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Adaptation strategies to monitor the catchment dynamics at 'Chicken Creek'

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The Chicken Creek catchment was constructed in 2005 to study ecosystem development of an initial ecosystem at the landscape scale. The site has an area of 6 ha with defined boundary conditions and known inner structures. Since more than 10 years, we are monitoring the unrestricted development of different system compartments. The fast development, the formation of patterns and increasing heterogeneity were challenges for the monitoring program.

Starting with a regular 20 x 20 m grid in the initially homogeneous system, monitoring installations were continuously complemented by more pattern and patch oriented measurements in order to catch up with both the spatial and temporal dynamics of the catchment.

The monitoring program includes both high-resolution temporal recordings (e.g. groundwater levels, discharge, meteorological data, soil moisture), spatial sampling campaigns (e.g. soil properties) and annual vegetation surveys. In addition, we use drone images to document the site development.

The presentation describes the monitoring approach and adaptation with examples from vegetation, soil and hydrological data at different spatial and temporal scales.