technosols in the North-German Lowland

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Soils on relict charcoal hearths (RCHs), i.e. aged charcoal rich Technosols, feature documented legacy effects regarding their physical and chemical soil properties. These forest soils result from the pre-/early-industrial production of charcoal in upright standing hearths. Today, RCHs are found in forested areas as circular microrelief structures with average diameters of about 10 meters that contain technogenic soil horizons of about 20 cm thickness. RCH soils are most distinctly characterized by their large content of pyrogenic soil organic matter and consequently increased total carbon contents. The resulting changes in the soils' cation exchange capacity, soil acidity, total nitrogen contents and total element stocks are often significant. Furthermore, changes in soil physical properties like a lower bulk density and a higher porosity result in changed soil-water- and temperature regimes. Combined, these effects potentially result in unique soil microhabitats that are restricted to relatively small, clearly defined areas in many forest ecosystems.

Recent studies on RCH soils increasingly focus on potential changes in microbiological and vegetational composition and abundances and report diverse effects. Here, we study the effects of century old charcoal rich Technosols on the drought sensitivity of Scots pine (*Pinus sylvestris* L.) on three RCH sites located in Lower Lusatia, Saxony (Germany). Through dendrochronological analysis of increment cores and historical climate data, we study climate-growth relationships for trees on RCH soils and reference forest soils for two periods (AD 1963-1992 & AD 1990-2019). Furthermore, we determine pointer years and components of resilience to quantify the trees' reaction to extreme weather conditions. This analysis was accompanied by soil sampling and analysis on the RCH sites and adjacent reference forest soils. Here, we present preliminary results and discuss them in the context of findings from other studies on RCH soils.