

# THE TRANSITION FROM THE LATE NEOLITHIC TO THE EARLY ENEOLITHIC IN NORTHWESTERN SERBIA: RECONSIDERATION AND SUGGESTIONS FOR FUTURE WORK

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## Abstract

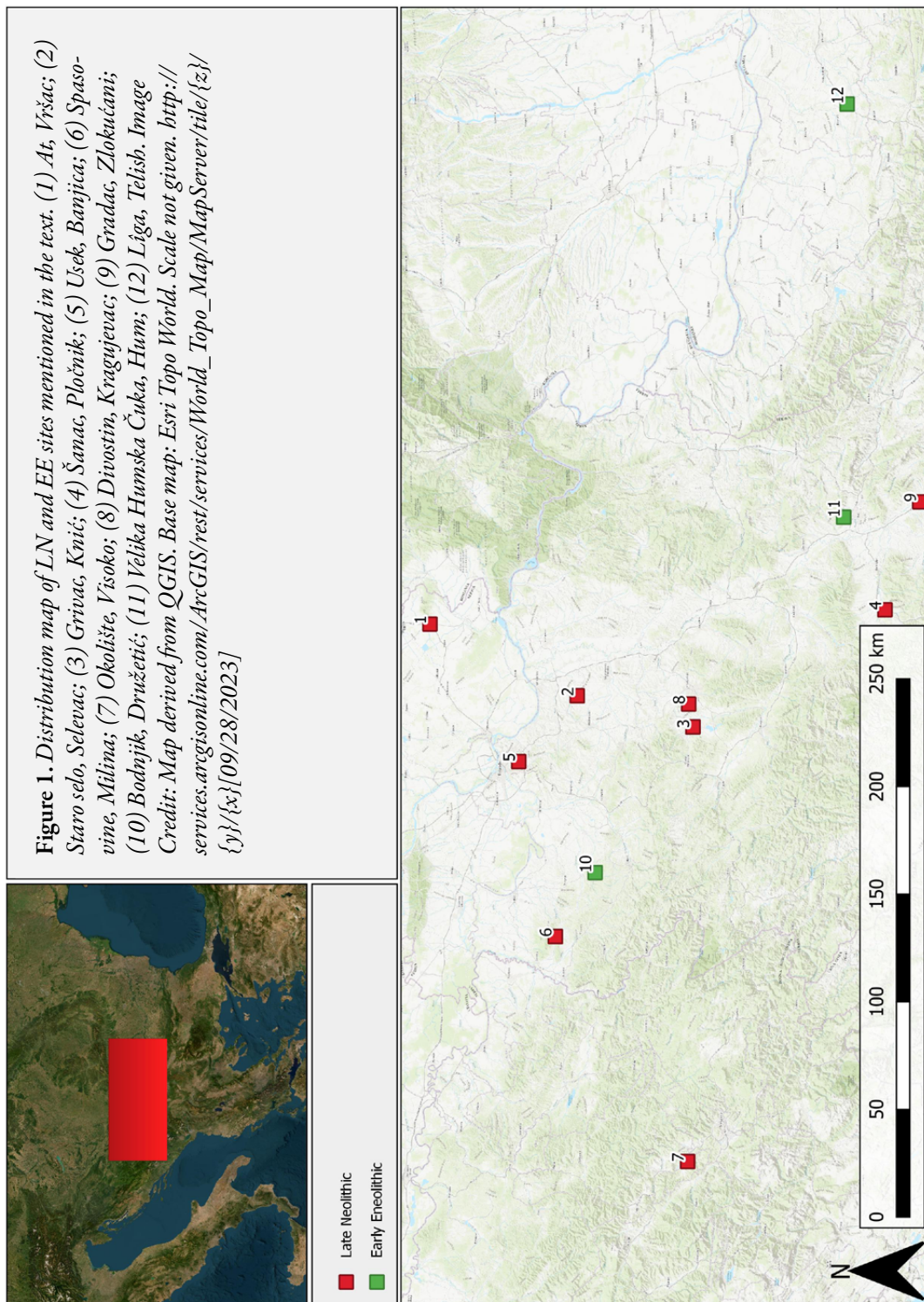
*The paper analyzed 364 sites from the fifth millennium BC in northwestern Serbia in order to observe the process of population fission from the large Late Neolithic settlements and the formation of smaller settlements tightly integrated with one another in the Early Eneolithic. Special attention was paid to the chronology, size, pedology, and topography of the settlements. Lowland-valley microregions were densely populated, while hilly and highland areas were sparsely populated. Larger sites are concentrated in the microregions of Mačva, Posavina, Pocerina and Tamnava, while the smaller ones are distributed across all microregions. The largest and most numerous settlements were oriented towards very fertile soil types and microregions, such as Mačva, while settlements on soils unsuitable for cultivation prevail in the microregions of Rađevina and Azbukovica, which are characterized by hills and mountains, as well as in the most populated microregion of Mačva. Hard-to-reach settlements of dominant elevations (hillfort – Gradina type) in the hilly and mountainous areas and slightly elevated settlements enclosed by ditches in the plain areas (Obrovac type), i.e., the formation of small and very small settlements was viewed from the perspective of the transformation of the Neolithic and the establishment of a new, Eneolithic way of life. The analysis showed the necessity of modern archaeological prospection for a precise positioning of all sites in order to increase the quality of pedological and topographical data, as well as for geomagnetic research and targeted projects in order to evaluate the site areas, human activities in the settlements and to control the chronology by dating as many excavated sites with secure contexts as possible.*

**Keywords:** Neolithic/Eneolithic transition – Vinča culture – northwestern Serbia – settlements – chronology – site area – pedology – topography – future projects.

<https://doi.org/10.53250/stprae17.35-102>

## **Introduction**

The transition from the Late Neolithic (LN) to the Early Eneolithic (EE) in the Central Balkans (CB) in previous research conducted in Serbia was most often characterized as a period of great turmoil and conflict due to large migrations that led to the decline and collapse of the Vinča culture (Garašanin 1979, 204f; Srejšović 1981; Jovanović 1994; Tasić 1995, 28; cf. Borić 2015, 158f). Most researchers in Serbia believed that due to the intrusions of new populations from the north (Tisapolgár and Bodrogkeresztúr cultures) and the east (Bubanj–Sálkuća–Krivodol cultural complex, BSK) the territory of the Vinča culture gradually decreased and that, because of those turbulent times, numerous settlements were formed on naturally protected and elevated locations, the so-called Gradina. Milutin Garašanin singled out this horizon in his periodization of the Vinča culture as a transitional period from the earlier Vinča–Tordoš phase to the later Vinča–Pločnik and labeled it as the Gradac phase (Garašanin 1979), after the eponymous site in Zlokućani, near Leskovac, southern Serbia (fig. 1). Later, Borislav Jovanović (1994) expressed the opinion that the entire later Vinča culture (C–D) in the southern regions of Serbia developed through phases Gradac I–III. During Gradac II phase, which this author synchronizes with the final level of burnt houses at the site of Divostin in central Serbia, the Vinča culture had already disappeared in the Danube Basin farther in the north. Gradac III phase is associated with the southernmost areas of the Vinča culture distribution, especially the Kosovo variant as well as in southern Serbia (Pločnik near Prokuplje). This phase at the eponymous site of Gradac in Zlokućani was not radiocarbon dated. In terms of topography, the site belongs to settlements on an elevated plateau along the Južna Morava River, with an elevation of about 10 m (in relation to the north and east sides; fig. 2), and not to hillfort settlements in the true sense of the word (see further in the text). Additionally, it follows that the Gradac phase, as defined by Garašanin, should be dated to the transitional period from the earlier to the later Vinča culture, i.e., ca. 5000 cal. BC. However, the earliest Tisapolgar and BSK settlements had not been established before 4600–4500 cal. BC. Therefore, the expansion of EE cultures occurred at a later point than the so-called Gradac phase of the Vinča culture – as it was originally defined – and its origin cannot be a consequence of the expansion. On the other hand, a certain number of researchers believed that there was an economic and social crisis and internal tensions between different components of the Vinča society at the end of the Vinča culture (Glišić 1968, 30; Tringham 1992; Borić 2015), which led to the formation of new regional groups, such as the BSK (Chapman 1981, 138), as well as the subsequent collapse of the Vinča culture. John Chapman (1990), Ruth Tringham (1992), and Dušan Borić (2015) suggested models of population dispersion from the LN settlements that include tensions and conflicts.





**Figure 2.** LN and EE Gradac site at Zlokućani near Leskovac (southeastern Serbia). View from the south. Image Credit: the authors.

### **Population fission from Late Neolithic settlements, settlements of peripheral areas and marginal soils, and the formation of smaller and tightly integrated settlements in the Early Eneolithic of the Central Balkans**

Chapman stated that changes that occurred during the transition from the early to the late phase of the Vinča culture (phases III and IV) were accompanied by the disappearance of large settlements (such as Selevac) and dispersion of the population in the hitherto peripheral areas, which were characterized by a greater diversity in the choice of locations for settlements and nearby resources. According to the same author, this enabled the introduction of the plow in the previous phase III (Chapman 1990, 40). The adoption of that innovation enabled the cultivation of larger sections of land (i.e., fields instead of gardens), population growth and further expansion of settlements into forest soils, as well as the cultivation of hard to work soil types, such as chernozems and vertisols (Chapman 1990, 43).

Tringham believed that during the early Vinča B culture, there was a change in the social organization of production in which households in the village became the primary units of social and economic cooperation (Tringham & Krstić 1990, 602ff). This change culminated in the beginning of the later phase C of the Vinča culture and this social transformation enabled the creation of large, densely populated settlements with a large number of inhabitants and more intensive economic production (Tringham & Krstić 1990, 580f). Population growth had ultimately reached the limits of the carrying capacity of settlement territories, which had caused competition and inequality among households. These changes finally led to the abandonment of LN settlements and forming of smaller settlements on 'marginal soils' during the late phase D of the Vinča culture (Tringham & Krstić 1990, 567ff; Tringham 1992). According to Tringham, such a population fission occurred due to a change in the organization and power structures in the society and the collapse of exchange networks during the Vinča C2 phase, which in the absence of a dominating central structure, through which households could be organized into an integrated political unit, led to the fission of economically independent co-residential households. She stated that at the time of the final Vinča D phase, the settlements were smaller, ceramic styles became uniform, and the frequency of ritual items and symbolic expressions decreased (e.g., figurines, marine shells, obsidian). Thus, scattered smaller groups in the newly founded settlements mastered new skills and economic strategies over time, and also gained new contacts and allies. The same author believes that this process weakened the cohesion and social power of the Vinča culture and ultimately led to the abandonment of large, long-term settlements (Tringham & Krstić 1990, 610ff; Tringham, 1992).

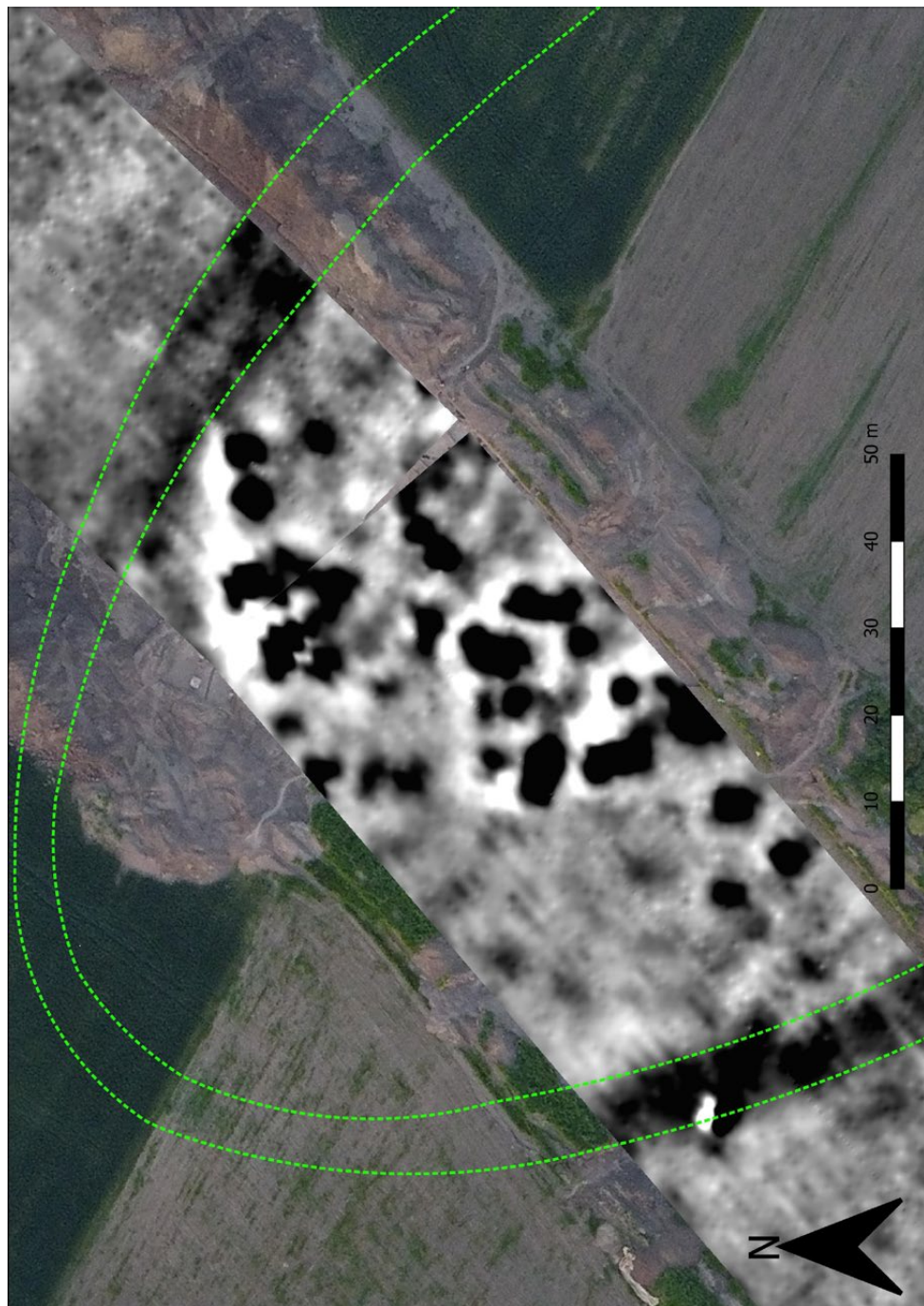
Borić believes that tensions and conflicts in LN Vinča settlements were resolved by fission and the establishment of new settlements with households, houses, or their social segments and members who moved away from the imposed restrictions and power structure of large Vinča settlements. He sees an explanation for this in the social dynamics between different components within communities (Borić 2015, 194).

A recent study on the spatial distribution of Vinča and BSK settlements in the valleys of the rivers Velika and Južna Morava and in eastern Serbia showed that in the EE, i.e., in the second half of the fifth millennium BC, settlements were most numerous in eastern Serbia, where they were relatively rare during the Vinča culture (Milanović 2017, 306; and 2019).

BSK settlements are often in the immediate vicinity of copper ore deposits, which was not the case in the LN. It was concluded that the entire settlement strategy in the EE was focused on eastern Serbia – a peripheral region up to that point – which was rich in copper deposits. Another important point in the EE, brought forth by the aforementioned study, was the appearance of settlements focused only on soils unsuitable for agriculture. Such settlements were very rare in the Vinča period (three out of 87 noted, but only one was definitely a Vinča settlement), and relatively common when it comes to the BSK complex (12 out of 53) (Milanović 2019). It was pointed out that Vinča settlements were significantly larger, usually covering several hectares, and in some cases several dozens of hectares (Milanović 2017, 267ff). According to the available data, primarily the radiocarbon dates and characteristics of the material culture, it can be sustained that most of the largest settlements, which had mostly been founded during the early Vinča, also existed in the late Vinča (cf. Borić 2009). It remains unknown, however, whether the size of certain settlements and the number of their inhabitants decreased, as was established by the research conducted at the LN site near Okolište in the valley of the Bosna River (Hofmann 2015). Recent work at the site of Adžine Njive – Brajkovo, near Klenak, suggests the same trend (fig. 3). This site was previously qualified as a settlement on a slightly elevated terrain with a surface of ca. 1 ha (Popović & Vasiljević 1970), and new research has shown that the early Vinča settlement occupied a significantly larger area, while in the late Vinča the settlement was reduced to an area of ca. 2-2.5 ha.<sup>1</sup> Smaller Vinča settlements are rare; they occupy a surface between 0.5 and 3.75 ha and mostly belong to the late Vinča (Milanović 2017, 267ff). However, their chronology is questionable because they have not been archaeologically investigated for the most part, and some of them may actually date to the EE, which refers primarily to those that were identified as hillforts (Gradina type; fig. 4). In the EE, sites are significantly smaller compared to the LN. Their size varies between 0.045 and 5.4 ha, and those with a very small surface are the most common ones (out of 23 sites, 19 are smaller than 2.7 ha), hence, it is certain that these settlements consisted of a significantly smaller number of houses compared to the previous period (Milanović 2017, 277ff). Previous research activities indicate that single-layer sites and relocations of settlements predominate in the microregion, and two, three or four spatially close sites have been recorded in certain microregions (Milanović 2017, 280).

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<sup>1</sup> New data come from rescue project conducted in 2021–22 and directed by Dragan Milanović and Miroslav Kočić, when over 4 ha surface was excavated.



**Figure 3.** Fluxgate gradiometry of the LN fortified settlement of *Adžine njive – Brajkovo 2* at Klenak near Šabac (northwestern Serbia) overlaid on a satellite image. Image Credit: the authors and *Viminacium Center for New Technologies*.



**Figure 4.** *The EE site of Velika Humska Čuka near Niš (southeastern Serbia). View from the southwest. Image Credit: the authors.*

### **The end of the Neolithic and the beginning of the Early Eneolithic in the Central Balkans and neighboring regions according to radiocarbon dates**

In two papers, Borić (2009 & 2015) provided a strong argument that the Vinča culture lasted until 4600/4500 cal. BC, while other authors had previously expressed the opinion that it lasted until ca. 4000 cal. BC (Ehrich & Bankoff 1992, 382), or until 4250 cal. BC (Obelić et al. 2004). After that, several more papers were published indicating that the Vinča culture ended in the middle of the fifth millennium BC (Orton 2012; Whittle et al. 2016). The end of the Neolithic cultures in the Carpathian Basin was also determined to the middle of the fifth millennium BC. However, certain radiocarbon dates from sites in Hungary indicate a longer duration of the LN – up to ca. 4300 cal. BC, while the Proto-Tisapolgár and Tisapolgár cultures, which represent manifestations of the EE in the Carpathian Basin, appeared already at ca. 4600 cal. BC, i.e., 4500 cal. BC (Yerkes et al. 2009; Raczky & Siklósi 2013). It was long believed that the BSK cultural complex was formed in Western Bulgaria ca. 4500/4450 cal. BC, and that in its later stages it spread to the areas of southwestern Romania, eastern and southeastern Serbia (Nikolov 1981, 12; Nikolova 1999; Georgieva 1990, 172; Todorova 1995). The early dates for the end of the Vinča culture show a hiatus between its final phase and the early phase



of the BSK cultural complex. Additionally, the absence of the early BSK phase in Serbia and Romania, or rather the lack of radiocarbon measurements from those sites was noted, thus, it became questionable how the early BSK settlements could have been the cause of the disappearance of Vinča culture. Nonetheless, new and some of the earlier radiocarbon measurements at certain Vinča sites, such as At near Vršac, Staro Selo near Selevac, Gruža near Grivac, Šanac near Pločnik, Usek near Banjica and others, clearly indicate that the Vinča culture lasted longer in some settlements than Borić suggested (table 1).

No.	Site, village/city, region	cal. BC	Relative chronology	Context/ number of samples	Reference
1	At, Crvenka/Vršac, northern Serbia	4701–4489 and 4653–4373 (95.4% prob.)	Vinča D2-D3	?/2	Chu et al. 2016, fig. 5
2	Staro Selo, Selevac/ Smedervska Palanka, central Serbia	4606–4375 (68.2%) or 4690–4355 (95.4%)	Vinča D2-D3	BH3 or 4/1	Borić 2015, 214
3	Grivac, Knić/ Kragujevac, central Serbia	4614–4274 (68.2 %) or 4785–4072 (95.4 %)	Vinča D2-D3	?/2	Borić 2015, 208
4	Šanac, Pločnik/ Prokuplje, southern Serbia	4605–4461, 4493–4365, 4454–4356, and 4448–4330 (95.4 %)	Vinča D3	BH1/4	Marić et al. 2021, Table 1
5	Usek, Banjica/Belgrade, central Serbia	4652–4369 (68.2 %) or 4792–4270 (95.4 %)	Vinča D2-D3	?/2	Borić 2015, 203
6	Spasovine, Milina/ Loznica, northwestern Serbia	4577–4509 (68.2%) or 4611–4461 (95.4%)	Vinča D2	?/2	Bulatović et al. 2020, fig. 8
7	Velika Humska Čuka, Hum/Niš, southeastern Serbia	4447–4373 (68%) or 4490–4340 (95.4%), and 4450–4340 (95.4%) 4370–4345 (47%) 4442–4421 (37%)	Early and Middle BSK	BH1/2	Bulatović et al. 2020, fig. 8; Bulatović & Milanović 2021, table 1
8	Družetić, Bodnjik/ Koceljeva, northwestern Serbia	4448–4369 (68.2%) or 4468–4347 (95.4%)	Early BSK	BH2/1	Živanović 2013, 54
9	Liga, Telish/Pleven, north central Bulgaria	4600–4350, 4460–4320 and 4460–4240 (95.4%)	Early and Middle BSK	BH1(?)–2 (Liga 1?–2)/3	Merkyte 2005, 33ff, fig. II.12

**Table 1.** *Late Neolithic Vinča culture sites that yielded very late radiocarbon dates and certain Early Eneolithic BSK sites with early radiocarbon dates.*

It has been shown that certain EE sites such as Velika Humska Čuka near Niš, southern Serbia (fig. 4), and Družetić near Koceljevo, northwestern Serbia, had already

been inhabited between 4500 and 4350 cal. BC, hence, in the early phase of the BSK. Additionally, at the site of Līga in Teliš, one date indicates the possible existence of an even earlier BSK horizon (4600–4350 cal. BC; Merkyte 2005, 33ff).

All this suggests that the complex disintegration process of the LN and the emergence of the EE settlements in the CB and in the Carpathian Basin occurred at approximately the same time. Important elements of this process were, apparently, a size reduction of the sites and establishment of complementary settlements in terms of geomorphology, pedology and topography (Milanović 2017; forthcoming a and b; Bulatović & Milanović 2020, 245f; and 2021).

### **Aims and methods**

The aim of the paper is to provide an overview of the process of population fission from large Vinča settlements and the formation of smaller settlements in the EE, tightly integrated with one another, in northwestern Serbia. Special attention was paid to the chronology, size, pedology and topography of the settlements. A very important aspect of this paper is the analysis of the stratigraphy of the site of Benske Bare/Jela, as previously registered sites in northwestern Serbia were chronologically determined on its basis (Truhović & Vasiljević 1983).

The sites were positioned in the microregions of northwestern Serbia, on the modern pedological map. Their size, soil types and topography were accounted for. Such data were collected from the scientific literature, and the topography was verified on the topographic maps of the Military Geographical Institute at a scale of 1:25,000. In this paper, a diameter of 1 km around the settlements' areas was examined in order to understand the types of soils that the inhabitants were oriented towards. Attention was paid to sites oriented towards the so-called marginal soils for agriculture, which were seen as favorable for animal husbandry, hunting and gathering, and not for agriculture. As such, vertisols, chernozems, eroded parapodzol, deluvium, brown and skeletal soils were taken into consideration.<sup>1</sup> Those oriented towards mineral bog soils and parapodzol were especially treated. Those oriented towards alluvium and/or eutric cambisol, or their combinations with others, were considered as very favorable for agriculture and animal husbandry.

The sites were divided into flat sites, on a plateau with a lower elevation, hillforts or the Gradina type, and the Obrovac type. Flat settlements are formed on flat or gentle slopes of river banks or streams. The term highland site is often encountered in recent publications when it comes to Vinča culture settlements (cf. Bulatović et al. 2017), and such sites are designated in this paper either as the flat sites (if they are situated on gentle slopes) or as sites on a plateau of small elevations (if it is explicitly stated in the text that they are located on a higher or a lower hill rising above the surrounding terrain). Settle-

<sup>1</sup> For more details on the properties of soil types in the Neolithic and Eneolithic of the CB, cf. Milanović 2019 & 2020, 20ff.

ments of the hillfort type, the origin of which was long associated with the later phases of Vinča culture, when an intensification of cattle breeding and a spread of metallurgical knowledge occurred, are characterized by a dominant, naturally protected position of at least three sides, while only one, often easily defended side is being accessible (Chapman 1981; Trbuhović & Vasiljević 1983, 67; Tripković 2013; Borić et al. 2018; Kapuran et al. 2018; Milanović 2019, 62). Sites of the Obrovac type occur in northwestern Serbia, primarily in Mačva. They represent circular natural elevations in lowland areas, fortified by a massive ditch, and in some cases by a palisade (Trbuhović & Vasiljević 1975 & 1983; Chapman 1981, 100f; Tripković 2013, 212f). This site type was usually dated to the late Vinča-Pločnik I-II phase by earlier research, while more recent studies and reconsideration of finds indicate that Copper Age, Bronze Age, Iron Age and historical periods are also often present at Obrovac sites (Trbuhović & Vasiljević 1983; Tripković 2013; Tripković & Penezić 2017; Tripković et al. 2017). The basic division of the Obrovac type sites, made by all researchers, refers to their diameter. Thus, Trbuhović & Vasiljević (1983) divided them into three groups: (1) with a diameter of 300 to 500 meters, enclosed by a ditch and a palisade; (2) up to 50 meters in diameter, with a circular depression in the middle and a ditch around it; and (3) up to 50 meters in diameter, without a depression in the middle, and surrounded by a ditch. Based on the former division, Boban Tripković (2013, 222ff) made a more detailed one, introducing certain subtypes. This site type is very similar to the settlements on elevated plateau, and the difference lies in the fact that the Obrovac sites were usually enclosed by a ditch and in some cases a palisade, although this is yet to be verified by archeological excavations.

All this enabled an overview of the mentioned process in the Neolithic/Eneolithic transitional period and brought forth suggestions for improving the results of future research.

### **Geomorphology and pedology of northwestern Serbia**

Northwestern Serbia includes the Pannonian part of the Sava River Valley (microregions of Mačva, Posavina, Pocerina and the Lower Kolubara with the Tamnava and Ub Rivers), the northern and part of the southern half of northwestern Peripannonian Serbia (Podrinjska Serbia and Podgorina – microregions of Lešnica, Jadar, Rađevina and Azbukovica; Marković 1980, 246ff).

Mačva is the largest microregion in northeastern Serbia and its northernmost end, as well as the most extensive lowland and plain of Serbia. It is bounded by the flows of the Sava and the Drina and the section of Mačva towards Pocerina. This macro-fluvial accumulative-structural surface is being transformed by recent erosion of smaller waterflows and denudation into an erosive river surface with shallow valleys of the Bela Reka, Jerez, Bitva and Zasavica (oxbow lakes; Marković 1980, 246). Formerly, when the waters of the Sava and the Drina would rise, ca. a third of Mačva used to be flooded. Floods in Mačva are also caused by high underground water, as well as torrents from the part of Pocerina in the region of Šabac (Marković 1980, 250).

Posavina is the area of the gently undulating right bank of the Sava River and it stretches between the Posavina section and the watershed towards the Tamnava. It consists of the valley of the Sava near Šabac and near Obrenovac, with three fluvio-denudation surfaces, formed by three tributaries of the Sava: Dumača, Dobrava, and Vukodraž (Marković 1980, 247).

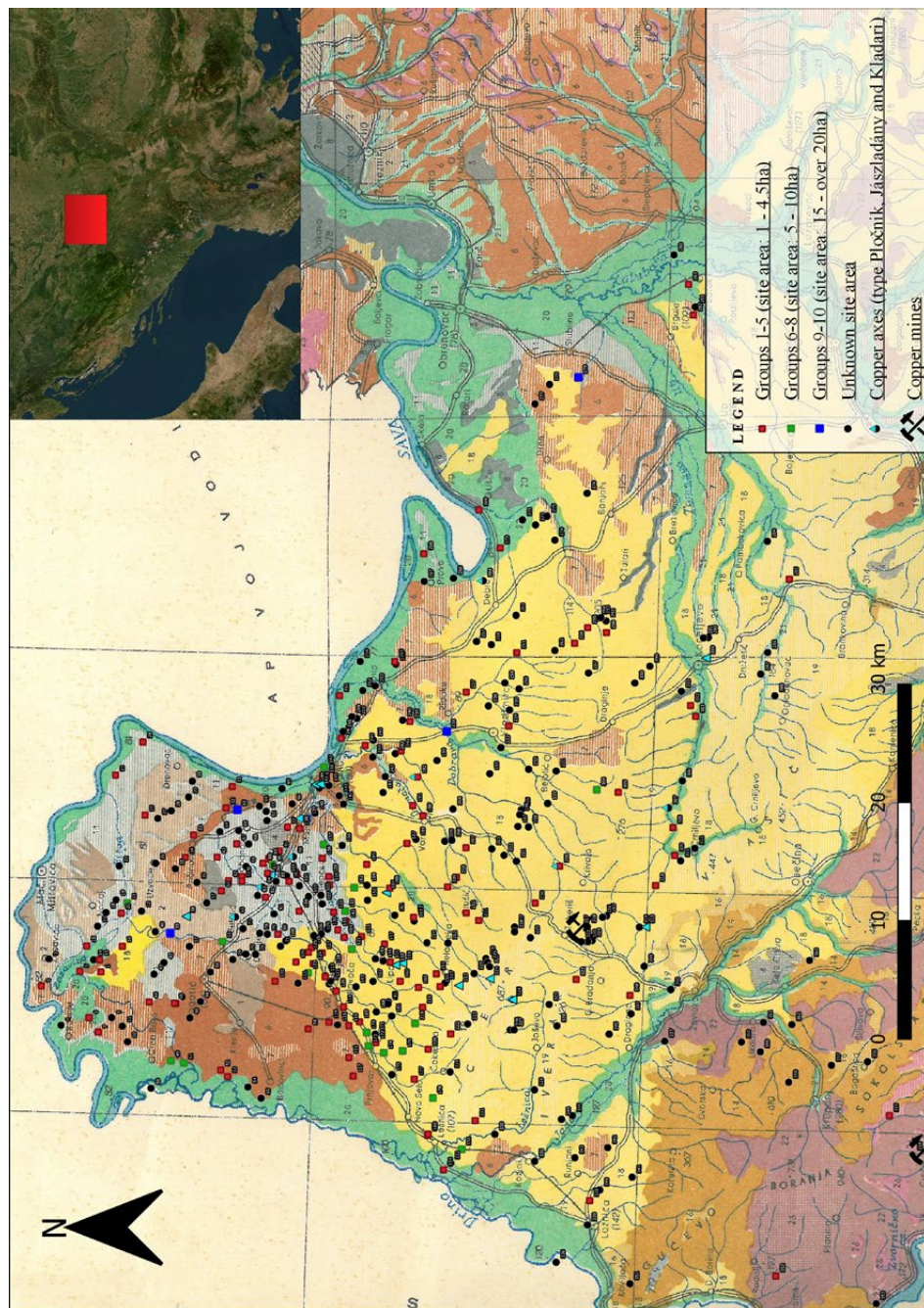
Pocerina includes Cer and its northern hills. Cer (687 m amsl) is a plutonite, laccolith, horst mountain. It is the northernmost island mountain of the southern rim of the Pannonian Basin (Marković 1980, 246). The mountain relief is made of granite, and the foothills are of schist and limestone. The Lešnica River separates Cer from the lower and more southern Iverak.

The microregions of the lower course of the Kolubara River, a right tributary of the Sava River, and of the rivers Tamnava and Ub represent a part of the bottom of the Pannonian Basin, while the upper course of the Kolubara belongs to Podgorina in the region of Valjevo (Marković 1980, 247).

The extreme southwestern part of the territory which is the subject of this paper, from the Drina and south of Cer, Iverak and Vlašić to the watershed in the mountains of Podrinje (Gučevo, Boranja, Jagodnja and Sokolske Planine) and Valjevo (Medvednik, Jablanik and Povlen), belongs to the Podrinje of the region of Peripannonian Serbia, while the extreme southeastern part belongs to the upper flow of the Kolubara River, i.e., Podgorina in the region of Valjevo (Marković 1980, 257f).

The microregion of the Jadar comprehends the basin of the Jadar River between the Iverak, Gučevo, Boranja, Jagodnja and Vlašić Mountains. Lešnica is a microregion formed by the basin of the Lešnica River between Cer and Iverak. Rađevina is a part of the basin of the Jadar around the basins of the Krupnja, Bela Crkva and Pecka, and the microregion of Azbukovica is a narrow zone between the Drina, the mountains of Sokolske Planine and Povlen (Marković 1980, 258).

According to *The soil map of Western and North-western Serbia with Neighbourhood of Belgrade* (Tanasijević & Pavlović 1967; fig. 5), the most abundant soils in the northern part of Mačva are alluvium of the rivers Sava and Drina, eutric cambisols (*gajnjača*), mineral bog soils and chernozem, and to a lesser extent vertisols (*smonica*) and parapodzol. In the southern part of Mačva, parapodzol and, to a lesser extent, alluvium of the river Drina prevails. In Posavina, the most abundant are parapodzol, alluvium of the Sava River and eutric cambisols, and to a lesser extent mineral bog soils and humogleys. Parapodzols are the most common in Pocerina, and eroded parapodzols in the area of the mountains of Cer and Iverak. In the microregions of the lower Kolubara, Tamnava and Ub, parapodzol, eroded parapodzol, alluvium of the lower Kolubara, Tamnava and Ub and eutric cambisols are represented the most, and to a lesser extent mineral bog soils, humogleys and deluvium (colluvium). Parapodzol, brown soil on limestone (calcocambisol), brown skeletal soil (lithosol) on schist, brown acid soil (distric cambisol) on granite and diabase and eroded parapodzol are the most abundant in the Jadar mi-



**Figure 5.** Distribution map of the sites in the study area with known surface area, locations of Pločnik and Jászládány types copper axe finds, and potential copper mines. Image Credit: The soil map of Western and North-Western Serbia with neighbourhood [sic] of Belgrade (Tanasijević & Pavlović 1967) and the authors.

croregion, and to a lesser extent alluvium of the rivers Drina and Jadar, eutric cambisols, brown acid soil on sandstone and deluvium. In the Lešnica microregion, parapodzol and eroded parapodzol predominate, and to a lesser extent eutric cambisols and alluvium of the river Sava. In Rađevina, brown skeletal soil on schist, brown soil on limestone, parapodzol, and to a lesser extent eroded parapodzol, vertisols, deluvium, and skeletal soils are the most common. In Azbukovica brown skeletal soil on schist, brown soil on limestone, brown acid soil on granite and diabase, and to a lesser extent skeletal soils, alluvium of the river Drina, deluvium, parapodzol and brown acid soil on sandstone are the most common.

The most fertile types and the most favorable ones for farming in today's conditions are alluvium and chernozem, to a lesser extent vertisols, eutric cambisols, and humogleys, followed by parapodzol and mineral bog soils (Antić et al. 1980; Ćirić 1986). The remaining soil types are not favorable for farming, even in conditions enabled by modern technology (cultivation with heavy machinery, melioration, etc.).

#### **The excavation project at the site of Benske Bare/Jela and its importance in recognizing the Neolithic–Eneolithic transition in northwestern Serbia**

The site is located in the very center of today's Šabac, on an elevated part of the terrain in the once swampy area of Benske Bare (Appendix, 147). It was researched for the first time in 1962, when smaller trench excavations were carried out. The thickness of the deposits measured ca 2.5 m (Trbuhović & Vasiljević 1972, 15; 1983, 26). Excavations followed in 1967 (Vasiljević 1967, 23) and 1970, when more than 1500 m<sup>2</sup> were explored (Trbuhović & Vasiljević 1970, 24f; 1983, 26). After the first excavations, the earliest layer of the site was determined to belong to the Vinča–Tordoš phase, the second layer was attributed to the Vinča–Pločnik phase with influences of the Lengyel culture, the third layer was defined as a mixture of Vinča and 'elements of the Bubanj–Hum group of the Early Bronze Age (Bubanj–Hum I)', while the final layer was defined as a mixture of the Vinča group with distinct elements of the Baden group (Vasiljević 1967; table 2). After the research in 1970, four layers were distinguished: first as the final phase of Vinča–Tordoš, second and third as the Vinča–Pločnik phase, and fourth as a cultural layer of the Bubanj–Hum and Baden cultures (Trbuhović & Vasiljević 1970, 24f). At a later point, a different interpretation was presented and five or six layers were singled out, and a summary description of the materials found was given; however, this does not allow for making any relevant conclusions about the character of the material culture in certain settlement horizons. The two earliest layers was dated to the phase Vinča–Tordoš, the third layer was divided into segments A and B and determined to the phase Vinča–Pločnik I, the fourth was assigned to the phase Vinča–Pločnik II with elements of the Bubanj–Hum I group, and the fifth to the Baden culture (Trbuhović & Vasiljević 1972, 15f).

Layers	Published			
	Vasiljević 1967	Trbuhović & Vasiljević 1970	Trbuhović & Vasiljević 1972	Trbuhović & Vasiljević 1983
I	Vinča–Tordoš	Final Vinča–Tordoš	Vinča–Tordoš	Benska bara I
II	Vinča–Pločnik with elements of Lengyel culture	Vinča–Pločnik I	Vinča–Tordoš	Benska bara IIa
III	Vinča–Pločnik with elements of Bubanj–Hum I culture	Vinča–Pločnik II	III/A: Vinča–Pločnik I III/B: Vinča–Pločnik I	Benska bara IIb
IV	Vinča with elements of Baden culture	Bubanj–Hum I and Baden cultures	Vinča–Pločnik II with Bubanj–Hum I culture as a foreign import	Benska bara III
V	/	/	Baden culture	Baden culture

Table 2. Stratigraphy of the site of Benske bare/Jela with references.

Considering the fact that Trbuhović & Vasiljević (1983) recorded ca. 340 sites in Podrinje, which we analyze in this paper, and that they dated them according to the stratigraphy of the Benske Bare/Jela site, the question of the stratigraphy of this site is very important. In the cited monograph, most of the Vinča sites were dated to the Vinča–Pločnik phase, a smaller number to the final phase of the Neolithic, a larger number to Benske Bare II and especially to Benske Bare III, or rarely to the transitional period from the Neolithic to the Eneolithic (table 3).

Vasiljević 1972	
LateVinča / Vinča–Pločnik	21; 42; 49; 51; 53; 54; 61; 78; 88; 92; 93; 106; 109; 135; 139; 164; 187; 232; 241; 243; 246; 266; 268; 287
Neolithic	95
Neolithic–Eneolithic transition	292–294; 302; 309
Starčevo and Vinča	233
Trbuhović & Vasiljević 1983	
Starčevo	13; 14; 20; 30; 49; 77; 112
Vinča	1; 12
Vinča–Tordoš	147
Vinča–Pločnik	6; 7; 9; 10; 15–17; 19; 20; 24; 27; 31; 32; 34; 36; 37; 40; 42; 43; 45–47; 50; 51; 55; 57; 59; 63; 65; 67; 68; 74; 75; 81; 82; 88; 90–93; 96–100; 102; 103; 108; 111–120; 123; 124; 128–131; 133; 134; 147; 151; 153; 155–157; 160; 161; 163–169; 171; 173–177; 181–185; 190; 191; 194; 198; 199; 203; 205; 209; 212; 215; 219; 225; 232; 234; 235; 239; 240–246; 248; 250–252; 254; 257; 259; 261–263; 270; 271; 274; 287; 288; 290; 295; 296; 301; 322–324; 329; 330; 332–334; 339–341; 343; 347

<b>Benske bare I</b>	260
<b>Benske bare II</b>	61; 106; 147; 178; 226; 238; 269; 272; 318; 353
<b>Benske bare III</b>	26; 35; 49; 70; 101; 106; 140; 147; 149; 178; 188; 189; 195; 200; 202; 207; 208; 214; 216–218; 220; 222; 223; 226; 227; 230; 238; 253; 256; 258; 260; 269; 275; 286; 297; 298; 304; 305; 308–311; 314–316; 318; 320; 326; 337; 342; 348; 349; 355; 357; 358; 361–363
<b>The end of the Neolithic</b>	2; 5; 22
<b>Vinča–Pločnik and La Tene</b>	52
<b>Neolithic</b>	69
<b>Baden/Kostolac</b>	67; 144; 149
<b>BSK</b>	177
<b>Roman period</b>	113; 195; 252; 263
<b>Neolithic–Eneolithic transition</b>	344
<b>Chapman 1981</b>	
<b>Vinča</b>	1; 2; 5; 10; 12; 14; 16; 17; 19; 20; 25; 26; 32–35; 39; 40; 44; 47; 49; 53; 55–59; 61–63; 68–70; 72; 81–83; 87–89; 91–94; 96–98; 103; 106; 109; 111; 114–120; 122; 124–126; 129–134; 137–143; 145; 150; 152; 153; 164; 165; 167; 168; 170; 173–176; 179; 183; 184; 187–190; 194; 195; 198; 199; 201–204; 207; 208; 210; 211; 215; 219; 221; 227; 230; 232–235; 237; 239; 240–243; 245–248; 251; 252; 255–257; 265; 297; 298; 309; 310; 314; 315; 318; 329; 330; 343
<b>Early Vinča</b>	147
<b>Late Vinča</b>	21; 24; 26; 64; 80; 110; 136; 147; 192; 200; 226; 238; 253; 258; 326
<b>Post-Vinča</b>	21; 140; 147; 226
<b>Stojić &amp; Cerović 2011</b>	
<b>prehistory</b>	23; 102; 116; 165; 174; 223; 227; 256; 288; 309; 340; 355
<b>Starčevo</b>	13; 14; 31; 85; 118; 122; 143; 145; 147; 154; 168; 173; 178; 226; 230; 236; 239; 248; 260; 262; 302; 308; 330; 352
<b>Neolithic</b>	35; 94; 95; 99; 161; 167; 210; 249; 250
<b>Late Neolithic</b>	69; 211; 351
<b>Vinča</b>	1–4; 7–12; 16; 17; 20; 22; 25–30; 32; 38–40; 44–45; 47; 49; 50; 51; 53; 55; 56; 58–62; 64–66; 68; 70; 72–77; 80–83; 85–93; 96; 98; 103–105; 107; 109–111; 114; 115; 119–121; 123; 125; 126; 129; 130; 133; 134; 136; 137; 139–141; 143; 145–150; 152; 154–158; 164; 166; 170; 173; 175–186; 188; 190–192; 194–196; 198–203; 206; 208; 209; 212–216; 219–221; 224; 225; 228; 229; 231; 232; 236; 238; 239; 241; 243; 246–248; 252; 253; 258; 260; 261; 263–265; 267; 268; 270–274; 287; 295; 297; 302; 304; 305; 307; 308; 310; 311; 314–316; 318; 320; 322; 325; 326; 333; 334; 337; 339; 341–348; 351–353; 357; 358; 361; 362
<b>Bubanj–Hum I</b>	13; 14; 33; 177; 226; 358



Copper Age (Bubanj culture)	18; 321; 350; 352
Early Eneolithic	70; 84; 254; 286
Middle Eneolithic	8; 39; 144; 145; 147; 149; 231; 248; 254; 352; 362
Sälkuča	137
Late Eneolithic	21; 39; 231; 362
Copper Age	67; 68; 80; 99; 117?; 187; 195; 210?; 217; 251; 255; 290?
Early Bronze Age	39; 73; 298; 352
Middle Bronze Age	201; 207; 262; 325; 326
Bronze Age	70; 94; 99; 133; 260; 352
Iron Age	5; 19; 28; 29; 49; 53; 55; 58; 64; 91; 94; 101; 122; 134; 137; 147; 173; 187; 218; 248; 251; 260; 318; 325; 351; 352; 358; 362
Late Iron Age	229; 264; 358
Metal Age	40; 42; 97; 128; 153; 204; 257
<b>Bulatović et al. 2017</b>	
prehistory	317
Early Neolithic	178; 330; 357
Late Neolithic	178; 179; 318; 319; 322; 329; 331–334; 336; 338–341; 343; 345?; 347; 348; 351–354; 356; 359; 360
Neolithic–Eneolithic transition	314–316; 320; 326; 327; 342; 344; 346; 349; 355; 357; 361; 363?
Early Eneolithic	178; 313; 321; 324; 325; 328; 331; 363?
Eneolithic	323; 351; 354; 358; 362
Bronze Age	323; 325; 337; 339; 358
Late Bronze Age	73; 328; 331
Bronze–Iron Age transition	325; 331; 336; 337; 351; 362
Iron Age	328; 358
Late Iron Age	318
Middle Age	331
<b>Živanović 2022</b>	
Vinča–Pločnik	287; 290; 291; 299; 300; 303; 306; 312
Early Neolithic	286; 288; 289; 292–294; 297; 301; 307; 308; 311
Neolithic	306
Neolithic–Eneolithic transition	309

**Table 3.** Relative dating of the sites according to Vasiljević 1972; Trbuhović & Vasiljević 1983; Chapman 1981; Stojić & Cerović 2011; Bulatović et al. 2017; and Živanović 2022. Numbers in the right-hand column refer to the sites in the Appendix.

It could be inferred that Benske Bare III formed an EE horizon, in which a strong influence of the Vinča tradition can be noted. A similar observation was made for the ceramic vessels from the site of Bodnjik in Družetić (cf. Palavestra et al. 1996). Essentially, the problem is, firstly, that the third layer of Benske Bare was treated as a mixture of the Vinča and Bubanj–Hum groups (Vasiljević 1967), then the fourth layer was treated as belonging to Bubanj–Hum and Baden (Trbuhović & Vasiljević 1970); after the introduction of another layer for Vinča–Tordoš (now Benske Bare I–II) and dividing layer 3 into segments A and B (Vinča–Pločnik I), the layer 4 remains, but now as Vinča–Pločnik II with elements of the Bubanj–Hum I group, while the layer 5 belongs to the Baden culture (Trbuhović & Vasiljević 1972). Finally, in the 1983 monograph, layers 1, 2a-b, and 3 are mentioned as belonging to the Vinča culture (Trbuhović & Vasiljević 1983, 26f). In that monograph, the authors connected the hillfort sites in Podrinje with the end of phase IIb and with phase III (Trbuhović & Vasiljević 1983, 67). In phase IIb, a horizon of burnt houses appeared at the site of Benske Bare (Trbuhović & Vasiljević 1983, 26), copper objects were also associated with phase IIb of Benske Bare, and most of them to phase III (Trbuhović & Vasiljević 1983, 85f). Sites of the Obrovac type were also linked to phases II and III (Trbuhović & Vasiljević 1983, 78). From all this, it could be inferred that the authors have given up the idea that the two earliest layers belong to Vinča–Tordoš, and that there was only one instead (Benske Bare I), hence, the division of layer II into segments a and b would refer to the phase Vinča–Pločnik I (Benske Bare IIa–b), and layer III would refer to Vinča–Pločnik II with elements of the Bubanj–Hum I group (Benske Bare III).

At a later point, Milorad Stojić and Momir Cerović concluded, on the basis of the analysis of findings, that settlements of the Starčevo, Vinča and Baden cultures, of the Iron Age Ib, IIa and III, as well as of the Late Iron Age, were located at the site of Benske Bare, while the EE was not mentioned at all (Stojić & Cerović 2011, 149). The authors believe that the LN settlement was characterized by an intertwining of the Vinča and Tisza cultures to a greater extent, with lesser influences of the Sopot, Lengyel and Butmir cultures. Conclusions about the stratigraphy and chronology of the Vinča settlements were made on the basis of anthropomorphic figurines, certain types of vessels and prosopomorphic lids that have parallels at the eponymous Vinča site (Stojić & Cerović 2011, 150ff). They stated that no vessels corresponding to the final phase D of the Vinča culture had been found at the site, but that the settlement most likely survived until the beginning of the Vinča C phase (Stojić & Cerović 2011, 152). They also believe that the hillfort sites were settled during the Vinča culture period. Bulatović et al. (2017, 42) considered phase III of Benske Bare, as defined by the researchers of the site, as a transitional period from the Neolithic to the Eneolithic or as EE. In the absence of radiocarbon dates from the site and considering the fact that the finds were not published in detail by the separate layers, but only given all together instead (Trbuhović & Vasiljević 1983), it is difficult to clarify which period belongs to which phase, and this is especially unclear for phase III. The only solution is to process the material from the old excavations and to determine the

period to which they belong using radiocarbon dating. The great similarities in the material culture between the end of the LN and EE significantly complicate the usual methods of comparing archaeological material, especially when it comes to the establishment of a relative chronology based on ceramic shapes and decoration (cf. Bulatović et al. 2020), i.e., on their small sherds found at surveyed sites in northwestern Serbia.

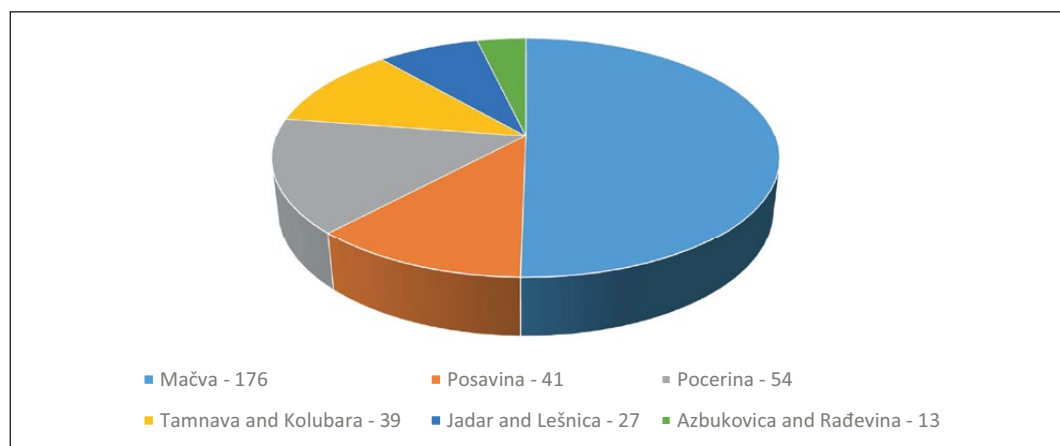
### **Northwestern Serbia in the fifth millennium BC**

In the study area, 364 sites<sup>1</sup> have been recorded that were occupied in the fifth millennium BC (fig. 5; Appendix),<sup>2</sup> with excavations carried out at 39 sites (Nos. 21, 39, 56, 70, 112, 138, 139, 143, 147, 164, 169, 173, 195, 197, 215, 226, 229, 238, 253, 264, 276–284, 286, 298, 302, 323, 331, 337, 350, 351, 358, and 364),<sup>3</sup> while geoarchaeological coring and sediment analysis was done at seven sites (Nos. 70–72, 80, 109, 125, and 127) (Tripković & Penezić 2017; Tripković et al. 2017; Veselinović et al. 2021). Out of the 364 sites in total, 350 were considered as settlements in this paper, and 176 were recorded in Mačva, 54 in Pocerina, 41 in Posavina, 39 in the Tamnava and the Kolubara microregion, 27 in the Jadar and the Lešnica microregion, and 13 in Rađevina and Azbukovica (fig. 6). Sites where group or individual finds of copper objects (heavy copper tools-axes) were recorded (Nos. 38, 86, 144, 146, 158, 159, 186, 213, 224, 289, 313, 324, and 335) and two sites marked as potential copper mines (Nos. 317 and 354) were excluded from the analysis. According to Chapman's (1981, 50) division in geomorphological entities, Mačva, Posavina, Tamnava and Kolubara belong to the lowland-valley microregions, while Pocerina, Jadar, Lešnica, Rađevina, and Azbukovica represent hilly and highland microregions. The location of most sites was registered approximately, and only a smaller part of the sites was precisely or very approximately detected (Appendix). Uneven dating is illustrated by excavations at several sites (table 3). Thus, for example, the large site of Lanište in Glušci (No. 21, 10 ha) was dated to the later Vinča (Vasiljević 1972, 165; Vasiljević & Popović 2002, 13) or the Late Eneolithic (Stojić & Cerović 2011, 90). The very large Obrovac site of Staro Selo – Ribarica in Glušci (No. 39, 19.6 ha) was dated to phases II and III of Benske Bare (Trbuhović & Vasiljević 1983, 78f), the Middle and Late Eneolithic and the Early Bronze Age (Stojić & Cerović 2011, 91f). The large Obrovac site of Šor–Motovilo in Majur (No. 139, 20 ha) was dated to phases II and III of Benske Bare (Trbuhović & Vasiljević 1983, 84), i.e., roughly to the Vinča culture (Stojić & Cerović 2011, 110). The very small Obrovac site of Likička Šuma, near Bogosavac (No. 56, 0.07 ha) was dated to phase III of Benske Bare (Trbuhović & Vasiljević 1983, 84), i.e., to the Vinča culture period, the EE and the Bronze Age (Stojić & Cerović 2011, 70f). The hillfort site of Crkva

<sup>1</sup> Site no. 272 most likely is the same as no. 269, but as it doesn't affect the analytical results significantly, it was nonetheless used in the analysis and was included in the Appendix.

<sup>2</sup> Due to their proximity, several sites were combined as one (Nos. 44, 47, 87, 136, 179, 106, and 190), so the total number would be 375.

<sup>3</sup> Site Nos. in the Appendix.



**Figure 6.** Total number of sites in all microregions (copper finds and copper mines not included).  
Image Credit: the authors.

in Nakučani (No. 195) was dated to phase III of Benske Bare (Trbuhović & Vasiljević 1983, 71), i.e., Vinča culture and the Copper Age (Stojić & Cerović 2011, 117f), while the hillfort of Kik III in Svileuva (No. 298) was dated to phase III of Benske Bare (Trbuhović & Vasiljević 1983, 73), i.e., the Early Bronze Age (Stojić & Cerović 2011, 144f) or the transitional period from the Late Eneolithic to the Early Bronze Age (Živanović 2013 & 2022, 70). The low research level and lack of absolute dates resulted in a situation where relative chronology, in most cases, was based on few or insufficiently recognizable ceramic sherds. Thus, for example, the recently investigated sites of Šančina in Parlozi (No. 226), previously dated to phases IIb and III of Benske Bare (Trbuhović & Vasiljević 1983, 70), and Šanac–Izba in Lipolist (No. 164), previously dated to the Vinča–Pločnik phase (Trbuhović & Vasiljević 1983, 54), are now considered to be from the EE (Stojić & Cerović 2011, 78f; Tripković et al. 2017; Jevtić & Cerović 2022). The same cultural milieu includes Bodnjik in Družetić (No. 286; Palavestra et al. 1996), previously dated to Benske bare III (Trbuhović & Vasiljević 1983, 74), while Spasovina in Milina belongs to a slightly earlier horizon, determined to the very late Vinča D2 phase – Vinča-Pločnik II (table 1) (Bulatović et al. 2020).

According to their surface areas, sites are divided into 10 groups (fig. 7; table 4; Appendix). The surface area is known for 146 sites. Twenty-five sites have an area of more than 5 ha. They are concentrated in Mača (19 in total), where the largest site is located (No. 65), two from group 9 (Nos. 39 and 139), eight from group 8 (Nos. 21, 90, 128, 122, 137, 123, 133, and 176), and eight from groups 6 and 7 (Nos. 51, 147, 173, 174, 178, 49, 170, and 59). One site each from group 9 is located in Posavina (No. 274) and Pocerina (No. 238), as well as one from group 8 (No. 182), and a large site from group 8 was also recorded in the Tamnava River Valley (No. 304). The largest site in the Lešnica microregion is from group 7 (No. 332), and one site from this group was recorded in

Pocerina (No. 219). Large sites have not been found in the microregions of the Kolubara, Jadar, Lešnica, Rađevina and Azbukovica. The smallest sites (less than 5 ha) make up the largest number of those with known surface areas. The largest number of sites belongs to the smallest group (121), and groups 1 (<0.38 ha) and 3 (1–2 ha) are especially numerous.

Group	Site No.
1	23, 33, 34, 44, 47, 53, 58, 61, 62, 70, 72, 80, 87, 89, 104, 109, 110, 125, 126, 127, 132, 135, 136, 138, 142, 162, 164, 172, 179, 180, 187, 208, 210, 237, 255, 265, 268, 285, 298, 302, 303, 309, 352
2	45, 222, 239, 331, 355
3	15, 20, 67, 82, 91, 99, 101, 112, 114, 117, 118, 119, 120, 134, 151, 165, 177, 188, 190, 191, 192, 209, 211, 214, 216, 218, 220, 234, 241, 251, 261, 282, 295, 296, 305, 310, 322, 339
4	2, 7, 13, 24, 32, 52, 116, 131, 160, 200, 207, 230, 283, 308, 334, 348
5	1, 5, 6, 16, 25, 31, 63, 88, 97, 124, 155, 157, 169, 185, 215, 245, 247, 269, 270
6	51, 173, 174, 178
7	49, 59, 147, 170, 219, 332
8	21, 90, 122, 123, 128, 133, 137, 176, 182, 304
9	39, 139, 238, 279
10	65

Table 4. Surface area grouping of the sites in all microregions.

Thirty sites of group 1 and 40 sites of groups 2–5 were registered in Mačva (fig. 8 and table 5), three sites of group 1 and eight sites of groups 2–5 were recorded in Posavina (fig. 9 and table 6), and four sites of group 1 and 17 sites from groups 2–5 were registered in Pocerina (fig. 10 and table 7).

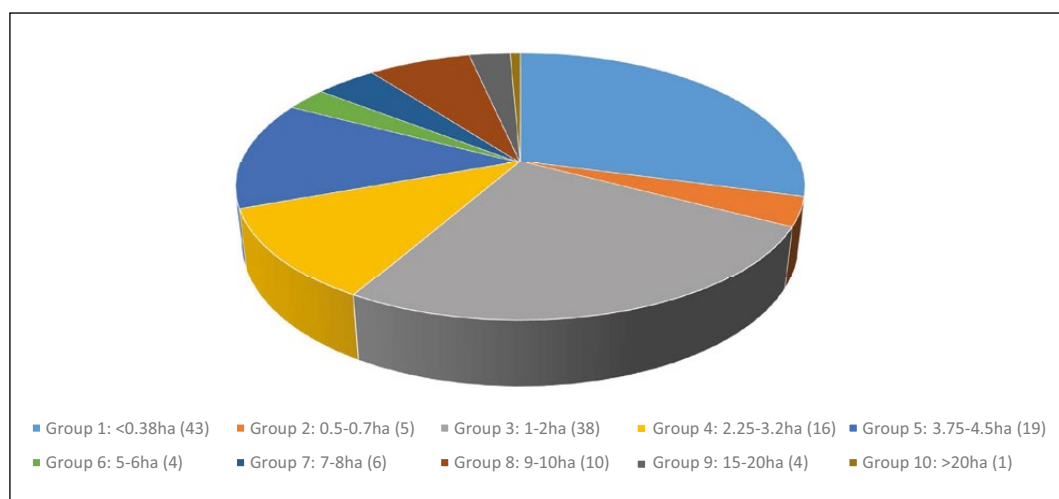


Figure 7. Surface area of the sites in all microregions. Image Credit: the authors.

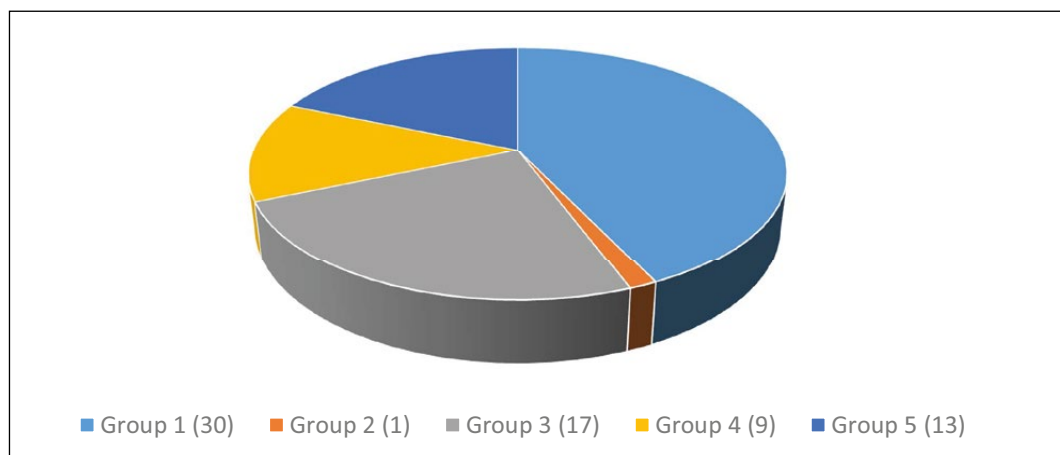


Figure 8. Mačva: settlement area below 5 ha (groups 1–5). Image Credit: the authors.

Group	Topography and site No.	Soil type and site No.
1 (<0.38 ha)	Obrovac: 23, 33, 34, 44, 47, 53, 58, 61, 62, 70, 72, 80, 87, 89, 104, 109, 110, 125, 126, 127, 132, 135?, 136, 138, 142, 162, 164, 172, 179, 180?	mineral bog soils (80, 70, 87, 89, 104, 136, 72, 132, 142, 135); parapodzol (125, 109, 126, 127, 179, 180); parapodzol/alluvium (162); alluvium/mineral bog soils (23); mineral bog soils/chernozem/eutric cambisol (33); eutric cambisol (58, 110, 138, 34); parapodzol/eutric cambisol (172); parapodzol/mineral bog soils (164); vertisol (61); vertisol/mineral bog soils (62); eutric cambisol/mineral bog soils (44, 47); alluvium/eutric cambisol (53)
2 (0.5–0.7 ha)	Flat: 45	eutric cambisol/mineral bog soils (45)
3 (1–2 ha)	Flat: 15, 20, 99, 101, 112, 114, 117, 118, 119, 120, 134, 151, 165, 177 Plateau: 67, 82?, 91	mineral bog soils (62, 82, 101, 134, 20, 99); parapodzol/eutric cambisol (118, 119, 120); parapodzol/mineral bog soils (151); vertisol/mineral bog soils (91); alluvium/eutric cambisol (117); parapodzol (112, 165, 177); alluvium/mineral bog soils (15); eutric cambisol (114)
4 (2.25–3.75 ha)	Flat: 2, 7, 13, 24, 32, 52, 116, 131, 160	eutric cambisol/mineral bog soils (7, 32); eutric cambisol (2, 116); alluvium/eutric cambisol (13, 52); parapodzol/mineral bog soils (131); parapodzol (160); alluvium/mineral bog soils (24)
5 (3.75–4.5 ha)	Flat: 1, 5, 6, 16, 25, 31, 63, 88, 97, 124, 155, 157, 169	parapodzol/mineral bog soils (1, 16); alluvium/mineral bog soils (5); alluvium/eutric cambisol (6); chernozem (25); eutric cambisol/mineral bog soils/alluvium (31); vertisol/mineral bog soils (63); mineral bog soils (88); vertisol/mineral bog soils/eutric cambisol (97); parapodzol (124, 155, 157); parapodzol/eutric cambisol (169)

Table 5. Topography and soil types in the vicinity of sites with settlement area below 5 ha (groups 1–5) in Mačva.

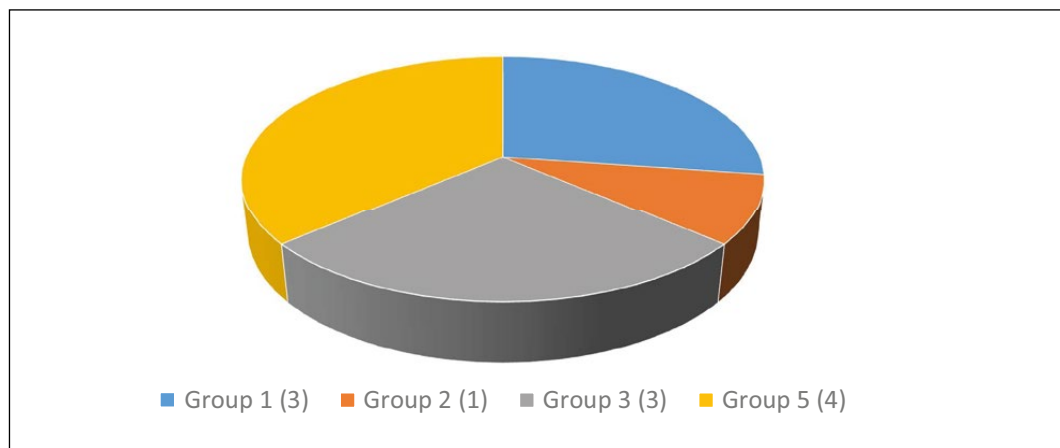


Figure 9. Posavina: settlement area below 5 ha (groups 1–5). Image Credit: the authors.

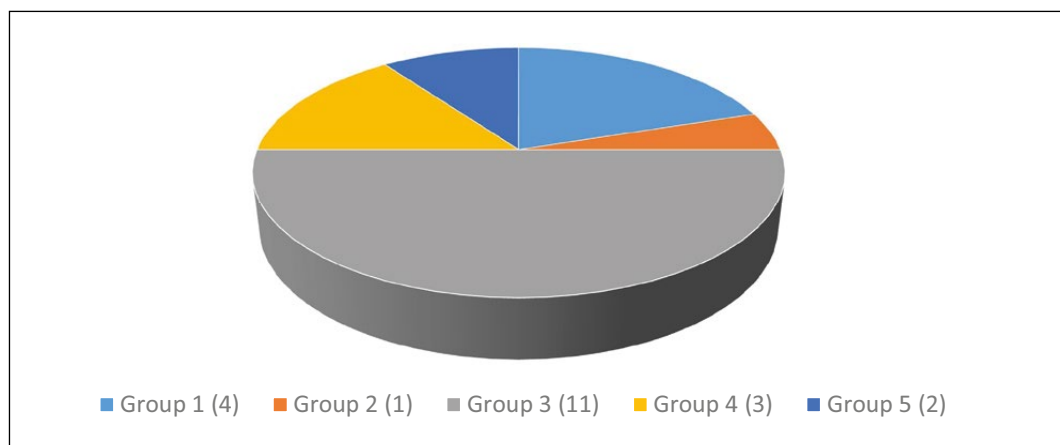


Figure 10. Pocerina: settlement area below 5 ha (groups 1–5). Image Credit: the authors.

Group	Topography and site No.	Soil type and site No.
1 (<0.38 ha)	Obrovac: 255, 265, 268	alluvium/eutric cambisol (255, 265); alluvium/mineral bog soils (268)
2 (0.5–0.7 ha)	Plateau: 239	eutric cambisol/alluvium/parapodzol (239)
3 (1–2 ha)	Flat: 241, 251 Plateau: 261	alluvium (251); parapodzol (261); parapodzol/eutric cambisol (241);
5 (3.75–4.5 ha)	Flat: 245, 247, 269, 270	parapodzol/alluvium (245, 270); alluvium (247, 269)

Table 6. Topography and soil types in the vicinity of sites with settlement area below 5 ha (groups 1–5) in Posavina.

Group	Topography and site No.	Soil type and site No.
1 (<0.38 ha)	Obrovac: 187, 210, 237 Gradina: 208	parapodzol (187, 208, 210, 237)
2 (0.5–0.7 ha)	Gradina: 222	parapodzol/eroded parapodzol (222)
3 (1–2 ha)	Flat: 190, 191, 209, 211, 234 Gradina: 192, 214, 216, 218, 220 Plateau: 188	parapodzol/eroded parapodzol (220); parapodzol (188, 190, 191, 192, 209, 211, 214, 216, 218, 234)
4 (2.25–3.75 ha)	Gradina: 200, 207, 230	parapodzol (200, 207, 230)
5 (3.75–4.5 ha)	Flat: 215 Gradina: 185	parapodzol (185, 215)

**Table 7.** *Topography and soil types in the vicinity of sites with settlement area below 5 ha (groups 1–5) in Pocerina.*

In the microregions of the Tamnava and the Kolubara (fig. 11 and table 8), five sites from group 1 and seven from groups 2–5 were registered. In the microregions of the Jadar and the Lešnica, five sites from groups 2–5 were recorded (fig. 12 and table 9), and two sites of groups 1 and 2 were registered in the microregions of Rađevina and Azbukovica (fig. 13 and table 10).

Group	Topography and site No.	Soil type and site No.
1 (<0.38 ha)	Obrovac: 302, 303, 309, 285 Gradina: 298	parapodzol/alluvium (302, 303); alluvium/parapodzol/eroded parapodzol (309); eroded parapodzol/deluvium (285); parapodzol (298)
3 (1–2ha)	Flat: 295, 296 Gradina: 305, 310 Plateau: 282	parapodzol (296, 295, 305, 310) eutric cambisol/alluvium/parapodzol (282)
4 (2.25–3.75ha)	Flat: 283 Gradina: 308	eutric cambisol/alluvium/parapodzol (283); parapodzol/alluvium (308)

**Table 8.** *Topography and soil types in the vicinity of sites with settlement area below 5 ha (groups 1–5) in Tamnava and Kolubara.*

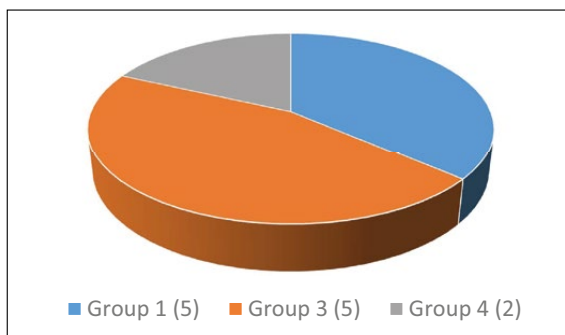
Group	Topography and site No.	Soil type and site No.
2 (0.5–0.7 ha)	Gradina: 331	parapodzol/eroded parapodzol (331)
3 (1–2 ha)	Flat: 339, 322	parapodzol (339); parapodzol/eroded parapodzol (322)
4 (2.25–3.75 ha)	Undefined: 334 Gradina: 348	alluvium (334); parapodzol (348)

**Table 9.** *Topography and soil types in the vicinity of sites with settlement area below 5 ha (groups 1–5) in Jadar and Lešnica.*

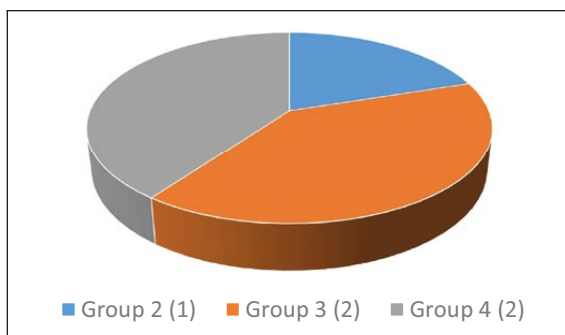


Group	Topography and site No.	Soil type and site No.
1 (<0.38 ha)	Obrovac: 352?	brown acid soil on granite and diabase (352)
2 (0.5–0.7 ha)	Gradina: 355	brown skeletal soil on schist/skeletal soil (on limestone, schist, and serpentine) (355)

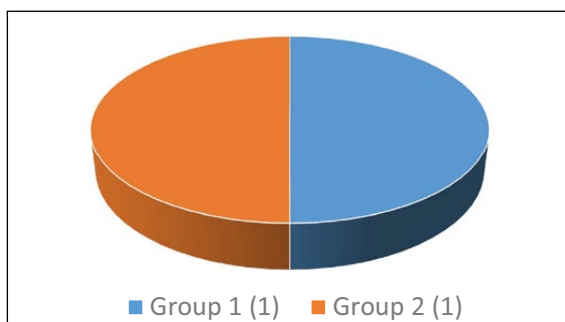
**Table 10.** Topography and soil types in the vicinity of sites with settlement area below 5 ha (groups 1–5) in Radevina and Azbukovica.



**Figure 11.** Tamnava and Kolubara: settlement area below 5 ha (groups 1–5). Image Credit: the authors.



**Figure 12.** Jadar and Lešnica: settlement area below 5 ha (groups 1–5). Image Credit: the authors.

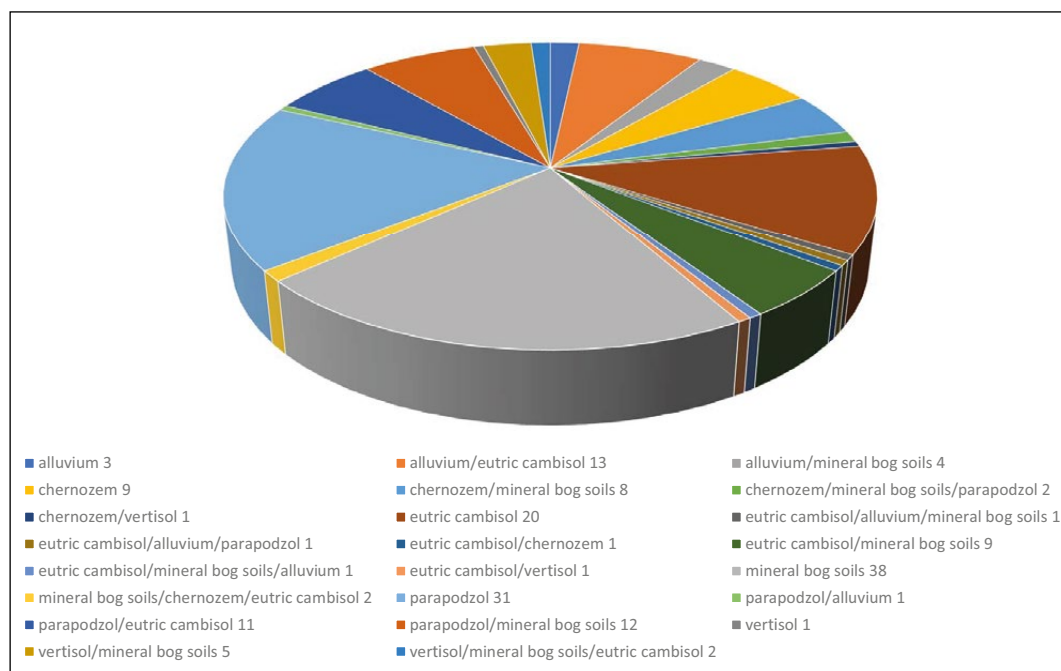


**Figure 13.** Radevina and Azbukovica: settlement area below 5 ha (groups 1–5). Image Credit: the authors.

The largest site in northwestern Serbia, Samuilovača in Tabanović, is located in Mačva (No. 65) and is oriented towards eutric cambisol and mineral bog soils (fig. 7 and table 4). Large sites of group 9 in Mačva, Obrovac in Glušci (No. 39) are oriented towards mineral bog soils, chernozem and eutric cambisol, and Obrovac in Majur (No. 139) towards eutric cambisol. Sites of group 8 in Mačva are oriented towards mineral bog soils (Nos. 21, 90, and 137), parapodzol (No. 176), a combination of those two (Nos. 122 and 133), as well as eutric cambisol and parapodzol (Nos. 123 and 128). Gradina in Riđake in Pocerina (No. 238), from group 9, is oriented towards alluvium and parapodzol. The same group in Posavina includes a site on a plateau in Stubline (No. 279), oriented towards eutric cambisol and parapodzol. Sites from group 8 in Pocerina (No. 182) and Tamnava (No. 304) are oriented towards parapodzol.

The smallest sites in Mačva (groups 1–5) are oriented towards: a combination of alluvium and others soil types (including eutric cambisol) (Nos. 5, 6, 13, 15, 23, 24, 31, 52, 53, 117, 162, and 172); towards eutric cambisol, or in a combination of eutric cambisol and others (Nos. 2, 7, 32, 33, 34, 44, 45, 47, 58, 97, 110, 114, 116, 118, 119, 120, 138, and 169); towards mineral bog soils (Nos. 20, 62, 70, 72, 80, 82, 87, 88, 89, 99, 101, 104, 132, 134, 135, 136, and 142) to parapodzol (Nos. 125, 109, 112, 124, 126, 127, 155, 157, 160, 165, 177, 179 and 180); towards parapodzol and mineral bog soils (Nos. 1, 16, 131, 151, and 164); towards vertisol and mineral bog soils (Nos. 62, 63 and 91); towards vertisol (No. 61); and towards chernozem (No. 25) (fig. 8; table 5). Such sites in Posavina are oriented towards alluvium or a combination with other soils (Nos. 239, 245, 247, 251, 255, 265, 268, 269 and 270), towards parapodzol and eutric cambisol (No. 241) and towards parapodzol (No. 261) (fig. 9; table 6). The smallest sites in Pocerina are oriented towards parapodzol (Nos. 185, 187, 188, 190, 191, 192, 200, 207–211, 214, 215, 216, 218, 230, 234 and 237) and parapodzol and eroded parapodzol (Nos. 220 and 222) (fig. 10; table 7). In the microregions of the Tamnava and the Kolubara, such sites are oriented towards a combination of alluvium and others (Nos. 282, 283, 302, 303, 308 and 309), towards parapodzol (Nos. 295, 296, 298, 305 and 310), and towards eroded parapodzol and deluvium (No. 285) (fig. 11; table 8). In the Jadar and the Lešnica microregions, the smallest sites are found on alluvium (No. 334), parapodzol (Nos. 339 and 348), as well as parapodzol and eroded parapodzol (Nos. 322 and 331) (fig. 12; table 9). In the microregions of Rađevina and Azbukovica, they are on brown acid soil on granite and diabase (No. 352) and on brown skeletal soil on diabase and skeletal soil – on limestone, schist, serpentine (No. 355; fig. 13 and table 10).

In the pedological analysis, 350 sites were considered. The sites in Mačva (176) are oriented towards alluvium or eutric cambisol, most often in combination with other soil types (70), mineral bog soils (38), parapodzol (31), a combination of the previous two (12), their combination with chernozem (2), mineral bog soils and chernozem or vertisol (13), towards vertisol (1), chernozem (8) or their combination (1) (fig. 14). All the large sites (groups 9 and 10) are oriented towards alluvium and/or eutric cambisol,



**Figure 14.** *Distribution of soil types in the vicinity of the sites in Mačva. Image Credit: the authors.*

often together with other soils. These large settlements (larger than 15 ha) were suitable for a mixed economy. Already in group 8 (9–10 ha), some are oriented exclusively towards parapodzol or mineral bog soils or in combination with the so-called marginal soils (96 in total). Only ten sites are oriented towards marginal soils (table 11). Eight are oriented towards chernozem, six belong to the flat type (Nos. 3, 25, 27, 74, 75 and 76), one is a settlement on the plateau (No. 26), while one is not defined (No. 28), one site of the Obrovac type is oriented towards vertisol (No. 61), and one flat site is oriented towards a combination of the two (No. 37). Šanac in Iovača (No. 61) belongs to very small settlements, with an area of 0.12 ha, and it was determined into phases II and III of Benske Bare (Trbuhović & Vasiljević 1983, 83), while the flat site in Ševarice (No. 25) was determined to smaller settlements, with an area of 4 ha, and dated to the later Vinča-Pločnik phase (Trbuhović & Vasiljević 1983, 47).

Soil Type	No. of sites	Topography and site No.
chernozem	8	Flat: 3, 25, 27, 74, 75, 76 Plateau: 26 Undefined: 28
chernozem/vertisol	1	Flat: 37
vertisol	1	Obrovac: 61

**Table 11.** *Sites in Mačva oriented towards soil types unsuitable for cultivation.*

In Posavina, the sites (41) are oriented towards alluvium or eutric cambisol, most often in combination with other soil types (35), and towards parapodzol (6; fig. 15). The large site in Stubline (No. 279; group 9, 16 ha), is positioned on a plateau, on eutric cambisol and parapodzol, with three habitation horizons, and was dated into Vinča–Pločnik I–II (Vinča C–D; Todorović 1967). More recently, extensive geomagnetic research has been carried out at the site, and the most recent horizons were dated to the Vinča D1–2 phases (Crnobrnja 2014). Sites on marginal soils were not recorded.

In Pocerina, the sites (54) are oriented, to a lesser extent, towards alluvium and parapodzol (2) or eutric cambisol and parapodzol (1), and sites oriented towards parapodzol (42) or parapodzol and eroded parapodzol (9) predominate (fig. 16). Three large sites were recorded. The hillfort site in Riđake (No. 238; group 9, 15 ha), oriented towards alluvium and parapodzol, was dated to phases II and III of Benske Bare (Trbuhović & Vasiljević 1983, 73). The flat site in Bogosavac (No. 182; group 8, 10 ha), oriented towards parapodzol, was dated to the Vinča–Pločnik phase (Trbuhović & Vasiljević 1983, 62) and the site of the Obrovac type in Petkovic (No. 219; group 7, 7 ha), on parapodzol, was determined to the end of the Vinča–Pločnik phase (Trbuhović & Vasiljević 1983, 56). Sites on marginal soils were not recorded.

In the Tamnava and the Kolubara microregions, the sites (36) are oriented towards alluvium or eutric cambisol, most often in combination with other soil types (13), and there are quite a few sites oriented towards parapodzol (18) or together with other soils (2; fig. 17). A large hillfort site was recorded only in the microregion of the Tamnava, in Kaona (No. 304; group 8, 9 ha), oriented towards parapodzol, and dated to phase III of Benske Bare (Trbuhović & Vasiljević 1983, 77). Six sites are oriented towards marginal soils (table 12). Five sites are on eroded parapodzol and deluvium, and one is on eroded parapodzol. The size of the sites is known only for the site of the Obrovac type in Valjevska Slatina (No. 285). It belongs to the very small settlements (group 1, 0.07 ha), oriented towards eroded parapodzol and deluvium, and dated to phases II–III of Benske Bare (Trbuhović & Vasiljević 1983, 80).

Soil Type	No. of sites	Topography and site No.
eroded parapodzol	1	Flat: 290
eroded parapodzol/ deluvium	5	Gradina: 286, 288 Obrovac: 285 Flat: 287, 291

**Table 12.** *Sites in Tamnava and Kolubara oriented towards soil types unsuitable for cultivation.*

In the Jadar and the Lešnica microregions, the sites (27) are often oriented towards alluvium or eutric cambisol, most often in combination with other soil types (11), and there are quite a few sites oriented towards parapodzol (7) or together with other soils (9; fig. 18). The largest site in the Lešnica microregion is of the flat type (No. 332; group 7,

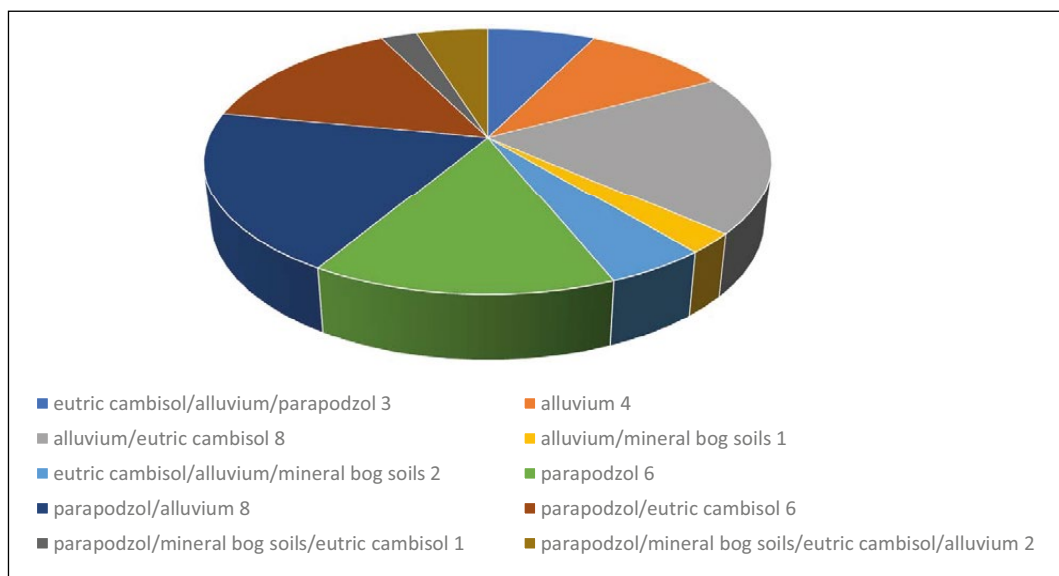


Figure 15. Distribution of soil types in the vicinity of the sites in Posavina. Image Credit: the authors.

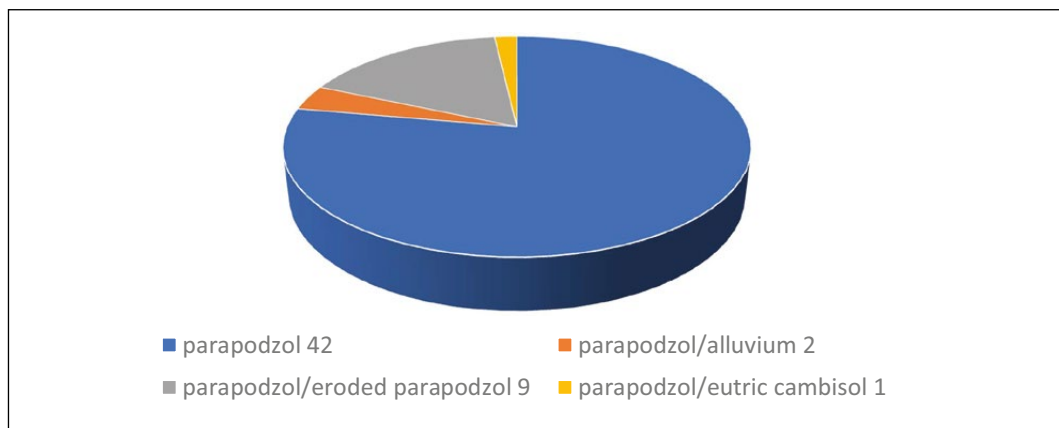


Figure 16. Distribution of soil types in the vicinity of the sites in Pocerina. Image Credit: the authors.

7.5 ha,)) on parapodzol, and was dated to the Vinča–Pločnik phase (Trbuhović & Vasiljević 1983, 56). Sites on marginal soils were not recorded.

In Rađevina and Azbukovica, the sites (13) are rarely oriented towards alluvium or parapodzol in combination with marginal soils (3). Orientation towards marginal soils prevails (10; fig. 19). Large sites were not recorded. Ten sites are oriented towards brown and skeletal soils (table 13). Five sites are on eroded parapodzol and colluvium, and one is on eroded parapodzol. The site of the Obrovac type in Radalj (No. 352; group 1, 0.25 ha), oriented towards brown acid soil on granite and diabase, was dated to Vinča and the Copper Age Bubanj culture (Stojić & Cerović 2011, 129), i.e., to the LN and the Eneolithic (Bulatović et al. 2017, 231).

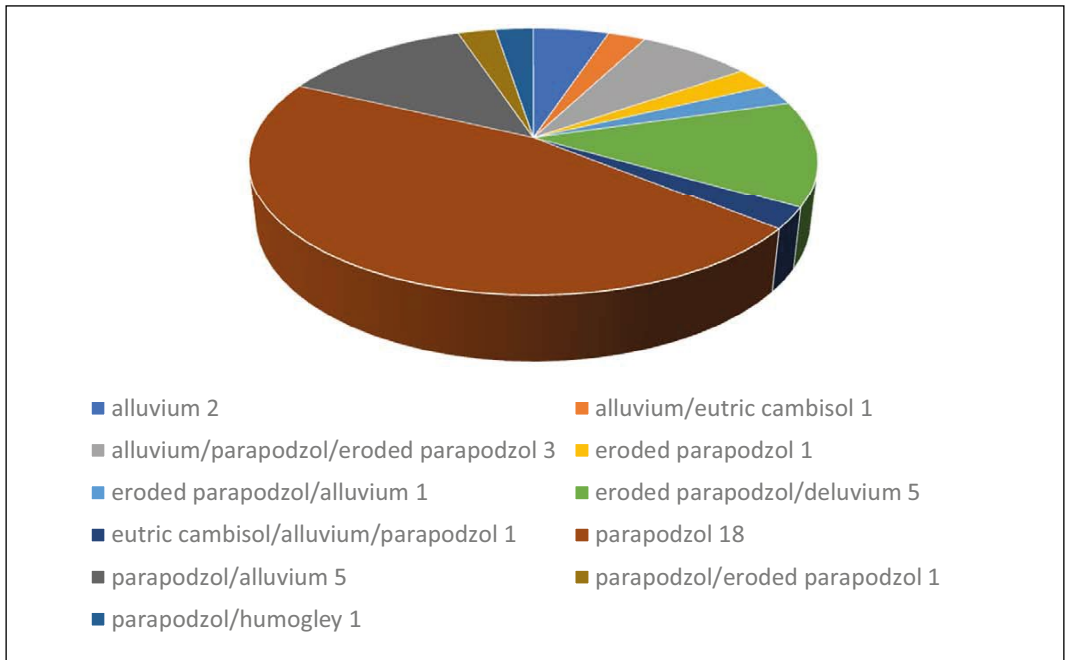


Figure 17. Distribution of soil types in the vicinity of the sites in Tamnava and Kolubara. Image Credit: the authors.

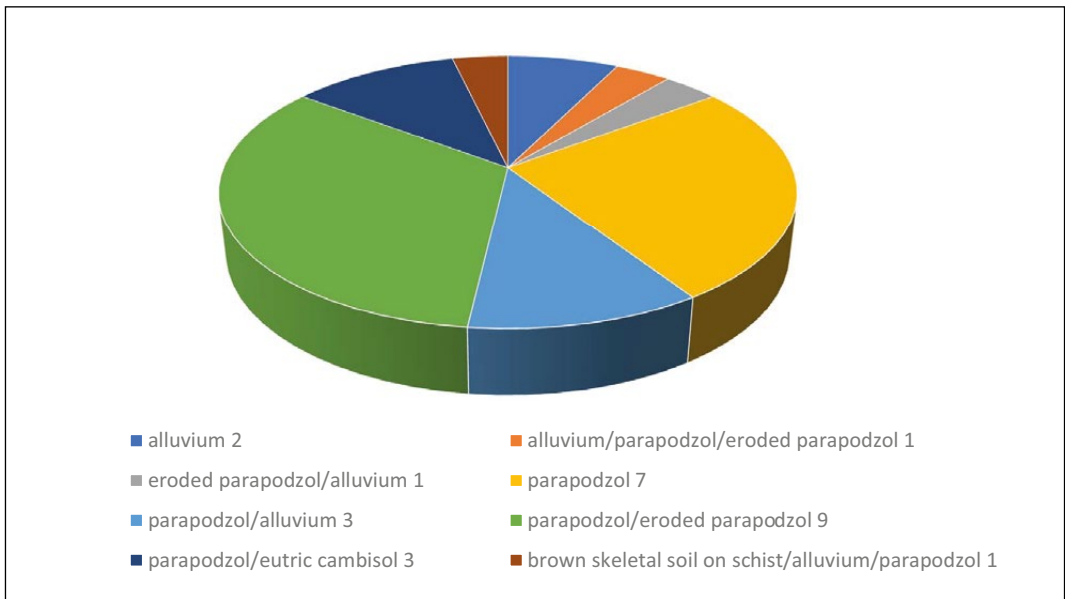
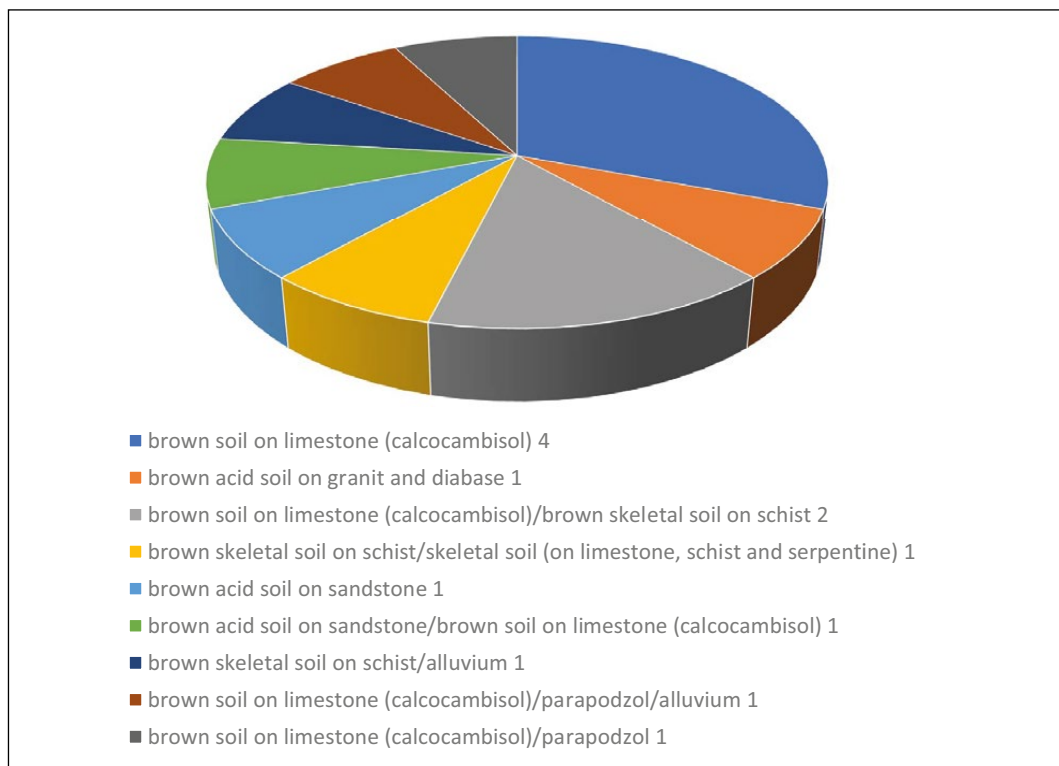


Figure 18. Distribution of soil types in the vicinity of the sites in Jadar and Lešnica. Image Credit: the authors.



**Figure 19.** Distribution of soil types in the vicinity of the sites in Rađevina and Azbukovica. Image Credit: the authors.

Soil Type	No. of sites	Topography and site No.
brown soil on limestone (calcocambisol)	4	Flat: 360 Gradina: 351 Plateau: 364 Cave: 358
brown acid soil on granite and diabase	1	Obrovac: 352?
brown acid soil on sandstone	1	Flat: 356
brown acid soil on sandstone/brown soil on limestone (calcocambisol)	1	Gradina: 357
brown skeletal soil on schist/skeletal soil (on limestone, schist, and serpentine)	1	Gradina: 355
brown skeletal soil on schist/brown soil on limestone (calcocambisol)	2	Flat: 359 Cave: 353

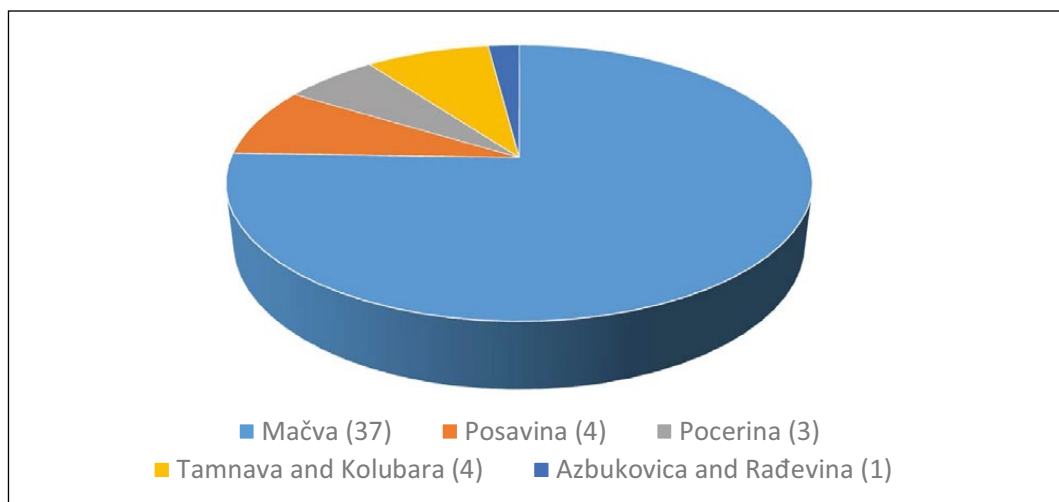
**Table 13.** Sites in Rađevina and Azbukovica oriented towards soil types unsuitable for cultivation.

Sites of the Obrovac type are represented mostly in Mačva, and to a lesser extent in other microregions; they were not found only in the Jadar and the Lešnica microregion

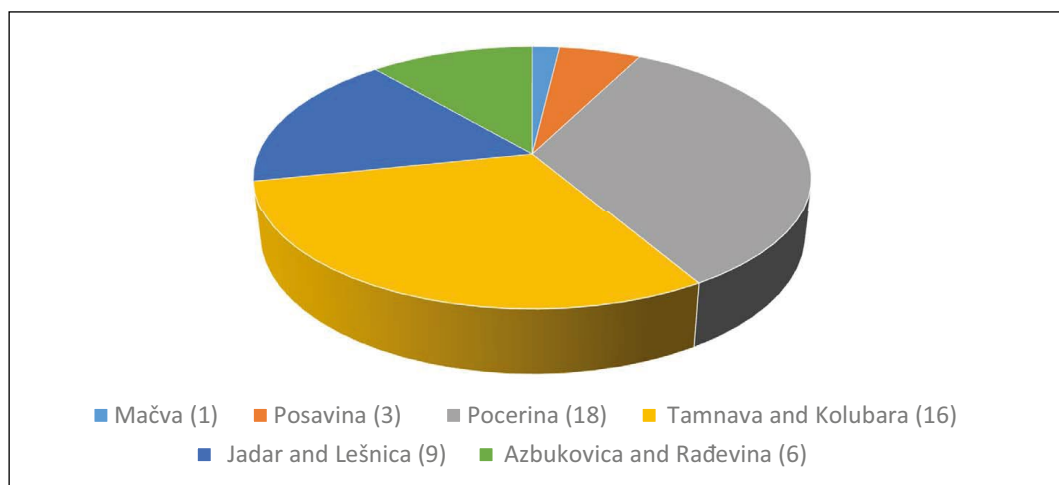
(fig. 20). The hillfort type is represented mostly in Pocerina, and to a lesser extent in the Tamnava, Kolubara and other microregions (fig. 21).

### Discussion and conclusion

Fewer than 100 sites belong to the microregions of hilly and highlands areas, and about 260 to the lowland-valley microregions of northwestern Serbia. This study suggested the existence of very large settlements (five, measuring more than 15 ha, i.e., groups 9 and 10) in several microregions (one each in Pocerina and Posavina), and they were concentrated in Mačva (3). They are characterized by the presence of alluvium and/or eutric



**Figure 20.** Distribution of Obrovac type sites in the microregions of northwestern Serbia. Image Credit: the authors.



**Figure 21.** Distribution of Gradina type sites in the microregions of northwestern Serbia. Image Credit: the authors.



cambisol, which were considered the most favorable soil types for cultivation in this study. Their occupation dated mainly to the first half of the fifth millennium BC, but we should not exclude the possibility that they could have been settled earlier, and that some of them could have lasted longer. Smaller settlements existed in parallel to them, and they became especially numerous in the Vinča–Pločnik II phase, i.e., during the Vinča D period (ca. 4800–4600/4500 cal. BC). In the EE, their number increased, as other studies in the CB have shown, and in addition to flat sites, hillfort sites were also very common (Merkyte 2005; Kapuran et al. 2018). The process of colonization of the peripheral microregions and regions, as well as marginal soils, is becoming more archaeologically visible (Milanović 2019 & 2017). The analysis showed that phases IIB and III of Benske Bare should be determined roughly to the so-called transitional period (ca. 4700/4600–4300/4200 cal. BC), when most of the long-term Vinča settlements were gradually abandoned and the establishing of smaller hillforts and Obrovac type sites intensified. The orientation of the large settlements of groups 6–8 (5–10 ha) and smaller ones equally towards eutric cambisol and/or alluvium indicates the importance of agriculture. At this moment, it is not entirely clear how to interpret the orientation of large settlements (5–10 ha) and those smaller than 4.5 ha towards parapodzol and/or mineral bog soils, hence, it is left open to different interpretations. The large number of such sites suggests that these soil types may have been used for cultivation (Chapman 1981, 98). Small settlements, some of which less than 0.38 ha (group 1), often date to phase III of Benske Bare, such as many hillforts and Obrovac type sites, indicate that they were inhabited by a small population – they consisted of only a few or a dozen houses, and most probably date to the EE. In some cases, settlements on marginal soils were recorded. They are abundant mostly in the microregion of Rađevina and Azbukovica, and are dated to the Late Vinča period, often Benske Bare III, to the Neolithic/Eneolithic transition or the EE. This hilly and highland microregion can be considered a peripheral area during the LN. The frequency and distribution of Pločnik and Jászladány type axes in settlements or in their immediate vicinity (Nos. 60, 98, 139, 192, 200, 264, 272, 315, and 325), or outside the settlements as stray finds (Nos. 38, 60, 84, 86<sup>1</sup>, 98, 139, 144, 146, 158, 159, 186, 192, 200, 213, 224, 264, 289, 313, 315, 324, 325, and 335)<sup>2</sup> (cf. Antonović 2014, Taf. 48–50), and their spatial relationship with potential copper ore deposits (Nos. 317 and 354) and settlements in northwestern Serbia, also indicate a similar process registered in the CB, i.e., an aspiration to settle and control regions rich with ores. Thus, for example, in the immediate vicinity of the mine of Srebrne Rupe (No. 317) were found the hillfort settlements of Crkvine in Rumska (No. 200) dating to phases II–III of Benske Bare, Kik in Tekeriš (No. 318), Veliki and Mali Bračinac (Nos. 315 and 316) dating to phase III of Benske Bare (Trbuhović & Vasiljević 1983, 70ff), the sites of Vodenčina, Škola, and Šarampov (Nos. 319–321) dat-

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<sup>1</sup> A Kladari type copper axe was found at site No. 86.

<sup>2</sup> A copper chisel was found at site 99.

ing to the Neolithic, the Neolithic–Eneolithic transition and EE (Bulatović et al. 2017, 235), as well as Spasovina in Milina (No. 323) in the plains dating to the very late Vinča D (Bulatović et al. 2020), suggesting a close connection of stray finds with settlements of the Neolithic–Eneolithic transition.

More recent research indicates that the intrusion of steppe populations into the Danube Valley actually took place in the middle of the fifth millennium BC (Anthony 2010), and that the steppe influence in the Balkans is manifested by the ‘horse-headed scepters’ and specifically decorated ceramics (Govedarica & Manzura 2011; Bulatović 2011). That first wave coincides with the period when a whole series of new cultures emerged in the Carpathian Basin and the Balkans. Therefore, the influence of the newly arrived population should not be ignored in the context of the disintegration of the Neolithic way of life. On the other hand, the ability of societies to transform should not be ignored, and it is likely that the Vinča population, under the influence of new trends and demands of new exchange networks, accepted a new, Eneolithic way of life. It would seem that certain LN settlements lasted alongside the EE ones, i.e., that a part of the Neolithic population gradually accepted the novelties and started establishing new small settlements, while at the same time it strove to maintain the old values and way of life in certain settlements over a long period. It appears that the complex process of the disappearance of the Vinča culture was accompanied, on one hand by the expansion of certain settlements, such as Selevac or Divostin, and on the other hand, by the reduction of the population in most other settlements, such as, e.g., Adžine Njive–Brajkovo in Klenak, and the establishment of numerous new smaller settlements. In that process, the main role was played by groups of houses, not autonomous households (cf. Tringham & Krstić 1990, 567ff; Tringham 1992; Crnobrnja 2012, 159ff; Rassmann et al. 2021; Milanović forthcoming a).

If we consider the situation from the perspective proposed on the basis of absolute dates, it follows that the process of displacement of the population from Vinča settlements began between 4700 and 4600 cal. BC. Based on the available dates, it follows that this process lasted at least until ca. 4350 cal. BC, and perhaps even longer. All this strongly suggests that the intensive settling of safe places, such as hillfort sites, caves and Obrovac type sites, should be chronologically determined to the period after 4700 cal. BC, with their continuous use carrying on in the EE. Complementary neighboring settlements and neighboring microregions, when it comes to the geomorphological, topographical and pedological properties of the immediate surroundings of the settlements, which were noted in the CB (Milanović 2017; forthcoming b; Bulatović & Milanović 2020, 245f; and 2021), strongly suggests that numerous small flat and Obrovac type settlements in the very fertile and often swampy environment of Mačva, as well as the numerous neighboring hillfort settlements in the microregions of Pocerina, Tamnava, Kolubara, Jadar, Lešnica, Rađevina, and Azbukovica, should be viewed in a similar context.

The analysis of the fifth millennium BC sites in northwestern Serbia showed the necessity of modern archaeological prospection for a precise positioning of all sites. In

this manner, it would be possible to increase the quality of pedological and topographical data, which would improve the quality of results of this study to some extent. The distribution of surface finds based on earlier field surveys is certainly not a reliable indicator for the size of all sites, and the same can be said for the chronological determination based on few surface finds. It is necessary to introduce geomagnetic surveys, sediment analysis using geoarchaeological coring and trench excavations to verify the data about the site area and human activities in the settlements. In doing so, one should take into account possible horizontal movements of settlements from different periods, which could make the site itself significantly larger than the area of certain settlements actually was. It is necessary to control the chronology by dating as many excavated sites with secure contexts as possible, such as Benske Bare in Šabac, and to conduct targeted excavations at selected sites, with particular focus on the research of ditches and palisades that enclose the settlement area.

### **Acknowledgements**

This paper is the result of research done within the project 'Archaeology of Serbia: cultural identity, integration factors, technological processes and the role of the Central Balkans in the development of European prehistory' (no. OI177020) supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia. The text was translated in English by Jelena Vitezović, Marinko Antonijević, and Dragan Milanović.

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## APPENDIX

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
1	Virovlje, Radenković	Mačva	very approximately	flat	4 ha	Stojić & Cerović 2011, 131; Trbuhović & Vasiljević 1983, 45
2	Grobnice, Gornja Zasavica	Mačva	precise	flat	3 ha	Stojić & Cerović 2011, 94; Trbuhović & Vasiljević 1983, 44
3	Potes, Zasavica	Mačva	very approximately	flat	undefined	Stojić & Cerović 2011, 94
4	Zasavica, Ravnje	Mačva	very approximately	flat	undefined	Stojić & Cerović 2011, 133
5	Runjića brdo, Radenković	Mačva	precise	flat	4 ha	Stojić & Cerović 2011, 130f; Trbuhović & Vasiljević 1983, 45
6	Vukića njive in Trebljevine, Ravnje	Mačva	precise	flat	4 ha	Trbuhović & Vasiljević 1983, 45
7	Krčevine in Trebljevine, Ravnje	Mačva	precise	flat	2.25 ha	Stojić & Cerović 2011, 133; Trbuhović & Vasiljević 1983, 45
8	Veliko polje, Banovo polje	Mačva	precise	undefined	undefined	Stojić & Cerović 2011, 60
9	Kučište I, Duvanište	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 88; Trbuhović & Vasiljević 1983, 54
10	Prekrajak, Crna bara	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 75f; Vasiljević 1972, 178f; Trbuhović & Vasiljević 1983, 49
11	Žurica greda, Banovo polje	Mačva	approximately	undefined	undefined	Stojić & Cerović 2011, 60
12	Segedin, Glušci	Mačva	very approximately	flat	undefined	Stojić & Cerović 2011, 91; Vasiljević 1972, 180; Trbuhović & Vasiljević 1983, 46
13	Jelensko brdo, Radenković	Mačva	very approximately	flat	3 ha	Stojić & Cerović 2011, 130; Trbuhović & Vasiljević 1983, 19

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
14	Skelica, Radenković	Mačva	very approximately	undefined	undefined	Stojić & Cerović 2011, 131
15	Preseka, Nočaj	Mačva	precise	flat	2 ha	Trbuhović & Vasiljević 1983, 45
16	Stari Radenković, Radenković	Mačva	approximately	flat	4ha	Stojić & Cerović 2011, 130; Trbuhović & Vasiljević 1983, 45
17	Češljuška Bitva, Glušci	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 90; Trbuhović & Vasiljević 1983, 46
18	Livade, Nočaj	Mačva	very approximately	flat	undefined	Stojić & Cerović 2011, 119
19	Jasenik in Anovača, Uzveće	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 188; Trbuhović & Vasiljević 1983, 46
20	Savića brdo, Glušci	Mačva	approximately	flat	2 ha	Stojić & Cerović 2011, 90; Trbuhović & Vasiljević 1983, 46
21	Lanište, Glušci	Mačva	precise	plateau	10 ha	Stojić & Cerović 2011, 90; Vasiljević 1972, 165; Vasiljević & Popović 2002, 13
22	Kupusna greda, Nočaj	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 119; Trbuhović & Vasiljević 1983, 45
23	Tadića zidine, Ševarice	Mačva	very approximately	Obrovac	0.12 ha	Stojić & Cerović 2011, 178; Trbuhović & Vasiljević 1983, 84
24	Šiljak, Drenovac	Mačva	precise	flat	2.25 ha	Trbuhović & Vasiljević 1983, 47
25	Široka mlakva, Ševarice	Mačva	approximately	flat	4 ha	Stojić & Cerović 2011, 178; Trbuhović & Vasiljević 1983, 47
26	Janjići in Bogojevača, Uzveće	Mačva	very approximately	plateau	undefined	Stojić & Cerović 2011, 187ff; Trbuhović & Vasiljević 1983, 46
27	Školski šor, Ševarice	Mačva	very approximately	flat	undefined	Stojić & Cerović 2011, 178; Trbuhović & Vasiljević 1983, 46

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
28	Čevrntija - Pumpna stanica, Ševarice	Mačva	very approximately	undefined	undefined	Stojić & Cerović 2011, 177; Vasiljević & Popović 2002, 25
29	Kalovica, Ševarice	Mačva	very approximately	undefined	undefined	Stojić & Cerović 2011, 177
30	Lipa - Kućište, Drenovac	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 82; Trbuhović & Vasiljević 1983, 20
31	Bara Veljača, Mačvanski Pričinović	Mačva	precise	flat	4 ha	Stojić & Cerović 2011, 107; Trbuhović & Vasiljević 1983, 47
32	Panjevi in Kutovi, Mačvanski Pričinović	Mačva	precise	flat	3 ha	Stojić & Cerović 2011, 108; Trbuhović & Vasiljević 1983, 47
33	Vrtlog in Tolić, Mačvanski Pričinović	Mačva	very approximately	Obrovac (?)	0.12 ha	Stojić & Cerović 2011, 108
34	Kovačev breg, Uzveće	Mačva	approximately	Obrovac (?)	0.38 ha	Vasiljević 1972; Trbuhović & Vasiljević 1983, 46
35	Paljevine, Mačvanski Pričinović	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 107; Trbuhović & Vasiljević 1983, 47
36	Kotlina, Mačvanski Metković	Mačva	precise	flat	undefined	Trbuhović & Vasiljević 1983, 48
37	Suva Bara, Mačvanski Metković	Mačva	approximately	flat	undefined	Trbuhović & Vasiljević 1983, 48
38	Njiva Erić Slavoljuba, Mačvanski Metković	Mačva	very approximately	copper axe	undefined	Stojić & Cerović 2011, 106
39	Staro selo - Ribarica, Glušci	Mačva	very approximately	Obrovac (multi-layered site)	19.6 ha	Stojić & Cerović 2011, 91f; Vasiljević 1972, 180; Trbuhović 1972, 165; Trbuhović & Vasiljević 1983, 78f; Vasiljević & Popović 2002, 13f

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
40	Spomenik on Bujanja, Glušci	Mačva	very approximately	flat	undefined	Stojić & Cerović 2011, 91; Vasiljević 1972, 180; Trbuhović & Vasiljević 1983, 46
41	Krivača I, Skradani	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 140; Trbuhović & Vasiljević 1983, 54
42	Kruglica in Paljevine, Bogatić	Mačva	precise	flat	undefined	Stojić, Cerović 2011, 69; Vasiljević 1972, 177; Trbuhović, Vasiljević 1983, 48
43	Keca III, Belotić	Mačva	approximately	flat	undefined	Vasiljević 1972, 177; Trbuhović & Vasiljević 1983, 48
44	Keca I, Belotić	Mačva	approximately	Obrovac (2)	0.12 ha	Stojić & Cerović 2011, 69; Trbuhović & Vasiljević 1983, 83
45	Veliko polje, Sovljak	Mačva	precise	flat	0.7 ha	Stojić & Cerović 2011, 144; Vasiljević 1975, 165f; Trbuhović & Vasiljević 1983, 49
46	Gajevi, Belotić	Mačva	approximately	flat	undefined	Trbuhović & Vasiljević 1983, 65
47	Keca II, Belotić	Mačva	approximately	Obrovac (2)	0.12 ha	Stojić & Cerović 2011, 69; Trbuhović & Vasiljević 1983, 83
48	Kaluže, Bogatić	Mačva	precise	flat	undefined	Trbuhović & Vasiljević 1983, 48
49	Lug in Rubnjača, Crna bara	Mačva	approximately	undefined	7.5 ha	Stojić & Cerović 2011, 75; Trbuhović & Vasiljević 1983, 49
50	Usće Drine - Parašnica, Crna bara	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 76; Trbuhović & Vasiljević 1983, 49
51	Staro selo - Selište, Crna bara	Mačva	approximately	flat	6 ha	Stojić & Cerović 2011, 88; Vasiljević 1972, 178f; Trbuhović & Vasiljević 1983, 49
52	Batar III, Badinovci	Mačva	precise	flat	3 ha	Trbuhović & Vasiljević 1983, 50

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
53	Brestine, Badinovci	Mačva	approximately	Obrovac	0.12 ha	Stojić & Cerović 2011, 58; Vasiljević 1972, 179; Trbuhović & Vasiljević, 1983, 84
54	Batar II, Badinovci	Mačva	approximately	flat	undefined	Vasiljević 1972, 179
55	Batar I, Badinovci	Mačva	approximately	undefined	undefined	Stojić & Cerović 2011, 57; Trbuhović & Vasiljević, 1983, 49
56	Grabovac, Grabovac	Mačva	very approximately	undefined	undefined	Stojić & Cerović 2011, 69
57	Kučerine, Bogatić	Mačva	very approximately	flat	undefined	Trbuhović & Vasiljević 1983, 48
58	Kuzmanov breg, Klenje	Mačva	approximately	Obrovac	0.12 ha	Stojić & Cerović 2011, 98; Trbuhović & Vasiljević 1983, 83
59	Crkvina - Mali Bitvić, Bogatić	Mačva	approximately	flat	8 ha	Stojić & Cerović 2011, 68; Vasiljević 1972, 168; Trbuhović & Vasiljević 1983, 48
60	Mlin, Belotić	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 65; Trbuhović & Vasiljević 1983, 85
61	Šanac in Iovača, Belotić	Mačva	approximately	Obrovac	0.12 ha	Stojić & Cerović 2011, 65; Vasiljević 1972, 168
62	Šanac at Livada, Belotić	Mačva	very approximately	Obrovac	0.12 ha	Stojić & Cerović 2011, 65; Trbuhović & Vasiljević 1983, 83
63	Ruma in Ratkovic, Mačvanski Pričinović	Mačva	precise	flat	4 ha	Trbuhović & Vasiljević 1983, 47
64	Obrovo, Tabanović	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 183; Vasiljević 1972, 186; Vasiljević & Popović 2002, 22
65	Samuilovača, Tabanović	Mačva	precise	flat	40 ha	Stojić & Cerović 2011, 184; Trbuhović & Vasiljević 1983, 52

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
66	Tabanović, Tabanović	Mačva	approximately	undefined	undefined	Stojić & Cerović 2011, 182
67	Gaj II, Tabanović	Mačva	approximately	plateau	1.5 ha	Trbuhović & Vasiljević 1983, 52
68	Gaj I, Tabanović	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 183; Trbuhović & Vasiljević 1983, 52
69	Lug, Štitar	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 180; Trbuhović & Vasiljević 1983, 51
70	Likićka suma, Bogosavac	Mačva	precise	Obrovac	0.07 ha	Stojić & Cerović 2011, 70f; Vasiljević 1972, 184; Vasiljević & Popović 2002, 12; Trbuhović & Vasiljević, 1983, 84
71	Obrovac in Lipovac, Dublje	Mačva	precise	Obrovac	0.7 ha	Tripković & Penezić 2017, 40f
72	Šanac at Obrva, Belotić	Mačva	precise	Obrovac	0.12 ha	Stojić & Cerović 2011, 65; Trbuhović & Vasiljević 1983, 80
73	Kuište in Grmik, Belotić	Mačva	very approximately	flat	undefined	Stojić & Cerović 2011, 64f
74	Kučiste in Svinjčine, Belotić	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 70; Trbuhović & Vasiljević 1983, 48
75	Bitvena glava, Dublje	Mačva	very approximately	flat	undefined	Trbuhović & Vasiljević 1983, 50
76	Livade, Dublje	Mačva	very approximately	flat	undefined	Stojić & Cerović 2011, 85
77	Tobolac I, Majur	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 110; Trbuhović & Vasiljević 1983, 52f
78	Krivi Šor, Dublje	Mačva	very approximately	Obrovac (?)	undefined	Vasiljević 1972, 181
79	Tadića polje, Belotić	Mačva	approximately	flat	undefined	Trbuhović & Vasiljević 1983, 50

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
80	Šanac at Obrovčine, Dublje	Mačva	precise	Obrovac	0.04 ha	Stojić & Cerović 2011, 87
81	Bojinovka - Ambarine, Dublje	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 84; Trbuhović & Vasiljević, 1983, 50
82	Velika Gradi- na II, Štitar	Mačva	approx- imately	plateau?	1 ha	Stojić & Cerović 2011, 182; Trbuhović & Vasiljević 1983, 50
83	Jerez, Štitar	Mačva	very approx- imately	flat	unde- fined	Stojić & Cerović 2011, 180
84	Gačevo, Štitar	Mačva	precise	undefined	unde- fined	Stojić & Cerović 2011, 179
85	Sokina meha- na, Štitar	Mačva	very approx- imately	undefined	unde- fined	Stojić & Cerović 2011, 181
86	Njiva Nikole Maksimovića, Štitar	Mačva	very approx- imately	copper axe	unde- fined	Stojić & Cerović 2011, 181
87	Tufegdžića zabran, Štitar	Mačva	very approx- imately	Obrovac (3)	0.07 ha	Stojić & Cerović 2011, 182; Trbuhović & Vasiljević 1983, 84
88	Potes, Štitar	Mačva	approx- imately	flat	4 ha	Stojić & Cerović 2011, 181; Vasiljević 1972, 187; Trbuhović & Vasiljević 1983, 51
89	Šargića brdo in Kalem, Štitar	Mačva	very approx- imately	Obrovac	0.07 ha	Stojić & Cerović 2011, 182; Trbuhović & Vasiljević 1983, 84
90	Jasenovica, Štitar	Mačva	approx- imately	flat	10 ha	Stojić & Cerović 2011, 180; Trbuhović & Vasiljević 1983, 51
91	Belajevac, Štitar	Mačva	approx- imately	plateau	1.76 ha	Stojić & Cerović 2011, 178; Vasiljević & Popović 2002, 25; Trbuhović & Vasiljević 1983, 51
92	Omeđak, Tabanović	Mačva	precise	flat	unde- fined	Stojić & Cerović 2011, 183; Vasiljević 1972, 185; Trbuhović & Vasiljević 1983, 52

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
93	Borino brdo, Tabanović	Mačva	precise	plateau	undefined	Stojić & Cerović 2011, 182; Trbuhović & Vasiljević 1983, 52; Vasiljević 1972, 185
94	Tolić, Tabanović	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 184; Vasiljević 1972, 185;
95	Krsmanovača, Šabac	Mačva	precise	undefined	undefined	Stojić & Cerović 2011, 109; Vasiljević 1972, 185
96	Ciganište in Kitog, Majur	Mačva	very approximately	plateau	undefined	Stojić & Cerović 2011, 108; Trbuhović & Vasiljević 1983, 52
97	Tobolac II, Majur	Mačva	precise	flat	4 ha	Stojić & Cerović 2011, 110; Trbuhović & Vasiljević 1983, 52f
98	Istočna crkvi- na, Štitar	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 179; Vasiljević 1996, 17; Trbuhović & Vasiljević 1983, 51
99	Crna bara, Štitar	Mačva	precise	flat	2 ha	Stojić & Cerović 2011, 178f; Trbuhović & Vasiljević 1983, 51
100	Seosko groblje, Štitar	Mačva	approximately	flat	undefined	Trbuhović & Vasiljević 1983, 51
101	Jašarevača, Štitar	Mačva	approximately	flat	1 ha	Stojić & Cerović 2011, 180; Trbuhović & Vasiljević 1983, 50
102	Grmik, Štitar	Mačva	approximately	plateau	undefined	Stojić & Cerović 2011, 179; Trbuhović & Vasiljević 1983, 51
103	Ševar, Slepčević	Mačva	precise	plateau	undefined	Stojić & Cerović 2011, 143; Trbuhović & Vasiljević 1983, 53
104	Šanac at Kulina bara, Dublje	Mačva	very approximately	Obrovac (?)	0.07 ha	Stojić & Cerović 2011, 86; Trbuhović & Vasiljević 1983, 83
105	Osredak, Slepčević	Mačva	very approximately	flat	undefined	Stojić & Cerović 2011, 142



Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
106	Salašine I-IV, Dublje	Mačva	precise	flat (4)	undefined	Vasiljević 1972, 173; Trbuhović & Vasiljević 1983, 50
107	Slepčević, Slepčević	Mačva	very approximately	plateau	undefined	Stojić & Cerović 2011, 141
108	Bela bara, Dublje	Mačva	precise	flat	undefined	Trbuhović & Vasiljević 1983, 50
109	Lizalovica, Dublje	Mačva	precise	Obrovac	0.12 ha	Stojić & Cerović 2011, 84; Vasiljević 1972, 174
110	Šanac at Livade - Penjive, Dublje	Mačva	very approximately	Obrovac	0.12 ha	Stojić & Cerović 2011, 86; Trbuhović & Vasiljević 1983, 83
111	Taborište, Zminjak	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 193; Trbuhović & Vasiljević 1983, 58
112	Vranovača I, Zminjak	Mačva	precise	flat	2 ha	Trbuhović & Vasiljević 1983, 58
113	Vranovača II, Zminjak	Mačva	precise	flat	undefined	Trbuhović & Vasiljević 1983, 58
114	Džombe, Petlovača	Mačva	precise	flat	1 ha	Stojić & Cerović 2011, 123; Trbuhović & Vasiljević 1983, 58
115	Polje, Petlovača	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 123; Trbuhović & Vasiljević 1983, 58
116	Ćemerovac, Ribari	Mačva	precise	flat	2.25 ha	Stojić & Cerović 2011, 134; Trbuhović & Vasiljević 1983, 57
117	Perina međa, Ribari	Mačva	very approximately	flat	1 ha	Stojić & Cerović 2011, 135; Trbuhović & Vasiljević 1983, 57
118	Martićevka, Ribari	Mačva	very approximately	flat	1.5 ha	Stojić & Cerović 2011, 135; Trbuhović & Vasiljević 1983, 57
119	Kučište, Petlovača	Mačva	precise	flat	2 ha	Stojić & Cerović 2011, 123; Trbuhović & Vasiljević 1983, 58
120	Jerez, Skrađani	Mačva	precise	flat	1.5 ha	Stojić & Cerović 2011, 139; Trbuhović & Vasiljević 1983, 54

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
121	Kucište II, Duvanište	Mačva	approximately	flat	undefined	Trbuhović & Vasiljević 1983, 54
122	Obrovac at Duvanište, Duvanište	Mačva	precise	Obrovac	9.62 ha	Stojić & Cerović 2011, 88; Vasiljević 1972; Trbuhović & Vasiljević 1983, 79
123	Stari Skradani, Skradani	Mačva	precise	flat	9 ha	Stojić & Cerović 2011, 140; Trbuhović & Vasiljević 1983, 53
124	Selište, Duvanište	Mačva	approximately	flat	4 ha	Trbuhović & Vasiljević 1983, 54
125	Obrovčine 2 at Lug (Obrovčine in Ratkovača), Dublje	Mačva	precise	Obrovac	0.07 ha	Stojić & Cerović 2011, 85; Tripković & Penezić 2017
126	Prokića šanac, Dublje	Mačva	approximately	Obrovac (?)	0.12 ha	Stojić & Cerović 2011, 85; Vasiljević 1972
127	Obrovčine 1 at Lug, Dublje	Mačva	precise	Obrovac	0.12 ha	Trbuhović & Vasiljević 1983, 82f; Tripković & Penezić 2017, 39f
128	Jerez, Zminjak	Mačva	precise	flat	10 ha	Stojić & Cerović 2011, 192; Trbuhović & Vasiljević 1983, 59
129	Bećino groblje, Skradani	Mačva	approximately	plateau	undefined	Stojić & Cerović 2011, 139; Trbuhović, Vasiljević 1983, 53
130	Šančine, Duvanište	Mačva	approximately	Obrovac (?)	undefined	Stojić & Cerović 2011, 89; Trbuhović & Vasiljević 1983, 54
131	Kucište I, Lipolist	Mačva	approximately	flat	3 ha	Trbuhović & Vasiljević 1983, 54
132	Obrovac - Kucište, Slepčević	Mačva	approximately	Obrovac	0.12 ha	Trbuhović & Vasiljević 1983, 84
133	Požar, Slepčević	Mačva	precise	flat	9 ha	Stojić & Cerović 2011, 142; Trbuhović & Vasiljević 1983, 53
134	Vrtine in Crvena bara, Slepčević	Mačva	precise	flat	1 ha	Stojić & Cerović 2011, 143; Trbuhović & Vasiljević 1983, 53

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
135	Krušik, Slepčević	Mačva	approximately	Obrovac (?)	0.38 ha	Vasiljević 1972, 184
136	Stari Slepčević, Slepčević	Mačva	very approximately	Obrovac (3)	0.07ha	Stojić & Cerović 2011, 142f; Trbuhović & Vasiljević 1983, 84
137	Obrovac I, Majur	Mačva	very approximately	Obrovac 1	9.62 ha	Stojić & Cerović 2011, 110f; Trbuhović & Vasiljević 1983, 79
138	Obrovac II, Majur	Mačva	very approximately	Obrovac	0.12 ha	Trbuhović & Vasiljević 1983, 81
139	Šor-Motovilo, Majur	Mačva	precise	Obrovac	20 ha	Stojić & Cerović 2011, 110; Vasiljević 1972, 185; Trbuhović & Vasiljević 1983, 79.
140	Doktorovača 1, Šabac	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 146f; Trbuhović & Vasiljević 1983, 59
141	Alfirevića brdo - kasarske livade, Šabac	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 146; Vasiljević 1973, 152
142	Segedin, Lipolist	Mačva	precise	Obrovac	0.12 ha	Trbuhović & Vasiljević 1983, 82
143	Kanal at kasarske livade, Šabac	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 173f; Vasiljević 1968, 13f;
144	Bair-etivaža, Šabac	Mačva	precise	Copper axe hoard	undefined	Stojić & Cerović 2011, 68; Trbuhović & Vasiljević 1983, 48
145	Kamičak - Pijaca, Šabac	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 173
146	Hala "Proizvođač" Đeneralovaca, Šabac	Mačva	approximately	copper axe	undefined	Stojić & Cerović 2011, 148; Cerović 2002, 40f;
147	Benske bare/ Jela, Šabac	Mačva	precise	plateau	7.5 ha	Stojić & Cerović 2011, 149ff; Trbuhovic & Vasiljević 1970, 23ff; Chapman 1981; Trbuhović & Vasiljević 1983, 26ff

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
148	Ulica Janka Veselinovića, Šabac	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 175
149	Hipodrom, Šabac	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 148; Trbuhović & Vasiljević 1983, 67
150	Zabran, Šabac	Mačva	approximately	undefined	undefined	Stojić & Cerović 2011, 176
151	Stamenića - Kućište (III), Lipolist	Mačva	approximately	flat	1.5 ha	Trbuhović & Vasiljević 1983, 55
152	Stari Bogosavac, Bogosavac	Mačva	approximately	plateau?	undefined	Stojić & Cerović 2011, 72; Trbuhović & Vasiljević 1983, 61
153	Babojević, Lipolist	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 102; Trbuhović & Vasiljević 1983, 55
154	Borina, Lipolist	Mačva	very approximately	flat	undefined	Stojić & Cerović 2011, 102
155	Utrina, Lipolist	Mačva	precise	flat	4 ha	Stojić & Cerović 2011, 104; Trbuhović & Vasiljević 1983, 55
156	Brdanjak/ Bradnjak, Lipolist	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 102; Trbuhović & Vasiljević 1983, 56
157	Vučje polje, Lipolist	Mačva	precise	flat	4 ha	Stojić & Cerović 2011, 105; Trbuhović & Vasiljević 1983, 55
158	Kućni plac Janka Topalovica, Lipolist	Mačva	very approximately	copper axe	undefined	Stojić & Cerović 2011, 103
159	Poljanice, Lipolist	Mačva	approximately	copper axe	undefined	Trbuhović & Vasiljević 1983, 85
160	Kućište 1, Lipolist	Mačva	precise	flat	3 ha	Trbuhović & Vasiljević 1983, 54
161	Doluša, Lipolist	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 102; Trbuhović & Vasiljević 1983, 55

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Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
162	Obrovac at Milačka, Lipolist	Mačva	very approximately	Obrovac	0.07 ha	Trbuhović & Vasiljević 1983, 85
163	Breg in Milačka, Lipolist	Mačva	precise	flat	undefined	Trbuhović & Vasiljević, 1983, 55
164	Džudžin šanac/Šanac-Izba, Lipolist	Mačva	approximately	Obrovac	0.2 ha	Stojić & Cerović 2011, 103; Vasiljević 1972, 188; Trbuhović & Vasiljević 1983, 54
165	Studenac, Lipolist	Mačva	very approximately	flat	1 ha	Cerović 2011, 104; Trbuhović & Vasiljević 1983, 55
166	Krivača 2, Skradani	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 140; Trbuhović & Vasiljević 1983, 54
167	Selište, Lipolist	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 104; Trbuhović & Vasiljević 1983, 55
168	Kučište at Lug, Ribari	Mačva	precise	flat	undefined	Stojić & Cerović 2011, 135; Trbuhović & Vasiljević 1983, 57
169	Bečirevača, Ribari	Mačva	precise	flat	4 ha	Trbuhović & Vasiljević, 1983, 57
170	Brdanjak, Ribari	Mačva	very approximately	Obrovac	7 ha	Stojić & Cerović 2011, 134; Trbuhović & Vasiljević 1983, 79
171	Češlja, Ribari	Mačva	precise	flat	undefined	Trbuhović & Vasiljević 1983, 58
172	Crkvine, Ribari	Mačva	approximately	Obrovac	0.12 ha	Trbuhović & Vasiljević 1983, 85
173	Ševar, Prnjavor	Mačva	very approximately	undefined	6 ha	Stojić & Cerović 2011, 126; Trbuhović & Vasiljević 1983, 56
174	Krkovača, Ribari	Mačva	precise	flat	5 ha	Stojić & Cerović 2011, 135; Stojić & Cerović 2011, 135
175	Selo - Ribića plac, Prnjavor	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 125; Trbuhović & Vasiljević 1983, 56

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
176	Vrandi bara, Ribari	Mačva	very approximately	flat	9 ha	Stojić & Cerović 2011, 136; Trbuhović & Vasiljević 1983, 57
177	Avlište, Prnjavor	Mačva	approximately	flat	2 ha	Stojić & Cerović 2011, 125; Trbuhović & Vasiljević 1983, 56
178	Lipovica, Novo selo	Mačva	precise	Gradina	6 ha	Bulatović et al. 2017; Stojić & Cerović 2011, 120; Trbuhović & Vasiljević 1983, 67
179	Kleje, Novo selo	Mačva	precise	Obrovac (2)	0.12 ha	Bulatović et al. 2017, 217; Stojić & Cerović 2011, 120; Trbuhović & Vasiljević 1983, 82
180	Kleje (Šanac), Novo selo	Mačva	approximately	Obrovac (?)	0.19 ha	Stojić & Cerović 2011, 100
181	Lagatovica, Ribari	Mačva	approximately	flat	undefined	Stojić & Cerović 2011, 135; Trbuhović & Vasiljević 1983, 58
182	Okno, Bogosavac	Pocerina	approximately	flat	10 ha	Stojić & Cerović 2011, 71; Trbuhović & Vasiljević 1983, 62
183	Gaj, Gornja Vranjska	Pocerina	approximately	plateau	undefined	Stojić & Cerović 2011, 93; Trbuhović & Vasiljević 1983, 61
184	Rudo polje, Bogosavac	Pocerina	precise	flat	undefined	Stojić & Cerović 2011, 71; Trbuhović & Vasiljević 1983, 61
185	Krčevnine, Bogosavac	Pocerina	precise	flat	4 ha	Stojić & Cerović 2011, 71; Trbuhović & Vasiljević 1983, 62
186	Dvorište Ekonomije, Dobrić	Pocerina	very approximately	copper axe	undefined	Stojić & Cerović 2011, 79; Trbuhović & Vasiljević 1983, 85
187	Bus, Maovi	Pocerina	approximately	Obrovac	0.12 ha	Stojić & Cerović 2011, 112; Vasiljević 1972, 188; Trbuhović & Vasiljević, 1983, 84
188	Imnjača, Dobrić	Pocerina	precise	plateau	1.6 ha	Stojić & Cerović 2011, 79; Trbuhović & Vasiljević 1983, 62

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Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
189	Turske bašče, Maovi	Pocerina	approximately	undefined	undefined	Trbuhović & Vasiljević 1983, 61
190	Kitog I and II, Varna	Pocerina	approximately	flat (2)	1 ha	Stojić & Cerović 2011, 189; Vasiljević & Popović 2002, 61; Trbuhović & Vasiljević 1983, 61
191	Trnjaci, Varna	Pocerina	approximately	flat	1.5 ha	Stojić & Cerović 2011, 190; Trbuhović, Vasiljević 1983, 61
192	Jusupovac, Gornja Vranjska	Pocerina	very approximately	Gradina (?)	1 ha	Stojić & Cerović 2011, 190; Vasiljević & Popović 2002, 13; Cerović 2002, 40; Trbuhović & Vasiljević 1983, 86
193	Popovića brdo, Zblaće	Pocerina	approximately	plateau	undefined	Garašanin & Garašanin 1951
194	Lipovica, Vukošić	Pocerina	very approximately	undefined	undefined	Stojić & Cerović 2011, 191; Trbuhović & Vasiljević 1983, 65
195	Crkva, Nakučani	Pocerina	precise	Gradina	undefined	Stojić & Cerović 2011, 117f; Trbuhović & Vasiljević 1983, 71
196	Njiva Save Zivanovića, Nakučani	Pocerina	very approximately	flat	undefined	Stojić & Cerović 2011, 118
197	Nakučani at Volujac, Nakučani	Pocerina	very approximately	flat	undefined	Vasiljević 1974
198	Krčevine in Stojica mala, Nakučani	Pocerina	precise	flat	undefined	Stojić & Cerović 2011, 118; Trbuhović & Vasiljević 1983, 63
199	Đurićevka in Stojica, Nakučani	Pocerina	very approximately	flat	undefined	Stojić & Cerović 2011, 118; Trbuhović & Vasiljević 1983, 63
200	Crkvina, Rumska	Pocerina	precise	Gradina	3 ha	Stojić & Cerović 2011, 137; Trbuhović & Vasiljević 1983, 70f
201	Paljevine, Metlić	Pocerina	precise	Gradina	undefined	Stojić & Cerović 2011, 114; Trbuhović & Vasiljević 1983, 71

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
202	Bugarine, Sinošević	Pocerina	approximately	Gradina	undefined	Stojić & Cerović 2011, 139; Trbuhović & Vasiljević 1983, 71
203	Gaj in Rečanska mala, Bojić	Pocerina	precise	flat	undefined	Stojić & Cerović 2011, 72; Trbuhović & Vasiljević 1983, 62
204	Orlovac, Slatina	Pocerina	precise	flat	undefined	Stojić & Cerović 2011, 141
205	Potes, Varna	Pocerina	approximately	plateau	undefined	Trbuhović & Vasiljević 1983, 61
206	Požar, Slatina	Pocerina	very approximately	flat	undefined	Stojić & Cerović 2011, 141
207	Dvokatuša-Kajmakčića Vinograd, Bojić	Pocerina	precise	Gradina	3.14 ha	Stojić & Cerović 2011, 72; Trbuhović & Vasiljević 1983, 71
208	Varoško brdo, Pocerški Metković	Pocerina	precise	Gradina	0.02 ha	Stojić & Cerović 2011, 124; Trbuhović & Vasiljević 1983, 69f
209	Selište, Pocerški Pričinović	Pocerina	precise	flat	2 ha	Stojić & Cerović 2011, 123; Trbuhović & Vasiljević 1983, 62
210	Kalinovac, Grušić	Pocerina	very approximately	Obrovac	0.07 ha	Stojić & Cerović 2011, 95; Trbuhović & Vasiljević 1983, 85
211	Kulina, Grušić	Pocerina	precise	flat	1 ha	Stojić & Cerović 2011, 95;
212	Đalmuša, Culjković	Pocerina	approximately	flat	undefined	Stojić & Cerović 2011, 77; Trbuhović & Vasiljević 1983, 62
213	Osoje, Bela Reka	Pocerina	very approximately	copper axe	undefined	Stojić & Cerović 2011, 63; Trbuhović & Vasiljević 1983, 85
214	Varošiste, Bela Reka	Pocerina	precise	Gradina	1 ha	Stojić & Cerović 2011, 64; Trbuhović & Vasiljević 1983, 69
215	Stražionica, Bela Reka	Pocerina	precise	Gradina	4 ha	Stojić & Cerović 2011, 64; Trbuhović & Vasiljević 1983, 69



Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
216	Crkvina - Lipik, Bela Reka	Pocerina	precise	Gradina	1 ha	Stojić & Cerović 2011, 63; Trbuhović & Vasiljević 1983, 69
217	Logor at Crveno brdo, Lipolist	Pocerina	precise	Gradina	undefined	Stojić & Cerović 2011, 103f; Trbuhović & Vasiljević 1983, 69
218	Belo brdo, Petkovic	Pocerina	precise	Gradina	1.8 ha	Stojić & Cerović 2011, 122; Trbuhović & Vasiljević 1983, 69; Vasiljević & Popović 2002, 18
219	Šančina, Petkovic	Pocerina	precise	flat	7 ha	Stojić & Cerović 2011, 122; Trbuhović & Vasiljević 1983, 56
220	Granik, Petkovic	Pocerina	precise	Gradina	1.5 ha	Stojić & Cerović 2011, 122; Trbuhović & Vasiljević 1983, 68
221	Svinjčine, Čokešina	Pocerina	very approximately	undefined	undefined	Bulatović et al. 2017, 263; Stojić & Cerović 2011, 77
222	Gradište, Petkovic	Pocerina	approximately	Gradina	0.5 ha	Trbuhović & Vasiljević 1983, 69
223	Grabovac, Petkovic	Pocerina	precise	Gradina	undefined	Stojić & Cerović 2011, 122; Trbuhović & Vasiljević 1983, 69
224	Šuma iznad Manastira, Radovašnica	Pocerina	very approximately	copper axe	undefined	Stojić & Cerović 2011, 131f; Trbuhović & Vasiljević 1983, 85
225	Strelačka, Radovašnica	Pocerina	precise	flat	undefined	Stojić & Cerović 2011, 131; Trbuhović & Vasiljević 1983, 62
226	Parlozi-Šančina-Paripovac, Desić	Pocerina	precise	Obrovac site type and a rondel	undefined	Stojić & Cerović 2011, 78f; Trbuhović & Vasiljević 1983, 70
227	Krčevine, Miloševac	Pocerina	approximately	Gradina	undefined	Stojić & Cerović 2011, 114; Trbuhović & Vasiljević 1983, 70f
228	Presadi, Miloševac	Pocerina	very approximately	undefined	undefined	Stojić & Cerović 2011, 115

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
229	Konjuša, Dvorište	Pocerina	very approximately	undefined	undefined	Stojić & Cerović 2011, 89
230	Mirovača, Miloševac	Pocerina	approximately	Gradina	3.14 ha	Stojić & Cerović 2011, 115; Trbuhović & Vasiljević 1983, 70
231	Gajevi, Sovljak	Pocerina	very approximately	undefined	undefined	Stojić & Cerović 2011, 143
232	Luke, Matijevac	Pocerina	precise	flat	undefined	Stojić & Cerović 2011, 112; Vasiljević 1972; Trbuhović & Vasiljević 1983, 65
233	Deonice, Lojanice	Pocerina	approximately	flat	undefined	Vasiljević 1972, 172; Trbuhović & Vasiljević 1983
234	Krušik, Vladimirci	Pocerina	precise	flat	2 ha	Trbuhović & Vasiljević 1983, 64
235	Rovine, Zvizd	Pocerina	precise	flat	undefined	Trbuhović & Vasiljević 1983, 63
236	Vračevac, Mehovine	Pocerina	precise	flat	undefined	Stojić & Cerović 2011, 112f
237	Ada, Skupljen	Pocerina	approximately	Obrovac	0.07 ha	Trbuhović & Vasiljević 1983, 82
238	Đipovi, Ridake	Pocerina	approximately	Gradina	15 ha	Stojić & Cerović 2011, 136; Trbuhović & Vasiljević 1983, 73
239	Brdo in Mirkovača, Cerovac	Posavina	approximately	plateau	0.5 ha	Stojić & Cerović 2011, 74; Trbuhović & Vasiljević 1983, 60
240	Groblje, Žabar	Posavina	precise	flat	undefined	Trbuhović & Vasiljević 1983, 60
241	Lipovica, Mala Vranjska	Posavina	precise	flat	1 ha	Stojić & Cerović 2011, 111; Vasiljević 1972, 188; Trbuhović & Vasiljević 1983, 60
242	Đukanovića mala, Mala Vranjska	Posavina	approximately	flat	undefined	Trbuhović & Vasiljević 1983, 60

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
243	Šanac-Šancina, Gornja Vranjska	Posavina	approximately	Obrovac (?)	undefined	Stojić & Cerović 2011, 94; Vasiljević 1972, 187; Trbuhović & Vasiljević 1983, 61
244	Dumača, Pocerški Pričinović	Posavina	precise	flat	undefined	Trbuhović & Vasiljević 1983, 60
245	Ulice, Jelenča	Posavina	approximately	flat	4 ha	Trbuhović & Vasiljević 1983, 59
246	Vrbovac, Mala Vranjska	Posavina	precise	flat	undefined	Stojić & Cerović 2011, 111; Vasiljević 1972, 187; Trbuhović & Vasiljević 1983, 60
247	Obala Dumučače, Šabac	Posavina	approximately	flat	4 ha	Stojić & Cerović 2011, 176; Trbuhović & Vasiljević 1983, 59
248	Dumača - Šljunkara, Šabac	Posavina	precise	flat	undefined	Stojić & Cerović 2011, 115f
249	Staro selo, Mišar	Posavina	precise	flat	undefined	Stojić & Cerović 2011, 117
250	Groblje, Mišar	Posavina	approximately	flat	undefined	Stojić & Cerović 2011, 116; Trbuhović & Vasiljević 1983, 60
251	Savsko polje, Orašac	Posavina	precise	flat	1.5 ha	Stojić & Cerović 2011, 116; Trbuhović & Vasiljević 1983, 60
252	Ulice, Orašac	Posavina	precise	undefined	undefined	Stojić & Cerović 2011, 121; Trbuhović & Vasiljević 1983, 60
253	Kučiste/ Utrine, Orid	Posavina	precise	Gradina	undefined	Stojić & Cerović 2011, 121f; Vasiljević 1968; Trbuhović & Vasiljević 1983, 71f
254	Begluk - Bara II, Šabac	Posavina	approximately	flat	undefined	Stojić & Cerović 2011, 146; Trbuhović & Vasiljević, 1983, 59
255	Svračjak (A), Miokus	Posavina	very approximately	Obrovac	0.07 ha	Stojić & Cerović 2011, 115; Trbuhović & Vasiljević 1983, 85

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
256	Janjića brdo, Miokus	Posavina	precise	Gradina	undefined	Stojić & Cerović 2011, 115; Trbuhović & Vasiljević 1983, 72
257	Ćelije, Jalovik	Posavina	precise	Obrovac (?)	undefined	Stojić & Cerović 2011, 95; Trbuhović & Vasiljević, 1983, 64
258	Grad Gračarac, Jalovik	Posavina	approximately	Gradina	undefined	Stojić & Cerović 2011, 95f; Trbuhović & Vasiljević 1983, 73
259	Selište, Provo	Posavina	very approximately	flat	undefined	Trbuhović & Vasiljević 1983, 63
260	Crkvine, Provo	Posavina	precise	flat	undefined	Stojić & Cerović 2011, 126f; Trbuhović & Vasiljević 1983, 63
261	Trnovac, Jalovik	Posavina	precise	plateau	2 ha	Stojić & Cerović 2011, 96; Trbuhović & Vasiljević 1983, 64
262	Kisela voda, Krnić	Posavina	precise	plateau	undefined	Stojić & Cerović 2011, 100; Trbuhović & Vasiljević 1983, 64
263	Petkovac, Vlasanica	Posavina	approximately	flat	undefined	Stojić & Cerović 2011, 191; Trbuhović & Vasiljević 1983, 64
264	Gradužina, Debrč	Posavina	precise	flat	undefined	Stojić & Cerović 2011, 77f; Trbuhović & Vasiljević 1983, 86
265	Svračjak (B), Miokus	Posavina	very approximately	Obrovac	0.07 ha	Stojić & Cerović 2011, 115; Trbuhović & Vasiljević 1983, 85
266	Crkvina - Duboka mala, Provo	Posavina	precise	flat	undefined	Stojić & Cerović 2011, 127; Vasiljević 1972, 169
267	Donji Čagalj, Provo	Posavina	approximately	flat	undefined	Stojić & Cerović 2011, 127; Vasiljević 1972, 169
268	Ada - Pesadin, Provo	Posavina	very approximately	Obrovac	0.19 ha	Stojić & Cerović 2011, 126; Vasiljević 1972;
269	Graduština, Beljin	Posavina	precise	flat	4.5 ha	Trbuhović & Vasiljević 1983, 63

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
270	Ravnice, Beljin	Posavina	precise	flat	3.75ha	Stojić & Cerović 2011, 67; Vasiljević & Popović 2002, 63; Trbuhović & Vasiljević 1983, 63
271	Grčka bara, Mesarci	Posavina	very approximately	flat	undefined	Stojić & Cerović 2011, 113; Vasiljević 1972, 171; Trbuhović & Vasiljević 1983, 64
272	Bair, Beljin	Posavina	approximately	flat	undefined	Stojić & Cerović 2011, 67
273	Kuće, Beljin	Posavina	very approximately	flat	undefined	Stojić & Cerović 2011, 67
274	Mađar groblje, Suvo selo	Posavina	approximately	flat	undefined	Stojić & Cerović 2011, 144; Vasiljević 1972, 171; Trbuhović & Vasiljević 1983, 64
275	Tokalićevka, Beljin	Posavina	approximately	flat	undefined	Trbuhović & Vasiljević 1983, 63
276	Jasenje, Vukićevica	Posavina	approximately	plateau	undefined	Todorović 1967a; Ružić & Pavlović 1988
277	Đurića Vinogradi, Grabovac	Posavina	approximately	plateau	undefined	Todorović 1967b, 1968 & 1969; Ružić & Pavlović 1988; Bulatović & Spasić 2019
278	Novo selo, Stubline	Posavina	approximately	flat	undefined	Mihailović 2001
279	Crkvine, Stubline	Posavina	precise	plateau	16ha	Todorović 1967; Ružić & Pavlović 1988; Crnobrnja et al. 2009; Spasić 2013; Crnobrnja 2014
280	Male livade, Ub	Tamnava and Kolubara	precise	flat	undefined	Blagojević 2005
281	Jaričište 1, Lajkovac	Tamnava and Kolubara	precise	plateau	undefined	Blagojević & Arsić 2008; Arsić 2011
282	Masinske njive, Mali borak	Tamnava and Kolubara	approximately	plateau	2 ha	Blagojević & Arsić 2008a; Arsić 2011

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
283	Crkvine, Mali borak	Tamnava and Kolubara	precise	flat	2.5 ha	Živanović & Spasić 2008; Blagojević & Arsić 2008
284	Ilića brdo, Čučug	Tamnava and Kolubara	precise	plateau	undefined	Jež & Starović 1995
285	Vodice - Beljinovača, Valjevska slatina	Tamnava and Kolubara	precise	Obrovac	0.07 ha	Trbuhović & Vasiljević 1983, 80
286	Bodnjik - Obodnjik, Družetić	Tamnava and Kolubara	precise	Gradina	undefined	Stojić & Cerović 2011, 83f; Trbuhović & Vasiljević 1983, 74; Palavestra et al. 1993; Palavestra et al. 1996; Živanović 2013 & 2022, 62
287	Voće, Bresnica	Tamnava and Kolubara	precise	flat	undefined	Stojić & Cerović 2011, 73; Vasiljević 1972, 182f; Živanović 2022, 45; Trbuhović & Vasiljević, 1983, 65
288	Vis, Družetić	Tamnava and Kolubara	precise	Gradina	undefined	Stojić & Cerović 2011, 84; Trbuhović & Vasiljević 1983, 74; Živanović 2022, 65
289	Dragina mala, Koceljeva	Tamnava and Kolubara	precise	copper axe	undefined	Živanović 2022, 57
290	Orašje, Koceljeva	Tamnava and Kolubara	precise	flat	undefined	Stojić & Cerović 2011, 99; Živanović 2022, 47; Trbuhović & Vasiljević 1983, 65
291	Šume, Zukve	Tamnava and Kolubara	precise	flat	undefined	Živanović 2022, 47
292	Debelo brdo II, Batalage	Tamnava and Kolubara	precise	Gradina	undefined	Vasiljević 1972, 182; Trbuhović & Vasiljević 1983, 73f; Živanović 2022, 60

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
293	Debelo brdo, Batalage	Tamnava and Kolubara	precise	flat	undefined	Živanović 2022, 60; Trbuhović & Vasiljević, 1983, 73f
294	Debelo brdo I, Batalage	Tamnava and Kolubara	precise	Gradina	undefined	Vasiljević 1972, 182; Trbuhović & Vasiljević 1983, 73f; Živanović 2022, 60
295	Vukodraž, Jazovik	Tamnava and Kolubara	precise	flat	1 ha	Stojić & Cerović 2011, 96; Trbuhović & Vasiljević 1983, 64
296	Dolovo, Jazovik	Tamnava and Kolubara	precise	flat	1.3 ha	Trbuhović & Vasiljević 1983, 64
297	Rtovi, Svileuva	Tamnava and Kolubara	precise	Gradina	undefined	Stojić & Cerović 2011, 145; Živanović 2022, 65; Trbuhović & Vasiljević 1983, 73
298	Kik III, Svileuva	Tamnava and Kolubara	precise	Gradina	0.4 ha	Stojić & Cerović 2011, 144f; Trbuhović & Vasiljević 1983, 73; Živanović 2013 & 2022, 70
299	Puretići, Svileuva	Tamnava and Kolubara	precise	flat	undefined	Živanović 2022, 49
300	Kučerine II at Ristivojčevića mala, Svileuva	Tamnava and Kolubara	precise	flat	undefined	Živanović 2022, 48
301	Čevkića brdo, Koceljeva	Tamnava and Kolubara	precise	Gradina	undefined	Živanović 2022, 66
302	Barič, Subotica	Tamnava and Kolubara	precise	Obrovac	0.04 ha	Stojić & Cerović 2011, 144; Vasiljević 1972, 183
303	Barič 2, Subotica	Tamnava and Kolubara	precise	Obrovac	0.04 ha	Živanović, 2022, 52
304	Kučerine, Kaona	Tamnava and Kolubara	approximately	Gradina	9 ha	Stojić & Cerović 2011, 98; Trbuhović & Vasiljević 1983, 77

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
305	Debelo brdo, Kaona	Tamnava and Kolubara	precise	Gradina	1 ha	Stojić & Cerović 2011, 97; Trbuhović & Vasiljević 1983, 74
306	Cvetkovac, Goločelo	Tamnava and Kolubara	precise	flat	undefined	Živanović 2022, 45
307	Čukovine-Klenovica or Čukovine - Ušće Klenovice, Čukovine	Tamnava and Kolubara	precise	flat	undefined	Stojić & Cerović 2011, 77; Živanović 2022, 58
308	Grad II, Gradnjević	Tamnava and Kolubara	precise	Gradina	3 ha	Stojić & Cerović 2011, 94; Trbuhović & Vasiljević 1983, 74; Živanović 2022, 61
309	Kulača, Gradnjević	Tamnava and Kolubara	precise	Obrovac	0.04 ha	Stojić & Cerović 2011, 94; Vasiljević 1972, 183; Trbuhović & Vasiljević 1983, 74; Živanović 2022, 51
310	Baščina Radivojevića, Bukor	Tamnava and Kolubara	precise	Gradina	1 ha	Stojić & Cerović 2011, 73; Trbuhović & Vasiljević 1983, 74f
311	Glavičica - Jagodina, Galović	Tamnava and Kolubara	precise	Gradina	undefined	Stojić & Cerović 2011, 89; Trbuhović & Vasiljević 1983, 74; Živanović 2022, 60f
312	Đuričića brdo, Donje-Crnjevo	Tamnava and Kolubara	precise	flat	undefined	Živanović 2022, 46
313	Rimsko groblje, Gornja Sipulja	Tamnava and Kolubara	precise	copper axe	undefined	Bulatović et al. 2017, 163
314	Stepanovo brdo, Gornja Sipulja	Tamnava and Kolubara	precise	Gradina	undefined	Bulatović et al. 2017, 164; Stojić & Cerović 2011, 93; Trbuhović & Vasiljević 1983, 75
315	Veliki Bračinac, Pomijača	Tamnava and Kolubara	precise	Gradina	undefined	Bulatović et al. 2017, 230; Stojić & Cerović 2011, 124; Trbuhović & Vasiljević 1983, 75



Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
316	Mali Bračinac, Pomijača	Tamnava and Kolubara	precise	Gradina	undefined	Bulatović et al. 2017, 229; Stojić & Cerović 2011, 124; Trbuhović & Vasiljević 1983, 75
317	Srebrne rupe, Tekeriš	Tamnava and Kolubara	precise	copper mine	undefined	Bulatović et al. 2017, 236
318	Kik, Tekeriš	Tamnava and Kolubara	precise	Gradina	undefined	Bulatović et al. 2017, 234; Stojić & Cerović 2011, 184; Trbuhović & Vasiljević 1983, 75
319	Vodenčina, Tekeriš	Tamnava and Kolubara	precise	undefined	undefined	Bulatović et al. 2017, 235
320	Škola, Tekeriš	Tamnava and Kolubara	precise	plateau	undefined	Bulatović et al. 2017, 235; Stojić & Cerović 2011, 185; Trbuhović & Vasiljević 1983, 67
321	Šarampov, Tekeriš	Tamnava and Kolubara	very approximately	undefined	undefined	Bulatović et al. 2017, 235; Stojić & Cerović 2011, 184
322	Ševarine at Đukanovica, Trbosilje	Jadar and Lešnica	precise	flat	2ha	Bulatović et al. 2017, 241; Stojić & Cerović 2011, 186; Trbuhović & Vasiljević 1983, 66
323	Spasovine, Milina	Jadar and Lešnica	precise	flat	undefined	Bulatović et al. 2017, 213f & 2020, fig. 8
324	Detinji Potok, Milina	Jadar and Lešnica	precise	copper axe hoard	undefined	Bulatović et al. 2017, 212f; Vasiljević 1967, 129f; Trbuhović & Vasiljević 1983, 86
325	Staro selo, Milina	Jadar and Lešnica	very approximately	undefined	undefined	Bulatović et al. 2017, 214f; Stojić & Cerović 2011, 114
326	Baština Nenadovića, Joševa	Jadar and Lešnica	approximately	Gradina	undefined	Bulatović et al. 2017, 175; Stojić & Cerović 2011, 97; Trbuhović & Vasiljević 1983, 75
327	Prosečena kosa, Joševa	Jadar and Lešnica	approximately	Gradina	undefined	Bulatović et al. 2017, 176
328	Kamenica, Joševa	Jadar and Lešnica	approximately	flat	undefined	Bulatović et al. 2017, 175

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
329	Ante, Lešnica	Jadar and Lešnica	precise	flat	undefined	Bulatović et al. 2017, 173; Trbuhović & Vasiljević 1983, 66
330	Kučerine, Donji Dobrić	Jadar and Lešnica	approximately	flat	undefined	Bulatović et al. 2017, 172; Stojić & Cerović 2011, 81; Trbuhović & Vasiljević 1983, 66
331	Vidin grad, Cer	Jadar and Lešnica	precise	Gradina	0.6 ha	Bulatović et al. 2017, 242ff
332	Lopatar, Lešnica	Jadar and Lešnica	approximately	flat	7.5 ha	Bulatović et al. 2017, 180; Trbuhović & Vasiljević 1983, 56
333	Zabran, Lešnica	Jadar and Lešnica	approximately	flat	undefined	Bulatović et al. 2017, 181; Stojić & Cerović 2011, 101; Trbuhović & Vasiljević 1983, 56
334	AIK or PIK Gučevo, Lešnica	Jadar and Lešnica	approximately	undefined	2.25 ha	Bulatović et al. 2017, 181; Stojić & Cerović 2011, 100; Vasiljević 1972, 156; Trbuhović & Vasiljević 1983, 56
335	Brešće, Kozi-jak	Jadar and Lešnica	approximately	copper bracelet	undefined	Trbuhović & Vasiljević 1983, 86
336	Bojića Ada, Loznica	Jadar and Lešnica	approximately	flat	undefined	Bulatović et al. 2017, 193ff
337	Mali gradac, Cikote	Jadar and Lešnica	precise	Gradina	undefined	Bulatović et al. 2017, 259ff; Stojić & Cerović 2011, 75; Trbuhović & Vasiljević 1983, 76
338	Vladića brdo, Loznica	Jadar and Lešnica	approximately	flat	undefined	Bulatović et al. 2017, 205ff
339	Vidojevica, Runjani	Jadar and Lešnica	precise	flat	1ha	Bulatović et al. 2017, 234; Stojić & Cerović 2011, 137; Trbuhović & Vasiljević 1983, 66
340	Kovanluci, Klupci	Jadar and Lešnica	very approximately	flat	undefined	Bulatović et al. 2017, 176f; Stojić & Cerović 2011, 98; Trbuhović & Vasiljević 1983, 66

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Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
341	Velika livada, Tršić	Jadar and Lešnica	approximately	flat	undefined	Bulatović et al. 2017, 241; Stojić & Cerović 2011, 186; Trbuhović & Vasiljević 1983, 66
342	Crkvina, Donje Nedeljice	Jadar and Lešnica	precise	Gradina	undefined	Bulatović et al. 2017, 171; Stojić & Cerović 2011, 80; Trbuhović & Vasiljević 1983, 76
343	Priljevska crkva, Lipnica	Jadar and Lešnica	precise	flat	undefined	Bulatović et al. 2017, 192; Stojić & Cerović 2011, 102; Trbuhović & Vasiljević 1983, 66
344	Kučerine, Bradić	Jadar and Lešnica	approximately	plateau	undefined	Bulatović et al. 2017, 115f; Stojić & Cerović 2011, 73; Trbuhović & Vasiljević 1983, 66
345	Mramorje, Bradić	Jadar and Lešnica	precise	Gradina	undefined	Bulatović et al. 2017, 116; Stojić & Cerović 2011, 73
346	Kulina, Jarebice	Jadar and Lešnica	precise	Gradina	undefined	Bulatović et al. 2017, 174; Stojić & Cerović 2011, 96
347	Velike livade, Jarebice	Jadar and Lešnica	precise	flat	undefined	Bulatović et al. 2017, 174; Stojić & Cerović 2011, 96; Trbuhović & Vasiljević 1983, 67
348	Orlovac - Jerinin grad, Gornja Badanja	Jadar and Lešnica	precise	Gradina	3ha	Bulatović et al. 2017, 155ff; Stojić & Cerović 2011, 92; Vasiljević 1980, 216; Trbuhović & Vasiljević 1983, 76
349	Staro selo, Donja Sipulja	Jadar and Lešnica	precise	Gradina	undefined	Bulatović et al. 2017, 170; Trbuhović & Vasiljević 1983, 75
350	Metlik, Donja Badanja	Jadar and Lešnica	precise	tumulus?	undefined	Stojić & Cerović 2011, 79f
351	Gradac, Banja Koviljaca	Azbukovica and Rađevina	precise	Gradina	undefined	Bulatović et al. 2017, 89ff; Stojić & Cerović 2011, 61
352	Kopiljuša, Radalj	Azbukovica and Rađevina	very approximately	Obrovac (?)	0.25ha	Bulatović et al. 2017, 231; Stojić & Cerović 2011, 129

Site No	Site name, municipality	Microregion	Location	Topography (no. of sites or copper axe finds)	Site area	References
353	Cave Radašnica, Donja Trešnjica	Azbukovica and Rađevina	precise	cave	undefined	Bulatović et al. 2017, 170f; Stojić & Cerović 2011, 80; Trbuhović & Vasiljević 1983, 77
354	Hram, Ljubovija	Azbukovica and Rađevina	very approximately	copper mine	undefined	Bulatović et al. 2017, 234
355	Rid, Rujevac	Azbukovica and Rađevina	precise	Gradina	0.7 ha	Bulatović et al. 2017, 231; Stojić & Cerović 2011, 136f; Trbuhović & Vasiljević 1983, 77
356	Sklopovi, Krupanj	Azbukovica and Rađevina	approximately	flat	undefined	Bulatović et al. 2017, 115
357	Turska karaula - Busija, Banjevac	Azbukovica and Rađevina	precise	Gradina	undefined	Bulatović et al. 2017, 107; Stojić & Cerović 2011, 61; Trbuhović & Vasiljević 1983, 77
358	Kovačevičeva pecina, Cerova	Azbukovica and Rađevina	precise	cave	undefined	Bulatović et al. 2017, 249ff; Stojić & Cerović 2011, 74; Trbuhović & Vasiljević 1983, 77
359	Matići, Krasava	Azbukovica and Rađevina	precise	flat	undefined	Bulatović et al. 2017, 180
360	Glavica, Krasava	Azbukovica and Rađevina	approximately	flat	undefined	Bulatović et al. 2017, 179
361	Prosek, Krasava	Azbukovica and Rađevina	precise	Gradina	undefined	Bulatović et al. 2017, 180; Stojić & Cerović 2011, 100; Trbuhović & Vasiljević 1983, 76
362	Ostenjak, Likodra	Azbukovica and Rađevina	precise	Gradina	undefined	Bulatović et al. 2017, 182ff; Stojić & Cerović 2011, 101; Trbuhović & Vasiljević 1983, 76
363	Varoš, Bela Crkva	Azbukovica and Rađevina	approximately	Gradina	undefined	Bulatović et al. 2017, 115; Garašanin 1986, 65; Trbuhović & Vasiljević 1983, 76
364	Anatema, Balinović	Azbukovica and Rađevina	precise	plateau	undefined	Mihailović 2001