

During the project we plan to explore prehistoric relations linking humans and soils in SW Poland. Pedologists distinguish seven factors that have a bearing on soil formation: climate, flora/fauna, topography, parent material (the geological substrate), time, water regime and anthropogenic activity. The study of each of these variables is also important in archaeology – a fact long recognized and one which sparked numerous investigations. The currently proposed research will continue along this path, however it will emphasize the latter factor, focusing on past human actions and the resulting transformations of the environment.

In Silesia soil has been used as a basic resource since the late 6<sup>th</sup> millennium BC. The region offered good conditions for farming communities, especially in areas where soils developed from loess, a sediment that had been deposited during the last glacial period. Various land-use strategies have been applied by people throughout the millennia and the sequence of archaeological cultures marks some of the changes – episodes of stable or mobile occupation, intensive or extensive farming, reliance on crop cultivation or preference of animal husbandry. These phenomena are interpreted in terms of migrations, spread of ideas, social differentiation or sophistication of material culture. At the same time, nowadays in the Silesian loess zone we observe a few types of soil: eluvial-illuvial, humus-enriched, eroded/truncated, along with hypotheses explaining their formation and differentiated distribution. For this reason, it is fair to pose the question: what is the common story behind these facts? How did humans contribute to current soil variability in the region?

In recent years researchers suggested, that in prehistory fertile chernozemic soils were widely present in the belt where loess is found, stretching from southern Poland through Moravia and Silesia to eastern Germany. Their persistence during the Neolithic, as well as their subsequent transformation-disappearance in vast areas (e.g. Sudeten Foreland), both seem linked with human activity or the lack of it – in this case agriculture causing sustained deforestation. This hypothesis bridges the gap between archaeology and pedology; still, questions remain: what soils accompanied the various communities that settled Silesia in prehistory? How did people modify them (over millennia) by land-use – settlement and agriculture, locally and in a regional scale? What was the rhythm of shifts between formation of natural, and creation of cultural landscapes? Exploring these questions is the project's objective, and the rich prehistoric archaeological record in Silesia offers good prospects for finding the answers.

This however requires tailored data and a prudent research procedure. Soils hold a record of multiple forming factors, hence they are reliable proxies of environmental and anthropogenic influence, locally and regionally. Accordingly, we direct focus towards preserved ancient soils, buried under prehistoric barrows and kurgans. These paleosols may be seen as “time capsules”, containing evidence of natural conditions and human impact before the monuments' construction. Post-burial alteration that has occurred up to the present-day is also visible in them, as well as in the mounds themselves. The moment of barrow/kurgan erection places these events in time. Now, by comparing features of buried horizons and mound material, it is possible to detect environmental (and cultural) change at the site-level, whereas comparisons between several sites have regional significance, especially after the human factor is highlighted, by considering the cultural dynamics known from the archaeological record.

The research will be conducted in two loess regions of Silesia (Głubczyce Plateau and Sudeten Foreland), both occupied and used agriculturally with varied intensity for over 7 thousand years. Neolithic, Bronze Age and Early Medieval barrows and kurgans (some previously excavated) were identified in several currently forested areas: the Głubczyce, Rozumice and the Muszkowice Forests, and near the village of Lubotyń. This chronologically diverse buried soil archive will be investigated within a framework of archaeological evidence, using a suite of geoarchaeological methods: micromorphology, physico-chemical and geophysical analyses, in combination with botanical studies and radiocarbon dating. The planned procedure is low-invasive and relies on sampling profiles of old excavation trenches (where possible) and core drillings (elsewhere) for data acquisition, to avoid full-scale excavations of the funerary monuments.

We expect the project to bring major advancements in the field of environmental archaeology in Silesia. By delivering a new, complementary set of proxy data (soil type, plant macro-remains, phytoliths, possibly pollen), together with an explanatory model with wide chronological span, it will allow for more precise reconstructions of the past environment in the region. Furthermore, if archaeology means explaining cultural change, then by investigating the buried soil archive in the Silesian loess zone, we can expect to broaden the understanding of prehistoric human impact on the environment and the creation of cultural landscapes. In our opinion, revealing these modifications (and their consequences), such as present-day soil distribution patterns, is a task that underlines the universal importance of archaeology as a science: a study of the past, with meaning for the present and the future.