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An experiment on natural rehabilitation of floodplain vegetation

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One important aspect of a complex system is the capability to adapt to changes in one or several of its subsystems. Studying this system behaviour mostly requires experimental studies or numerical models. However, opportunities to study these issues in a natural environment are rare since long observation time series are required.

Floodplains are important sedimentary archives of landscape and climate evolution during the Holocene. This system is largely influenced by floodplain vegetation and, hence, information on how floodplain vegetation reacts on anthropogenic or climatic changes is needed to better understand floodplain genesis.

In this study we examined the effects of serious change of floodplain vegetation and how this system adapts to the altered environmental conditions. Floodplain vegetation was largely destroyed by construction works for a military training area in the Main valley near Volkach.

The training area was more than 25 years in military use and was closed in mid of 2006. During this time the area was used for mobile sapper units and demolition trainings. After closing an environmental analysis was conducted. The question was if the floodplain vegetation would adapt to the former natural environment in spite of military operations. On the basis of soil, water and vegetation studies we identified that within the period of military use a new stable balance of vegetation was accomplished. In relation to the surrounding floodplain vegetation no identifiable changes to biodiversity, vegetation, quality of water bodies and contamination of soil could be located.

Only small changes in vegetation along the drives to the river and along the military infrastructure could be adopted. The serious anthropogenic changes in this complex system of floodplain vegetation were buffered after 25 years. The complexity of this natural plant community is underlain a very fast and simple natural rehabilitation.