

93. SOILS IN TRANSITION : VEGETATION SUCCESSION AND DEVELOPMENT OF SOIL NEMATODE COMMUNITY AFTER LAND ABANDONMENT

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Restoration of former agricultural fields towards more natural and species rich ecosystems is one of the major land conversion activities in industrialised countries. During the transition from a high-input system towards a more stable, low-input system, a gradual shift from bacterial to fungal dominated decomposition is expected. Theory also predicts longer food chains and increased food web complexity, which will influence density and diversity of root herbivores and pathogens. However, the mutual interactions of soil organisms – such as nematodes – and their impact on successional shifts in vegetation are rather unexplored. With respect to successful restoration, many uncertainties on the role of soil organisms in processes, such as decomposition and rate of nutrient turnover, still remain. To investigate above and below ground changes after land abandonment (secondary succession), the development of microbes (bacteria, fungi), soil nematode community as well as vegetation composition was tested in a chronosequence study. The effect of management strategies (such as top soil removal, hay spreading, soil spreading) on vegetation development and soil nematode community is studied in a field experiment in order to develop practical applications for enhancing the process of secondary succession. To test the effect of soil biota composition on the competition between plant species and on the plant-soil feedback response of mixed plant community – hypothetical leading to successional shifts in vegetation composition – a mesocosm experiment is set-up.