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Climate-induced transformation of alluvial environments and subsistence crisis in first farming groups of the Carpathian Basin during the 6th millennium BC

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One of the most significant cultural transformations in European prehistory occurred in the middle of the 6th millennium BC in the heart of the Carpathian Basin, a period which was known as the Holocene climatic optimum. The northward expansion of Mediterranean farming groups (Starčevo-Körös-Criś cultural complex) came to a halt and underwent a complete transformation giving rise to a new cultural group which spread the Neolithic package to the rest of Western Europe. This happened along a boundary, north of which unfavorable ecological conditions hampered a long-term engagement in a Mediterranean type of agriculture. This transformation is observable in sites along the referred borderline alone. The culture remained relatively unaltered in the southern parts of the basin. The majority of Early Neolithic sites in eastern Hungary are found in an alluvial setting experiencing biannual floods. According to geoarcheological data, there was a displacement of settlements onto flood-free natural highs parallel with the evolution of the Körös culture. This may imply a possible shift in the quality of adjacent water bodies as a potential trigger in adaptation. In order to test this hypothesis a multiproxy paleoecological analysis of mollusk remains from a site along the referred borderline has been implemented. High-resolution vertical sampling and comparison of new results with those from nearby well-documented contemporary sites allowed us to make inferences regarding aquatic habitats at a larger regional and temporal scale. Since freshwater mollusks collected by humans in themselves characterize the quality of the water body from which they derive. On the other hand they also express the importance of second-line resources in subsistence, which is generally an excellent marker of socioeconomic response to environmental stress. Based on our findings a clear alteration in stream properties on the floodplain was identified coevally with the referred cultural transformation, which could have been traced regionally as well along the referred northern distribution borderline. This must reflect the effects of some climatic perturbation as a potential trigger.