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ГОДИНА
АРХЕОЛОГИЈЕ

Време је за прошлост.



Манифестација „Година археологије 2025”

У 2025. години Српско археолошко друштво спроводи манифестацију „Година археологије”. За лого манифестације је одабрана иконична силуета скулптуре Прародитељка, пронађена на локалитету Лепенски Вир. Током 2025. године, низ активности као што су предавања, изложбе, радионице и интерактивни рад са публиком у више од 20 градова промовише културно наслеђе Србије и слави археологију у свим својим облицима. Повод за ову манифестацију је 160 година од првих документованих археолошких ископавања у Србији. У лето 1865. Јанко Шафарик, тада чувар (управник) *Музеума сербској* (данас Народни музеј Србије), спроводи ова ископавања на планини Рудник.

(лого: Dechko Tzar)

Програмски одбор манифестације „Година археологије 2025”

Manifestation “The Year of Archaeology 2025”

In 2025, the Serbian Archaeological Society is implementing a series of events under the title “The Year of Archaeology 2025”. The project logo is the iconic silhouette of the sculpture Praroditeljka (*Progenitrix – Foremother*), found at the site of Lepenski Vir. During 2025, numerous activities such as lectures, exhibitions, workshops, and interactive work with broad public in more than 20 cities are being organised so as to promote the cultural heritage of Serbia and celebrate archaeology in all its forms. This series of events is marking the occasion of 160 years since the first documented archaeological excavations in Serbia. In summer 1985, Janko Šafárik, the then custodian (director) of the *Serbian Museum* (today’s National Museum of Serbia), conducted these excavations on Mount Rudnik.

(logo: Dechko Tzar)

Programme board of the manifestation “The Year of Archaeology 2025”

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NEW RESULTS OF ARCHAEOLOGICAL RESEARCH AT THE SITE OF CRNA BARA – PRKOS

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Abstract: *The site of Crna Bara – Prkos, located on the western outskirts of the village of Crna Bara in the Municipality of Čoka, has been known in archaeological literature for almost a century. Throughout this entire period, the site was excavated during two seasons only, in 1943 and 1944. These two excavation seasons revealed the site's multi-period character, making it a valuable reference for establishing the relative chronology of the Neolithic and the Early Copper Age period in the region of northern Banat. One paper, published over 70 years ago, and containing only the surviving records of the excavations, is the sole outcome of these excavations. During the assessment of the site's archaeological potential and the feasibility of its legal protection, the Intermunicipal Institute for the Protection of Cultural Monuments, Subotica, conducted two archaeological research campaigns in 2022 and 2023. These investigations aimed to further document the site's significance and support efforts for its preservation. These investigations included: limited geophysical survey, accompanied by systematic surface collection of artefacts, geological coring, Lidar surveys and targeted test excavations. In this paper, we present results of the conducted research that provide new insights into the condition of archaeological contexts on this site.*

Keywords: *Neolithic, Early Copper Age, Vinča culture, Bodrogresztúr culture, systematic site survey, stratigraphic excavations, Lidar, geophysical survey*

Introduction

The site of Prkos near the village of Crna Bara is located in the north-eastern part of Serbian Banat, between the towns of Čoka and Kikinda (Fig. 1). Its discovery can be attributed to a local teacher Johan Strasser from Mokrin



Fig. 1. Crna Bara – Prkos, site location

Сл. 1. Црна Бара – Пркос, позиција локалитета

(Marinković, 2013, 8), a passionate collector of antiquities who, between the two World Wars, collected a significant amount of finds from the site and notified the director of the National Museum in Zrenjanin Laza Nikolić. Except for the excavations conducted in 2023, the only excavations on the site were carried out over two seasons, 1943 and 1944. The excavations from 1943 were headed by Lazar Nikolić, followed, in the second season, by Milutin and Draga Garašanin. During these two seasons, close to 150 m² of the site were excavated, either fully or partially (Garašanin and Garašanin, 1957, 199). Due to the war for the liberation of Banat from the Nazi occupation in late 1944, a portion of finds and documentation was lost, whilst some of the finds and markings were mixed up (Garašanin, 1973, 220), hence, the results were only partially published, as late as 1957. Only the results of season 1944 were given in detail in this paper, while the research data from 1943, especially mobile finds discovered, were partially published.

The site is located on an elongated plateau locally named Pašnjak (*meadow*), but known on historical maps as Prkos. However, the toponym Prkos, from which the site was named, first appeared on 19th-century Austro-Hungarian topographic maps, and it was the name of an agricultural enterprise located on the site. The plateau on which the site is located is oriented approximately north to south,

overlooking the marshy terrain to the north and north-west, and was framed by the ancient Tisza River Pleistocene meander to the west (Popov *et al.*, 2008). The meander is now located over 20 kilometres to the west of the site. Archaeological surveys of the area were conducted several times, last in 2012 (Trifunović, 2016, 78) and other decades prior (Girić, 1996; Stanojev, 1989), proving the site's complex multiperiod deposition, ranging from the Late Neolithic to the Medieval period. The surveying of the Museum of Vojvodina in 2012 identified multiple features in the area of the site, including two tumuli in its eastern portion and two additional ones on the western fringes of the proposed site area.

In 2022, in an effort to legally protect the site, a project was set up to test the site's potential archaeological contexts and preservation.

First, the surviving documentation, specifically site plans, were digitised in order to reconstruct the area of the original research from seasons 1943–1944 and place the results in proper spatial settings. Bellow, we present the results of this research and the current state of preservation of the site.

Second, we used a series of limited and non-destructive archaeological methods, including Lidar scanning and geophysical survey, ground proofing the obtained results using geological coring and stratigraphic trenches.

Methodology and results

The project started in the fall of 2022. Since the project consisted of multiple, often mutually independent steps, methodology varied depending on the task at hand. The attempt to reconstruct the surviving archaeological record from the excavations of Milutin Garašanin was the first step undertaken prior to starting new research on the site itself.

Digitisation

The surviving documentation kept in the National Museum in Zrenjanin was scanned and digitised so as to be incorporated into a GIS project of the site. The site map drawings, trench locations and other various surviving data were organised according to different information levels and systematised. However, while existent publications (Garašanin and Garašanin, 1957, 206–207; Marinković, 2013, 15–18) were helpful for the reconstruction of the work done on the site, the placement of the 1943 and 1944 trenches remained unknown until the onset of the project. The detailed 1:500 scale drawing of the trench positions made by hand in 1944, which included the layout of the dirt road abutting the site from the east and the outline of the cadastral plots found on the site, made it possible to overlay the sketch with digital cadastral documentation of the Republic Cadastral Authority available through the National Infrastructure of Geospatial

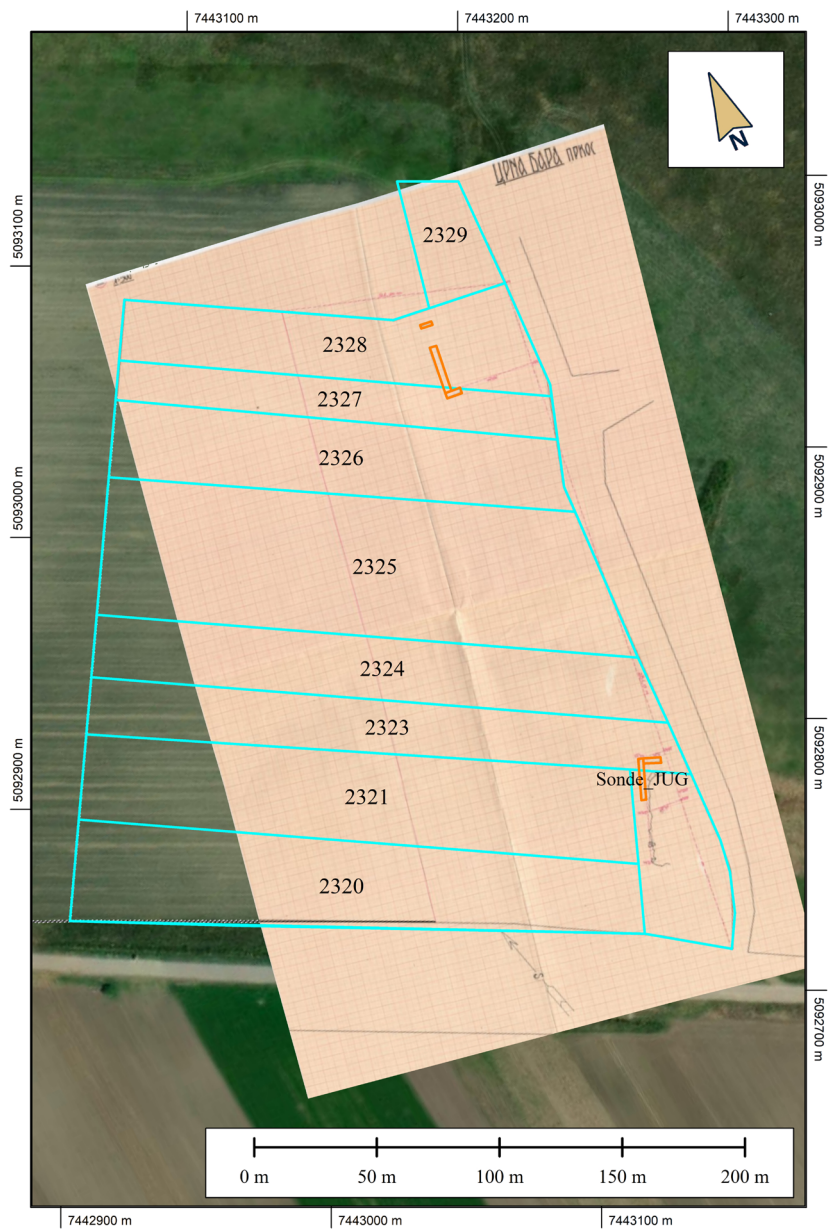


Fig. 2. Crna Bara – Prkos. Position of the Garašanin trenches overlaid on the cadastral map

Сл. 2. Црна Бара – Пркос. Преклопљена реконструисана позиција сонди Милутина Гарашанина у односу на катастарске парцеле

Data (Geosrbija) website. The overlay of these data layers in a GIS software led to the reestablishment of relatively accurate spatial positions of trenches laid in 1943 and 1944 (Fig. 2).

The original drawings from 1944 showed that the trenches positioned in the southern section of the site, in the area marked as “Groblje” (*cemetery*), were placed on the edge of the clay mining outcrop (Garašanin and Garašanin, 1957, Plan 1). It was thus not surprising that the location of the trenches was destroyed post 1944, mainly by local clay mining activity for the making of bricks.

Mining activities in this portion of the site appeared to be of long duration, as in comparison to 1944, ca. 25–27 meters of the site have been removed from this area today. In the northern area of the site, where trenches O (sometimes referred to as sector O in the original documentation), I and II were placed in 1943 and 1944, an accumulation and redeposition of material can be noted, creating an impression of a large “tumulus” mound, over 6 metres tall in places. This feature is still visible from any part of the site today. The large tumulus-like construction caused perplexity amongst the team as it was never mentioned in any of the excavation documentation. In fact, Milutin Garašanin reported on layer thickness, which exceeded 3.2 meters only in trench O (Garašanin and Garašanin, 1957, 200). As a result, it became clear that the 6-meter-tall feature was of a later date, since it was omitted from field logs and documentation of 1943 and 1944. The origin of the feature was resolved during the excavation season in 2023.

Geophysical survey

Following the reestablishment of the position of old trenches, the next step was a targeted geophysical survey of the eastern area of the site. The geophysical survey covered 2 ha of the site, separated in two one-hectare grids. The western edge of the large mound was performed using a SENSYS MX4 – 5 sensors fluxgate magnetometer cart. This device presents five sensors placed on an antimagnetic cart to facilitate faster recording and covers 2.5 meters in width. The cart is pushed in a zigzag motion within the measured area, producing five sets of measurements in one pass, while an integrated GPS device constantly records its position.

The magnetometric data presented in Fig. 3 provide compelling evidence of deleterious effects of contemporary agricultural practices on archaeological heritage. This highlights the necessity for stringent preservation measures and comprehensive legal protection for archaeologically significant sites, given their finite nature and susceptibility to destruction, which leads to irreversible loss of valuable historical data. Whilst over 600 archaeological features can be identified in the magnetogram, some, like multiple enclosed ditches (possibly the old-



Fig. 3. Crna Bara – Prkos 2022. Magnetogram and interpretation of magnetic anomalies recorded at Crna Bara – Prkos

Сл. 3. Црна Бара – Пркос 2022. Магнетограм и интерпретација магнетних аномалија снимљених на локалитету Црна Бара – Пркос

est features of the site), are barely noticeable due to ploughing activities (Fig. 3, black curvilinear lines). Even though the detritus effects of ploughing on the preservation of archaeological artefacts and heritage have been extensively documented in laboratory analyses (Lambrick, 2004; Leskovar and Bosiljkov, 2016; Reynolds and Schadla-Hall, 1980), our study is one of the first that illustrates these effects in Serbian archaeology.

The geophysical survey also presents the westernmost boundaries of the extent of the Neolithic/Eneolithic settlement, represented by numerous overlapping and parallel circular enclosure ditches. The eastern border of the settlement was damaged by clay and sand mining in this area. Survey results showed no evidence of typical Late Neolithic and Early Eneolithic rectangular wattle and daub structures within the survey area. However, Garašanin's scale drawings and post excavation reports from the excavation campaign in 1944 showed that such features were found in trench II, positioned in the northern part of the site (Marinković, 2013, 6; Garašanin and Garašanin, 1957, 201).

Here, he showed the relative depths of the rectangular wattle and daub structures, ranging from 40 to 55 cm in depth. The lack of visible burnt daub structures could be explained by the continuous destruction of the site, including the increase in plough sizes over the last 80 years. The most commonly identified magnetic anomalies appeared to have been circular pit-like features (over 650) (Fig. 3, green spots). These features cannot be attributed to any specific period without further targeted investigation, such as test trenches or sounding. In order to establish the spatial and temporal distribution of occupation of the surveyed part of the site, a systematic surface collection survey was undertaken in the autumn of 2022.

Surface collection survey

The survey methodology consisted of 30 transects, systematically spaced at 10-meter intervals and arranged into six equally sized grid squares. An additional L-shaped polygon was added between the grid and the mound, which, at the time of the survey, was full of archaeological finds, as a) the field has been recently ploughed, and b) because of extensive animal burrowing at the western and southern edge of the mound. Two more fields, located south of the mound (across the road) were surveyed in order to establish a detailed understanding of this area of the site.

In the main survey area (close to the mound), the transects were walked west–east, while on the two fields across the road, they were walked north–south, to follow the ploughing direction, which enhanced the visibility of finds. Finds were collected and their position was recorded with a total station. All artefacts were deemed eligible for collection as long as they were found within the range of the transect line.

The finds were typologically processed and chronologically attributed and their location was plotted into a GIS platform (Fig. 4).

The vast majority of Neolithic finds were attributable to Late Neolithic ceramic sherds and were concentrated in the northern part of the site, within the boundary of the identified enclosure (Fig. 5 left, red dots). A smaller number of such finds attributed to the Late Neolithic was found in the southern portion of the enclosed area.

The smaller number of finds attributed to the Late Neolithic could be the result of site formation processes and later occupation of the site, including the Medieval cemetery, to the 19th century Prkos farmhouse.

Eneolithic period finds attributed to the Tiszapolgar cultural complex were rare, as only three diagnostic pottery sherds were found close to the northern and one in the southern section of the surveyed area. The general lack of Eneo-

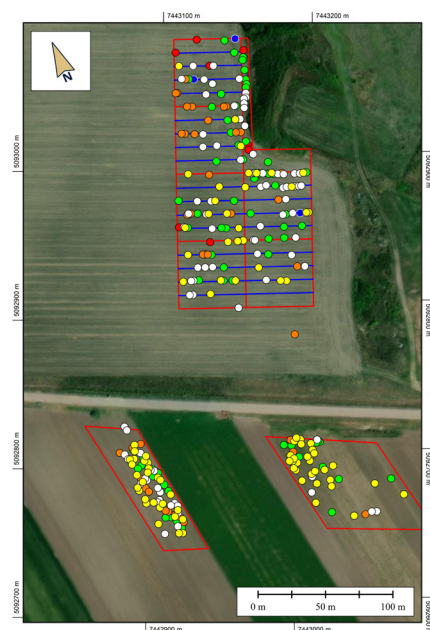


Fig. 4. Crna Bara – Prkos 2022. Results of systematic surface collection

Сл. 4. Црна Бара – Пркос 2022. Резултати систематске површинске колекције

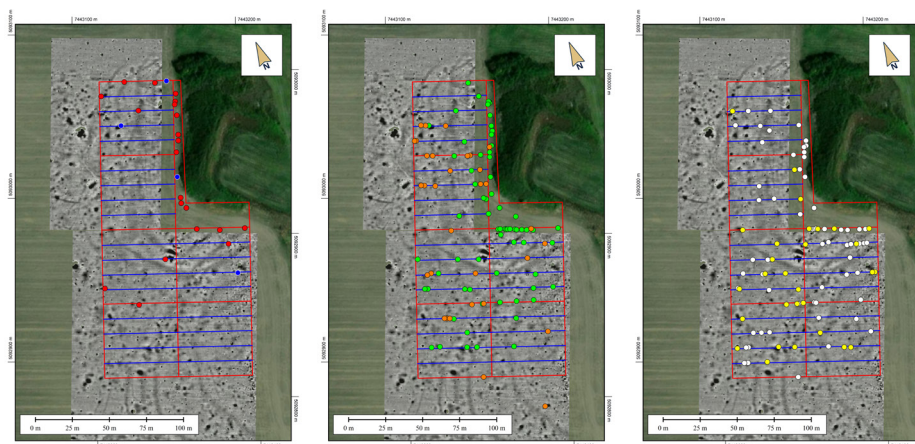


Fig. 5. Crna Bara – Prkos 2022. Results of systematic surface collection by period. Left – Neolithic (red dots), ECA (blue dots). Middle – Bronze Age (green dots), Iron Age (orange dots). Right – Antiquity (white dots), Medieval period (yellow dots)

Сл. 5. Црна Бара – Пркос 2022. Резултати систематске површинске проспекције по периоду. Лево – неолитски налази (црвене тачке), енеолит (плаве тачке).
Средина – бронзано доба (зелене тачке), гвоздено доба (наранџасте тачке).
Десно – антички период (беле тачке), средњи век (жуће тачке)

lithic finds at the site was troubling, as Garašanin associated at least four strata in the central area of trenches I and II to this period (Garašanin and Garašanin, 1957, 202–204). A possible explanation could be the fragmentation of sherds, due to constant ploughing or the fact that the area was more ephemeral and located further to the east, and thus currently covered by the mound and invisible during the survey.

Finds from other prehistoric periods, such as the Bronze and the Iron Age, show a significantly less uniform distribution and are spread across a much wider surface within the survey area (Fig. 5 centre, Bronze and Iron Age). A similar distribution can also be seen with Antiquity and Medieval period finds (Fig. 5, right), which expand outside the surveyed area, westwards and southwards, as already established by the field survey of the Museum of Vojvodina, several years prior (Trifunović, 2016, 78–83).

Lidar survey

During the 2023 excavation season, a LIDAR survey of the entire Prkos area was undertaken. The survey was done using a DJI Matrice 350 RTK drone, equipped with a DJI Zenmuse L1 LIDAR assembly, which integrates a Livox LIDAR module, high accuracy IMU and a 20 megapixels camera with a 1-inch CMOS sensor fixed on a 3-axis stabilised gimbal. The LIDAR presented a 450 metres detection range with an effective point rate of 240,000 points per second combined with 0.025° (roll/pitch) and 0.08° (yaw) accuracy. Along with inbuilt GPS and RTK correction support, this set up delivered the drone position in real time, along with recording data suitable for topographic mapping with a high level of precision, including 3D modelling and GIS software analyses.

The LIDAR survey cloud contained 1,075,538,182 points covering an area of 370 hectares (Fig. 7). The point cloud served as a base to produce a digital surface model of the area, which, in turn, helped in identifying archaeological features in the landscape.

The survey results were twofold. First, on the western edge of the examined space, LIDAR showed multiple mounds not previously identified by the survey (Fig. 7, red circles). However, the exact period of these mounds cannot be determined without further investigation, as this kind of construction could either be attributed to prehistoric tumuli (Trifunović, 2020, 2016, 2012), potentially, dating to the Bronze Age settlement in the Prkos area, or else they were constructed in the Medieval period (Molloy *et al.*, 2020, tbl. 2; Stanojev, 1989). However, considering that the Medieval cemetery in the south-eastern area of the site was already uncovered, it is less likely that the mounds would be dated to this period.

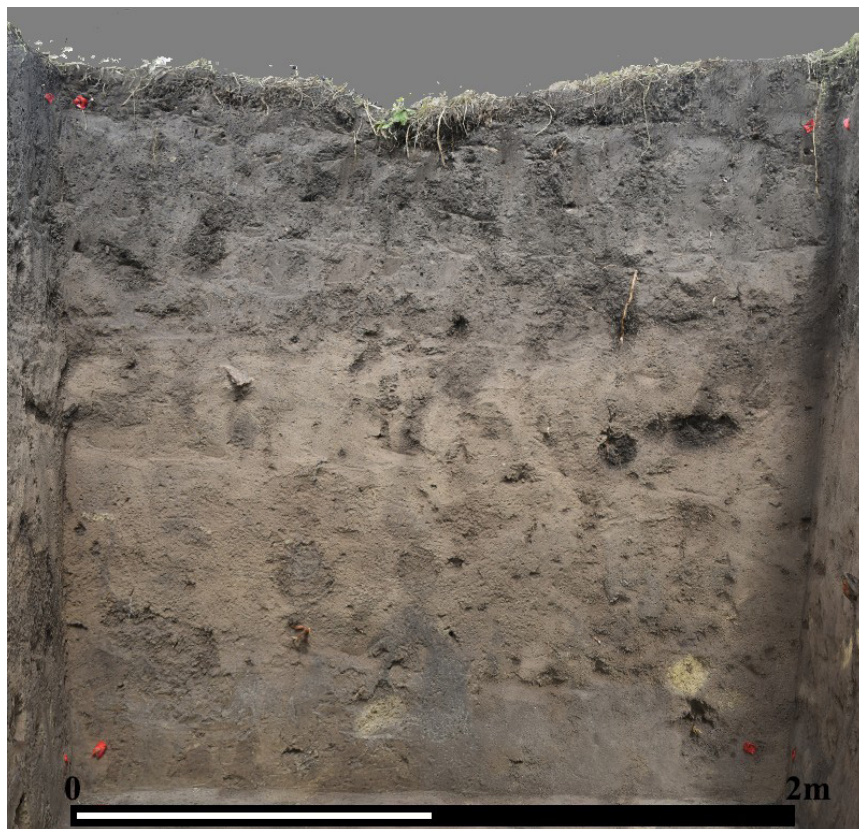


Fig. 6. Crna Bara – Prkos 2023. Northern profile of stratigraphic trench 2

Сл. 6. Црна Бара – Пркос 2023. Северни профил стратиграфске сонде 2

Another feature that became visible in the LIDAR survey was a stream (now dried up), located at the edge of a Pleistocene meander (Fig. 8, light blue curvilinear feature), on the northern edge of the site. Assuming that this stream would have existed in prehistory, it would have served as the primary source of water for the settlement.

Second, the LIDAR results clearly revealed the damage caused by past and recent activities at the site. While the ploughing did more damage than expected, as the prehistoric settlement discovered in the geophysical survey was completely invisible in the LIDAR survey (Fig. 7), LIDAR clearly highlighted the already evident and extensive damage done to the eastern sections of the site, by illegal sand and clay quarrying and other ground works (Fig. 7, blue rectangle). The most damaged area was the northern section of the site, with a deep rectangular groove hollowed out by machine sediment removal.

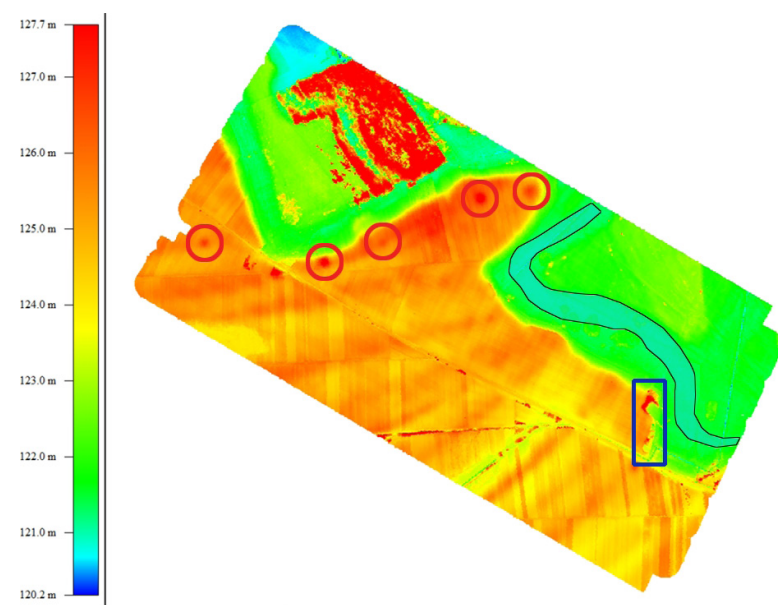


Fig. 7. Crna Bara – Prkos 2023. Lidar survey of the site of Crna Bara. Red circles represent detected tumuli, blue rectangle – damaged section of the site, ultramarine curvilinear feature – former streambed

Сл. 7. Црна Бара – Пркос 2023. Лидар снимак подручја локалитета на Црној Бари. Црвени кругови представљају подручја откривених тумула, плави правоугаоник зону оштећења локалитета илегалним вађењем песка и глине, светлоплава неправилна зона исушени водоток

Test excavations

In the spring of 2023, we evaluated the condition of stratigraphic depositions and archaeological potential with test excavations. One of the key objectives was to determine the preservation level of the Neolithic/Eneolithic settlement, for which the site is famous in the archaeological literature.

We excavated two stratigraphic units (dimensions: 2x2 metres) – one (trench 1) in the southern part of the previously identified enclosed area and the other (trench 2) in the northern portion of the predetermined enclosed area. While trench 1 was placed on the edge of the identified clay and sand mining area and 32 meters north of the trenches laid in 1943 in the southern sector, trench 2 was located ca 20 meters west of the reconstructed position of trench II from 1944.

The excavation of test units revealed that there was ca. one meter of preserved archaeological deposition in trench 1, however, no *in situ* features were discovered. Daub fragments were retrieved at about 50–60 cm of relative depth, providing evidence for the existence of a horizon with burned wattle and daub



Fig. 8. Crna Bara – Prkos 2023. View of the platforms cut into the eastern profile of the big mound. Lensing clearly visible

Сл. 8. Црна Бара – Пркос 2023. Поглед на степенике усечене у источни профил велике хумке. Јасно видљиво мешање седимената услед машинског насипања

structures in the area. At the relative depth of ca 80–85 cm, two well-fired and blackened oven floors were discovered as well.

The stratigraphic situation was somewhat different in trench 2 (Fig. 6), where the archaeological layers were 1.8 metres deep. However, no *in situ* features were discovered in this trench either. Multiple finds of larger structural daub fragments were found between relative depths of 60 and 85 cm, and again between 1.1 and 1.2 metres. This indicates that at least two horizons of wattle and daub structures existed in this area.

Ceramic finds from both trenches present the range from the Late Neolithic to the Bronze Age. However, typical finds density is low and decoration is sparse. Typical Neolithic bowl finds (Pl. 1-1, 2, 4) were limited to mostly deep conical, spherical and mildly biconical bowls, often with wart-like handles or appliques pointed downwards, on the sherd belly, similar to the Early Copper Age ones (Pl. 2-1, 2). Cooking vessels are mostly spherical or biconical, with occasional two rows of round impressions placed under the rim (Pl. 1-3). In trench 1, a belly of a Late Neolithic amphora (Pl. 1-6) with incised curvilinear motifs and an Early Copper Age narrow-necked jug (Pl. 1-7) with a perforated vertical ribbon handle were detected. The handles were mostly of the button type (Pl. 1-5, Pl. 2-3) and wart-like type (Pl. 2-1,4), and some were perforated.

Laboratory Code	Sample Code	Species	Bone	Context	¹⁴ C age (BP)	±	δ ¹³ C	δ ¹⁵ N	C:N	CalBC (2σ) (OxCal v4.4.4)
DeA-47655	CB 1	Bos Taurus	Metatarsal	S.J. 1003	6114	24	-19.2	8.9	3.0	5210-4940 calBC
DeA-47656	CB 2	Bos Taurus	Phalangae	S.J. 1008	6145	26	-19.7	7.4	3.0	5210-5000 calBC
DeA-47657	CB 3	Mammalia	Rib	S.J. 1009	6107	24	-17.9	7.6	2.9	5210-5170 calBC 5120-4940 calBC
DeA-47658	CB 4	Homo sp.	Caput femoris	S.J. 2002	5527	26	-17.9	7.4	2.9	4450-4330 calBC
DeA-47659	CB 5	Cervus elaphus	Mandibula	S.J. 2003	6157	29	-19.3	7.0	3.0	5210-5010 calBC
DeA-47660	CB 6	Mammalia	Distal phalangae	S.J. 2005	6244	29	-19.5	7.7	3.0	5310-5070 calBC
DeA-47661	CB 7	Bos Taurus	Rib	S.J. 2006	6213	27	-19.3	6.9	3.0	5300-5050 calBC
DeA-47662	CB 8	Sus scrofa	Maxilla	PLATF. 11	5475	25	-18.6	8.0	2.9	4360-4250 calBC
DeA-47663	CB 9	Homo sp.	Costa	PLATF. 8	1186	15	-16.1	11.2	3.0	770-890 calAD
UGa-74008	Sample 2	Sus scrofa	Mandibula	S.J. 1003	6130	30	-19.54	8.54	3.27	5209-4988 calBC 4965-4958 calBC
UGa-74009	Sample 6	Cervus elaphus	Mandibula	S.J. 2003	6020	30	-20.22	6.59	3.25	4998-4835 calBC 4811-4803 calBC
UGa-74011	Sample 13	Mammalia	Rib	S.J. 1009	6040	25	-18.8	7.66	3.22	5003-4845 calBC
UGa-74012	Sample 3	Sus scrofa	Maxilla	PLATF. 11	5360	25	-19.39	8.34	3.23	4325-4288 calBC 4264-4220 calBC 420-4161 calBC 4133-4056 calBC

Table 1. Radiocarbon dates from Crna Bara – Prkos

Табела 1. Радиоугљенични датуми са локалитета Црна Бара – Пркос

Radiocarbon Dating

Following the field excavations, animal bone samples from known stratigraphic depositions were sent for AMS ¹⁴C radiocarbon dating. A total of 18 samples were sent to two different laboratories – nine bone samples to the Hertelendi Laboratory of Environmental Studies in Debrecen, Hungary, and four to the AMS Radiocarbon Facility at the University of Georgia. The analyses produced 13 viable AMS radiocarbon age results estimates, providing a chronological sequence of the site, which can help us gain a better understanding of the chronological sequence of the site. It must be stated that the obtained radiocarbon dates were modelled using the framework of the Bayesian statistical modelling (Bronk Ramsey, 2009; Buck et al., 1996) with the help of Oxcal software (Bronk Ramsey, 2010, 1995) in its v4.4.4 iteration.

Ten of the 13 samples originated from stratigraphic trenches 1 and 2 excavated in the 2023 season, while the remaining three were taken from the profile cut of the artificial mound (Table 1).

Both trenches produced limited diagnostic archaeological finds, which prevented a detailed seriation of archaeological deposits. However, both units produced animal bone material that originated from stratigraphically superimposed deposits. As the archaeological deposits showed a limited bioturbation with no other disturbance, we relied on the stratigraphic sequence of the excavated layers to sequence the site.

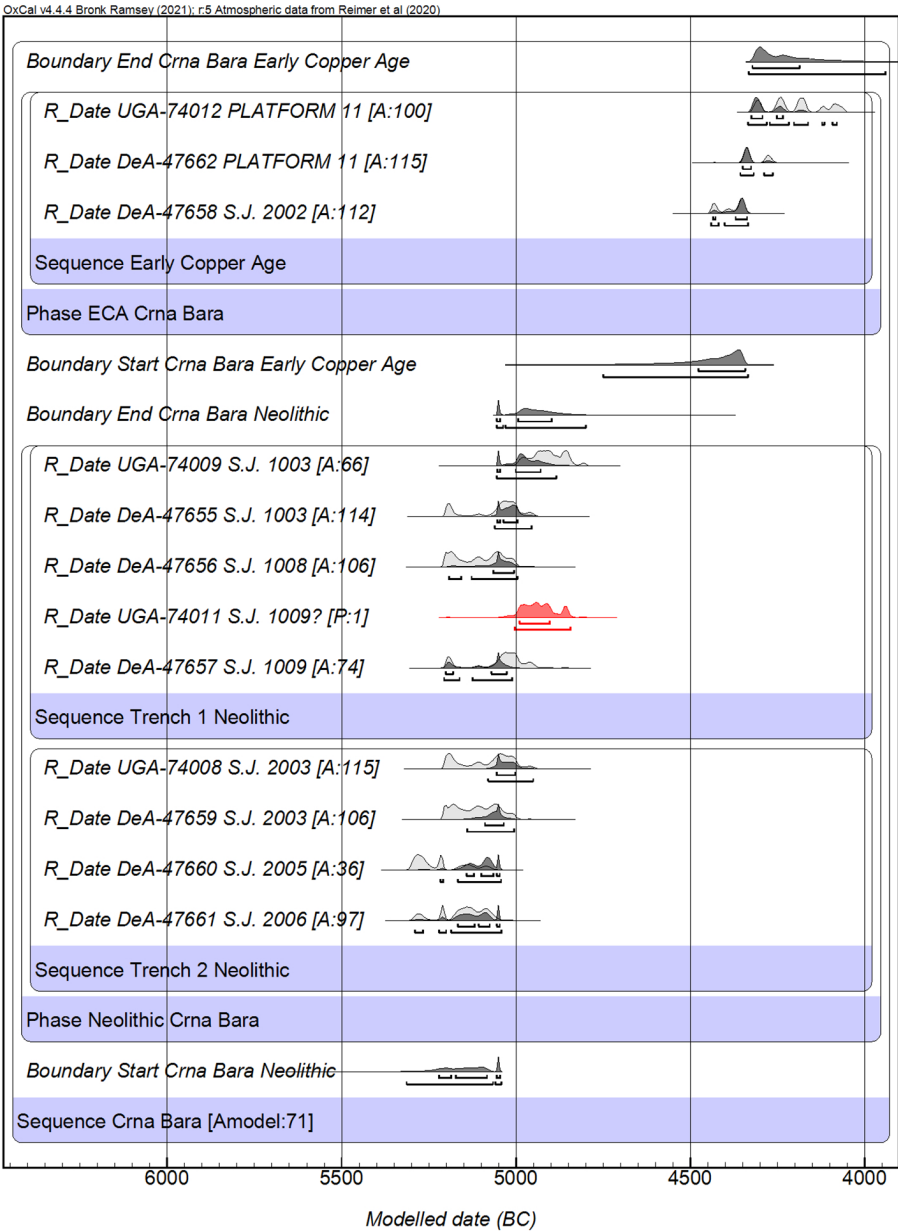


Fig. 9. Crna Bara – Prkos. Bayesian chronological model of Crna Bara – Prkos using OxCal v4.4.4

Сл. 9. Црна Бара – Пркос. Бајесијански хронолошки модел локалитета Црна Бара направљен помоћу OxCal v4.4.4. софтвера

The remaining three dates originated from the profile section of the mound. The model, presented in Fig. 9, provides an overview of the chronological site model.

Based on the obtained modelled values of probability distributions, it can be stated that the Late Neolithic occupation of the site (Fig. 9, marked as *Boundary Start Crna Bara Neolithic*) starts 5314–5042 calBC (95% prob.), possibly 5221–5047 calBC (68% prob.), which is very similar to the beginning of the Late Neolithic occupation of the nearby site of Iđoš Gradište (Marić *et al.*, 2025, 190), possibly as part of the same process of expansion of Late Neolithic material traditions in the area. Similar time frame can be found in the nearby Tápé-Lebő A, relatively dated to early Tisza material culture period (Hertelendi and Horvath, 1992, 861–863) and further up north in Level 3 of Vésztő-Mágor (Kalicz and Raczky, 1987, 28–29).

Unlike other sites in the region, like the site of Gradište, where research yielded evidence for a preexisting Middle Neolithic Körös–Starčevo occupation horizon, neither the 1943–1944 excavations nor the 2022–2023 research at the site of Crna Bara – Prkos provided such evidence. However, this does not mean that there was no such occupation on the site, as the whole edge of the Pleistocene meander surrounding Prkos is dotted with evidence of Körös–Starčevo settlements. This includes the Mali Rit area, located only 1 kilometre away from Crna Bara – Prkos (Trifunović, 2016, 67–68).

The end of the Late Neolithic occupation of the site (marked as *Boundary End Crna Bara Neolithic*), according to the available radiocarbon dates from the 2023, was modelled at 5056–4800 calBC (95% prob.), possibly 5055–4898 calBC (68% prob.), which again corresponds to the modelled radiocarbon posterior density estimates from Iđoš Gradište (Marić *et al.*, 2025, 193). At the site of Iđoš Gradište, the end of the Late Neolithic period tell occupation was radiocarbon dated to 5014–4935 calBC (95% probability), possibly 5003–4981 calBC or 4971–4948 calBC (68% prob.), which would indicate that the Late Neolithic settlement on Crna Bara lasted somewhat longer than at nearby Gradište in Iđoš.

However, radiocarbon dating from a single burial, an adult found outside the Neolithic settlement at Iđoš Gradište (Marić *et al.*, 2025, 194), suggests a date of 4995–4863 calBC (95.4% prob.), possibly 4943–4913 calBC or 4907–4882 calBC or 4985–4976 calBC (68.3% prob.) This evidence may indicate that the Late Neolithic occupation of Gradište lasted for one or possibly two generations longer than shown by the radiocarbon dates taken from the settlement, making both Crna Bara and Iđoš Gradište equally lasting.

In addition, some sites from Hungary, dating to the Late Neolithic with evidence of early the Tisza period like levels 26-27 in Szegvár-Tűzköves, level 16 of Tápe-Lebő A and level 3 of Hódmezővásárhely-Kökénydomb, show similar radiocarbon date spans (Hertelendi and Horvath, 1992, 861–863).

The range of modelled radiocarbon dating provides an estimate of the Crna Bara – Prkos Neolithic settlement life span to range anywhere from 53 to 333 years at 95% probability, possibly 92 to 231 years (68% probability). This estimate roughly fits with similar estimates of life spans of Late Neolithic tell sites in eastern Hungary, which suggest 300–350 years of the occupation period, or approximately 10 generations (Yerkes et al., 2009, 1077). The modelled radiocarbon dates suggest that the Late Neolithic settlement of Crna Bara could have been abandoned early into the start of the Tisza–Herpály–Csőszhalom complex (Hertelendi et al., 1995; Yerkes et al., 2009), but having only a limited amount of mobile finds, it is difficult to say if this was exactly the case.

The Early Copper Age (ECA) occupation of Crna Bara – Prkos started (*Boundary Start Crna Bara Early Copper Age*) at 4750–4336 calBC (95% prob.), possibly 4478–4344 calBC (68% prob.).

This modelled time span of the Crna Bara ECA settlement falls within the onset of the Tiszapolgár period in the Pannonian plain (Yerkes et al., 2009, 1081), indicating an early arrival of this material culture into the Serbian northern Banat region. A similar radiocarbon dating can be found at Hódmezővásárhely Gorsza, about 50 kilometres to the north of Crna Bara, however, the material culture excavated there attributes this site to the Late Tisza period rather than Tiszapolgár. The radiocarbon dates at Hódmezővásárhely Gorsza settlement are set to 4540–4331 calBC (95% prob.), possibly 4451–4351 calBC (68% prob.), and this is, at the moment at least, the only approximately similar date for the ECA period found in the immediate surrounding of Crna Bara (Hertelendi and Horvath, 1992, 861–863).

The end of the ECA settlement at Crna Bara – Prkos is modelled to 4333–3941 calBC (95% prob.), possibly 4323–4187 calBC (68% prob.). These dates are contemporary with sites like Tiszapolgár–Basatanya or Körösladány–Bikeri, located in the Tisza and the Körös river valleys (Bognár-Kutzián and Csongor, 1987; Yerkes et al., 2009, 1093). On some sites further north, in Hungary, like Rákóczipfalva Bivaly-tó1/c or Tiszavalk–Tetes, these dates are already attributable to the transitional period between ECA and MCA (Siklósi and Szilágyi, 2021, tbl. 1).

Although the whole ECA period at Crna Bara – Prkos is limited to three radiocarbon dates, the Bayesian modelling provides an estimate of the lifespan

of the Early Copper Age settlement between 12 and 213 years (92.8% prob.), possibly just 20 to (44.5%) 72 years or 87 to (23.8%) 134 years (at 68% prob.) The Bayesian modelling for the ECA showed that the lifespan of the ECA period settlement at Crna Bara – Prkos is significantly shorter than the lifespan of the Late Neolithic settlement in the same area. These estimates also coincide well with modelled life spans of ECA settlements in eastern and north-eastern Hungary (Siklósi and Szilágyi, 2021, tbl. 2). The shorter life span of the ECA settlement can be the result of numerous possible processes, one of which can be the proposed less sedentary nature of ECA communities in the region (Parkinson, 2002). However, the shorter ECA occupation could also be an artificial result from limited excavations and poor preservation level of the ECA settlement of Crna Bara. To parse these two theories apart, the site warrants more investigation.

Conclusion

Even after 100 years from its initial exploration, the site of Crna Bara – Prkos is still an important archaeological landmark in the archaeology of the southern edge of the Pannonian basin. In the initial research from the mid-1940s, early researchers established a regional relative stratigraphic sequence from the Neolithic into the Early Copper Age and beyond. This, in turn, helped establish the framework for the inhabitation patterns of the area. Following the initial research, the site remained poorly published and was neglected for the next eight decades. Such neglect from the archaeological body led to the damage and partial destruction of the site from the 20th century onward. However, the evidence retrieved from the site, makes Crna Bara – Prkos vitally important in the process of gaining a better understanding of the lifeways during the Late Neolithic and the Early Copper Age in the region of the Serbian Banat. This is especially important, as the number of such sites is very small in the region, presenting a gap in the understanding of the processes that led to the end of the Late Neolithic, along with the understanding of habitation of later periods, such as the Bronze Age. Crna Bara – Prkos, with its large multiperiod evidence and stratigraphic sequence, presents a rarity in the region. It is thus imperative that the site be legally protected and preserved for future archaeological research.

The intensive and multidisciplinary archaeological research on the site of Crna Bara – Prkos conducted in two recent research seasons (2022–2023) provided new data to help better understand the long occupation of the site over the millennia. The damage caused to the site also provided insight into the state of archaeological records present, thus enabling the Intermunicipal Institute

for the Protection of Cultural Monuments to protect the remaining archaeological information on the sites. Geophysical survey results showed complex settlement organisation evident by multiple enclosure ditches that formed two distinctive enclosed spaces – one to the north, where the core of the earlier settlement is to be expected, and a later phase, possibly an extension of the site to the south. At the same time, the geophysical survey indicated that a large majority of wattle and daub structures, detected already at the relative depth of 40 to 50 cm, appeared to have been destroyed by modern deep ploughing. This is alarming as it irreparably damaged the archaeological record, depriving us of important information. Furthermore, the damage visible at Crna Bara – Prkos also opens questions of general archaeological preservation, especially of ephemeral settlements which are not tell sites in the region. The new data obtained using modern technologies, such as radiocarbon dating, i.e., methodologies not available in the 1940s, vastly contributed to the understanding of the sequencing of prehistoric periods in the area of northern Serbian Banat. This, in turn, provides incentive for new research in the coming years. The radiocarbon dating combined with Bayesian statistical modelling provided the first chronological estimate for the lifespan of the Late Neolithic and Early Copper Age settlements at Prkos, which appear to fit into the general settlement chronology observed in nearby Hungary.

The results from Crna Bara – Prkos only scratch the surface of understanding the prehistory in the region. The implementation of modern technology and analyses, such as carbon dating, isotopes and geochemical work, open new questions for archaeological research. It is thus of absolute importance to revisit excavated sites to provide further archaeological understanding of old data, obtain new information with multidisciplinary techniques, but also to go through with the necessary legal procedures that will ensure the survival of archaeological heritage and national treasure for future researchers in the decades to come.

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НОВИ РЕЗУЛТАТИ АРХЕОЛОШКИХ ИСТРАЖИВАЊА НА ЛОКАЛИТЕТУ ЦРНА БАРА – ПРКОС

Кључне речи: *неолит, Рано Бакарно доба, винчанска култура, потиска култура, Бодрогкерештур култура, систематско рекогносцирање, стратиграфска ископавања, Лидар, геофизичка снимања*

Локалитет Црна Бара – Пркос, који се налази на западном крају села Црна Бара у општини Чока (сл. 1), познат је у археолошкој литератури већ скоро један век. Иако ископан у само две кратке кампање ратних 1943. и 1944. године, налази су показали да је локалитет изузетно важан за успостављање релативне хронологије праисторије северног дела српског Баната и шире. Локалитет се налази на издигнутом платоу на крајњем југоистоку дубоког плеистоценског меандра који је формирала река Тиса (Porov *et al.*, 2008). Вишеслојан је и на њему су пронађени археолошки докази насељавања од неолита до развијеног средњег века (Girić, 1996; Stanojev, 1989; Trifunović, 2016).

Током 2022. и 2023. године на иницијативу Међуопштинског завода за заштиту споменика културе Суботица покренута су нова интердисциплинарна истраживања на локалитету. У првој фази дигитализована је сва сачувана папирна документација која се налази у Народном музеју у Зрењанину (где је депонован и покретни материјал са истраживања 1943–44. године). Након дигитализације, помоћу ГИС програма извршено је геореференцирање археолошких ископа Милутина Гарашанина (сл. 2), на основу чега је реконструисано подручје на коме су вршена истраживања са великом просторном тачношћу. На основу ове реконструкције утврђен је и степен деструкције који се догодио на локалитету од времена истраживања Милутина Гарашанина до данас и установљено да је тренутна источна граница налазишта померена за 25–27 м на запад у јужном делу локалитета приликом илегалних ископавања песка и глине, док је у северном делу оштећење и веће, местимично и преко 40 м у дубину. У северном делу констатована

је и хумка висине између 6 и 7 м, седластог облика, која се не помиње у документацији истраживања 1943–44. године, што је унело додатну забуну.

У првој фази истраживања, непосредно уз источну ивицу налазишта и велику хумку извршено је геофизичко снимање на простору од 2 ха усмерено на простор неолитско/енеолитског насеља. Геофизичка снимања (сл. 3) показала су постојање бројних геомагнетних аномалија, од којих су свакако најприметније оне које се могу интерпретирати као систем вишеструких ровова око насеља, типична појава у насељима касног неолита и енеолита на просторима Панонске низије. Нажалост, међу преко 600 регистрованих аномалија није било могуће идентификовати типичне остатке објеката од горелог лепа, за које се поуздано зна да су постојали на локалитету, јер су откривени током истраживања 1944. године (Garašanin and Garašanin, 1957, p. 201). Ово је очигледан доказ погубности савремених пољопривредних машина и техника обраде земљишта за археолошко наслеђе.

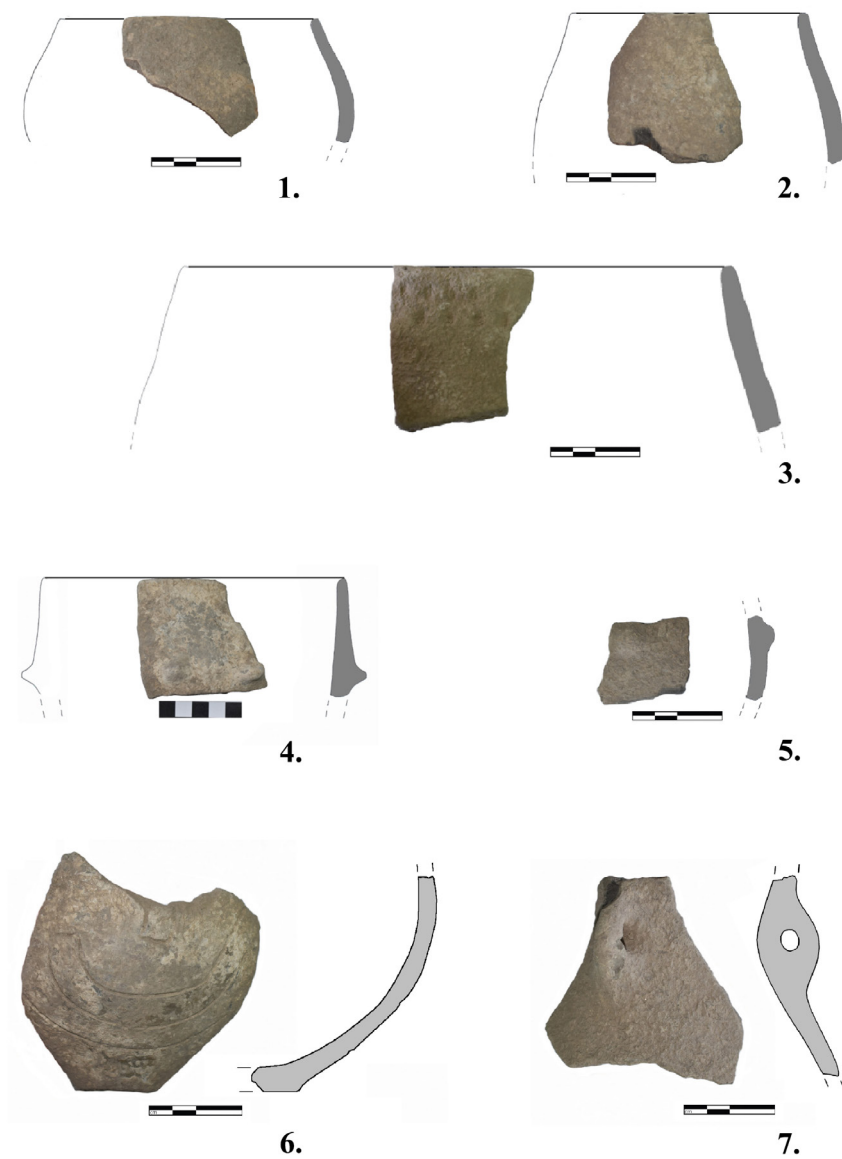
Као следећа фаза истраживања наметнула се систематска површинска проспекција извршена методом тоталног прикупљања у просторно позиционираним паралелним трансектима. Укупно је, на простору обухваћеном геофизичким снимањима, креирано 30 трансеката међусобно удаљених 10 м. Сви прикупљени налази су позиционирани у простору и унети у ГИС апликацију ради даљих анализа (сл. 4). Резултати указују да се највећи број типичних каснонеолитских налаза налази у северном делу локалитета, уз знатно мањи број комада у јужном делу испитаног простора. Типичних налаза раног енеолитског периода има знатно мање у површинском слоју, свега четири комада, и опет су знатно присутнији у северном делу истраживане површине. Што се тиче других периода, не постоји видљив образац дистрибуције налаза на терену, тј. покретни налази се проналазе подједнако распоређени широм истраживаног простора.

У пролеће 2023. године настављена су истраживања на локалитету и том приликом постављене су две стратиграфске сонде димензија 2 x 2 м, сонда број 1 у јужном делу истраживаног простора и сонда 2 у северном. Током истраживања није било *in situ* налаза нити у једној од сонди, у сонди 1 релативна дебљина археолошких седимената износила је око 1,1 м, а на релативним дубинама од 50–60 цм и на 80–85 цм у сонди 1 откривени су хоризонти са повећаним концентрацијама кућног лепа, који указују на најмање два насеља са оваквим објектима у јужном делу насеља, док је у сонди 2 ситуација унеколико другачија, тј. дебљина слоја је знатно већа, око 1,8 метара, а два хоризонта са већом концентрацијом лепа детектована су између 60 и 85 цм и 1,1 и 1,2 м релативне дубине.

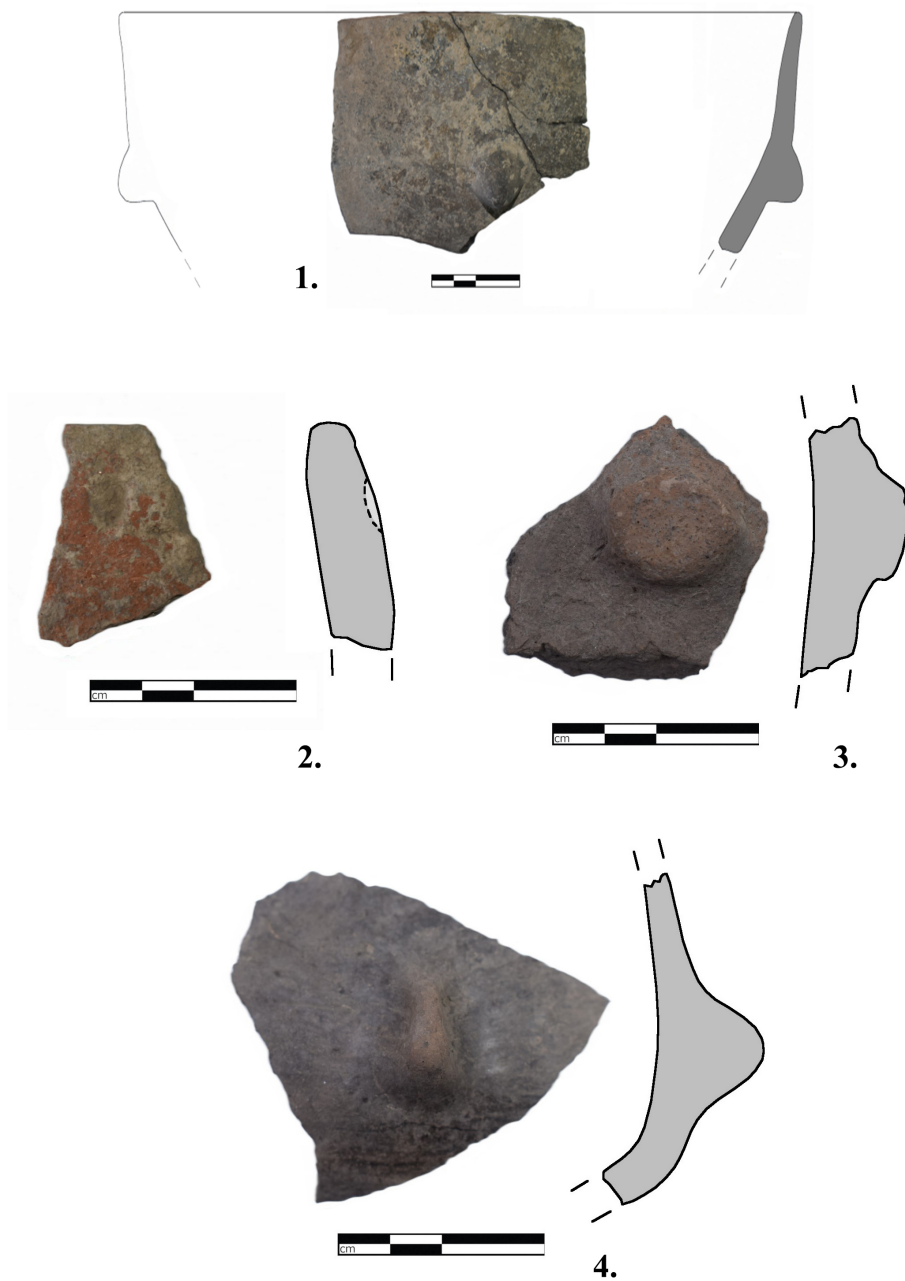
Упоредо са ископавањима на локалитету је извршено и снимање терена дроном опремљеним Лидар модулом током којег је снимљена површина платоа од око 370 ха. Иако снимања нису открила назнаке праисторијских целина на површини земље услед константне пољопривредне области терена, на западном делу сниманог простора идентификовано је више тумула који су били или невидљиви или једва видљиви голим оком услед ерозије омотача настале пољопривредним радовима (сл. 7). Снимања су такође и установила трагове палеоводотока са северне стране локалитета, који је вероватно био примарни извор воде за праисторијска насеља на овом потесу.

Коначно, на простору високе хумке на централном делу локалитета извршено је засецање профила са источне стране, на месту где су великим земљаним радовима били знатно оштећени археолошки слојеви. Том приликом формиране су вишеструке платформе у чијим профилима је било јасно видљиво да су формиране машинским насипањем археолошких седимената до циљне висине (сл. 8). У седименту је пронађена велика количина пиштољских и пушчаних зрна, као и остаци тромблонских граната. У разговору са локалним становништвом дошло се до сазнања да су ову хумку формирали седамдесетих или осамдесетих година 20. века припадници Југословенске народне армије за изградњу стрелишта тако што су машинама уклоњени велики делови археолошких седимената, који су потом набачени да формирају неку врсту заштитног зида изнад стрелишта до висине од око 7 м.

Након завршене сезоне истраживања 13 органских узорака из стратиграфских сонди и из нетакнутих слојева на усеку профила послати су у две лабораторије на АМС датовање, након чега је било могуће формирати хронолошку секвенцу локалитета у периоду касног неолита и раног енеолита. На основу бајесијанског статистичког моделовања и помоћу програма OxCal v4.4.4. конструисан је статистички модел заснован на стратиграфским информацијама из сонди 1 и 2. Овим моделом установљено је да је у истраживаном простору насеље касног неолита формирано у периоду 5314–5042 calBC (95% поузданости), могуће између 5221–5047 calBC (68% поузд.), док је крај неолитског насеља констатован у периоду 5056–4800 calBC (95% поузд.), могуће 5055–4898 calBC (68% поузд.), што приближно одговара и хронолошком распону каснонеолитског насеља на оближњем локалитету Иђош–Градиште (Marić *et al.*, 2025). Насеље раног бакарног доба не формира се директно након престанка живота на каснонеолитском насељу, већ нешто касније, 4750–4336 calBC (95% поузд.), могуће између 4478. и 4344. calBC (68% поузд.). Насеље раног бакарног доба је краћег трајања и на истраживаном простору престанак живота датован је на период 4333–3941 calBC (95% поузд.), могуће између 4323. и 4187. calBC (68% поузд.).



Pl. I Selection of pottery finds from stratigraphic trench 1
T. I Изабрани керамички налази из стратиграфске сонде 1



Pl. II Selection of pottery finds from stratigraphic trench 2
Т. II Изабрани керамички налази из стратиграфске сонде 2

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