

Palaeoenvironmental conditions and associated human habitation dynamics over the Holocene in the north-eastern Romanian lowlands derived from palaeoenvironmental and archaeological archives

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Human activities have had an impact on global land cover and climate for millennia and the climatic and environmental conditions have always been main factors for human settlement dynamics. This study builds on a record of environmental history derived from the investigation of sediments recovered from the Dersca-Lozna fen, that could explain the context for human habitation dynamics over the Holocene in the north-eastern Romanian lowlands. To assess palaeoenvironmental changes in the area, we derived downcore lithostratigraphic information, bulk density and humidity values over a continuous time window that spans the last ca. 12000 years. To reconstruct the dynamics of human habitation, we surveyed published archaeological studies and traces of human settlement in the area. The archaeological sites were subjected to a morphometric analysis based on relevant factors (slope, proximity to major waterways and relief) underlining the evolution of preferred environmental conditions for settling. The main results of spatial distribution analysis converge to conclude the following: hotspots of human habitation throughout millennia have been identified in the study area; as the population number grew, the number of sites and the altitude range of the populated landscape increased (particularly in the bronze Age); the sites expansion followed the accessibility of the valleys and proximity to water resources. The morphometric analysis outputs overlap the preliminary paleoenvironmental picture inferred from the peat stratigraphy, revealing long-term human impact on the landscape. Thus, two main conclusions emerge: i) first clear signs of increased erosion in the peat record coincide with settlement expansion in the Bronze Age (ca. 3300 years ago); ii) a second intensification in erosion corresponds to the Medieval Warm Period (ca. 900-1200 years ago), and is reflected in a series of distinct layers; their driving factors still remain to be disentangled. We suggest that there is more to be derived from the combined archaeological and palaeoenvironmental perspective, as our preliminary data leaves many open questions.