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WORKSPACES AND ORE DEPOSITS – REMOTE SENSING AND SOIL GEOCHEMISTRY AS TOOLS FOR IDENTIFYING PAST IRON PRODUCTION ENVIRONMENTS

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In the past several years, part of the Croatian lowland Drava River valley region has been systematically studied for traces of iron production – from the identification of potential ore deposit areas to archaeological site recognition (field survey, geophysics) and excavation. An interdisciplinary multi-method geoarchaeological approach yielded recognition of physical parameters for potential bog iron ore occurrences unknown to the region previously and spatial-environmental patterns related to placement of archaeological sites with testified iron production activities. More than 150 sites were recognised through surface surveys and excavated workspace areas were dated to Late Antiquity and the Early Middle Ages (4/5th – 8/9th centuries). The latter sites could be referred to as iron production environments. These include workspaces with traces of past human iron production activities and adjoining areas with natural prerequisites for the development of bog iron ores or existing ore deposits beneath the topsoil level. In order to define the latter character of the site and the potential for non-destructive and remote site recognition in a specific lowland landscape, a multi-stage methodological approach was applied to a case study area – the Kalinovac-Hrastova greda site. The approach includes a surface field survey, geophysical investigation, excavation and a geomorphological, relief, pedological and hydrological analysis of the area, as well as geochemical and vegetational indicator analysis. Through the analysis, a number of parameters that can be used remotely and non-destructively were defined as high probability indicators for the recognition of iron production in the past environments – 1) predictive GIS analysis and satellite imagery analysis (vegetational and pedological indicators), 2) spatial and statistical analysis of topsoil geochemistry (pedological).

Keywords
soil geochemistry, iron production, site recognition, GIS, landscape archaeology

Note/comment