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26th EAA Virtual Annual Meeting

Abstract Book

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5 VOIDS IN SETTLEMENT PATTERN DATASETS. BIAS AND UNCERTAINTY OF NON-RESEARCHABLE AREAS IN ARCHAEOLOGICAL MODELLING

Abstract author(s): Mesterházy, Gábor (Castle Headquaters Integrated Regional Develompent Centre)

Abstract format: Oral

Non-invasive survey methods are widely used across the world as a reliable survey method in scientific and development-led researches to locate and identify archaeological features and sites. Many efforts have been made earlier to understand the capabilities and limitations of these methods, although most of this work was dedicated to the "found" or "measured" data. Regional or micro regional surveys or even development-led infrastructural projects almost always must face with non-surveyable areas due to temporal or permanent coverage.

A detailed analysis was carried out in a 350 km2 area around the city of Polgár (NE Hungary) to analyse regional-scale effects of land cover on site identification. As a first step three CORINE datasets (CLC100, CLC100 change, Hungarian CLC50) were used to locate and identify the currently researchable areas, but also those zones where the land cover changes altered the survey options in the past decades.

Secondly, land cover categories of the Second Military Survey of the Habsburg Empire were digitized in order to define land cover extents before the 19th century water-regulations in the area, which effected land use drastically. Then environmental variables were selected and weighted with Analytic Hierarchy Process method to characterize favourable conditions for different land cover types in the study area. As a result, an "optimal" land cover was defined. By merging the current and the "optimal" land cover datasets a bias map can be produced, which will characterize the effectively and not effectively researchable areas.

Lastly predictive modelling was carried out in order to fill the settlement pattern voids of non-researchable areas. The modelling results were verified with field survey data in a roughly 20 km2 area (handheld GPS; 25 m track spacing; 100 m collection unit) and targeted magnetometry measurements on grasslands.

6 NON-INVASIVE METHODS FOR VOLGA BULGARIA FORTIFIED SETTLEMENTS MONITORING

Abstract author(s): Usmanov, Bulat (Institute of Environmental Sciences, Kazan Federal University) - Gainullin, Iskander (Research Centre "Country of Cities", Kazan)

Abstract format: Oral

This work is a part of the research (Russian Foundation for Basic Research project №18-09-40114) aimed at developing a system of monitoring of archaeological sites archeological monuments of the Volga Bulgaria, united by geographical borders on the right bank of the Volga within the Ulyanovsk Region and the Republic of Tatarstan. This region is important for study, because according to archaeological data this area was first inhabited by the Bulgars. A new method for assessing the risks of destruction of archeological sites within the territory of the Volga Bolgar with the use of remote sensing methods, complex field studies and cartographic-geoinformation approaches to data processing is developed. One of the main used methods is archival and modern remote sensing data analysis that makes able to correct the form of study settlements in comparison with existing plans as well as their size and location in the landscape. Historical maps, archival remote sensing data and orthophotomaps compared to get quantitative characteristics of monument territory damage. Modern instrumental methods have been used in order to collect information on dangerous exogenous processes and anthropogenic impact within the monument territory. The main result of this study is determination of the boundaries and protection zones of the studied cultural heritage objects and development of recommendations for archaeological sites preservation.

7 „…AND IN DARKNESS ITS NAME IS COVERED" ARCHAEOLOGICAL PROSPECTION OF PERISHED MEDIEVAL CHURCHES IN HUNGARY

Abstract author(s): Stibrányi, Máté (Várkapitányság Zrt.)

Abstract format: Oral

Due to the peculiar history of the Hungarian Basin, most of its medieval settlement pattern is perished, alongside with their landmark features: the medieval rural church. Scarcely any of the dense pattern survived in the middle regions: for example, in Fejér County, where there had been 230 churches in 4500 km², only six remained (as ruins) today. The others are demolished and mostly forgotten even by the locals, only to be found with archaeological fieldwork.

However, these landmark ruins are not only former ecclesiastical places, but also crucial parts of the medieval settlement network: all of them had been a parish church of a medieval village. So basically, with the identification of these distinct features, we can also locate the medieval local focal places (like nodes of communication and network) understanding the medieval settlement patterns of the region.

To discover these features at such a large scale, excavation is obviously out of the question, so we needed to set up an integrated approach, applying multiple archaeological geophysical methods as key elements. Using this approach, it's easily possible to discover such a church within a day.

Finding these long-forgotten churches and putting them back on map is useful not only for heritage reasons, but for large-scale regional investigations as well. This is basically a very first step: understanding hierarchy is not easy without identifying the focal places. Though we are not there, we might have the tools to achieve it.

8 CIRCLES AND LONGHOUSES: CONTRIBUTIONS TO THE INVESTIGATION OF NEOLITHIC SETTLEMENTS IN EASTERN SLAVONIA (CROATIA)

Abstract author(s): Meyer, Cornelius (cmprospection)

Abstract format: Oral

Slavonia, the land between Drava and Sava rivers is famous for its high dynamics in the expansion of Neolithic settlements, which began around 7,000 BC. However, only a few places have been extensively investigated. From the evaluation of aerial photographs and field surveys, many other potential sites are known which can be assumed on the basis of paleodemographic models, but which have not yet been identified due to a lack of reliable data and suitable aerial photographs.

Between 2016 and 2019 several magnetic prospection campaigns were conducted at Neolithic sites in Eastern Slavonia. The motivations for the measurements are based on the results of field surveys as well as on observations of aerial photographs and high-resolution terrain models.

Although, the magnetic data confirm the earlier assumptions and impress by their high level of detail, the data sets must be considered incomplete in most cases, as the investigations faced serious constraints. Firstly, those undertakings are often characterised by relatively low budgets. Secondly, intensive agricultural use and the small size of the plots of land lead to limited accessibility of the areas under investigation. Furthermore, the limited budgets also imply a methodological narrowness.

The examples presented demonstrate that substantial archaeological information can be obtained even from limited data sets. However, the results must be embedded in a strictly multidisciplinary approach in order to develop more precise prediction models of the prehistoric settlement dynamics of the region

The geophysical prospection campaigns were initiated, funded and strongly supported by the University of Zagreb, the Institut za Arheologiju in Zagreb, the Muzej Slavonije in Osijek, and the Gradski Muzej of Vinkovci.

9 A COMPROMISE BETWEEN WISHES, NEEDS AND POSSIBILITIES. NON-INVASIVE SURVEY OF STRONGHOLDS IN SE GREATER POLAND

Abstract author(s): Mackiewicz, Maksym (Archeolodzy.org Foundation; Polish Centre of Mediterranean Archaeology, University of Warsaw)

Abstract format: Oral

Strongholds are among the most distinct examples of archaeological sites. They are the result of work undertaken by highly organized, complex societies. Their location was determined by various factors. Very often they were the stage for events of supra-regional importance, known from written sources. SE Greater Poland is a region with a particularly high density of prehistoric and medieval earthworks, which at different stages of history formed unique and highly functional defensive networks, compact and extensive at the same time. The structures usually can be recognized in the landscape. However, their preservation should not be taken for granted. They remain susceptible to damage due to many natural processes and human activities and as such require special care and attention.

In 2019 a project focused on more detailed recognition of strongholds of SE Greater Poland was started. The area of approximately 6000 square kilometers, marked out by administrative boundaries, included over 100 fortifications. A clear definition of the area of interest allowed to cover these objects with relatively equal attention, consistent field research procedures and documentation standards. The workflow was based on complementary application of non-invasive methods: remote sensing (ALS, aerial prospection, satellite imagery analysis) and geophysics (magnetics), backed by thorough archival queries (archaeological records, historical cartography), what has proved to be a cost-effective approach to achieving the intended goals. No less important – focusing on a limited research area with easier access to sources and execution of formal procedures, allowed to attract local partners and patrons, and arouse interest in the local community.

The outcome of the studies benefits many groups, including heritage management boards (mapping and recording of the structures according to modern methods), researchers (new data for settlement studies) and the general public (popularizing archaeology and its new methods, raising the awareness about archaeological heritage).

10 THE ARCHAEOLOGICAL HYBLAEAN LANDSCAPES SURVEY PROJECT: TRACING THE ANCIENT RURAL LANDSCAPES OF SOUTHEASTERN SICILY

Abstract author(s): Brancato, Rodolfo (Università degli Studi di Catania) - Cozzolino, Marilena - Gentile, Vincenzo (Università degli Studi del Molise) - Idà, Livio - Mirto, Vittorio (Università degli Studi di Catania) - Scerra, Saverio (Soprintendenza BB.CC.AA. di Ragusa) - Tortorici, Edoardo (Università degli Studi di Catania)

Abstract format: Oral

The western Hyblean plateau is located in southeastern Sicily (Italy) in a focal point of the Mediterranean region. The lack of an organic and complete documentation and a concrete need to acquire new data about unexplored areas have required a multi-methodological and multi-scale research including the analysis of historical sources, traditional archaeological field surveys, topographic investigations, proximal sensing and micro- to large-scale geophysical prospections (i.e. extensive use of seismic refraction and