

Archaeopedological analysis of land use dynamics in marginal areas in SW Germany

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A common theory to explain human migration is climate change triggering migration and the shift of farming places. Populated areas might have been relocated or extended because of changing resources like a warming climate, soil erosion or a change in demands. But it also has to be taken into account that altered trading relations or changing religious attitudes might have caused migration into and settlement of formerly not used areas. In the case of Southwest Germany it is assumed that people migrated from the favorable Baar (more even areas, soils on loess, lower elevations) to the unfavorable Black Forest and the Swabian Jura with harsher environmental conditions (small valleys, acidic soils, steep slopes, higher elevation).

Soils are generally considered as being an important resource related to human activities, especially farming, but also for using wood, water or iron ore. Colluvial deposits as geoarchives reveal the formative impact of humans on their environment: on the development of soil, relief, vegetation, and land use. Land use and therefore settlement history are inscribed in colluvial deposits, which we use as proxies for the kind and intensity of human activities. Especially in marginal areas land use and settlement dynamics are not well investigated. Important questions are how and why did people use the unfavorable land during different times? Which resources were important for different phases of settlement? In this project, soil science methods are used together with archaeological approaches, which is an essential part of archaeopedology.

Using colluvial deposits from three study areas it is possible to create pedological and chronological stratigraphies reflecting land use dynamics in favorable and unfavorable areas. First AMS radiocarbon dates from the western Baar in transition to the Black Forest point to human land use with different intensity for 5500 years. Thick lower colluvial layers date back to the third millennium BC. Above-lying colluvial layers date to the 11-12th and to the 13-14th Century. Around Villingen colluvial deposits could be found in approximately 60-80 cm depth dating to 1620-1500 cal BC and in about 50 cm depth dating to 427-543 cal AD. So the age of the lowest colluvial layers are older than the widely accepted beginning of intense settlement in Southwest Germany. Inferred from the periods of intensified colluvial deposition events other reasons than warmer climate may be responsible for migration from favorable to unfavorable regions.