Reconversion of Scots pine monocultures into deciduous tree stands: Effects on soil chemical properties, ground vegetation, and earthworm populations. (S07-prietzel031500-Oral)

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Abstract:

Long-term effects of a reconversion of Scots pine (Pinus silvestris) monocultures into mixed stands dominated by European beech (Fagus sylvatica) and sessile oak (Quercus robur) were investigated on 23 sites in Germany with different soils, parent material, and climate. This approach allows to address the role of differing site conditions on the ecological effects of the reconversion, such as (i) topsoil chemistry (acidity, concentrations and pools of C, N, and exchangeable cations, base saturation), (ii) ground vegetation, and (iii) earthworm populations. The introduction of beech and/or oak into Scots pine stands resulted in (in most cases significant) increases in the pH and strong decreases in the C/N ratio of the topsoil. The abundance and biomass of the ground vegetation decreased. For the mineral topsoil of most stands, increases in base saturation and humus contents were observed. Significant increases and/or changes in earthworm populations were noticed only for some sites characterized by an acidic, base-poor topsoil and a subsoil with a high base saturation, where the reconversion resulted in a strong increase in base saturation in the entire topsoil.

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