

The main scientific objective of project is comprehensive analysis and characteristic of the colonization process of peripheral areas of loess uplands by the early Neolithic communities between the 2<sup>nd</sup> half of the 6<sup>th</sup> and the end of the 5<sup>th</sup> millennium BC. One of the key research tasks will be an assessment of actual reasons and conditions as well as mechanisms of formation of early agricultural settlement concentrations in areas beyond the reach of compact loess formations, i.e. within the ecological and landscape regions significantly deviating from the typical settlement preferences in this period. Particular emphasis will be put on the determination of background, nature and degree of intensity of the settlement, and also on the range of economic activity within their limits, with the identification and reconstruction any conditions and consequences of these processes at the environmental, cultural, taxonomical and chronological levels.

Principal research goals will be implemented in the highest degree on the example of the area of the northern foreland of Sandomierz Upland, and more specifically – on bordering with its loess cover sandy-clay region of Iłża Foothills. These areas are, almost from decade, the object of principal scientific interest and field activity of Author of this application. At present they are one of the most archaeologically recognized early Neolithic regions of settlement, located outside the range of loess cover of southern Poland uplands, at the same pretending to become one of the most important planes of references in the general studies on problems of colonization of these atypical landscape-ecological zones during the 6<sup>th</sup> and the 5<sup>th</sup> millennium BC. This creates a very solid foundation to undertake the interdisciplinary field research and study works on much broader scale, including archaeological research as well as the multifaceted, specialized studies and laboratory analyses, conducted by representatives of various disciplines, mainly of biological and natural sciences.

The interdisciplinary nature and range of planned research involves the use of variety of research methods: archaeological (excavations within a few selected archaeological sites), geodetic (geospatial analysis of the investigated sites and creation of digital models of their reliefs), hydrological, geological and geomorphological (detailed geological, geomorphological and hydrological mapping, as well as drilling and geological probing and laboratory analysis of collected samples), soil science (for determining the soil conditions within investigated sites and in their vicinity and to conduct a geochemical analysis all of the recorded deposits and sediments), geomagnetic (analysis of form, size, intensity and distribution of magnetic anomalies in order to determination of the extent of studied sites and their arrangement), aerial photography (by using drones in order to determine ranges all investigated sites and to identify all potential traces of their development in the early Neolithic period), physical and chemical (<sup>14</sup>C and OSL dating of archaeological finds, laboratory analyses of various samples, among others samples of ceramics in order to identification and determination organic substances preserved on surfaces of vessels), microwear analysis (identification of original functions of flint and stone tools on the basis of characteristic microtraces of use preserved on their surfaces), mineralogical-petrographic (raw material identification of stone tools), archaeozoological and malacological (anatomical identification and taxonomic affiliation of discovered animal bone remains and remains of molluscs; detailed characterization of habitat conditions of recorded species), and archeobotanical (taxonomic identification of macroscopic plant remains and charcoal samples obtained during the excavation as well as a palynological analysis of biogenic sediments in vicinity of excavated sites).

The results of the interdisciplinary research will become the basis for the comprehensive identification of environmental conditions and changes of this microregion, related to its occupation and economic exploitation over the 6<sup>th</sup> and 5<sup>th</sup> millennia BC. They will allow the reconstruction of local cultural situation and also course and scale of the settlement processes, for example the recognition of adaptation strategies and economic models appropriate for farming communities in that period. They will allow to determine the actual – and, as indicated by the results of previous studies – a very significant position and role of communities of mentioned micro-region in the overall cultural system of the early Neolithic period in the areas located on the northern side of Carpathians. The use of different research methods will also allow for the completion of an extensive and qualitatively diverse database, which will determine the essential reference plane in further process of scientific recognition and inference. The results of microregional research will be the principal source basis of the comparative analysis taking into account other upland areas occupied during the 6<sup>th</sup> and 5<sup>th</sup> millennium BC in the upper Vistula basin, as well as in the western and central parts of Europe. This analysis will be conducted on the basis of all available environmental and archaeological data. This synthetic and comparative analysis will allow to determine any probable and actual determinants of colonization of non-loess landscape-ecological zones, during the 6<sup>th</sup> and the 5<sup>th</sup> millennium BC, as well as its actual role and importance in widely understood neolithization, especially in the context of accompanying cultural and economical changes. Results of these studies will form the proper implementation of the project, bringing undoubtedly a significant contribution to the development of archaeology and paleogeography of settlement in early Neolithic.