



# ANALECTA

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ARCHAEOLOGICA RESSOVIENSIA

VOLUME **18** RZESZÓW 2023

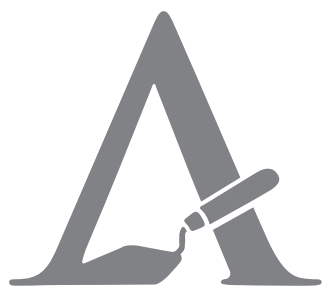


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VOLUME **18** RZESZÓW 2023



Uniwersytet Rzeszowski  
Kolegium Nauk Humanistycznych  
Instytut Archeologii

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Paweł Jarosz<sup>1</sup>, Eva Horváthová<sup>2</sup>, Marcin M. Przybyła<sup>3</sup>,  
Aleksandra Sznajdrowska-Pondel<sup>4</sup>

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## Barrow Cemetery in Zbudza in the Eastern Slovak Lowland

### Abstract

Jarosz P., Horváthová E., Przybyła M.M., Sznajdrowska-Pondel A. 2023. Barrow Cemetery in Zbudza in the Eastern Slovak Lowland. *Analecta Archaeologica Ressoiviensia* 18, 103–116

The barrow site in Zbudza is located in the East Slovak Lowland. In 1980, Elena Miroššayová carried out excavations on the burial mound (no. 1) located behind the old Jewish cemetery. The central burial pit and clusters of pottery and traces of hearths were discovered. Some potsherds possess ornamentation typical for the Corded Ware culture. The charcoal found near the burial pit were radiocarbon dated to 4140±35 BP (Poz-151727), which can be correlated to the years 2866–2632 BC. At the site in Zbudza and the neighbouring Trnava pri Laborci, thanks to the LIDAR data, about 20 burial mounds in various states of preservation and different chronological positions were registered. Some of them should be associated with the presence of the Corded Ware and Yamna cultures from the 3<sup>rd</sup> millennium BC. Geophysical prospection of burial no. 2 located in the part of the village called “Imrička” was conducted in 2021.

**Keywords:** late Eneolithic, East Slovak Lowland, Corded Ware culture, Východoslovenské mohyly, barrow, non-invasive investigations

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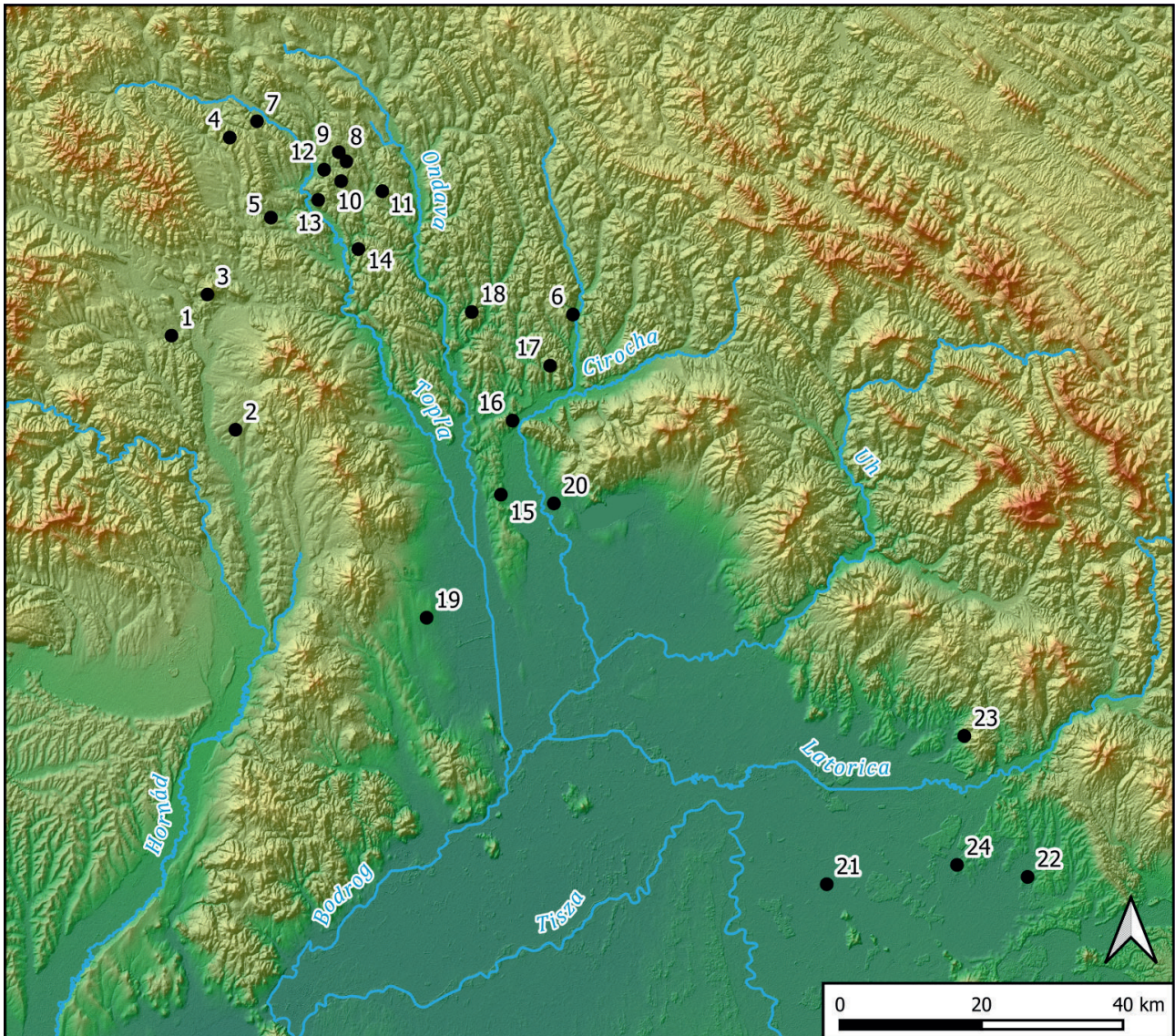
### Introduction

Traces of the presence of inhabitants of the Corded Ware culture in the form of burial mounds are clearly visible in the cultural landscape of the 3<sup>rd</sup> millennium BC in the Carpathian basins of the Vistula, Dniester and Tisza. Mounds are located on the tops of hills, in exposed places, dominating the immediate area (Machnik 2001; Tunia 2008, fig. 1). Sometimes they form chains or small clusters (Jarosz 2011). The southern edge of this culture is also called the Východoslovenské mohyly culture (Budinský-Krička 1967). Hypotheses regarding the links between the East Slovak barrows and other areas have changed over the years. V. Budinský-Krička noted their con-

nection with the Corded Ware and Yamna cultures (Budinský-Krička 1967, 353), while N. Kalicz linked burial mounds of north-eastern Slovakia with steppe influences (Kalicz 1968, 30). Other authors indicated the possibility of Corded Ware culture migration from the Vistula and Dniester basins, most likely through the mountain passes of the Carpathians to the Ondava Upland (Novotná 1987, 92–95; Machnik 1992, 272).

The barrows were located mainly on the high humps of Ondava Upland. Only a few of them were recorded in the northern part of the Košice Basin and in the low parts of the Čergov Mountains (Fig. 1). Graves with features of the Corded Ware culture rite also occur in the East Slovak Lowland and the neigh-





**Fig. 1.** Barrows from the 3<sup>rd</sup> millennium BC in eastern Slovakia and Transcarpathian Ukraine. 1. Malý Šariš. 2. Drienov. 3. Kanaš. 4. Bardejov-Klušov. 5. Buclovany. 6. Hankovce. 7. Komárov. 8. Kožany. 9. Kurima. 10. Šapinec. 11. Radoma. 12. Kučin. 13. Marhaň. 14. Giraltovc. 15. Lesné. 16. Brekov-Topolovka. 17. Brestov. 18. Košarovce. 19. Nový Ruskov. 20. Zbudza. 21. Batrad'. 22. Makar'ovo. 23. Lohovo. 24. Dercen "Malaâ Gora" (1–3: Prešov district; 4–14: Bardejov district; 15, 20: Michalovce district; 16–18: Humenné district; 19: Trebišov district; 21: Beregove district; 22–24: Mukačevo district) (prepared by A. Sznajdrowska-Pondel).

bouring Zakarpattia Lowland (Fig. 1), which are the northern part of the Great Hungarian Plain (Kon-dracki 1989). The East Slovak Lowland is geographically divided into Foothills and Plain. The Ondava Upland, due to its geographical location, according to the current state of knowledge, is an enclave associated with the areas located north of the Carpathians. In turn, the East Slovak Lowland, which is located north of the steppe ecumene of the Yamna culture (Ecsedy 1979; Horváth *et al.* 2013, 156, fig. 3; Kulcsár and Szeverényi 2013, 69, fig. 1), is *terra incognita* because of the small number of burial mounds which have been examined.

### Research history of the site

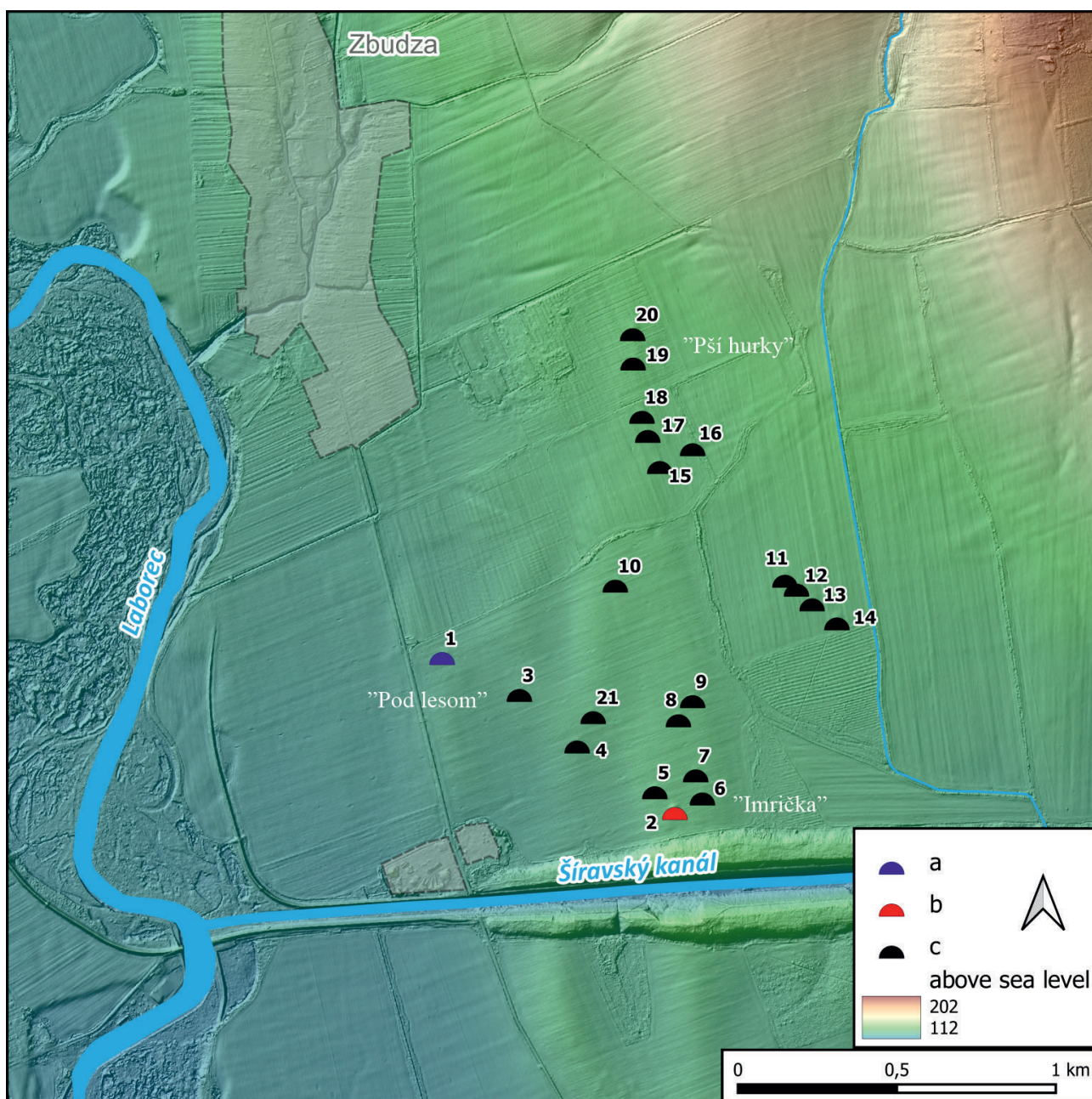
The barrow site in Zbudza, Michalovce district is located in the East Slovak Lowland, and more precisely on the border of its subunits: Foothills and Plain, about 800 metres east of the Laborec River, which is a tributary of the Latorica. The site was discovered by K. Andel, who recorded 7 burial mounds there (Budinský-Krička 1967, 317). In 1977, the area of the site was visited by V. Budinský-Krička, who found only five embankments, two were located east of the village in a place called "Pší hurky", two more south-east of it in the area called "Imrička" and one behind the old Jew-

ish cemetery “Pod lesom” (Miroššayová 1981, 414, fig. 99). A few years later, in 1980, under the leadership of Elena Miroššayová, excavations were carried out on the burial mound located in the Jewish cemetery (marked in this article as no. 1). At that time, five burial mounds were still visible in the area, and the entire territory of the cemetery was used as a pasture. In 2021, as part of the project of the National Science Center – *Transmission of steppe influences in the Carpathian zone in 3<sup>rd</sup> millennium BC* (NCN 2020/37/B/HS3/03816), a site

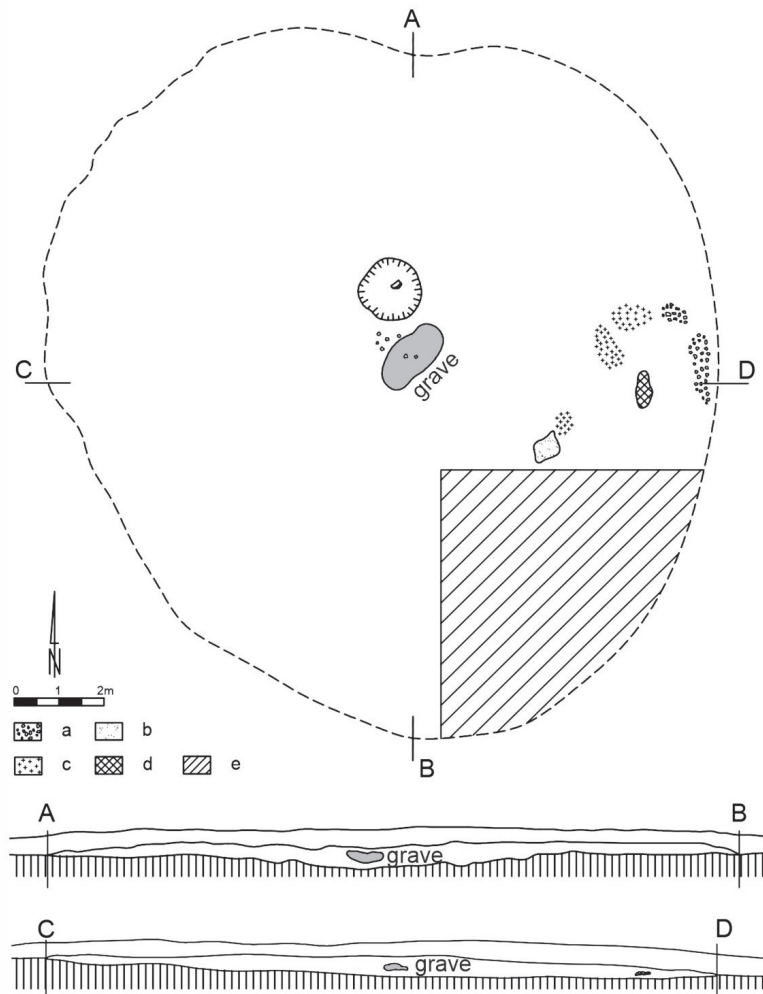
was prospected and only one mound in the part called “Imrička” (barrow 2) was visible. The area of the site is currently intensively cultivated.

### Results of excavations in 1980

Elena Miroššayová chose the burial mound “Pod lesom” for excavation, which was located about 120 m to the right of the road from Michalovce to Zbudza (Fig. 2; Miroššayova 1981). Before the investigations,



**Fig. 2.** Preserved burial mounds in Zbudza (1–10; 15–21) and Trnava pri Laborci (11–14). a – barrow examined in 1980; b – barrow geophysically examined; c – preserved barrow embankments (prepared by A. Sznajdrowska-Pondel).



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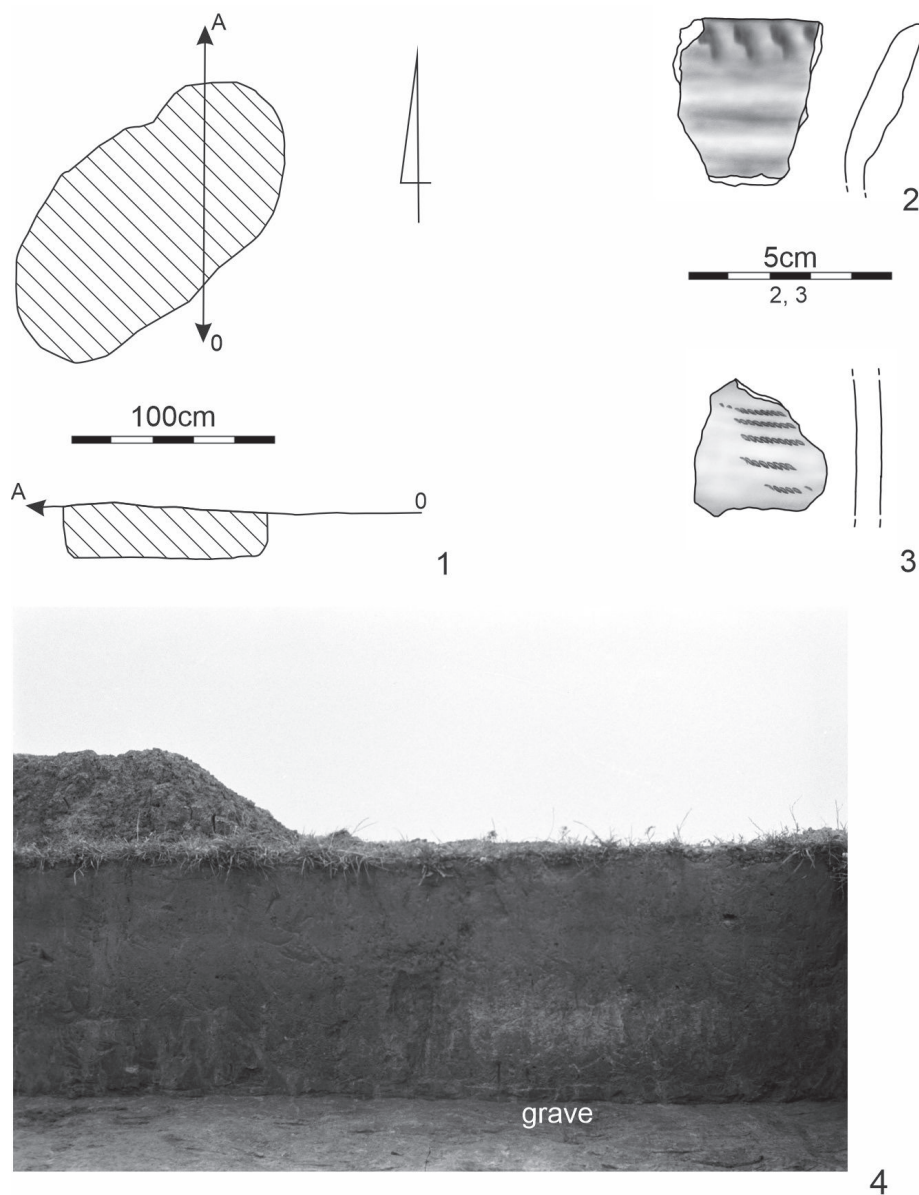
**Fig. 3.** Zbudza, “Pod lesom”, Michalovce district, barrow 1.

1 – photo of the “Pod Lesom” barrow before excavations in 1980 (photo by E. Miroššayová); 2 – plane and cross-sections of the mound (a – pottery fragments, b – burnt layer, c – charcoal, d – burnt clay, e – unexplored area) (drawn by K. Rosińska-Balik).

the embankment was only 40 cm high and the diameter along the N-S axis was 15.6 m, and along the W-E line – 15.1 m (Fig. 3: 1). Under the embankment, in its central part, a burial pit and a feature which purpose is difficult to determine were found. This feature was an almost circular shape in plane, about 130 cm in diameter and 40 cm deep. It was located a short distance north of the central burial pit (Fig. 3: 2). In the middle and at the eastern border of the excavation, clusters of pottery and charcoal fragments (traces of hearths) were discovered (Fig. 3: 2). The central burial pit at the discovery level was oval in shape, measuring 170 × 80 cm and was oriented along the SW-NE axis. It was dug

into the ancient level to a depth of about 30 cm (Fig. 3: 2; 4: 1, 4). Within its homogeneous fill, no traces of wooden constructions typical for barrow graves of the Corded Ware culture were found. No traces of skeleton or grave goods were found at the bottom of the pit.

Only a small part of the potsherds discovered in the mound (Miroššayova 1981, 415, fig. 100) possess ornamentation typical for the Corded Ware culture (Fig. 4: 2, 3). Others are non-characteristic fragments of vessel bellies. The characteristic fragments of the vessels include a fragment of a vessel decorated with five imprints of a Z-twisted cord (Fig. 4: 2) and the neck of the vessel with three horizontal, wide grooves



**Fig. 4.** Zbudza, “Pod lesom”, Michalovce district, barrow 1.

1 – plane and cross-section of the central burial pit (drawn by P. Jarosz); 2–3 – fragments of vessels from the mound (drawn by M. Podsiadło); 4 – cross-section of the mound embankment and the central burial pit (photo by E. Miroššayová).

and cuts located near the rim resembling the symbol of a “lightning” (Fig. 4: 3). In the barrow embankments in the Ondava Upland, fragments of vessels with an ornament of cord impressions are often found. Finds from Šapinec, Bardejov district, barrow 1 and 2 may be mentioned here (Budinský-Krička 1967, 378–379; figs. X, XI, XIII). Analogies to the ornamentation with wide grooves can be found on vessels of the early phase of the Corded Ware culture from Kul’čici, Sambor district [formerly Polish: Kulczyce Szlacheckie, Sambor district] barrows VII, VIII, XII and Baličí, Mostis’ka district [formerly Polish: Balice, Mościska district], barrow XV (Sulimirski 1968; Svešnikov 1974) as well

as in mounds of barrows 1 and 2 at Średnia, site 3, Przemysł district, barrows 1 and 2 (Machnik and Sosnowska 1996; Jarosz 2002).

The charcoal found near the burial pit were radiocarbon dated to  $4140 \pm 35$  BP (Poz-151727), which can be correlated with a probability of 68.3% to the years 2866–2632 BC (Fig. 5: 1). This dating is similar to other AMS determinations from the Ondava Upland. In Hankovce, Bardejov district, barrow 2, two datings for hearths discovered under the embankment were obtained: 1 –  $4085 \pm 35$  BP (Poz-9631) and 3 –  $4125 \pm 35$  BP (Poz-9630). Using the R\_Combine function they can be related to the years 2845–2581

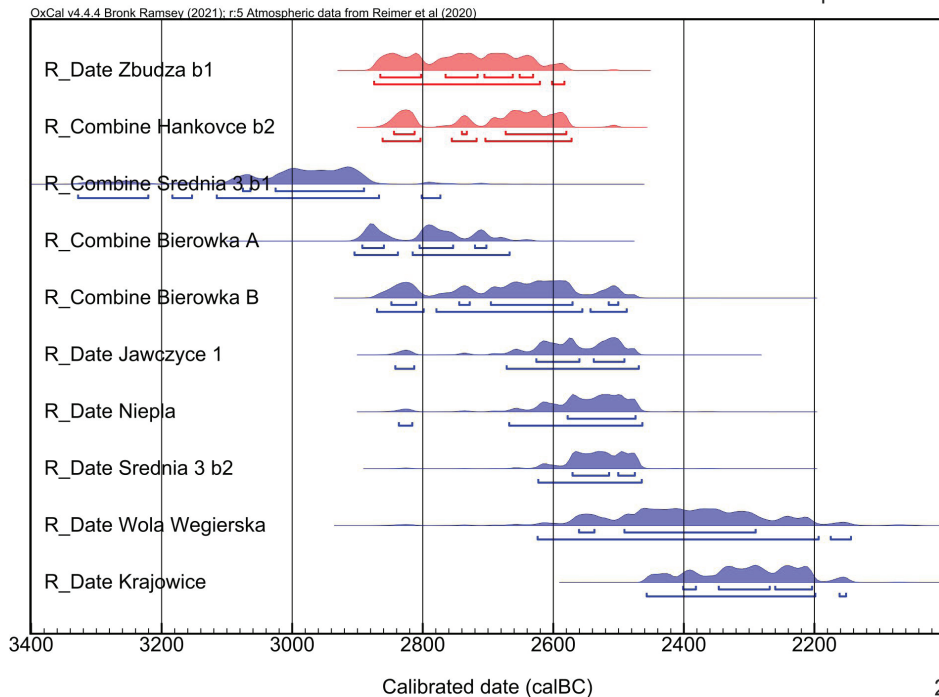
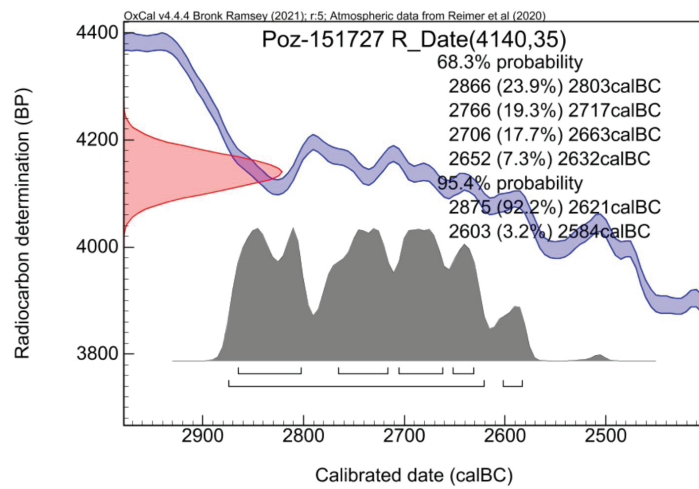


Fig. 5. Zbudza, “Pod lesom”, Michalovce district, barrow 1.

1 – calibration of radiocarbon dating; 2 – dating from Zbudza on the background of other markings from Ondava Upland (red) and Polish Carpathian Foothills (blue).

BC. Dating acquired for hearths from barrow 34 in Hankovce is hampered with a large standard error ( $\pm 140$ ) and cannot be used for evaluations (Machnik *et al.* 2008, 181). The determination from Zbudza is similar to the dating obtained for the Lesser Poland burial mound in Gabułów, site 1, Kazimierza Wielka district, grave 2, which is  $4115 \pm 30$  BP, i.e. 2866–2632 BC (Poz-9451) with a probability of 68.3% (Jarosz and Włodarczak 2007).

Determinants for barrow graves in Zbudza and Hankovce are older on the background of the dating of graves from the Polish part of the Carpathian foothills (Fig. 5: 2). They can be compared with the markings for burial mounds A and B in Bierówka, Jasło district, range 2891–2706 BC (function R\_Combine) (Gancarski and Machnikowie 1986; 1990). They are younger than the oldest dates obtained for finds from the foothills from barrow 1 at site 3 in Średnia (Machnik and Sosnowska 1996). Two markings of charcoal samples from the construction of the central grave indicate the possibility of erecting the barrow at the turn of the 4<sup>th</sup> and 3<sup>rd</sup> millennium BC (R\_Combine: 3076–2891 BC). This is an early date compared to the recent AMS markings for graves containing artifacts from horizon A and could even be synchronized with the KCS-X precord horizon (Koško 2000; Jarosz and Włodarczak 2022; Włodarczak 2022).

The size of burial pits in the Corded Ware culture was very differentiated, the largest are  $3 \times 2$  m – e.g. in Gabułów, Kazimierza Wielka district and Bykiv, Drogobič district, barrow 1 (Górski and Jarosz 2006; Machnik *et al.* 2006). The smallest central pit – about 1 m long – was discovered in barrow VIII at Nižni Gai, Drogobič district (Machnik *et al.* 2011). The most frequently discovered features have a length of about 2.2 m and a width of about 1.5 m, they are dug into ancient level to a depth of 50–80 cm on average (Jarosz 2011). Therefore the size of the burial pit from the mound in Zbudza determines it as one of the medium-sized features associated with the Corded Ware culture. The orientation of it along the SW-NE axis is typical for the graves of the Corded Ware culture inhabitants in the Carpathian river basins of the Vistula, Dniester and Tisza, although south of the Carpathian arch, the layout of the graves along the NW-SE axis is dominant (Jarosz 2011, 260, tab. 3). About 40% of barrow graves in the Carpathian zone, similarly to the feature from Zbudza, are unequipped (Jarosz 2011, 263). Other elements of funeral rites discovered under the embankment, such as hearths, clusters of charcoal and fragments of vessels, are typical for the Corded Ware culture barrows, where traces of rituals accompany-

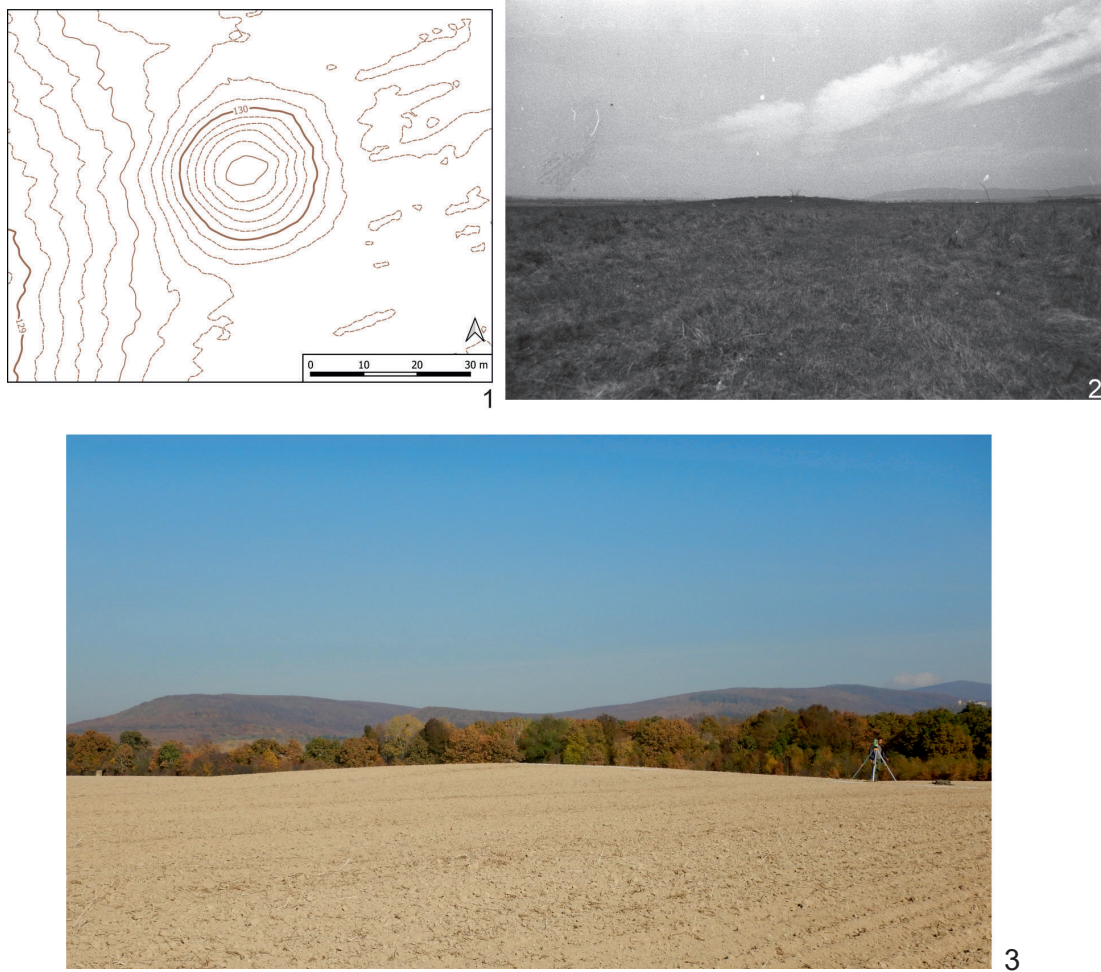
ing the burial of the deceased and erection of mounds are found in the form of hearths or layers of charcoal, traces of burnt wooden structures, or red burnt earth (Jarosz 2011, 258).

## Results of non-invasive investigations

In 2021, as part of the National Science Centre's project, the geophysical examination of the only one well-visible burial mound 2 at the cemetery in Zbudza was carried out. It is located in the part of the village called "Imrička". Barrow 2 is currently preserved to a height of about 80 cm and has a diameter of about 35 m (Fig. 6: 1, 3). During the excavations in 1980 conducted by E. Miroššayová, this mound was the best preserved at the site and was documented photographically (Fig. 6: 2). It was selected for geophysical research, the aim of which was to verify its anthropogenic character and to identify the internal structure of the mound. The magnetic method used for this purpose allows for the fastest and fullest measurement coverage of large spaces. The magnetometer registers the presence of anomalies with increased and decreased magnetic field values, caused by various human activities. Well-readable anomalies (usually point and linear positive anomalies) especially arise as a result of the presence of excavation-type features – pits, ditches, hearths (David *et al.* 2008, 16–21; Fassbinder 2015).

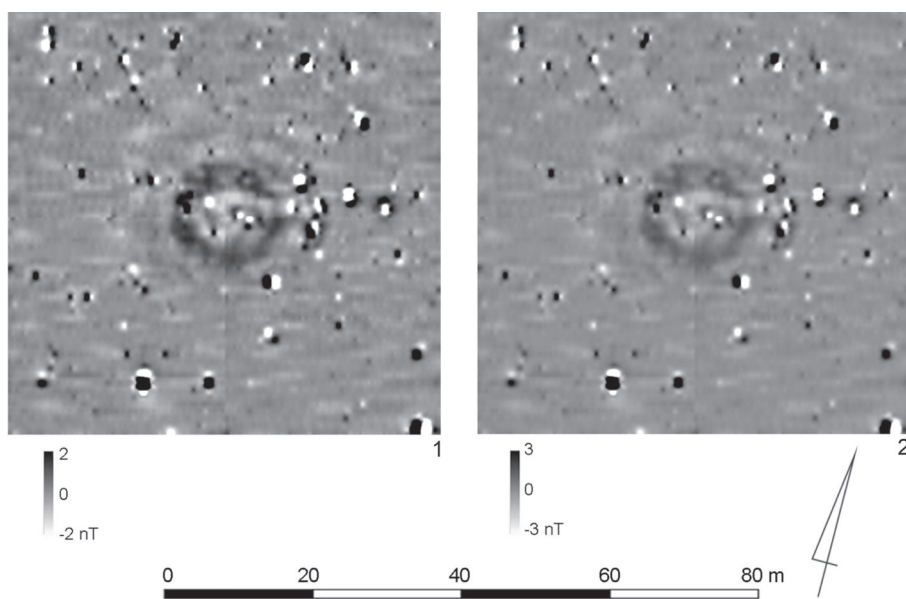
Magnetic measurements were made using a transducer magnetometer (fluxgate; Misiewicz 2006, 74–98) 4.032 DLG by Foerster Ferrex, measuring the gradient of the vertical component of the magnetic field, equipped with two probes with a resolution of 0.2 nT. During the tests, the measurement lines were 1 m apart. Measurements along the line were made every 10 cm. The data was collected in a two-way mode. The results of the investigations were presented on magnetic maps developed in the Terra Surveyor 3.0.29.3 program.

The barrow embankment in Zbudza is associated with a clearly legible zonal circular anomaly (Fig. 7). It has a diameter of approx. 17 m. Its outer part is characterized by relatively high values of magnetic susceptibility. In the central part they are clearly lower. It seems that this is caused by erosion processes taking place within the slopes of the mound, leading to the accumulation of the more strongly magnetic topsoil in the lower parts of the embankment, while removing it from the top part. A weak positive anomaly is visible around the mound embankment, related to the zone of excavation of earth for the construction of the barrow. Quite numerous minor dipole anomalies are



**Fig. 6.** Zbudza, “Imrička”, Michalovce district, barrow 2.

1 – hypsometric plan; 2 – photo of the barrow in 1980 (photo by E. Miroššayová); 3 – photo of the barrow in 2021 (photo by P. Jarosz).

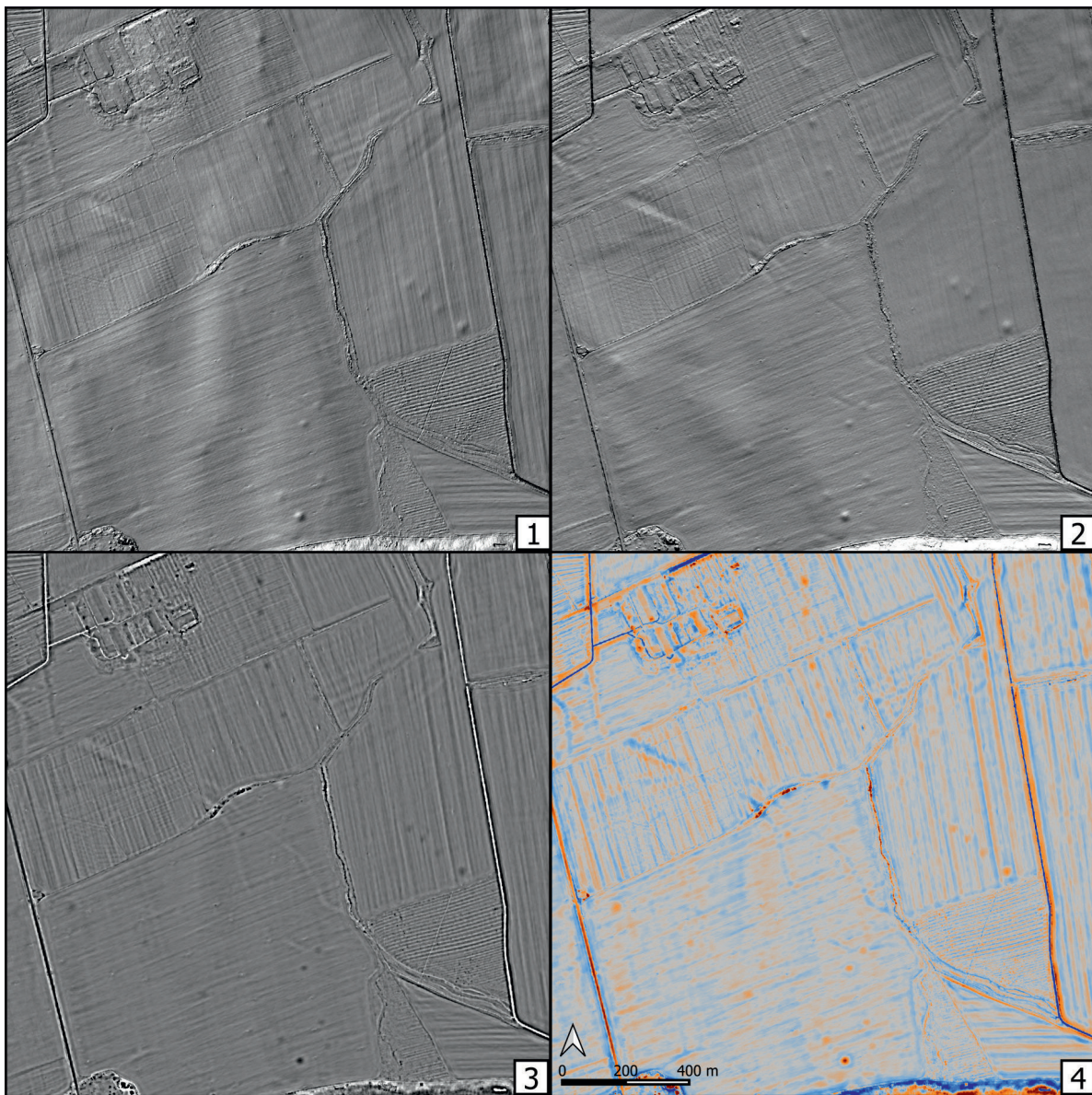


**Fig. 7.** Zbudza, “Imrička”, Michalovce district, barrow 2. Magnetic map presented in grayscale in the -2/2 nT range (1) and -3/3 nT range (2).

also visible in the vicinity of the mound. It seems that their source is contemporary iron items lying in the topsoil layer. However, their small accumulation along the base of the eastern slope of the mound is noteworthy (Fig. 7).

In order to confirm the presence of archaeological mounds in Zbudza, an airborne laser scanning (ALS) model of the village was created and then analysed. The Digital Terrain Model (DTM 5.0) with a resolution of 1 m/pixel in the form of a .tif file was downloaded from the resources of ÚGKK SR for an area of approximately 14 km<sup>2</sup> (Fig. 2). Using the elevation model, a number of derivative models were made in order to expose, with selected techniques, certain

terrain features and potential archaeological features. The following programs were used in the processes: SAGA GIS 2.3.1, Visualization Relief Toolbox 1.3 and QGIS 3.22.16. A number of visualizations were prepared to present the full picture of the area (e.g. Principal Component Analysis, Local Dominance, Topographic Position Index, Slope). The article, however, presents 4 processes performed using two techniques (Analytical Hillshading and simple Local Relief Model), thanks to which the discovered features were exposed as clearly as possible (Fig. 8). The shaded model (Analytical Hillshading) shows what the area illuminated by a single light source located at an infinite distance would look like, with all the rays of light illumi-



**Fig. 8.** Comparison of DTM processing for the investigated area: 1 – Analytical Hillshading (azimuth: 315; inclination: 45); 2 – Analytical Hillshading (azimuth: 0; inclination: 45); 3 – simple Local Relief Model (radius: 10, grey scale); 4 – simple Local Relief Model (radius: 20, symmetrical colour palette).



nating the DTM parallel to each other. The creation of this model is based on two parameters, the azimuth and the inclination (height above the horizon), which define the location of the light source. Their value is given in degrees. An azimuth of 0 degrees means that the light source is located on the north side, if there is an azimuth of 180 degrees, the light source is located on the south side. The other directions of the world can be defined similarly. Simple Local Relief Model is a differential model calculated using a round mask with different radii to show local terrain height differences. It is calculated by finding the average height around a given node of the GRID DTM, and then subtracting this average value from the original value (source: Bakula *et al.* 2016).

In the investigated area, 7 barrows have been identified so far. The analysis showed that there are 21 mounds in this area, which are grouped in 3 clusters. In the northern cluster, there is a row of 5 barrows arranged along the N-S line (15, 17–20) and located at a distance of 30–130 m from each other. About 70 m east of barrow 15, there is another similar feature. Another cluster – the eastern one (barrows 11–14), is located in the village of Trnava pri Laborci, Michalovce district (Fig. 2). The mounds there form a row (on the NW-SE line) at a distance of 20 to 60 m from each other. In the southern part of the area, 10 mounds were found, including a barrow examined by E. Miroššayová in 1980 (no. 1) and a mound investigated with the magnetic method in 2021 (no. 2). They are located on an area of approx. 40 ha at a distance of up to 240 m from each other. The cluster also includes additional smaller groups of 4 (2, 5–7) or 2 mounds (8 and 9, 4 and 21). Between the northern and the southern cluster, there is a single mound no. 10. Outside the eastern cluster, where the terrain is quite flat, it is clearly visible that the barrows were located on small, elongated hills (Fig. 2). The state of preservation of the mounds varies. Based on the DEM, hypsometric profiles showing their shape and height were created (Fig. 9). Their diameters (Tab. 1) were also measured in one of the visualizations (sLRM – R:20). Barrow 2 is by far the best-preserved

mound (Fig. 6: 1). With a height of approx. 82 cm, it clearly stands out in the field and is also very easy to spot in each of the visualizations (Fig. 8). Mound no. 8, located about 250 m to the north, is also clearly visible. Well-visible mounds were also found in the northern cluster (nos. 18, 19 and 20) and in the eastern cluster (no. 14). Barrow no. 1, examined by E. Miroššayová, also seem to stand out in the field. Mounds less than 30 cm high (Tab. 1) may be difficult to see during a field survey, but their profiles clearly indicate their function (nos. 6, 7, 9–13, 15–17) (Fig. 8, 9). Both the best-preserved mounds and the smaller ones are visible on the orthophotomap from October 2022 (Fig. 10). Among the lowest mounds, there were barrows 3, 4, 5 and 21. Their profiles are not as clear as the other profiles, and mound 21 is practically invisible in the terrain profile and shaded models. Their shapes and dimensions shown by the simple Local Relief Model suggest, however, that they also are the remains of mounds. As for these barrows, it would be worth trying to carry out additional non-invasive research to confirm their function. All the highlighted barrows are located in agricultural areas, which makes it difficult to identify them during a field survey, but they were found during DEM processing, even though their preserved height was only a few centimetres in some cases.

### The necropolis in Zbudza in the cultural landscape

The location of the burial mound and the elements of the burial from Zbudza indicate that it can be considered to have been erected by the inhabitants of the Corded Ware culture. It is the easternmost explored barrow of this unit in the cluster of barrows from the basin of Ondava and Topla. It is also the only examined mound located on the left bank of Laborec (Fig. 1). At the site in Zbudza and the neighbouring Trnava pri Laborci, thanks to the LIDAR data made available in 2022, about 20 burial mounds in various states of preservation were registered. They were lo-

**Table 1.** Preserved height and diameter of mounds based on terrain profiles and simple Local Relief Model processing (radius 20).

Barrow No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Height (meters)	0.36	0.82	0.02	0.05	0.04	0.12	0.18	0.31	0.14	0.17	0.17	0.2	0.27	0.32	0.16	0.15	0.18	0.4	0.32	0.62	0.01
Diameter (meters)	34	35	24	30	35	23	27	28	27	20	29	22	27	31	25	22	21	25	27	28	30

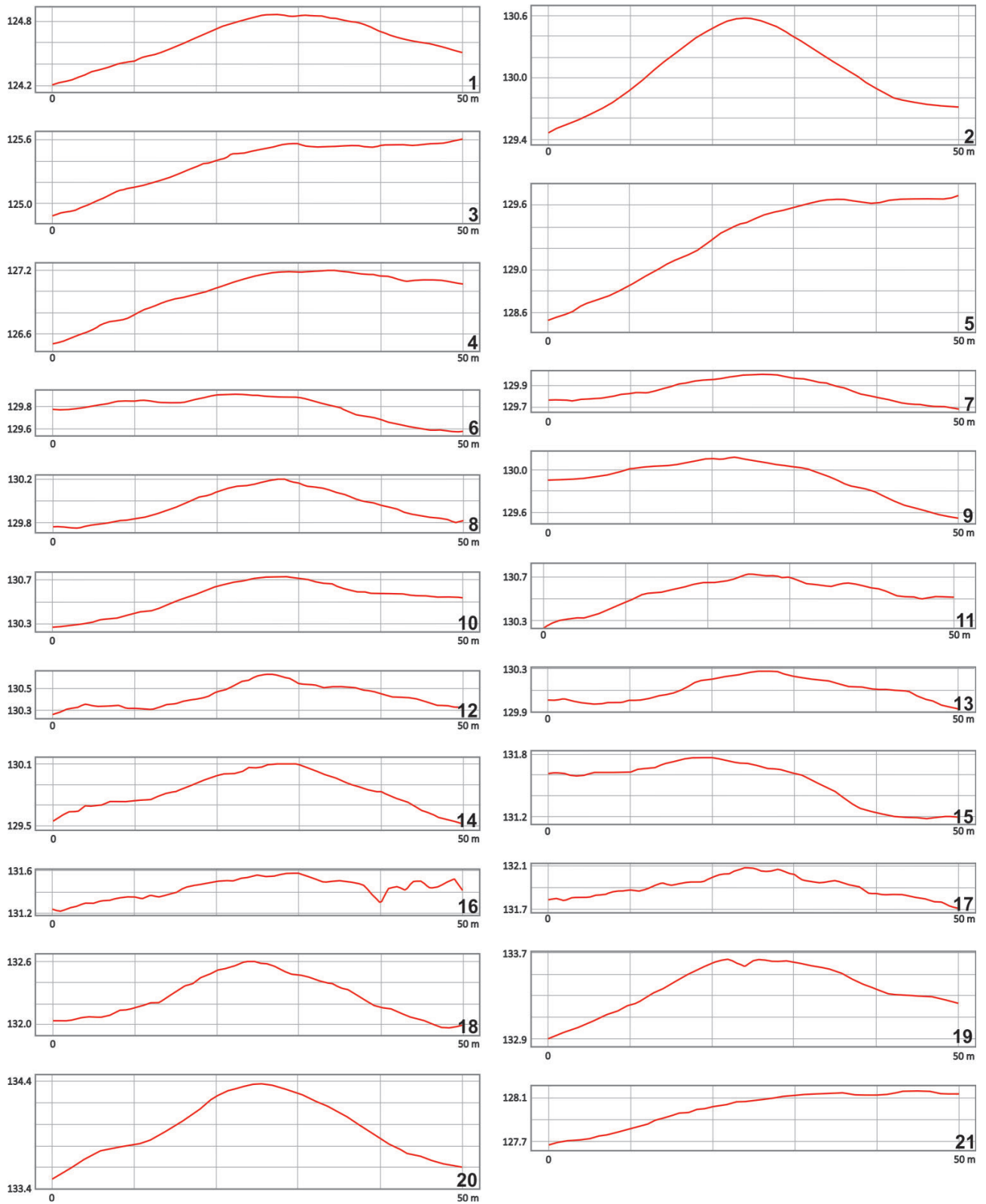


Fig. 9. Zbudza and Trnava pri Laborci, Michalovce district. Hypsometric profiles of discovered mounds (E-W axis).



Fig. 10. Zbudza and Trnava pri Laborci, Michalovce district. The state of preservation of the mounds in the eastern and southern clusters on the orthophotomap from October 2022 (data source: GKÚ Bratislava, NLC).

cated on small ridges, sometimes forming linear systems (Fig. 2; barrows 11–14 and 15–20), or groups (barrows 2, 5–7). The use of even small terrain humps to locate their burial mounds is typical for mounds located in low landscape zones (Machnik 1979).

In the East Slovak Lowland, the examined burial mounds of the Corded Ware culture from the 3<sup>rd</sup> millennium BC, apart from Zbudza, are also known from Lesné, Michalovce district which is a cemetery located about 8 km west of Zbudza. This is the site where four burial mounds were excavated, three of which contained central burials. In barrows 1 and 3, the buried were placed on their backs with their legs in the “frog fork” position (legs curled up and spread outwards). The skeleton from barrow 2 could be placed in the same way.

The arrangements of the dead recorded in these graves are typical for the Yamna culture, and extremely rare in the Corded Ware culture; e.g. Kocmyrzów, Proszowice district (Włodarczak 2006, 58), Kietrz, Głubczyce district (Chochorowski 1976). Another connection with the Corded Ware culture is the burial mound from Nový Ruskov, barrow 2, Trebišov district, which is located about 20 kilometres south-east of the cemetery in Zbudza in the interfluvium of the Ondava and Chlmec rivers (Fig. 1). In the Zakarpattia Lowland, traces of barrow settlements from the 3<sup>rd</sup> millennium BC are also visible. The burial mound in Batrad', Beregove district should be mentioned, where fragments of pottery and traces of a hearth were discovered under the northern part of the embankment

in a mound about 1.6 m high and 30 m in diameter. In the centre of the barrow on the ancient level there was a burial placed in a crouched position on the left side. The deceased was folded along the W-E axis with his head towards W. Single fragments of pottery and charcoal were found near the corpse. To the northwest of the skull, animal bones have been found (Penák *et al.* 1979; Balaguri 2001, 71–73). In a burial mound in Lohovo, Mukačevo district, a beaker and small censer were discovered in a grave (Dani 2020). The shape of the beaker refers to type II of the Corded Ware culture from Lesser Poland (Włodarczak 2006), but also to Yamna culture vessels (Włodarczak 2010, 303, fig. 3: 3–5). The small censer discovered in the grave is a typical vessel for the Catacomb culture (Jarosz and Machnik 2000, 114, fig. 4: a; Kaiser 2019, 247–253). This may indicate the interpenetration of the catacomb and corded traditions (Dani 2020, 54). It is possible that the burial mounds in Kráľovský Chlmec, Trebišov district should be associated with the 3<sup>rd</sup> millennium BC, where burials in a crouched position were to be discovered during the research (Lehoczky 1894, 251; Dani 2020, 47).

## Conclusions

In the East Slovak Lowland, where the cemetery in Zbudza is located, numerous burial mounds are visible, which are shown on maps prepared on the basis of LIDAR data. In the 3<sup>rd</sup> millennium BC this area and the neighbouring Zakarpattia Lowland is an area of mutual penetration of two large cultural systems – Corded Ware

culture and Yamna culture. Currently, the northern part of the East Slovak Lowland is traditionally associated with the settlement of the Corded Ware culture, however, some features of the burial rite of the excavated burial mounds can be interpreted as elements of the Yamna, e.g. the position of the buried individuals typical of this culture and rare in the Corded Ware culture in the basins of the upper Vistula and Dniester rivers. The cemetery, identified using non-invasive methods, is part of a larger cluster of mounds with different chronological positions. The oldest of them should be associated with the presence of pastoral communities of Corded Ware and Yamna cultures from the 3<sup>rd</sup> millennium BC. In the East Slovak Lowland, barrows from Zemplin, site Paperdo with a difficult-to-determine chronology are also known (Lamiová-Schmiedlová 1973), as well as Zemplin, site Szélmalomdomb from a Roman period (Budinský-Krička and Lamiová-Schmiedlová 1990). As a result of the available LIDAR data, it is now possible to create maps of barrow cemeteries, and most importantly, to identify small embankments that are poorly visible in the terrain, which will be rapidly destroyed in areas with intensive agriculture.

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