

# Field survey of the Danube limes in Baranja – Spatial distribution of archaeological material

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In 2015, the Croatian Science Foundation approved the funding of the project *Between the Danube and the Mediterranean. Exploring the role of Roman military in the mobility of people and goods in Croatia during the Roman Era* (RoMiCRO). The Principal Investigator of the project is prof. dr. Mirjana Sanader from the Department of Archaeology at Faculty of Humanities and Social Sciences, University of Zagreb.

As a part of the project in 2015 and 2016, a systematic field survey of Osijek-Baranja County was conducted, which has been a part of the three-year project plan to locate the positions associated with the possible presence and activities of the Roman army in the Croatian part of the Danube limes.

In Roman era, all along its flow, the Danube formed the border (*limes*) to the unconquered enemy territory. The Croatian part of the limes, 188 kilometres long, stretched from Batina to Ilok. It was consisted of a series of forts between Batina and Ilok. Recent archaeological research confirmed traces of possible military infrastructure outside of known forts near Batina and Sotin. Despite many new findings, the location of the sites which are recorded in historical sources, such as *Ad Novas*, *Aureo Monte*, *Antianis*, *Donatianae* and *Albano*, still hasn't been confirmed. Also, for now, it is still not known how the entire area along the Danube and its hinterland was organized or the way the supervision and defence of the borders of the Empire in the areas between individual forts was executed. Some information on the position of possible watchtowers, temporary fortifications between the forts and the exact direction of the road that connected them, would bring us closer to the answer. It is necessary to find the answers to the question about the reasons of current lack of military infrastructures. Those reasons could be the poor state of research, the disappearance of the former infrastructure in the midst of collapsing the loess banks of the Danube or that the military infrastructures simply didn't exist in these areas.



Figure 2: Field surveying in the area of Beli Manastir

## METHODOLOGY

Following the proposed methodology, the wider survey area was selected which was then divided into larger areas (routes) that span across today's organization of areas around listed municipalities. Wide spatial pattern has to be divided into smaller units in the landscape for easier recording of the data. Therefore, each route is divided into smaller areas or specific positions that are named after famous toponyms based on the Croatian Base Map (HOK). In order to define a spatial unit for further examination, an even more detailed breakdown of the landscape into locations (parcel, field, infield) was made within each area. The division into smaller spatial units in the landscape, within which the surface archaeological material is recorded, provides a quantitative analysis of the density of the findings, their distribution and relationship, while qualitative analysis allows consideration of the broader picture of space through time and usage patterns of the landscape. Spatial pattern, within extensive field surveys, is usually defined by examining the soil surface in parallel lines. During examination of each location, participants were arranged in lines spacing from 5 to 10 meters and their position was recorded by GPS (**Figure 2**). Each participant, during examination, collects and counts the material in its line in intervals of three minutes. During walking, archaeological material visible on the surface is counted and separated by type and dating. After each stop, participant records collected and visually identified findings for each line and connects them with recorded GPS point. All collected surface findings are thus recorded in the spatial grid that provides distribution and concentration of the findings according to time periods by processing digital data.

## PRELIMINARY RESULTS

The results of material processing and distribution of findings show that the early modern era material is present at almost all locations (**Figure 3**), while the archaeological remains of the ancient period, which is the focus of this project, were significantly noticed in three locations (**Figure 4, 5**)

At this stage of research, it can be concluded that systematic field survey, which was conducted at three positions that were based on the data in the older literature, accidental findings or after toponyms associated with the possible presence and activity of the Roman army, confirmed significant findings of the remains of the ancient period. However, those findings are not directly linked to the presence and activity of the Roman army, because no remains typical for the Roman army (Roman military equipment and weapons) were found. Preliminary, this can be explained by the influence of long-term and intensive agriculture that has been recognized at the position of Rimski jarkovi. On the wooded part of the position, mound with a moat is still clearly visible, but its continuation to the part of the location that is under influence of agriculture completely disappeared.

Systematical recording of the data, using set methodology throughout the duration of the project, will enable the obtaining of the data of different characteristics in each area and the identification and understanding of spatial patterns over time.

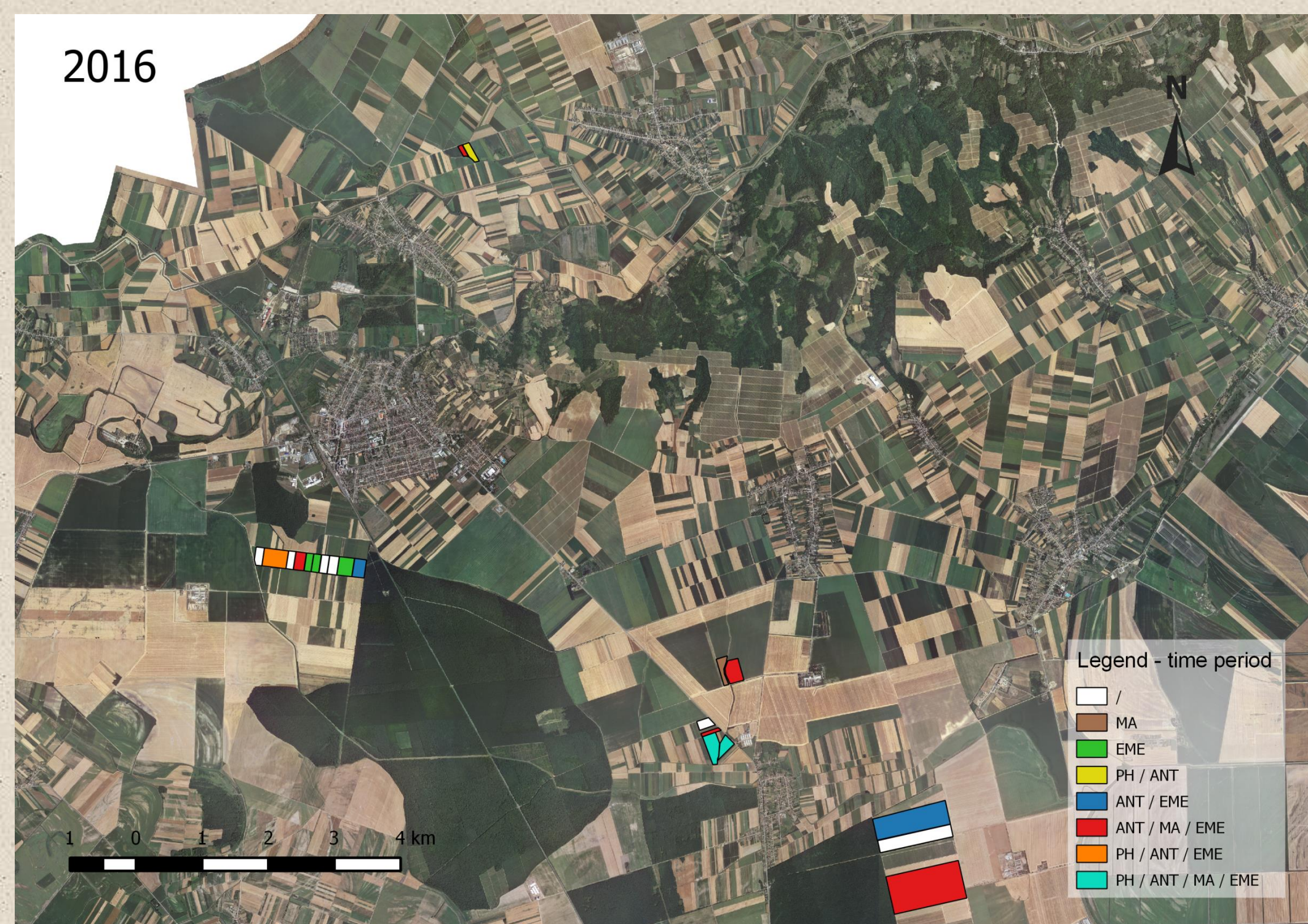


Figure 3: A distribution of findings based on time period  
(EME – early modern era, MA – middle ages, ANT – antiquity, PH – prehistory)

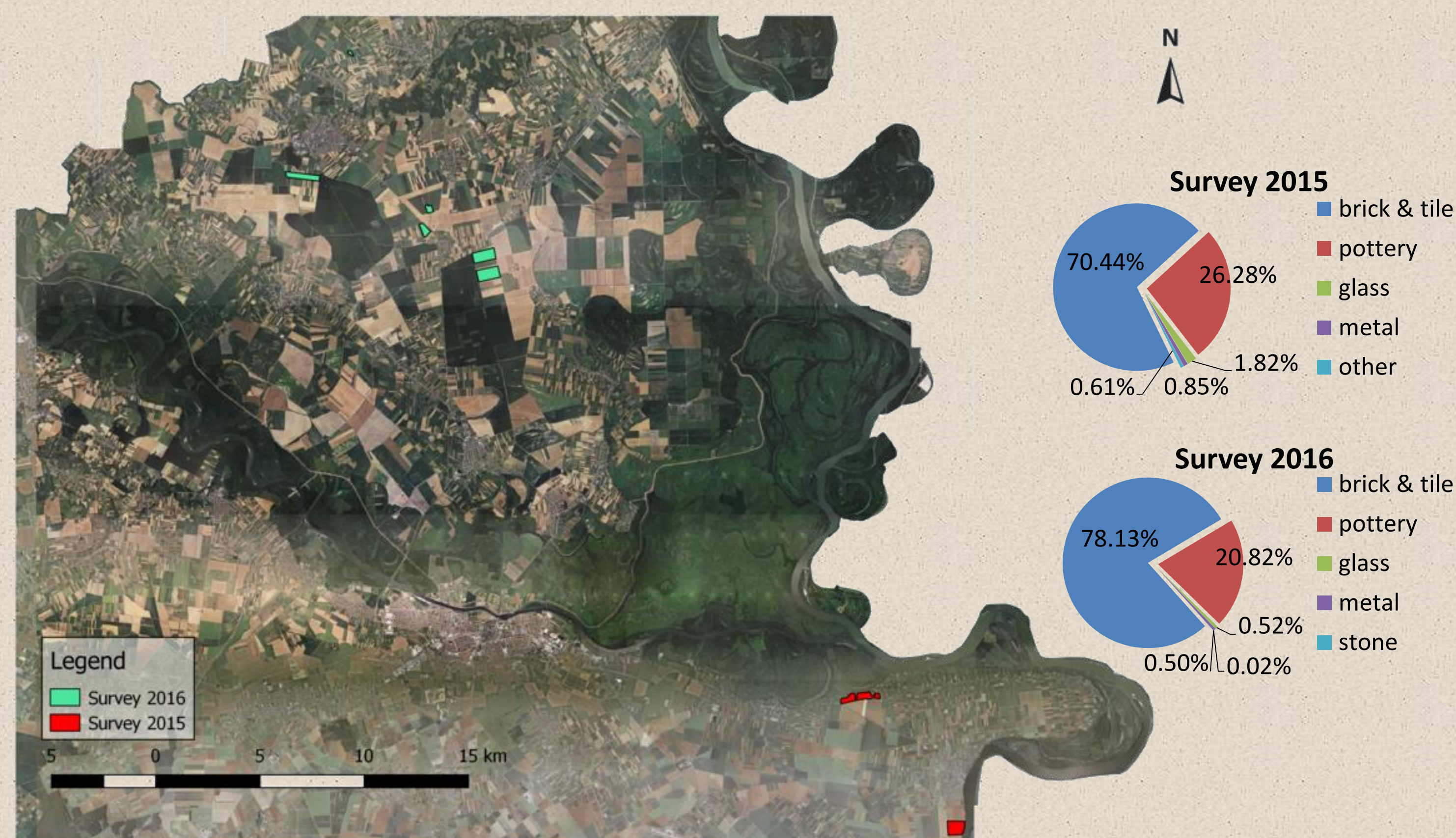


Figure 1: A map showing surveyed areas in 2015 & 2016;  
Pie charts showing the distribution of findings by material

In order to obtain positive or negative confirmation of the existence of Roman military infrastructure, the area between contemporary road and high loess bank of the Danube in the area of Aljmaš municipality was selected as a planned territory of research in 2015. The area between the modern settlements and the Danube in the wider region of the Beli Manastir municipality in Osijek-Baranja County (**Figure 1**) was selected in the following year. In order to obtain basic information on the distribution of archaeological findings and sites in the selected areas, extensive field survey was conducted, seeing that those kinds of surveys are usually conducted on large and unscreened areas.



Figure 4: Distribution of pottery fragments on locations Haljevo and Mitvar from the 2016 survey



Figure 5: Distribution of brick fragments overlaid with Antiquity pottery fragments on location Logor (north of Beli Manastir) from the 2016 survey