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FIELD SURVEY OF DANUBE LIMES IN EASTERN SLAVONIA AND BARANJA

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Within the scope 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) a systematic field survey was conducted on a part of the Danube Limes in Eastern Slavonia and Baranja in the period from 2015 to 2017. The field survey conducted in 2015 and 2016 was focused on the distribution of surface material with the aim of identifying traces of human activity in a wider spatial pattern and determining locations connected with the potential presence and the activity of the Roman military. During the 2017 campaign, the project objective was to use the collected material to test a hypothesis on the existence of structures related to the presence and the activity of the Roman military on two locations in the Popovac municipality area (Pogan and Vakub). The intention was to determine the type, dimensions, dates, and spatial relations of the two archaeological sites already familiar to the professional literature, one of which is insufficiently archeologically argued. This paper represents the results of the field survey of the positions Pogan and Vakub. The results have shown that archaeological surface survey, as one of the basic methods of archaeological prospection, is a very efficient method for the study of archaeological record within a landscape, and is one of the main ways for collecting archaeological data in a wider spatial pattern.

Key words: *Danube Limes in Eastern Slavonia and Baranja, field survey, methodology, Pogan, Vakub*

INTRODUCTION

A relatively small number of Roman forts had been documented along the Danube, a former demarcation line of the Roman Empire in the Croatian Danube Region, by the beginning of an extensive field survey in 2015 funded by 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)*[1].

[1] This work has been fully supported by Croatian Science Foundation under the project IP-2013-11-6505 *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* led by the Principal Investigator Mirjana Sanader, distinguished professor at the Department of Archaeology, Faculty of Humanities and Social Sciences, University of Zagreb. The results of the 2015 and 2016 campaign were previously presented on a poster of M. Sanader, I. Miloglav, M. Vukov, D. Tončinić and M. Vuković under the title *Field Survey of the Danube limes in Baranja – Spatial distribution of the archaeological material* at the 4th scientific conference Methodology and Archaeometry, Zagreb, 2016 (Sanader *et al*. 2016c).

For this reason, the project plan designed a research which would expand the knowledge about the presence and the activity of the Roman military on the mentioned area. As part of the project objectives, a systematic field survey was chosen as the main research method, which the authors of this paper conducted within the program plan of the project on part of the Danube Limes in Eastern Slavonia and Baranja in the period from 2015 to 2017. The objective of the field survey was to locate sites that contain evidence of the presence and the activity of the Roman military in the area surrounding Aljmaš, Borovo, Kneževi Vinogradi, and Popovac relying on collected archaeological material and its distribution. The intention was to supplement the knowledge on the organization of the area along the Danube – on the control and the defence of the frontier of the Roman Empire between individual fortifications, of the position of potential watchtowers, temporary camps, and the exact route of the Limes road (Miloglav & Tončinić 2015). The second aim of the field survey was to test the hypothesis inferring the existence of surface material related to the presence and activity of the Roman military. By relying on collected material and its spatial distribution we aimed to further our understanding of Roman military sites which were already known from publications, but were insufficiently archaeologically argued.

The first phase of the 2015 field survey covered the area of the Aljmaš municipality in the Osijek-Baranja County, i.e. the central area of the Croatian part of the Roman Empire Danube frontier (Sanader *et al.* 2016a).[2] Several smaller Roman sites have been documented in that area so far.[3] By relying on the distribution of archaeological material, the field survey aimed to confirm that, somewhere between the 1st and the 4th century, there were watchtowers built along the high and steep loess cliffs of the Danube riverbank. Namely, it is possible that this type of military installation was built on riverbanks of the major European rivers, Rhine and Danube, which the Romans considered borders. Further objective was to determine the way in which the depositional and post-depositional processes affected the preservation and the visibility of the archaeological record. Are they a product of anthropogenic processes (extensive agriculture and urbanization of the area surrounding Aljmaš) or natural processes (erosion and/or flooding of the area surrounding Borovo)? The results of processed archaeological finds have shown that there are no traces in the surrounding area of Aljmaš which would indicate military activity connected with the Danube Limes or any intensive settlements in this area. The majority of a small number of collected finds belongs to modern (70.73%) and prehistoric pottery (21.95%), with the lowest percentage of Roman finds (4.07%) (Miloglav & Tončinić 2015).

The second phase of the 2016 field survey included several locations west of Kneževi Vinogradi and in the area near Grabovac, Kozarac, Karanac, Sarkanj, and Haljevo (Sanader *et al.* 2017) in the background of Jasenovac (Dragojlov brijeg) which was in 2012 finally identified as a Roman fort (Mušič *et al*. 2013: 106–109; Vukmanić & Mušič 2013: 25–27). There were also several previous attempts to determine the type of these sites.[4] As later research helped to determine the orientation of the aforementioned sites in Jasenovac, the aim of the field survey was to find traces of the road that used to lead there during Roman times. Namely, some unpublished field research reports and publications expect the finds to be located in the area surrounding the site (Minichreiter 1987: 116–117) along with the traces in the ground (Bulat 1964: 63; 1965: 294) indicating direction of the Limes road which used to connect sites *Ad Militare* (Batina) and *Mursa* (Osijek). Thus, the field survey was conducted in the background of Jasenovac, west of the very site, on several locations where the road might have been built. The objective of the survey was, furthermore, to valorise archaeological remains of the mentioned sites in the area near Jasenovac and to determine whether they are in any way related to the Roman fort in Jasenovac. The results of the processing of the material and the distribution of the material have shown that modern material was present on almost all sites, while the Roman remains were archaeologically most noteworthy on three locations (Mitvar, Haljevo, and Logor) (Fig. 1), which were, based on data from older literature, accidental finds or toponyms, associated with the possible presence and activity of the Roman military (Sanader *et al*. 2016c; 2017).

[2] During a systematic field survey in 2015, area of the Borovo municipality in the Vukovar-Srijem County was also included. The reason was a donation from the Gereke family to Vukovar Municipal Museum. The donation was made of ceramic, glass, metal, bone, and numismatic finds from different historical periods that originate from the Gradac site, which already had recorded remnants of a dugout, bones, metal objects, and fragments of the La Tène, Roman, and Slavic pottery (Dorn 1973). It was not possible to conduct the systematic field survey on account of the poor visibility due to the condition of the surface (low vegetation) and weather conditions (high humidity of the soil). Only on the eastern end of the site, exposed to the erosive action of the Danube, a large number of ceramic building materials could be seen. Collected small finds had no connection to the small finds of the Gereke donation (Sanader *et al*. 2016b).

[3] Kubitschek & Loewy 1879: 152–153; Pinterović 1961: 42–45; 1978: 70, 135; Bulat 1969: 42–43; 1975: 19; 1986: 11; Mirnik 1981: 76.

[4] Katancivs 1782: 59–62; Hoffiller 1912: 6–7; Pinterović 1961: 42–45; Bulat 1969: 44–47; Sršan 1987: 360; 1989: 306–310; Minichreiter 1989: 102–103.

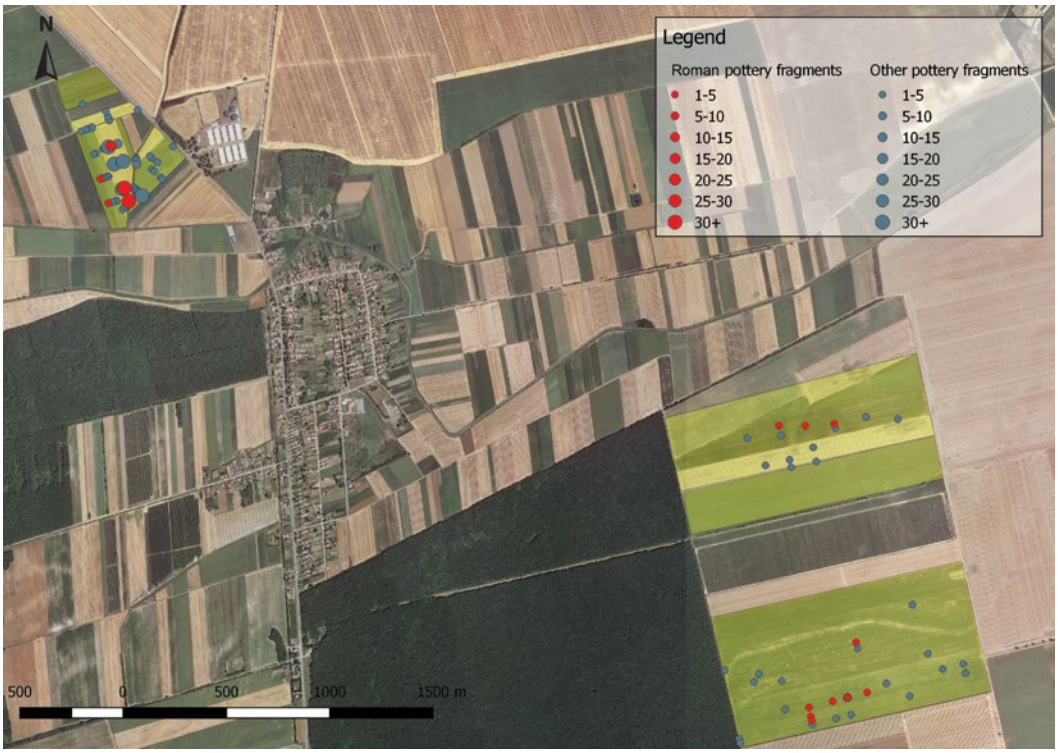

Figure 1. Distribution of pottery fragments on locations Haljevo and Mitvar from the 2016 survey (after: Sanader et al. 2016c: Fig. 4).

The results of any field survey depend in large on projected goals, defined aforehand by the project plan. As mentioned previously, the field survey conducted in 2015 and 2016 was focused on the distribution of the material, with the aim of identifying traces of human activity in a wider spatial pattern and determining locations connected with the potential presence and the activity of the Roman military. On the other hand, during the 2017 campaign the project objective was to use collected material to test a hypothesis on the existence of objects related to the presence and the activity of the Roman military on two locations in the Popovac municipality area (Pogan and Vakub) in order to determine type, dimensions, dates, and spatial relations of the two archaeological sites (Sanader *et al.* 2018) already familiar to the professional literature, one of which is insufficiently archeologically argued. The objective of the 2017 campaign was, therefore, not to draw general conclusions about the population of a surveyed area but to determine specific locations.

METHODOLOGY OF THE FIELD SURVEY OF THE DANUBE LIMES AREA

Field survey

Field survey is a research technique with the methodology aiming to reconstruct settlement patterns in a wider area. In contrast to the traditional classical reconnaissance surveying which relies on classical archaeology of the 19th century and locating sites on topographic maps and ascertaining their cultural and chronological characteristics, systematic field surveys, which have intensively developed during the 70s and 80s of the 20th century, tend to use integrated research approach to monitor all traces of human activities in a landscape (Novaković 1996; Gruškovnjak 2017). The focus of archaeology has shifted from sites and topographic studies and cultural-historical sequences to regional patterns of behaviours, with field survey being recognized as an important research tool that systematically collects information about the area that shows human activities in the past, through all historical periods (Gruškovnjak 2017). Thus, field survey was in the beginning exclusively focused on finding informative archaeological sites, while today systematic field survey is anything but locating "good" sites (Čučković 2011: 22). Unlike the traditional reconnaissance surveying technique where sampling of the surveying area relied entirely on intuition and assumptions about site locations, sampling in field survey is systematic and each selected area has equal probability to be selected for survey (Novaković 1996). The basic unit of observation is artefact not the site, and obtained surface archaeological data and distribution of materials are used to understand the landscape as a whole as well as all activities relating to human presence in a landscape.

In the broadest sense, field survey is directly connected with the need to determine the extensiveness of human activity in the past, and collected information enable the obtaining of the primary data about the distribution and concentration of archaeological materials and structures in large areas as well as observation of the spatial relations of the finds from the same or different periods (Grosman 1989: 58). The degree of a field survey can be either extensive or intensive, depending on objectives and project plans (Čučković 2012), and it refers to the organization of the survey in a thoroughly documented and predetermined spatial pattern. With detailed recording of preserved traces of human activities, regardless of the intensity in which they appear, systematic field survey enables tracking of the distribution of surface material in different spatial scales and its comparison against all types of spatial variables (Bintliff 1996: 12). This allows drawing conclusions on spatial relations of positions with different material density, their relationship with the naturally given conditions, mutual visibility, communication potential, etc. (Bintliff 1996: 26). However, it needs to be noted that surface finds are never homogenous, they are a product of different human and natural behaviours (Schiffer 1987). Although surface archaeological record is as informative as subsurface one, there are number of factors that either influence its formation or completely reshape it (Novaković 1996: 26). This is why the interpretation of data requires caution, as higher concentration of surface finds does not necessarily reflect occupation sites (Bintliff 2000: 208). Surface record does not correspond very often to subsurface one and can simply be the result of variation and intensity of the damage of a subsurface record. Therefore, it is necessary to observe the density of surface finds as well, which can be a product of various factors (formation processes, specific geological and geomorphological characteristics, damages and dislocating of artefacts during deep ploughing, accumulation or the lack of surface finds due to changes in river and water flows, clearing of fertile soils, etc.). All this can affect the intelligibility and the ability to distinguish archaeological surface finds, which is why it is always necessary to make an assessment with considering local environmental and cultural conditions and to employ adequate methodological and integrated research strategy (Gruškovnjak 2017). Many strategies, approaches, and techniques have developed over the years within the methodology of field survey, more than within any other branch of archaeology, and there is no single most efficient method for archaeological surface surveying (Gruškovnjak 2017). The important thing is to adjust the methodology primarily to environmental characteristics, geology and characteristics of a landscape, as well as to research objectives.

In addition to the appropriate methodology, the main focus of every field survey is setting research design (an explicit plan for accomplishing research objectives) which is to be explored in a given cultural and geomorphological conditions (Banning 2002: 24). The project plan will dictate the field

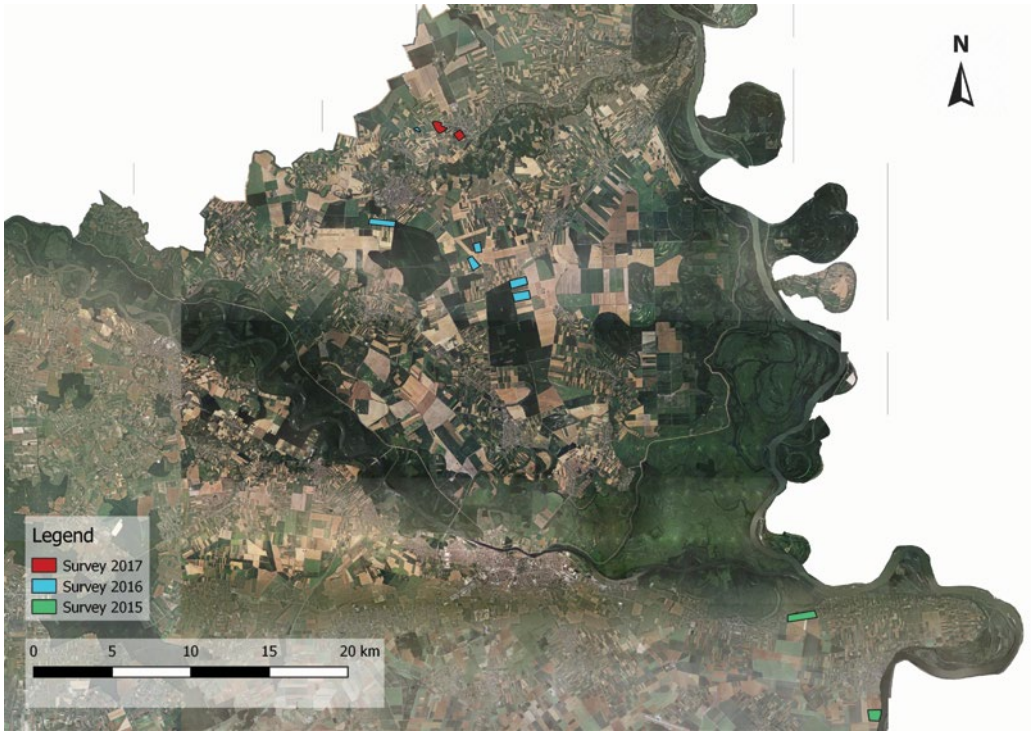

Figure 2. Route areas in the 2015, 2016, and 2017 field survey campaigns (author: M. Vuković; QGIS).

survey methodology, the pace of work, and the processing and interpretation of collected data, and the result of each field survey will depend greatly on set objectives. It should also include the data processing methodology, which encompasses not only the selection of qualitative and quantitative approaches that would be applied in the analysis but also the classification method of data obtained from the analysis conducted in this way (Banning 2002).

For the aforementioned project of the 2015, 2016, and 2017 campaigns, a wider surveying area was selected, which was then divided into larger areas (routes) that cover current organization of the space (Fig. 2).

A larger spatial pattern requires division into smaller landscape units for easier data recording, and each *route* was divided into smaller areas or *positions* that are named according to known toponyms based on the Croatian base map (HOK). The landscape within each position was then divided into *locations* that represent areal unit of observation (Fig. 3). Locations have been numerically marked on the map prior to the beginning of the survey, and were determined regarding the current parcellation of the land for easier navigation in the area and the mapping of finds. Location is the basic unit of area within which a research is conducted, while the basic unit of survey is an artefact (Miloglav & Tončinić 2015).

Division of landscape into smaller units of areas within which surface finds are recorded enables quantitative analysis of the density of finds, their distribution, and relation, while qualitative analysis allows broader picture of area through time and patterns of landscape use. For the purpose of the field survey, forms and documentation were taken from a joint project of the Institute of Archaeology, the Archaeological Museum in Zagreb, and the Department of Archaeology at the Faculty of Humanities and Social Sciences, University of Zagreb, which was conducted for several years in the area of the upper Podravina region (Kudelić *et al.* 2015; 2017). In addition to names of route, position, and location, the forms contain data on the type of field survey, unit of counting, topography, vegetation, cultivation and soil type, visibility, and the type and chronological affiliation of collected material, along with corresponding GPS coordinates.

Basic requirement for systematic field survey is good visibility, and the most rewarding areas for surveying are ploughlands and surfaces with low and scarce vegetation. Visibility is one of the main problems field survey participants encounter, both in the process of collecting and in the process of analysis and interpretation of results (Gruškovnjak 2019: 58). It depends on a number of factors: a) geomorphic, pedogenic and other post-depositional formation processes; b) the nature of the archaeological record; c) strategies and techniques of the survey method; d) the surface and other environ-

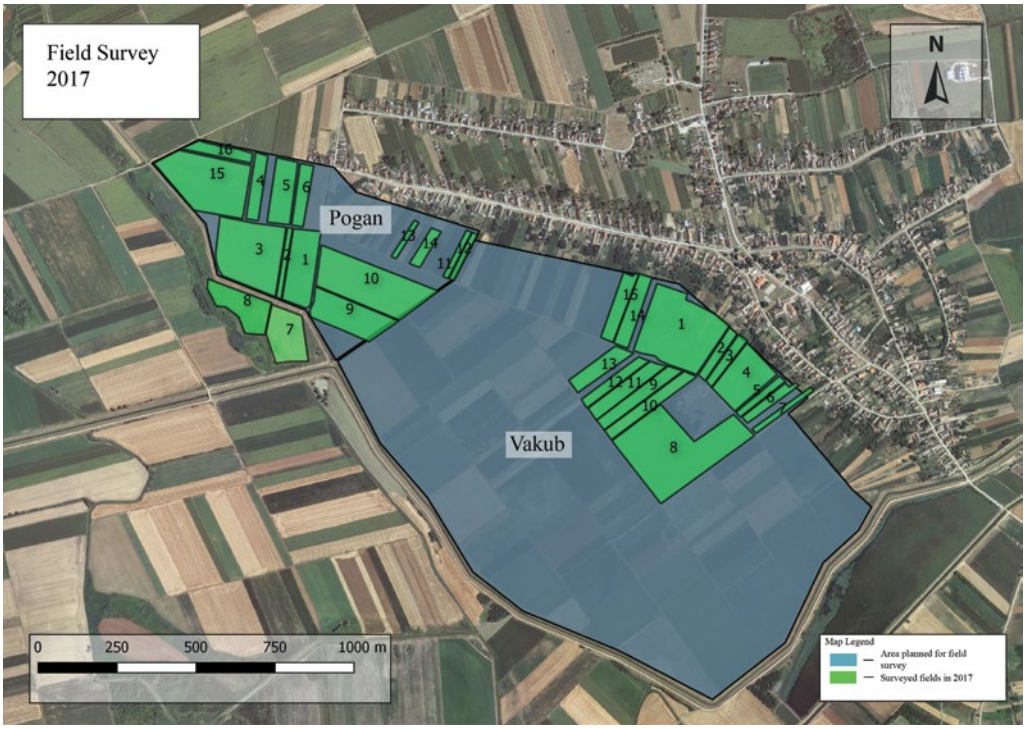

Figure 3. Positions Pogan and Vakub predetermined for the survey (blue), with actual surveyed fields (locations) shown in green. Field survey 2017 (author: M. Vuković; QGIS).

Figure 4. Archaeological team during the field survey (photo: M. Vuković).

mental conditions during the survey; e) the human factor (the experience, one's ability of perception, affinities, etc.) (Gruškovnjak 2017: 44; 2019: 58). Visibility is either expressed in the percentage (0-100%) or the numerical (1-10) scale (Bintliff & Gafney 1988). For the minimum visibility during a survey, a limit of 50% was set, which proved to be optimal in other research as well (Given 2004: 17).

Spatial pattern in a field survey is usually defined by the examination of land in parallel lines. The area intended to be observed is divided into equally spaced lines along which the material is being collected and recorded (Fig. 4).

Walking lines are determined either by the edges of parcels or by a ploughing direction (on sown areas) that allow easy tracking of the lines and the distance between artefact collectors (Miloglav & Tončinić 2015). This way of collecting and documenting of surface finds enables the systematic documenting of

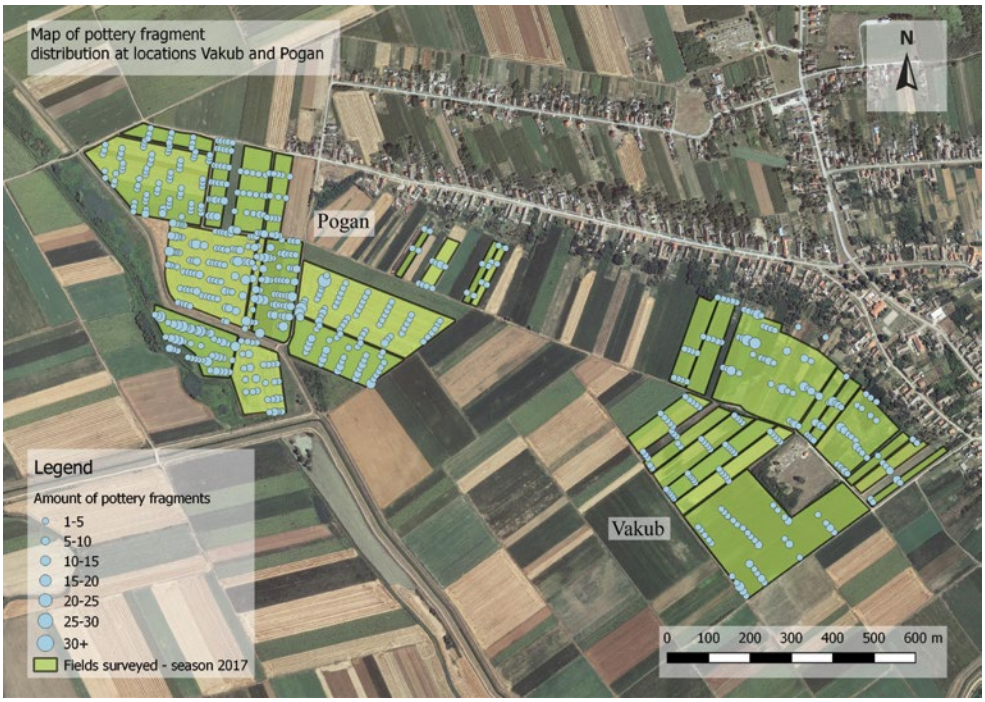

Figure 5. Spatial distribution of collected material during the 2017 field survey with quantities expressed as shown in the map legend (author: M. Vuković; QGIS).

spatial distribution as well as collecting all finds and data on topography, which then acts as a basis for recording the density of finds (Grosman 1989: 62–63). As the distance between fieldwalkers depended on the size of the ploughland, it varied from 5 to 10 metres, depending on a position. During the 2017 campaign, the distance between fieldwalkers was mostly 10 metres, and the survey was performed within a measuring unit of 1.5 minutes (for route Pogan), or 3 minutes (for route Vakub). The position of fieldwalkers, as well as any interruption of examination with the expiration of the scheduled time, was recorded with a manual GPS. After each stop, the collected and visually identified finds for each inspected line were entered into the forms and associated with a recorded GPS point. All collected surface finds were recorded in this way within a spatial network, which enables spatial distribution and concentration of finds by periods via digital data processing (Fig. 5).

Only the diagnostic material was collected during the survey: fragments with decorations, rims, bottoms, handles, and more significant finds of metal, glass or stone, while other surface material was only quantitatively documented in the forms (Miloglav & Tončinić 2015). Beside recording data about the distribution of finds, all features that were visible on the archaeological surface record were also documented, which led to registering data that can reflect the image of a subsurface record with higher probability.

The results of the 2017 field survey – Positions Pogan and Vakub

Archaeological site that stretches over positions Pogan, Mala Lačka, and Logor is traditionally connected with terms such as *Quadriburgium*,[5] *Antiana*e (Várady 1897: 101–102), and *Aureus Mons* (Bulat 1974: 85). Some scholars, basing their theory on individual archaeological finds, believe the site to be from the Principate period (Pinterović 1969: 57; Minichreiter 1989: 182, 183; Sršan 2002: 103), while others think it belongs to the end of the Dominate (Várady 1897: 101, 102). After satellite images (*Google Earth*) revealed a 20-ha large rectangular feature with the internal area of 7 – 9 ha (Ilkić 2008: 199–206) a few hundred metres eastwards (of Pogan) at Position Vakub (Tuneli), it became the centre of the interest for the archaeological scientific community.[6] Mato Ilkić believes, in view of "enormous fortified area of the square base",

Figure 6. Part of the Albrecht Canal project with the indication of the site ***Rudera Arcis Romanae Quadri Burgi*** *(after: Ilkić 2008: 203, Map 2).*

[5] Katancsich 1826–1827: 476; Várady 1897: 83–88; Fényes 1851: 81; Minichreiter 1987: 132.

[6] M. Ilkić states that position Tuneli is also known as a Jewish cemetery. Actually, it is an orthodox cemetery. The same place is on the Geoportal (http://www.geoportal.dgu.hr/) (Access: 22 December 2016) marked as Vakub.

that this is the location of a Roman legionary fortress where *legio VI Herculia* might have resided, and that this site, rather than Pogan, was marked on an early 19th century map of the Albrecht canal as "ruins of a Roman city" i.e., if translated more precisely, fortification (*Rudera arcis Romanae Quadri Burgi*)[7] (Fig. 6).

Given that drawing conclusions by relying solely on visible features from satellite images and aerial photographs without field survey or any other comparative analysis is a rather frivolous scientific argument not subjected to any methodology, analysis or a critical revision, the mentioned position was chosen so this claim could be tested by relying on the collected material and its distribution in a given area.

Position Pogan

Position Pogan is located south-west of the Popovac village. The field survey included 16 locations, i.e. all the ploughlands that could be surveyed and in which the visibility was surpassing 50%. Satellite images (*Google Earth*) of the surveyed area showed a ground plan image of a feature with dimensions of approx. 350x250x350 m (Fig. 7), almost identical to the quadrangular ground plan of the Roman fortification (*Rudera arcis Romanae Quadri Burgi*) visible on the map of the Albrecht canal (Fig. 6). According to a recently conducted geophysical research, there is a possibility that this fortification is even larger (Vukmanić 2020: 5). The Albrecht canal, plotted on the early 19th century map, is still visible south of the position Pogan.

Figure 7. Satellite image and aerial photograph which were used to draw and georeference the feature at position Pogan (source: left: DGU geoportal (Croatian geodesic portal: https://geoportal.dgu.hr/), 2014; right: Google Earth, 2012.).

Figure 8. Position Pogan – traces of a regular structure visible on a photograph from Google Earth (September 2012), with traces of mortar marked by numbers 1, 2, 3, 7, and 8.

7 Pinterović 1956: 79; 1968: 55; Minichreiter 1987: 131–132; Ilkić 2008: 199–203, f.n. 5, Map 2.

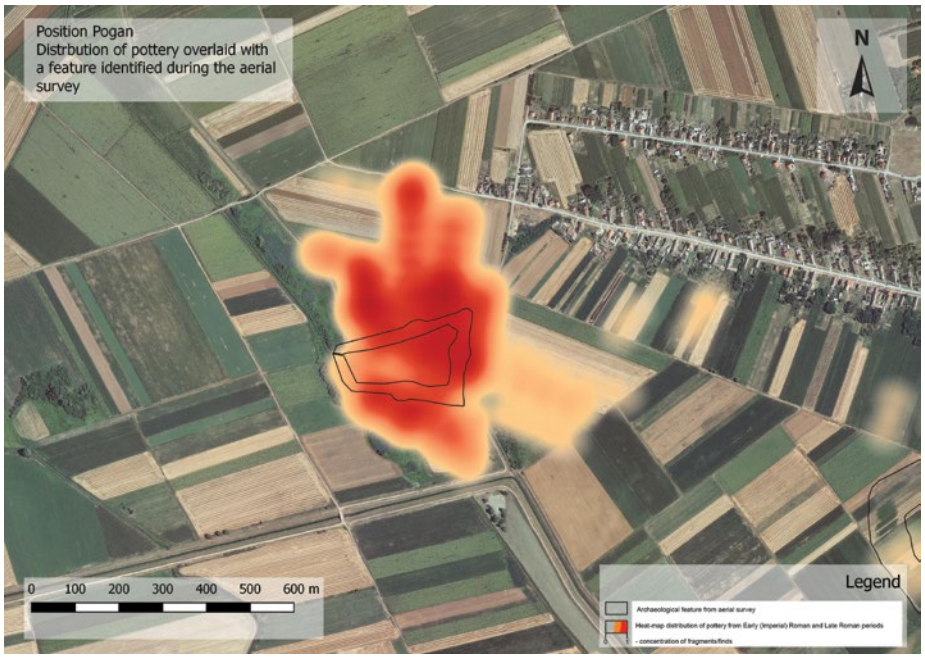

Figure 9. Heat-map of the distribution of pottery overlaid with the contours of the feature visible in aerial photographs (author: M. Vuković; QGIS).

Figure 10. Oblique aerial photograph showing the position Pogan with visible feature traces; images taken with a UAV - DJI Phantom 2, mounted with a GoPro Hero3 camera (photo: M. Vuković).

Figure 11. The shape of the fort and the results of a survey with the ground-penetrating radar in the north-east section of the position Pogan on the photograph of the Croatian geodesic portal (The Archaeological Museum Osijek & Gearh d.o.o., 2018) (taken from Vukmanić 2020: 5, Fig. 4).

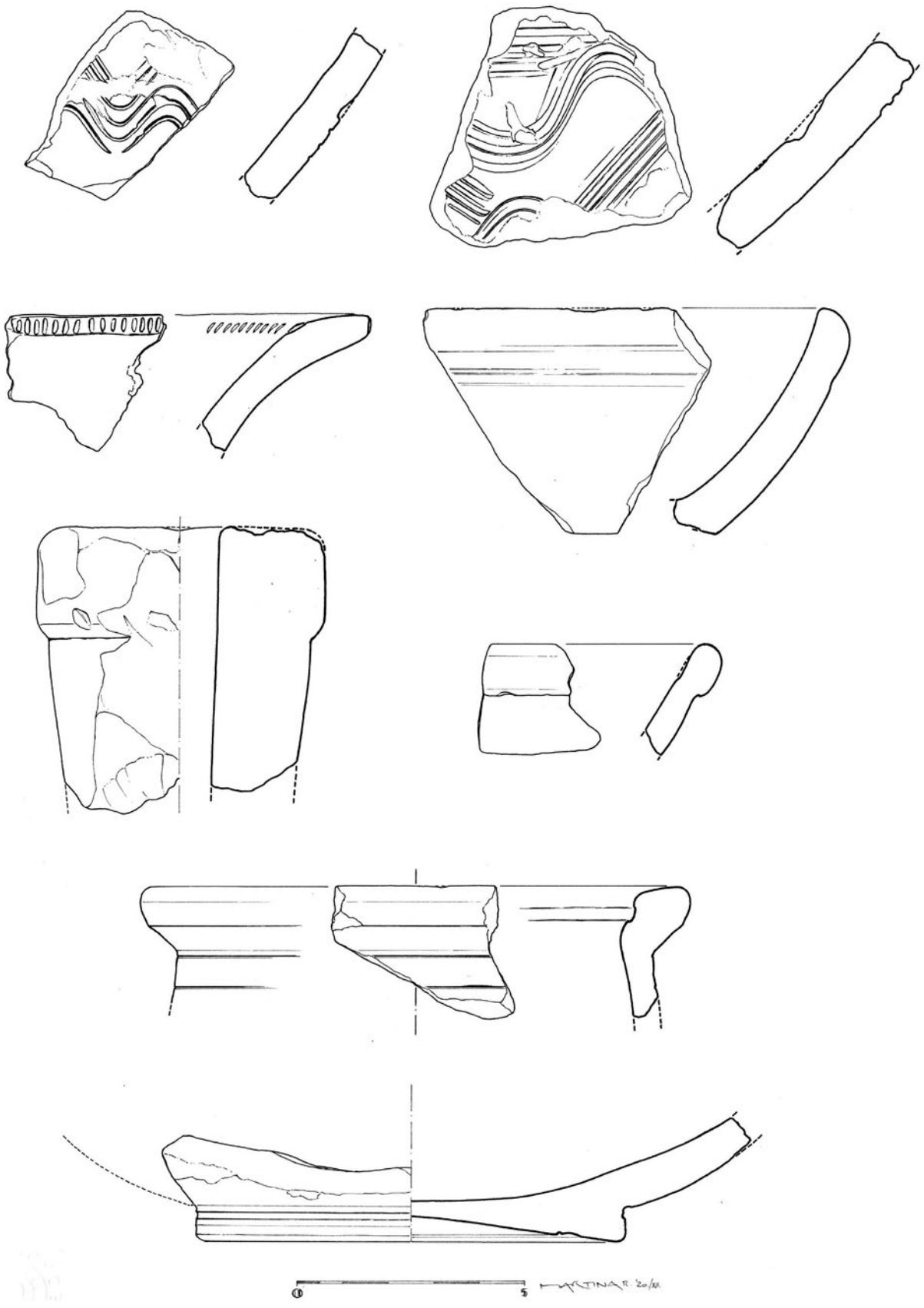

Table 1. A selection of pottery collected during the field survey of position Pogan (author: M. Rončević).

Extremely large amount of pottery was collected from the entire position, i.e. from all surveyed locations, which mostly belongs to the Early (Imperial) Roman and Late Roman periods, with a smaller number of Late Middle Age – Late modern and prehistoric finds (Table 1). This is evident from 3 coins which were found on locations 1, 10, and 16, and which are assumed to be Roman imperial coins dating to the second half of the 4th century.[8] An extremely large amount of material and mortar remnants was documented on locations 1, 2, and 3, which are located on a topographically elevated part, and on locations 7 and 8, on the other side of the canal where the terrain is in a steep fall (Figs. 3, 5, 8, 9).

The distribution of the collected material, which belongs mainly to the Late Roman period agrees with the ground plan of the previously mentioned quadrangular feature. A higher concentration towards the north is likely to be a consequence of the long-term soil cultivation and the dislocation of the material in a ploughing direction (Figs. 5, 9).

Since the archaeological feature was visible in the field itself, and the concentration of finds on the mentioned locations was extremely large, aerial photographs were taken using a UAV platform mounted with a Go Pro Hero 3+ camera (Fig. 10). Moreover, the ploughed fields provided a high contrast of mortar remnants after the rain, which was more visible in the ploughed fields during the rinsing. Structures preserved under the surface, such as walls, floors, mortar, etc., come to the surface by ploughing and alter its appearance by brightening the colour of the soil in the places where they are located, and these changes in soil colour are usually visible after autumn or spring ploughing, as well as after rain.

During the survey of the drainage canal, there was one part below the low grass layer that revealed an accumulation of stone and building bricks connected by mortar. After clearing the vegetation and removing several centimetres of the surface humus layer, a 0.60 m wide wall of the east-west orientation has been recorded. The wall was cleared to a length of about 3.10 m, which revealed another wall of the same width, but of a north-south orientation, continuing at a right angle from the western edge. Considering its position, the existing canal has crossed an earlier stone architecture, located within the probable fortification.

Archaeological potential documented during the field survey has encouraged geophysical surveys of the same position. The results of the geophysical surveys in 2018 have revealed the remnants of a late Roman fortification in form of a tetragon with surface area of approx. 5 ha (Fig. 11). Along the approximately 5 m wide northern rampart of the fortification, at a distance of about 40 m, two round, projective towers of nearly 15 m in diameter were identified, as well as parts of three rectangular structures with solid foundations with the middle one being supported by buttresses (Vukmanić 2020: 5, Fig. 4).

Position Vakub

The second route of the field survey covered the position Vakub, which is located south of the Popovac village, and it continues on the south-east to the position Pogan (Fig. 3). As previously mentioned, this position was described as the location of late Roman legionary fortress due to satellite imagery (Ilkić 2008). According to M. Ilkić, *legio VI Herculia* might have resided in the area of a 20-ha large rectangular feature (Fig. 12). However, he failed to

Figure 12. Satellite image and aerial photograph which were used to draw and georeference the feature at position Vakub (source: left: DGU geoportal (Croatian geodesic portal: https://geoportal.dgu.hr/), 2014; right: Google Earth, 2016).

[8] We thank our colleague Ana Pavlović, assistant professor, for determining the dating of coins.

consider the fact that Diocletian's reform reduced the number of soldiers in legions, and that legionary fortresses were since smaller than 20 ha, what was typical in the Principate period (Vukmanić 2017: 41; 2020: 5). The targeted field survey of the mentioned position was expected to, based on the collected archaeological material and its spatial distribution, either confirm or refute the existence of the Roman legionary fortress (Fig. 12).

The field survey included 15 locations at the site of the visible feature (Fig. 3). No fragments of Roman pottery or Roman building material were found on any of the surveyed locations. However, a large number of extremely fine Late Middle Age – Early modern materials (pottery, glass, metal, 2 coins, and bricks) was found on locations within the visible feature (locations 1-5, 8-11) (Figs. 3, 13). Random finds, also of the Late Middle Age – Early modern period, were recorded on other locations. The conditions were ideal for aerial photography by drone. The aerial photograph shows visible feature stretching over several hectares around the modern cemetery, and, considering very dark traces in the ground, it is probably a ditch (Fig. 14).

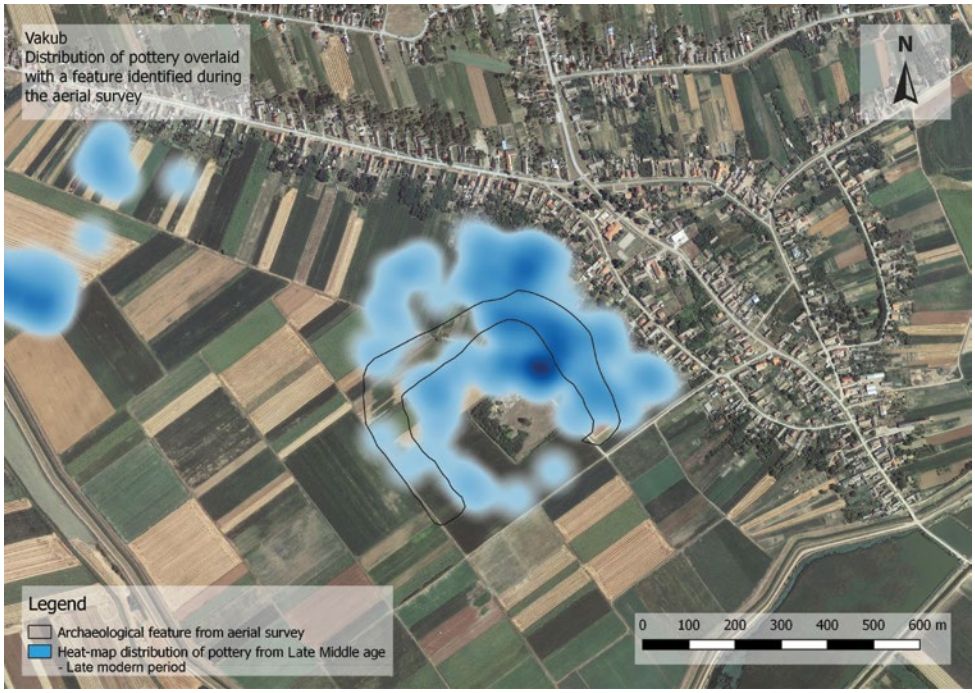

Figure 13. Heat-map distribution of pottery overlaid with the contours of the feature visible on aerial photographs (author: M. Vuković; QGIS).

Figure 14. Oblique aerial photograph showing the position Vakub with visible feature traces; images taken with a UAV - DJI Phantom 2, mounted with a GoPro Hero3 camera (photo: M. Vuković).

A large number of Late Middle Age – Late modern archaeological finds documented in the area of this feature goes in favour of the argument that this is not a Roman fortress, but rather a very interesting Late Middle Age – Early modern position.[9] Furthermore, Austro-Hungarian maps of the 2nd (1806–1869) and the 3rd Military Survey (1869–1916) mark the "enormous fortified area of the square base", as M. Ilkić describes it (2008: 204), as a cemetery (Figs. 15, 16, source https://mapire.eu/en/).

Given the results of the survey, the claim of M. Ilkić that "with its size and its ground plan, the fortified area of the square base indicates a Roman fortress" is not correct. This fact further alerts to the danger of drawing flat conclusions that are not scientifically supported and that remain recorded in the professional literature, and in that way are often communicated as scientifically based conclusions and facts. Functional classifications of features observed on aerial photographs (e.g. ramparts, canals, etc.) are

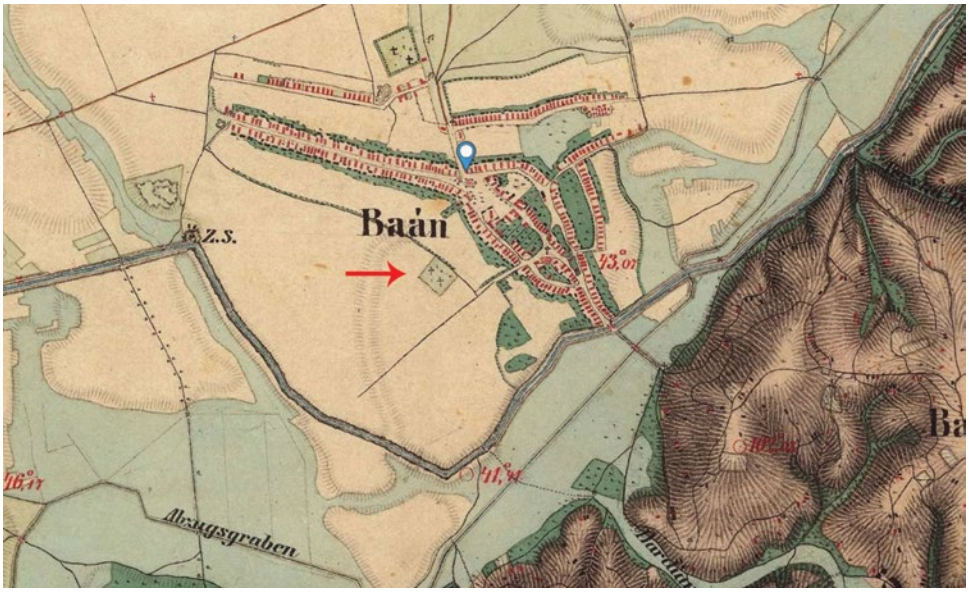

Figure 15. Position Vakub on the maps of the Second Military Survey of the Austro-Hungarian Empire, with a graveyard clearly shown at the location of the regular feature visible on images 12 and 14 (source: https://mapire.eu/en/).

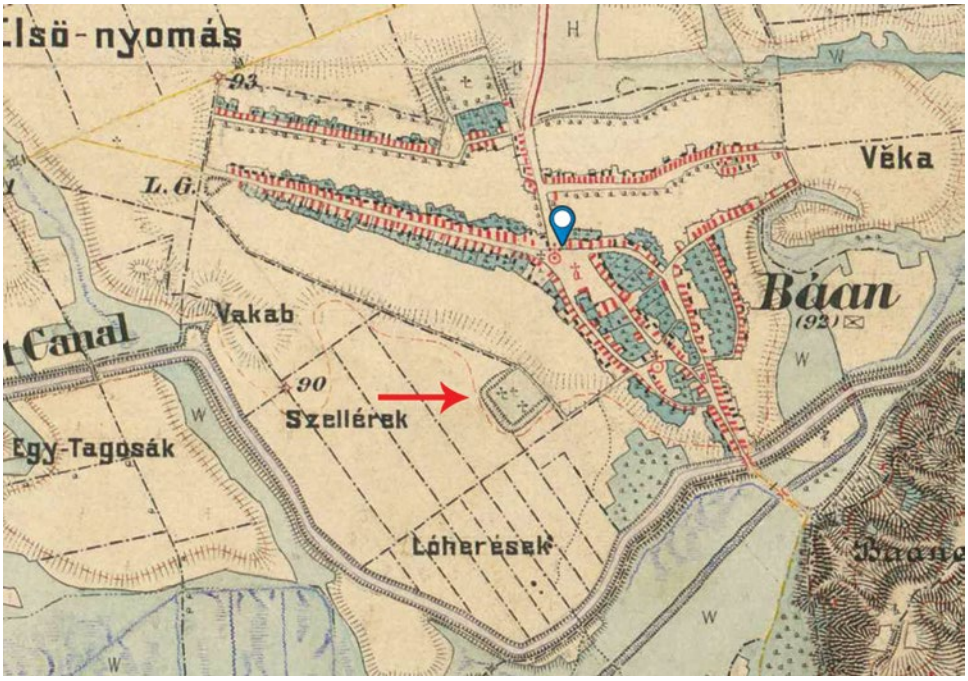

Figure 16. Position Vakub on the maps of the Third Military Survey of the Austro-Hungarian Empire, with a graveyard clearly shown at the location of the regular feature visible on images 12 and 14 (source: https://mapire.eu/en/).

[9] Some locals consider this site as the place of the Ottoman Empire army's temporary hospice made after the Battle of Mohács in AD 1526.

always hypothetical and are exclusively a product of the knowledge and the experience of the person interpreting, rather than the photograph itself (Kiarszys 2015: 27). A further problem with aerial photographs and satellite images is that they are largely used as mere illustrations with no analytical capacity or processes that lead to archaeological interpretation. They are focused mainly on the description of the observed site, while not attending to multidimensionality of a landscape as a whole. This applies in particular to the uncritical usage of Google Earth TM as illustration (Currás *et al.* 2015).

Archaeological work includes the methodology of a survey which encompasses the collecting and the processing of data, the selection of data and analysis (excavation, classification, taxonomy), as well as the methodology of the archaeological conclusion and interpretation (Šošić Klindžić 2015: 8). The lack of both methodologies, which are an integral part of archaeological work, and generation of a fabricated image of the archaeological heritage relying on one's intuition or a scientific interest prompts to critical questioning and evaluation of what is written. Drawing conclusions based exclusively on images from Google Earth, without any comparative analysis (cartographic data, cyclic aerial photographs, archival material, field survey, analysis of material, etc.) is a problem which deserves more than a few lines in this paper. The intention and the goal of this article is not to stress the importance that aerial photographs (especially the historical ones) have in archaeology as extremely important and effective tool in non-destructive research and evaluation of the extent of landscape transformation through time. However, the archaeologist's duty is to point out on drawing conclusions which lack the analytical processes that lead to archaeological interpretation.

CONCLUSION

Systematic field survey of the selected positions in the Croatian Danube Region between 2015 and 2017, funded by 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),* was conducted with the intention of expanding the knowledge of the presence and the actions of the Roman military on the said area. The objective of the field survey along the high and steep loess bank of the Danube in the Aljmaš municipality was to confirm the existence of Roman watchtowers regarding the collected archaeological material. Data and finds collected by the field survey have shown no traces in the surveyed area that would indicate either military activity related to the Danube Limes or more intensive settlement in these parts. The objective of the field survey west of Kneževi Vinogradi and in the area near Grabovac, Kozarac, Karanac, Sarkanj, and Haljevo was to find traces of the road which connected the sites *Ad Militare* (Batina) and *Mursa* (Osijek). Data and finds collected by the field survey have revealed that archaeological remains of the Roman period are more significantly represented only on locations Mitvar, Haljevo, and Logor, which are, based on data from older literature, random finds or toponyms, associated with the potential presence of the Roman army. The field survey in the Popovac municipality area was conducted to test the hypothesis on the existence of buildings in positions Pogan and Vakub, referring to the collected material, which were previously familiar to the professional literature and which are associated with the activities of Roman soldiers. The field survey of the position Pogan has enabled documenting and collecting a rather large number of finds that mainly belong to the Early (Imperial) Roman and Late Roman periods. The distribution of the collected material overlaps with the ground plan of the feature documented in aerial photographs and satellite images on the map of the Albrecht canal. The presence of the Late Roman building was also confirmed by the findings of walls, and afterwards by the results of the conducted geophysical surveys. In the second targeted area, the position Vakub, the existence of the Roman legionary fortress has been refuted. The field survey of the 20-ha large rectangular feature, labelled in the literature as a Roman legionary fortress without an adequate archaeological argumentation, has not discovered any Roman finds, but a rather large amount of the Late Middle Age – Early modern material. The distribution of the collected finds overlaps with the ground plan of the feature documented in satellite images from the 2nd and the 3rd Military Survey and in aerial photographs recorded by drone during the field survey. A large number of early modern finds discovered in the area suggests that this is a very interesting Late Middle Age – Early modern site. The results of the field surveys on the positions Pogan and Vakub also refute the theory that there was a locality at the position Vakub that was marked on the early 19th century map of the Albrecht canal as "the ruins of a Roman fortification" (*Rudera arcis Romanae Quadri Burgi*). Instead, they unequivocally confirm that the drawing of a fort marked on the map as *Quadri Burgium* is actually a Roman site registered in positions Pogan, Mala Lačka, and Logor.

The results of the research conducted by a systematic field survey have shown that archaeological surface survey, as one of the basic methods of archaeological prospection, is a very efficient method for the study of archaeological record in a landscape and is one of the main ways for collecting archaeological data in a wider spatial pattern. The field survey methodology itself depends on a number of factors, and it is necessary to adjust it to the surveyed area by regulating the strategy and technique. The objective of any systematic field survey is, in the broadest sense, connected with the need to identify the human activity in the past, i.e. the collecting of data on the distribution and concentration of archaeological materials and structures in large areas enables observing the spatial relations of sites from the same or different periods.

The nature of the relationship between surface and subsurface archaeological record is very complicated and can be a product of a large number of various factors, from natural to cultural formation processes, which affects the results, intelligibility, and the interpretation. For this reason, it is important to use comparative analyses and to be aware of the limitations that may arise. The methodology of the systematic field survey used in the research of the part of the Danube Limes in Eastern Slavonia and Baranja has shown great informative potential for understanding archaeological subsurface record. The results show the achievement of the project objectives as well as open questions for further research, analyses, and interpretations.

(English translation: Marina Banić)

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