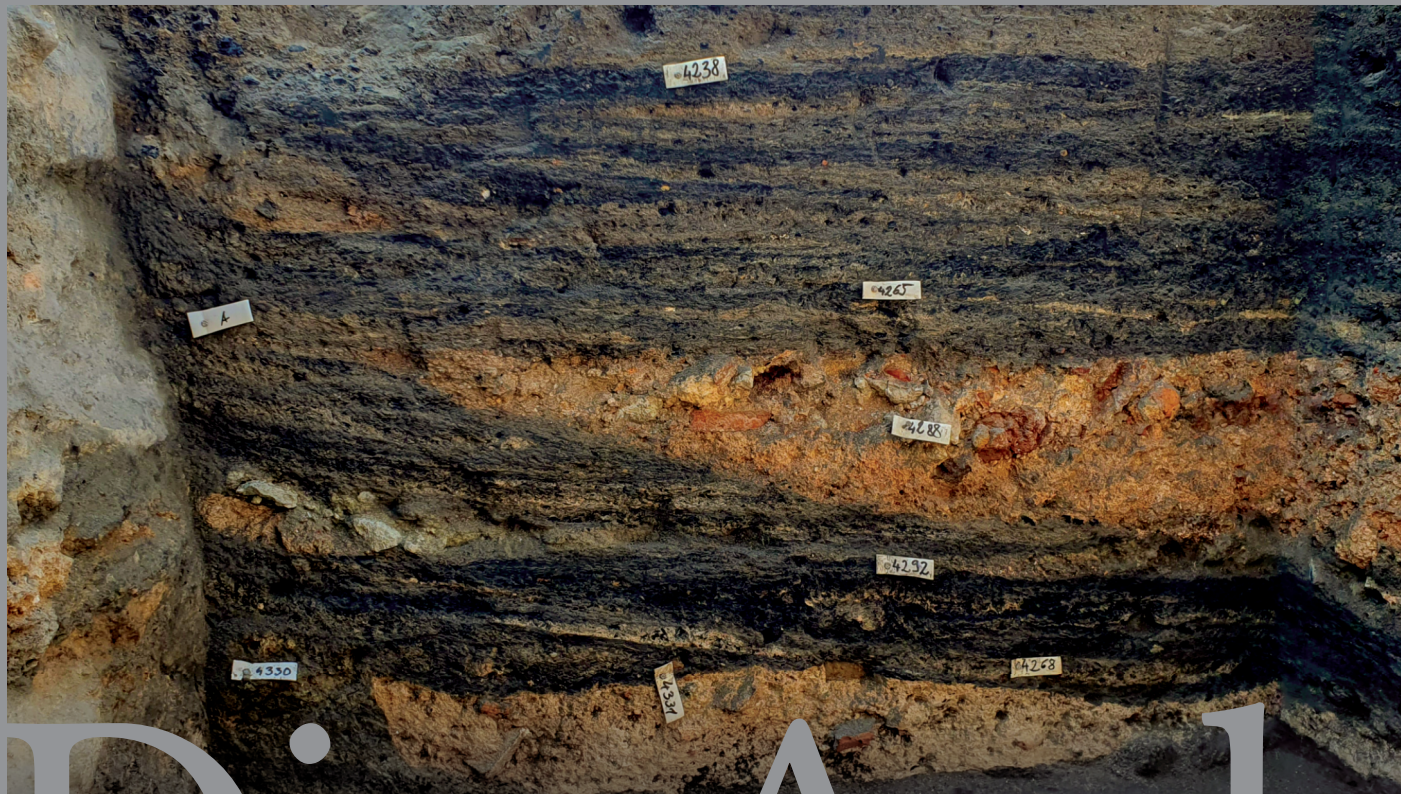


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Upper Palaeolithic site complex at Csécse-Szőlős-domb (Cserhátalja, Nógrád County, Northern Hungary)

Preliminary results

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Abstract: This paper presents the find material of a new open-air Upper Palaeolithic site located on the outskirts of Csécse in Cserhátalja, between the Zagyva River and the Szuha Stream. Its topographic position is similar to other Upper Palaeolithic sites in the Cserhát Mountains. Part of the finds were collected by agronomist László Tóth, while the rest were found by the authors later, following the rediscovery of the site in 2017. The appearing raw materials are primarily limnic silicites of Cserhát origin and local siliceous pebbles, accompanied by a low proportion of erratic flint (absent from known Late Middle Palaeolithic lithic industries characterised by leaf-shaped forms); in contrast, the metarhyolite characteristic of said industries is completely absent from the site. The assemblage gives the impression of a flake industry, as blades and blade tools are present in low proportions. The predominant type is end-scrapers with a significant proportion of high-nosed and carenoid Aurignacian variants. Bifacial tools are completely absent, and the proportion of side-scrapers is low. The significance of the assemblage—rich in end-scrapers and relying mainly on local raw materials—lies in that it likely represents an early Aurignacian facies otherwise not known from the Northern Hungarian Mountains. Its further investigation by excavation would be important.

Keywords: Cserhátalja, Palaeolithic, knapped stones, volcanic raw materials, Aurignacian technocomplex

Introduction

The Palaeolithic site complex at Csécse-Szőlős-domb is situated in the Cserhátalja in Nógrád County, Northern Hungary (Fig. 1). It was first discovered in the 1990s by László Tóth, an agronomist from Pásztó. As an archaeology enthusiast, Tóth conducted extensive surveys and collected data from the southern regions of Nógrád County. His well-documented collecting activity contributed to the verification of numerous prehistoric sites, including ones of Palaeolithic origin.¹ Numerous stone artefacts were discovered at Szőlős-domb, also referred to in the documentation written by László Tóth as Csécse Site 37, Borháztető, and Takács-szőlő. During subsequent field trips, Tóth found some more stone tools at Bélahalmi-tető and Lapostető north of this area and registered the respective findspot as an independent site under the name Csécse Site 38 (referred to as Locus-2 in the authors' records). In September 2017, one of the authors (KZ) discovered these sites independently, unaware of Tóth's earlier field activity in the area of the Szőlős-domb, observing two find concentrations and registering them as a single site complex. Several concentrations of small and large retouched stone artefacts were identified in the southern part of the area with surface finds (Csécse 37 or Locus-1 in the authors' records); unfortunately, the cultural affiliation of these remains unclear, as it can only be stated that most belong to later prehistoric periods. The area of Locus-1, of which a topographic and archaeological description is presented below, has not been accessible for archaeological survey since 2023. The finds collected by László Tóth and by the authors are discussed separately.

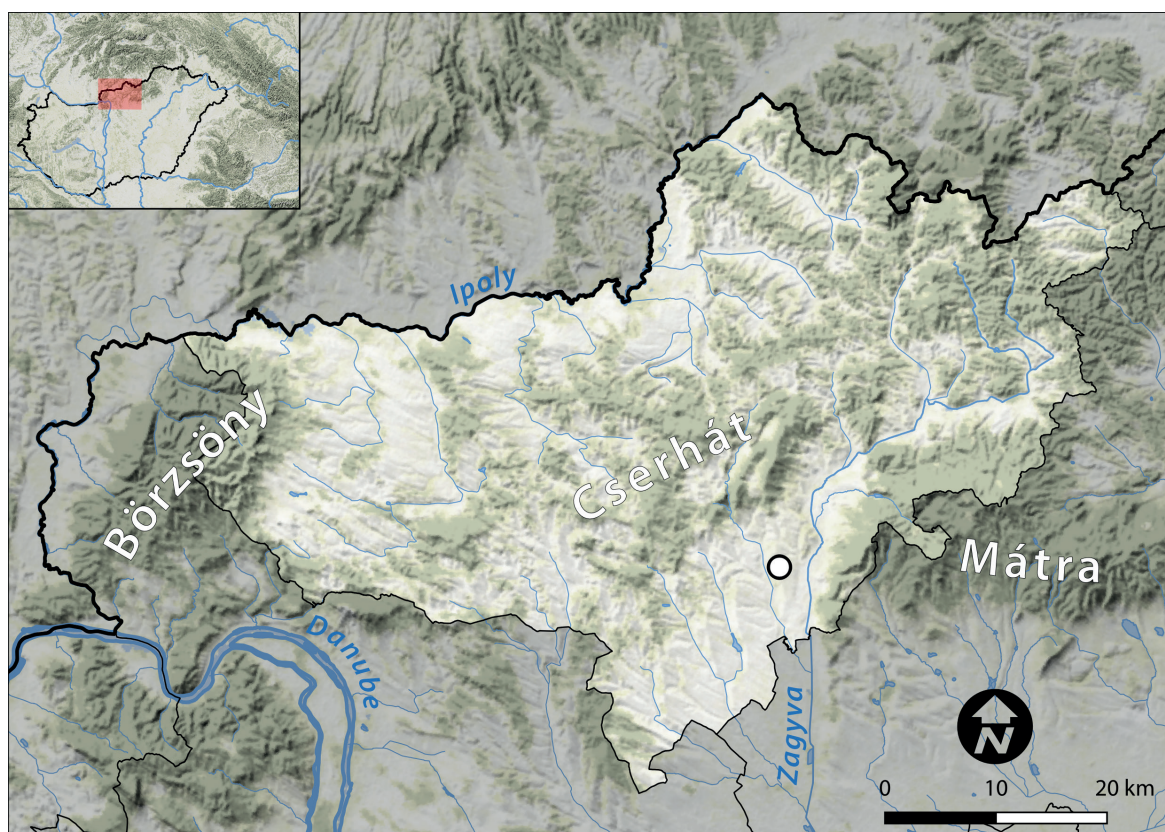


Fig. 1. The location of the Csécse-Szőlős-domb site complex.

¹ GUBA 2024.

Research history of the region

Palaeolithic research neglected Cserhátalja for a long time. The authors have identified Palaeolithic sites and smaller lithic find concentrations near the Csécse-Szölös-domb site (Fig. 2). Previously, systematic research was carried out mainly in the southwestern part of Cserhátalja, yielding several Upper Palaeolithic sites there. Viola T. Dobosi and her team from the Hungarian National Museum conducted an authentication excavation in Verseg-Tatárdomb, about 20 km south-southwest of Ecseg, in September 1985, where erosion and deep ploughing exposed a mixed Late Pleistocene–Holocene retouched stone find assemblage. Typologically, the lithic material can be related to the older Upper Palaeolithic and the Neolithic.² The diagnostic Palaeolithic tools include a leaf point, a blade point, and carinated end-scrapers. The possible analogies of the leaf point³ appear in the Szeletian culture. Still, its size, elaboration, and raw material differ from the stray finds recovered from the nearest Aszód-Tarackás border area.⁴ The blade point and the end-scrapers are typologically close to the tools of the open-air sites of the older (Central European) phase of the Aurignacian industry. These types are missing from the toolkit of the earliest Gravettian industry.⁵ A Palaeolithic settlement patch was discovered on Verseg-Kertekalja, a terraced northern slope of Tatárdomb, and two other dense find concentrations confirmed the assumption that raw material was processed into tools on the site. The leader of excavation, Viola T. Dobosi classified the site as belonging to the older Upper Palaeolithic.⁶ Several sites and large lithic find concentrations dominated by artefacts of the Gravettian culture were located by regular surface collecting surveys conducted on the Tatárdomb.

The lithic record of Erdőtarcsa-Daróci-hegy, about 16 km southwest of Ecseg, is composed predominantly of Upper Palaeolithic end-scrapers, burins, and retouched blades, including some culture-specific tools.⁷ Middle Palaeolithic types include a bifacial side-scraper with alternating edge retouch (*Wechselseitig-gleichgerichtete Kantenbearbeitung* using Gerhard Bosinski's term⁸), a double-side-scraper with convex edges and thinning on the back, and four simple side-scrapers. The heterogeneous Palaeolithic assemblage refers to a 'palimpsest site', a trace of short-term settlements of people practising different Palaeolithic industries. The finds can be classified into the Middle Palaeolithic Micoquian and the Upper Palaeolithic Aurignacian industries.

Buják-Szente, on the northern fringes of the village of Buják in the central Cserhát Mountains, lies approximately 8 km northwest of Csécse-Szölös-domb. In addition to end-scrapers and side-scrapers, its lithic record includes leaf points and bifacial tools.⁹ Typologically, the leaf point industry of the site is likely related to the Moravian Szeletian culture. A Middle Palaeolithic transversal side-scraper made of Carpathian radiolarite was discovered as a stray find in a field survey on the top of Buják-Rózsás-tető, 4 km south of Buják in 2005. The faceted butt of the tool may suggest the use of the Levallois technique, which is quite rare on Palaeolithic sites in the Cserhát Mountains. Although facetting is common in the Levallois flaking method, it is not diagnostic.

The 2023 field survey found the site uncultivated and covered with vegetation, which rendered surface collecting impossible. The few retouched stone artefacts found nearby did not include diagnostic items; these can be classified predominantly as Neolithic.

2 CSONGRÁDINÉ BALOGH – T. DOBOSI 1991, 97.

3 CSONGRÁDINÉ BALOGH – T. DOBOSI 1991, 107, Fig. 1.5.

4 T. DOBOSI 1990, 179, Fig. 2.10, 183; T. DOBOSI 2011, 75–76.

5 CSONGRÁDINÉ BALOGH – T. DOBOSI 1991, 105.

6 T. DOBOSI 1991, 76–77.

7 ZANDLER 2008.

8 BOSINSKI 1967, 43.

9 PÉNTEK – ZANDLER 2014.

The map displays a complex geological landscape with various units labeled: 'M, 'Mb, 'Pa, 'Pa₂, 'Qh, 'Qh₂, 'Qh₃, 'Qh₄, 'Qh₅, 'Qh₆, 'Qh₇, 'Qh₈, 'Qh₉, 'Qh₁₀, 'Qh₁₁, 'Qh₁₂, 'Qh₁₃, 'Qh₁₄, 'Qh₁₅, 'Qh₁₆, 'Qh₁₇, 'Qh₁₈, 'Qh₁₉, 'Qh₂₀, 'Qh₂₁, 'Qh₂₂, 'Qh₂₃, 'Qh₂₄, 'Qh₂₅, 'Qh₂₆, 'Qh₂₇, 'Qh₂₈, 'Qh₂₉, 'Qh₃₀, 'Qh₃₁, 'Qh₃₂, 'Qh₃₃, 'Qh₃₄, 'Qh₃₅, 'Qh₃₆, 'Qh₃₇, 'Qh₃₈, 'Qh₃₉, 'Qh₄₀, 'Qh₄₁, 'Qh₄₂, 'Qh₄₃, 'Qh₄₄, 'Qh₄₅, 'Qh₄₆, 'Qh₄₇, 'Qh₄₈, 'Qh₄₉, 'Qh₅₀, 'Qh₅₁, 'Qh₅₂, 'Qh₅₃, 'Qh₅₄, 'Qh₅₅, 'Qh₅₆, 'Qh₅₇, 'Qh₅₈, 'Qh₅₉, 'Qh₆₀, 'Qh₆₁, 'Qh₆₂, 'Qh₆₃, 'Qh₆₄, 'Qh₆₅, 'Qh₆₆, 'Qh₆₇, 'Qh₆₈, 'Qh₆₉, 'Qh₇₀, 'Qh₇₁, 'Qh₇₂, 'Qh₇₃, 'Qh₇₄, 'Qh₇₅, 'Qh₇₆, 'Qh₇₇, 'Qh₇₈, 'Qh₇₉, 'Qh₈₀, 'Qh₈₁, 'Qh₈₂, 'Qh₈₃, 'Qh₈₄, 'Qh₈₅, 'Qh₈₆, 'Qh₈₇, 'Qh₈₈, 'Qh₈₉, 'Qh₉₀, 'Qh₉₁, 'Qh₉₂, 'Qh₉₃, 'Qh₉₄, 'Qh₉₅, 'Qh₉₆, 'Qh₉₇, 'Qh₉₈, 'Qh₉₉, 'Qh₁₀₀. The map also shows topographic features like 'Csécsa', 'Hányolvaszta', 'Dolnava', and 'Székesdomb'. A scale bar at the bottom indicates distances from 0 to 6 km. The map is overlaid with a grid with coordinates ranging from 687500 to 700000 Easting and 282500 to 287500 Northing.

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Three significant Palaeolithic sites are known near the village of Bér, also in the Central-Cserhát Mountains, about 9.5–11 km to the west of Csécse-Szölös-domb.¹⁰ In addition to tools of Middle Palaeolithic (Mousterian) character, the finds of Bér-Egresi-dűlő are predominated by Early Upper Palaeolithic tools of uncertain cultural classification. The sites of Bér-Papi-földek and Bér-Szár-hegy lie about 600–700 m apart, but the classification of their lithic material and their relationship are problematic. Morphologically, the end-scrapers are closely similar to the Aurignacian carinated end-scrapers (microblade cores), but both sites contain bifacial and leaf-shaped tools and side-scrapers.

Of the unpublished assemblages, a small lithic collection from Kozárd-Fehér-oldal must be mentioned, although its precise cultural classification remains unclear. The lithic record of the site includes an Upper Palaeolithic microblade core or plane-like end-scraper (*rabot, grattoir épais*)¹¹ and an angular burin. Viola T. Dobosi macroscopically determined that the burin was made of rock crystal. The significance of the burin is twofold: We know of no other Upper Palaeolithic sites in the vicinity where rock crystal occurs, and the use of rock crystal as a raw material of knapped tools is not documented in younger prehistoric times.

The lithic assemblage collected in 2023 on Ecseg-Sándor-hegy includes some rather atypical bifacial tools, leaf points, flakes, and a fragmented side-scraper made of metarhyolite (felsitic porphyry), which, typologically, can be identified as Late Middle Palaeolithic or Early Upper Palaeolithic types. Following the accidental discovery by Zoltán Tóth of a Palaeolithic side-scraper made of Carpathian radiolarite in December 2022, further research at the site was resumed in 2023. The side-scraper strongly resembles the one found on the top of Buják-Rózsás-tető (mentioned above).

Geological and geomorphological description of the area

The Cserhátalja Hills, at an altitude from 125 to 320 m above sea level, slope slightly to the south-east. Geomorphologically, the region can be interpreted as the foothill of the Cserhát Mountains. Asymmetrical valleys aligned with the main tectonic direction of the mountain range (northwest–southeast) divide the area into a system of long and narrow ridges that widen towards the south-east. The ridges have a relative height of 70–80 m in the northwest and 20–30 m in the southeast. The northwestern part of the hills is composed of Upper Miocene limestone and clay, which gradually transitions into a Pannonian clayey-gravelly-lignitiferous layer and a Late Pliocene fluvial sand and gravel stratum in the southeast.

The research area is part of the right bank watershed of the Zagyva River, divided by its tributaries (Szuha, Bér, Vanyarci/Nógrádi, and Emse streams).¹² The formation of this hydrographic network is no longer an unexplored topic in the morphological literature, as it was discussed by Győző Peja.¹³

The Szuha Valley, starting in the Pásztó–Cserhát area above Ecseg and stretching towards the inner parts of Cserhátalja Hills, is divided by several erosional and derasional valleys constantly deepened by periodic watercourses carrying snowmelt in spring and significant precipitation. Generally, a north-northwest to south-southeast tectonic ditch, nearly 1 km wide, has formed here. This ditch is typical of the Cserhátalja and Mátraalja valleys. The left bank of the ditch is higher and steeper than the right one. The Pannonian–Pontic sandy gravel layers making up the core of the hill are also exposed on the steep slopes, but the surface of the flat hilltops left and the gentle slopes right of the valley are loess. Accordingly, valleys of tributaries can only come down from the flat right bank, where the long slope descends towards the Szuha Valley, and the stream has no left-side tributaries.¹⁴

10 PÉNTEK – ZANDLER 2017.

11 DEMARS – LAURENT 1992, 48.

12 PEJA 1937; LÁNG 1952; LÁNG 1967; DÖVÉNYI 2010, 690–693.

13 PEJA 1937.

14 LÁNG 1952, 769–770.

Topographic setting of the Palaeolithic site complex of Csécse-Szőlős domb

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Fig. 5. End-scrapers from the site.

sloping to the east and divided by small gullies. Geologically, the plateau is a Lower-Middle-Pleistocene slope with proluvial sediment (accumulated by periodic watercourses) (Fig. 3). The steep western slope facing the stream is part of the Miocene–Pliocene Upper Pannonian Zagyva Formation, characterised by a very dense alternation of medium-coarse and fine sand, sandstone, clay, and clay marl layers, often with lignite intercalations.

The site complex was localised again in 2017 while searching for traces of Palaeolithic hunting camps associated with the mammoth bone depot discovered in Szurdokpüspöki in 2014.¹⁵ The in-

¹⁵ SZILÁGYI *et al.* 2015, 405–412.

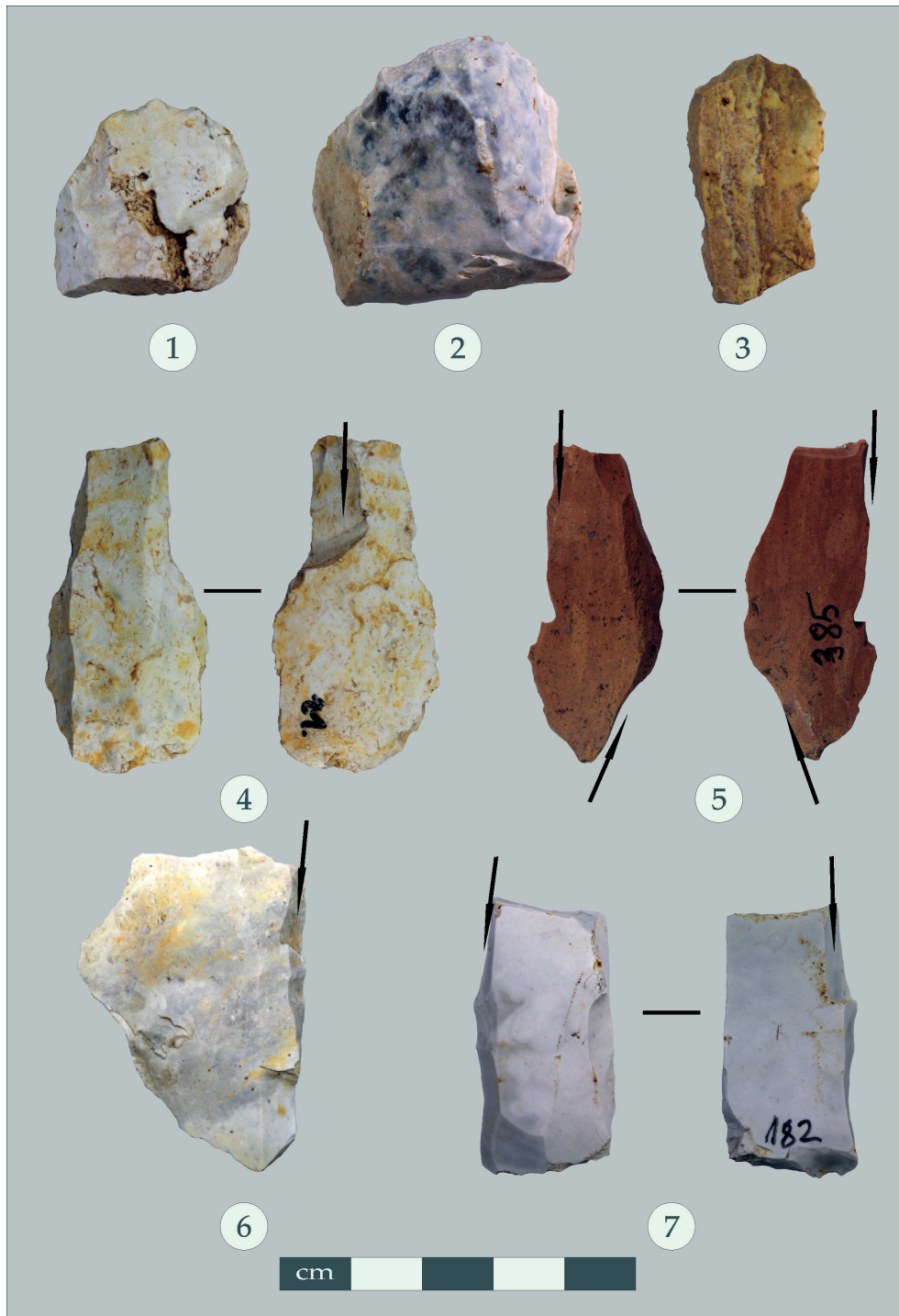


Fig. 6. Tools from the site. 1–3 – end-scrapers, 4–7 – burins.

tensive fieldwork included mapping with a handheld GPS device the findspots of archaeologically significant lithic artefacts, including cores, tools, blades, and pieces of technological evidence such as core rejuvenation blades or flakes for renewing the knapping surface of the cores, crested blades, and burin spalls, as well as all lithic artefacts made from non-local raw materials. Raw data were built into a geospatial model. The distribution of the lithic artefacts indicates that the site complex has a north-south longitudinal extent of about 635 m. The actual width cannot be determined because the western edge of the site complex lies in an area forested today. The site complex likely consists of a northern and a southern, overlapping occupation area. The southern one (Locus-1)

is about 300 m long north-south and max. 100 m wide east-west, covering an area of at least 28,677 m² (~2.87 ha). This part of the site complex is divided lengthwise by a northwest-southeast oriented, about 10 m wide strip of trees and bushes.

The archaeological record of the site

The lithic record of the site, collected by László Tóth and the authors, counts 2,017 artefacts, including mostly knapped stones, three hammerstones, and two small ground stone fragments. The hammerstones may be Palaeolithic, but the ground stone fragments were likely Neolithic grind-



Fig. 7. Selected artefacts from the site. 1 – burin, 2 – borer, 3–6 – blades, 7–8 – retouched blades, 9 – retouched flake.

stones once. Besides, the assemblage includes 82 retouched tools. Based on technological marks and typology, the best part of the knapped stones has an Upper Palaeolithic character. However, several questions concerning the surface collected finds remain unanswered. For example, the surface of some finds is fresh, covered in practically no patina (caused by complex geochemical processes on exposed surfaces over time). The knapped surfaces of the lithic artefacts may alter in colour due to different natural effects, weathering (due to prolonged exposure to air, wind, and sunlight), soil conditions, and water. If the degree of patination were to be considered a chronological criterion,

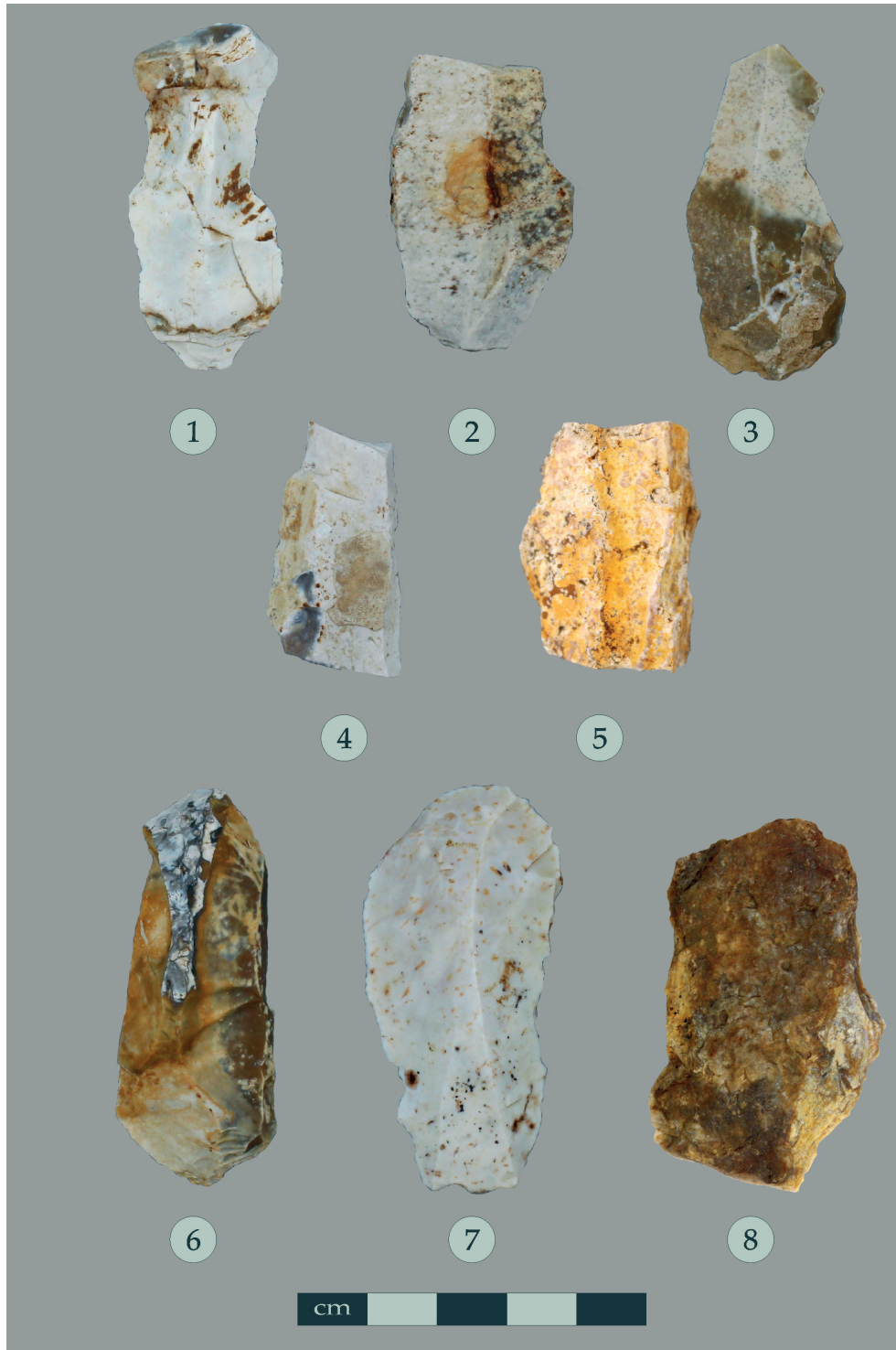


Fig. 8. Selected artefacts from the site. 1–4 – blades, 5 – retouched blade, 6–7 – blades, 9 – side-scraper.

the Palaeolithic character of these finds would be questioned. It is well-known from surface find collections and excavated lithic records that under the right circumstances, the limnic silicite variety naturally occurring in the Cserhát Mountains develops an intense, mostly bluish-white patina.

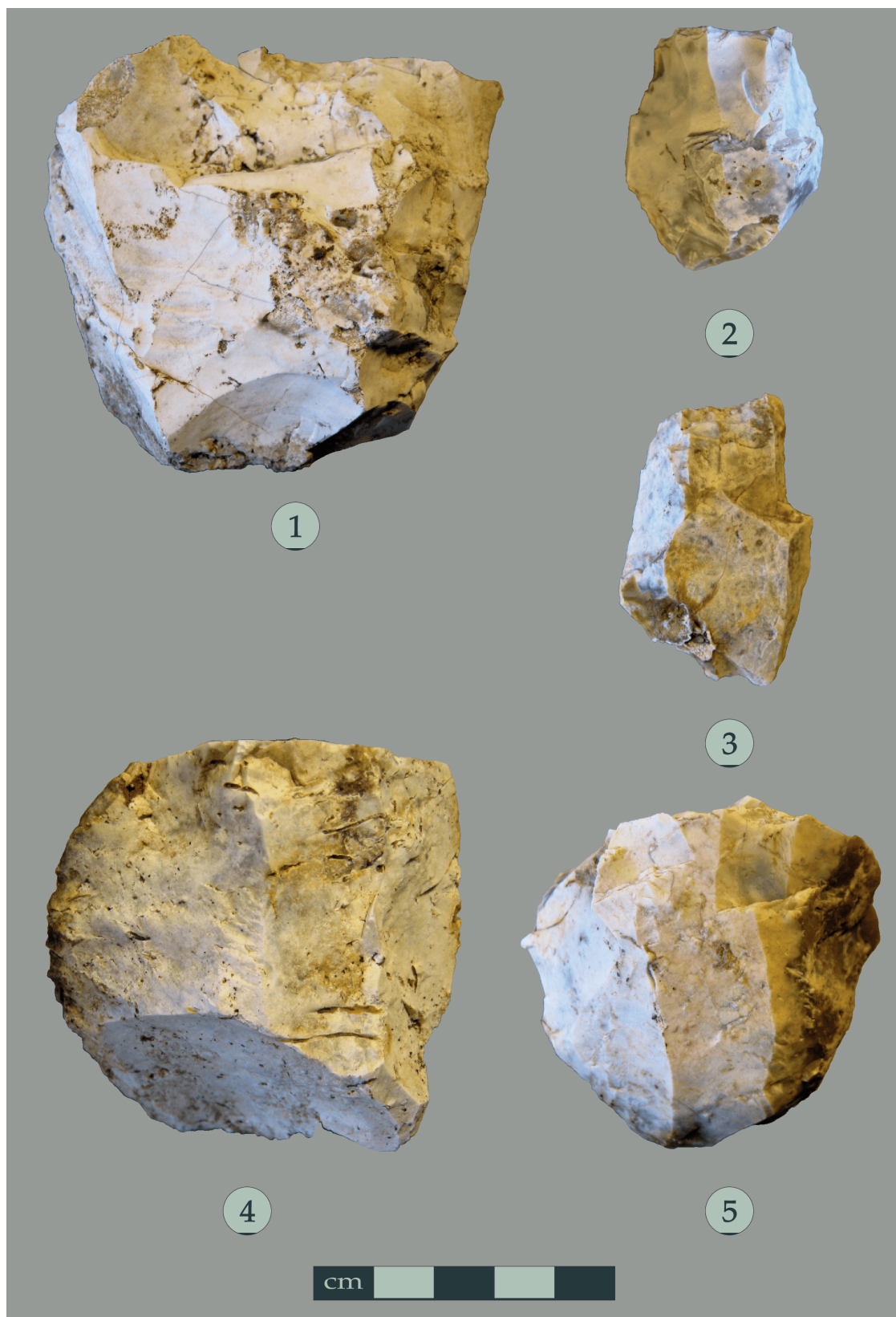


Fig. 9. Cores from the site.



Fig. 10. Cores from the site.

However, research has not revealed any finds on the site that can certainly be assigned to a prehistoric period younger than the Palaeolithic. The hammerstones made of andesite or quartzite pebbles cannot be considered culture-specific.

Raw materials

As for the raw material supply of the archaeological sites in the Cserhát Mountains and Cserhátalja Hills, one can say, following and somewhat simplifying Katalin Simán's classification,¹⁶ that all

¹⁶ SIMÁN 1991.

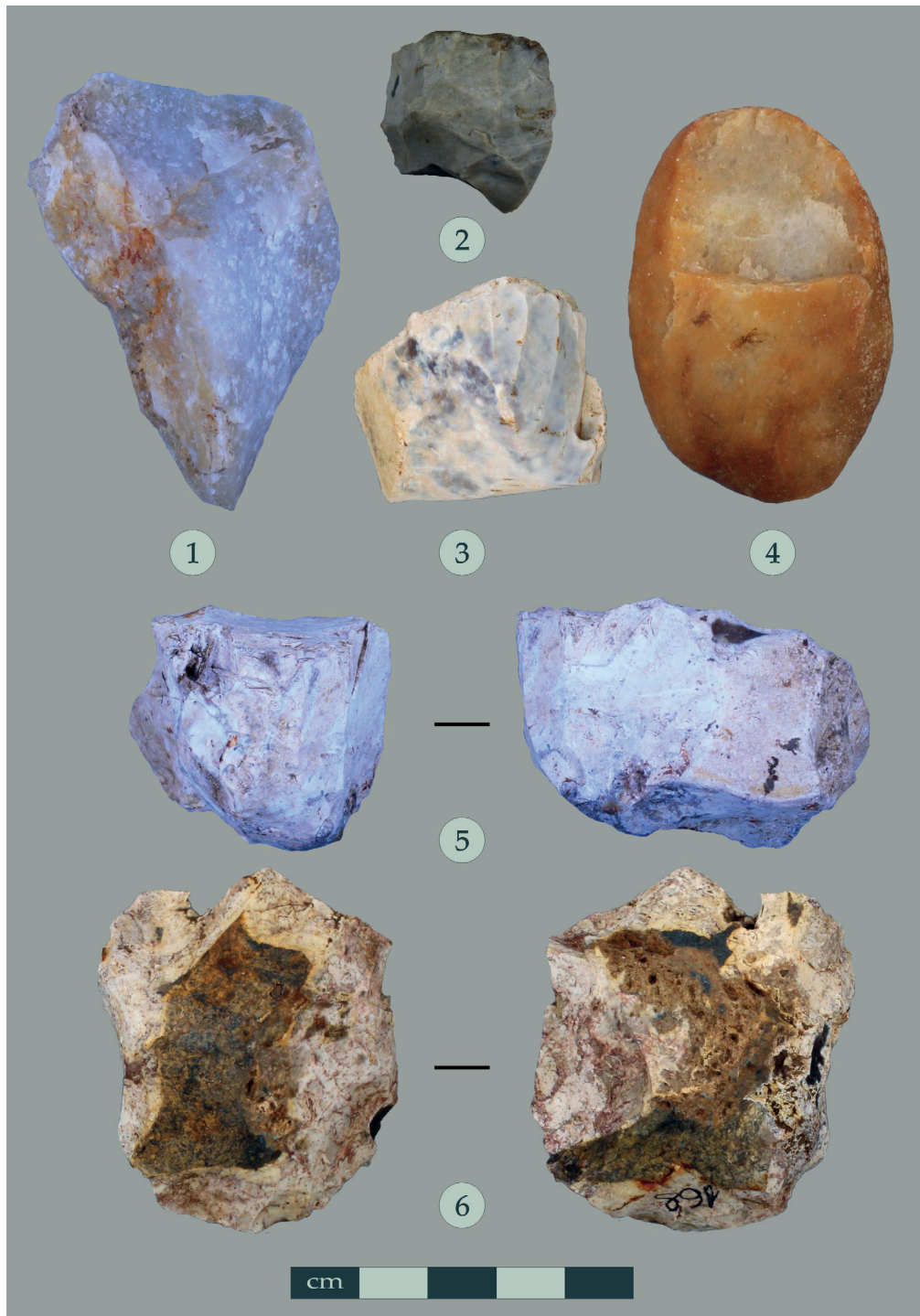


Fig. 11. Cores from the site.

raw materials are local, likely obtained from natural deposits no more than 25 km away from the respective sites. In the case of Locus-1, this includes limnic silicites of Cserhát and Mátraalja origin, andesite, siliceous pebble, nummulitic chert, and quartzite. Jasper can also likely be classified here. The regional (mesolocal) group includes raw materials obtained from a distance of 25–100 km. This group contains the Egerbakta silicified sandstone (orthoquartzite, also known as Mátraháza–Felnémet opal), metarhyolite (felsitic porphyry), radiolarite, silicified aleurolite (also known as radiolarian siliceous shale), hornstone, and radiolarite from the Bükk Mountains and C2-type Carpathian obsidian from the Eperjes–Tokaj Mountains. The long-distance (extralocal) group comprises raw

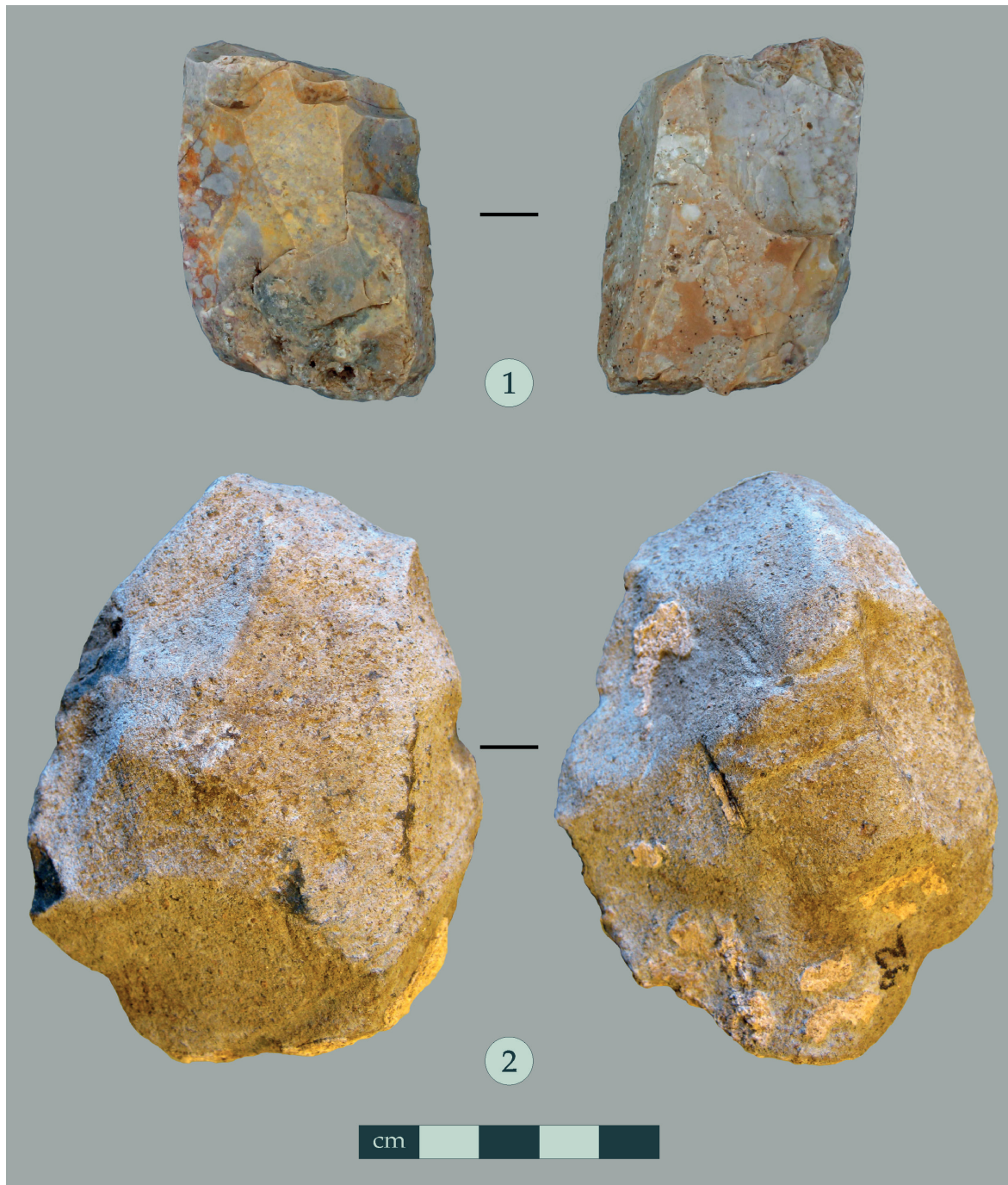


Fig. 12. Cores from the site.

materials from more than 100 km away, including Carpathian radiolarite from the Pieniny Klippen Belt and Cretaceous erratic flint from Lower Silesia in southern Poland.

In the assemblage of 1,156 artefacts collected by László Tóth (Tab. 1), the proportion of local limnic silicites is overwhelming (1,074 pieces or 92.91%). As part of the limnic silicite of Cserhát origin is of inferior quality, flaking resulted in a very high number of debris and waste products (809 pieces, 69.98%). Macroscopically, this raw material is reminiscent of the one dominant in the record of the nearby Palaeolithic sites at Bér-Szár-hegy, also characterised by a high degree of fragmentation.¹⁷

¹⁷ PÉNTEK – ZANDLER 2017.

Tab. 1. The technological categories of L. Tóth's assemblage by raw materials.

Artefacts / Raw material	Limnic silicite	Andesite	Quartzite	Siliceous pebble	Jasper	Bükk radiolarite	Silicified sandstone	Silicified aleurolite	Carpathian radiolarite	Erratic flint	Total	%
<i>Tool</i>	28	1	1	5		1	1	1	1	4	43	3.72
<i>Blade</i>	14			1						1	16	1.38
<i>Microblade</i>											0	0
<i>Flake</i>	160	21		12					1	2	196	16.96
<i>Blade core</i>	9										9	0.78
<i>Microblade core</i>	3										3	0.26
<i>Flake core</i>	15	3	1	2	1						22	1.90
<i>Waste</i>	809			20	2						831	71.89
<i>Raw material chunk</i>	36										36	3.11
<i>Total</i>	1074	25	2	40	3	1	1	1	2	7	1156	
<i>%</i>	92.91	2.16	0.17	3.46	0.26	0.09	0.09	0.09	0.17	0.61		100

Tab. 2. The lithic toolkit of L. Tóth's assemblage by raw materials.

Tools / Raw material	Limnic silicite	Andesite	Quartzite	Siliceous pebble	Bükk radiolarite	Silicified sandstone	Silicified aleurolite	Carpathian radiolarite	Erratic flint	Total	%
<i>End-scraper on blade</i>	3									3	6.98
<i>End-scraper on flake</i>	16			3		1	1		1	22	51.16
<i>Burin</i>	2			2					2	6	13.95
<i>Retouched blade</i>	3							1	1	5	11.63
<i>Retouched microblade</i>										0	0
<i>Retouched flake</i>					1					1	2.33
<i>Side-scraper</i>	2									2	4.65
<i>Diverse other tool</i>	2									2	4.65
<i>Hammerstone</i>			1							1	2.33
<i>Ground stone</i>		1								1	2.33
<i>Total</i>	28	1	1	5	1	1	1	1	4	43	
<i>%</i>	65.12	2.33	2.33	11.63	2.33	2.33	2.33	2.33	9.30		100

Apart from the forty pieces of siliceous pebble (3.46%) and 25 pieces of andesite (2.16%), all the other raw materials (other limnic silicite variants, quartzite, jasper, orthoquartzite, radiolarian siliceous shale, Carpathian radiolarite, and Cretaceous erratic flint) play a minor role (16 pieces, 1.38% in total). The silicified aleurolite from the Bükk Mountains is a medium-quality material for knap-

ping, dark grey to brownish black, with a greenish patina. Aladár Vendl¹⁸ described it as ‘silicified marl’ and noted that it can be collected on the terraces of the Hór Valley in the area of Cserépfalu; however, recent research has revealed that it also occurs at several points in the Bükkalja region.¹⁹ It is impossible to determine macroscopically with absolute certainty whether the raw materials appearing on the site and described by Kadić are the same. Radiolarian siliceous shale occurrences are also known from Darnó Hill at Sirok in the Bükk Mountains; however, the two materials are unlikely identical.²⁰ The distances of these natural resources from Locus-1 are about 70–80 km.²¹

The distribution of raw materials in the lithic record of 43 tools is much more balanced (Tab. 2). The 28 limnic silicite tools represent 65.12%, the five siliceous pebble tools 11.63%, and the four erratic flint tools 9.3% of the whole assemblage, which also comprises a silicified sandstone, a silicified aleurolite, and a Carpathian radiolarite tool (2.33% each), as well as an andesite and a quartzite ground stone tool (also 2.33% each).

Most of the 861 artefacts collected by the authors (Tab. 3) were made of limnic silicite (745 pieces, 86.53%). The raw material of some finds is high-quality, homogeneous in structure, and not fragmented at all. Nearby occurrences of this limnic silicite in sometimes 8–10 cm thick layers south of Buják at Körtefa-tábla-oldal and Rózsás-tető are known from previous field surveys.²² Other raw materials of limnic origin include a limnic chalcedony fragment, a limnic opalite flake, and a limnic opalite fragment (3 pieces, 0.35%). The geological source of limnic opalite is the diatomaceous earth (also known as diatomite) quarry and its immediate surroundings southeast of Szurdokpüspöki, about 5–6 km from Locus-1. Variants from several primary and secondary geological sources at the southern foothills of the Mátra Mountains (Mátraalja) are probably also present in the assemblage.

Tab. 3. The technological categories of the authors’ assemblage by raw materials.

Artefacts / Raw material	Limnic silicite	Other limnic raw material	Andesite	Nummulitic chert	Quartzite	Siliceous pebble	Jasper	Bükk radiolarite	Carpathian radiolarite	Erratic flint	Total	%
<i>Tool</i>	32		1		2	5		2	1	1	44	5.11
<i>Blade</i>	3					3					6	0.70
<i>Microblade</i>	5							1			6	0.70
<i>Flake</i>	123	1	23	2	1	28				2	180	20.91
<i>Microblade core</i>	1					1			1		3	1.87
<i>Flake core</i>	12		1								13	1.87
<i>Pre-core</i>			1								1	1.87
<i>Waste</i>	569	2	1			29	4	2			607	70.50
<i>Pebble</i>								1			1	0.12
<i>Total</i>	745	3	27	2	3	66	4	6	2	3	861	
<i>%</i>	86.53	0.35	3.14	0.23	0.35	7.67	0.46	0.70	0.23	0.35		100

18 KADIĆ 1940; VENDL 1940.

19 FARAGÓ *et al.* 2022.

20 KISS 1958.

21 PELIKÁN 1986; PELIKÁN 2002.

22 MARKÓ 2005, 54.

These variants can have many inclusions, mainly fossils and plant remains. Their macroscopic separation is problematic. They are usually slightly translucent brown, yellowish brown, homogeneous reddish brown or yellowish red, with a surface covered in white, yellowish-white, red, yellow, or greyish-white patina. The limnic silicite sources of the Cserhát and the Mátraalja lie about 12–15 km from the site. Limnic silicite variants are followed in frequency by siliceous pebble (66 units; 7.67%), of which no natural occurrence is known nearby. The discovered pieces certainly come from a gravel bed in the Zagyva or Szuha valleys.

The proportion of lithics made of andesite of unknown origin is relatively high (27 pieces, 3.14%). The appearing andesite variant is quite well-knappable, dark grey-black, with a fine-grained texture and covered in a light grey-greenish weathering crust. In addition to a ground stone tool, the lithic record includes many andesite flakes, cores, and waste products, the cultural affiliation of which can only rely on circumstantial evidence. The andesite artefacts do not include any find indicating stone axe production and only a single ground stone tool. Similar andesite was found east of Galgagyörk²³ in the quarries of the Megyerke Stream valley about 23 km away from the site and, as a result of the field survey following a description by Jenő Noszky,²⁴ on the plateau above Alsótold-Bableves csárda about 9 km away from the site. As for the other local raw materials, the proportion of nummulitic chert (2 pieces, 0.23%), quartzite (3 pieces, 0.35%), and jasper (four pieces, 0.46%) is insignificant. The jasper fragments and raw material chunks likely came from the western Mátraalja as several geological sources of not only limnic silicite but also geyserite with a high jasper content are known around Gyöngyöstarján.²⁵

Tab. 4. The lithic toolkit of the authors' assemblage by raw materials.

Tools / Raw material	Limnic silicite	Andesite	Quartzite	Siliceous pebble	Bükk radiolarite	Carpathian radiolarite	Erratic flint	Total	%
<i>End-scraper on blade</i>	2							2	4.55
<i>End-scraper on flake</i>	18			2	1			21	47.73
<i>Burin</i>	2						1	3	6.82
<i>Borer</i>	1							1	2.27
<i>Retouched blade</i>	2			1				3	6.82
<i>Retouched microblade</i>	1							1	2.27
<i>Retouched flake</i>	4			1				5	11.36
<i>Side-scraper</i>				1				1	2.27
<i>Notched tool</i>	1							1	2.27
<i>Diverse other tool</i>	1				1	1		3	6.82
<i>Hammerstone</i>			2					2	4.55
<i>Ground stone</i>		1						1	2.27
<i>Total</i>	32	1	2	5	2	1	1	44	
<i>%</i>	72.73	2.27	4.55	11.36	4.55	2.27	2.27		100

23 SZENTES 1943, 8.

24 NOSZKY 1914, 314–317.

25 VARGA *et al.* 1975; DÁVID 1997; DÁVID 2011; SZABÓ 2012.

Among raw materials of regional (mesolocal) origin, radiolarite from the Bükk Mountains is represented by two tools, a microblade, two fragments, and a pebble interpreted as raw material (6 pieces, 0.7%). A tool fragment and a microblade core could be identified macroscopically as Carpathian radiolarite (2 pieces, 0.23%), the primary source of which is about 100 km away.²⁶ Long-distance (extralocal) raw materials are represented by three erratic flint artefacts, a tool and two flakes (0.35%) made of stone with a geological source in Silesia in south Poland, at least 420–450 km away from Locus-1. The raw material distribution among the 44 retouched stone tools is somewhat different (Tab. 4). The predominant raw material is limnic silicite (32 pieces, 72.73%), and relatively many were made of siliceous pebbles (five pieces, 11.36%). Two tools were made of Bükk radiolarite (4.55%), one of Carpathian radiolarite, and another of erratic flint (2.27% each).

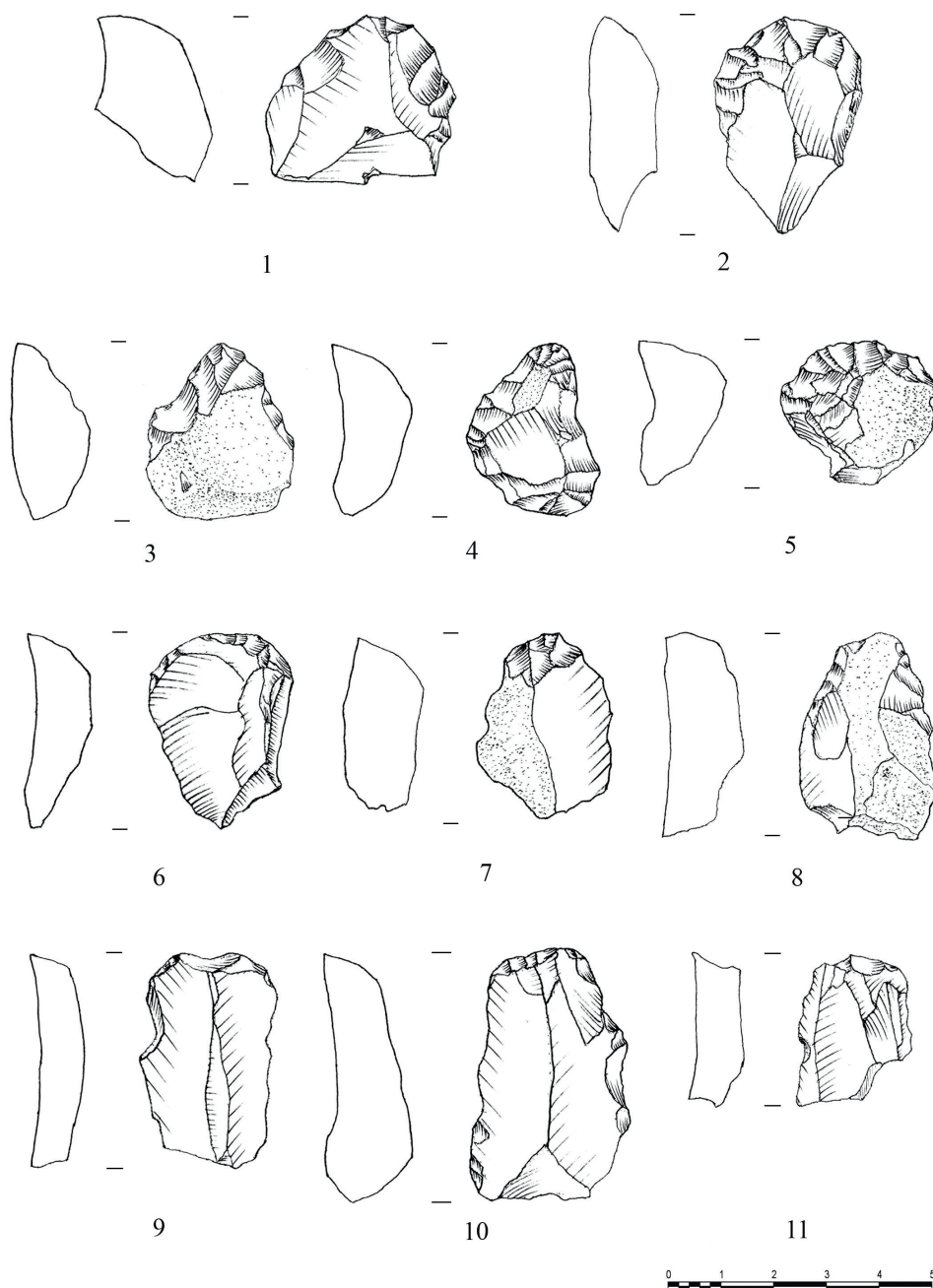


Fig. 13. End-scrapers from the site (drawing by K. Zandler).

²⁶ CHEBEN – CHEBEN 2010.

Notes on technology

The collection of László Tóth contains 34 cores, of which 22 are flake, nine are blade, and three are microblade cores. Eight cores, an exhausted and an abandoned flake core, and six abandoned unipolar blade/microblade cores are certainly of Palaeolithic origin. Two fragmentary andesite cores, a piece of non-hierarchical andesite, and a quartzite pebble core are likely Neolithic. Sixteen abandoned or exhausted flake cores (fifteen of limnic silicite and one of jasper) and six abandoned or exhausted blade cores of various sizes cannot be unambiguously attributed to the Palaeolithic or Neolithic. The flaking products include 196 flakes and only sixteen blades. The assemblage only contains a single piece of technological evidence with considerable dating value: a core rejuvenation blade, typical of the Palaeolithic.

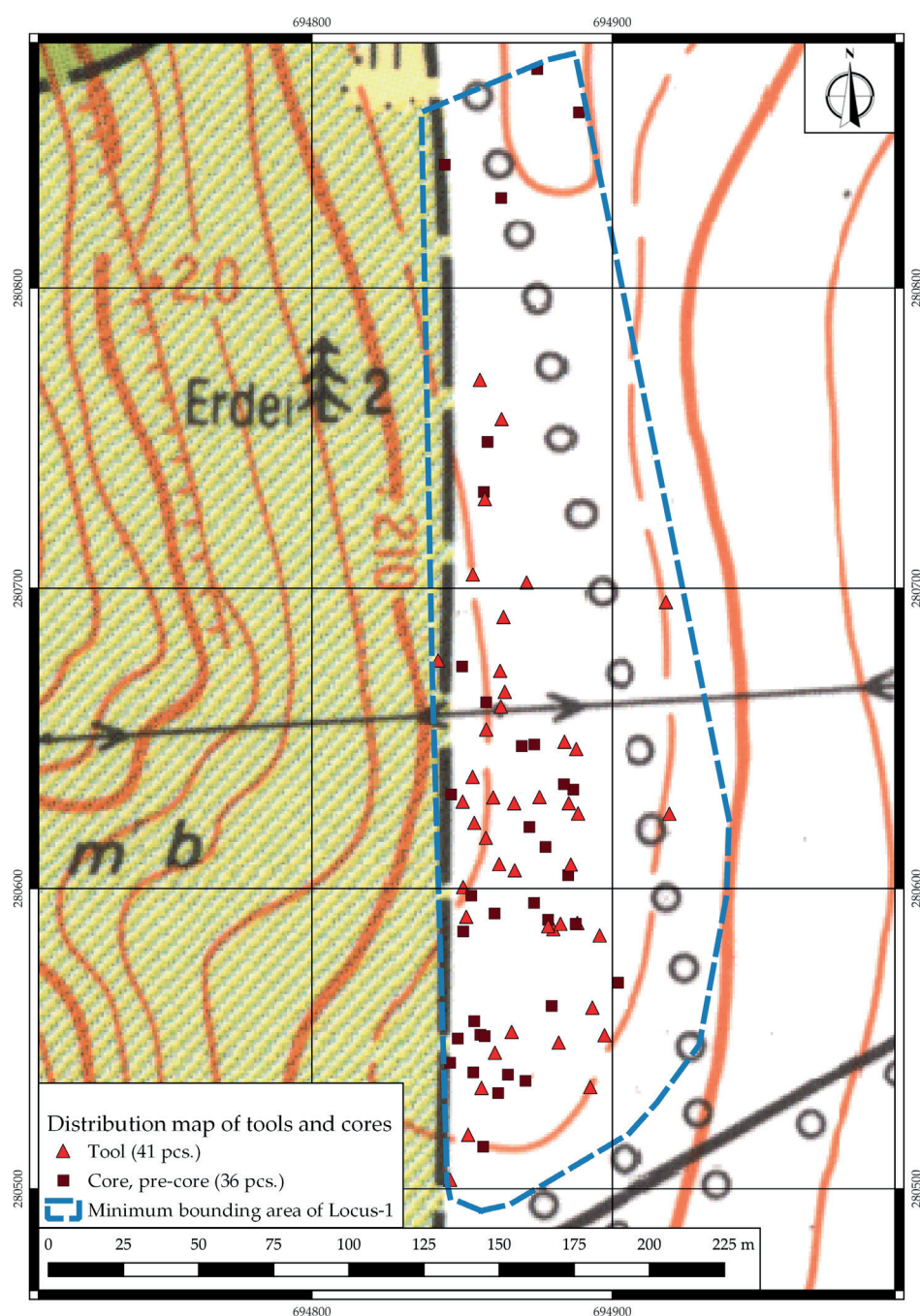


Fig. 14. Scatter of tools and cores and the minimum extent of the site.

The finds collected by the authors include sixteen, mostly abandoned or exhausted cores (Figs 9–12), with twelve flake and three microblade cores and one pre-core among them. Two flake cores were made of quartzite. The microblade cores were made of limnic silicite (Fig. 11.3), siliceous pebble (Fig. 11.2) and radiolarite from the Bükk Mountains. The pre-core and a discoidal flake core were made of andesite (Fig. 12.2), and another discoidal flake core (Fig. 11.6) was made of limnic silicite. Most cores (ten pieces) are Palaeolithic. A non-hierarchical flake core and the exhausted radiolarite microblade core are Neolithic, and four cores cannot be dated precisely. The flaking products include 180 flakes and six blades (Fig. 8.1–8) and microblades. The lithic material includes two pieces bearing technological markers with a dating value: two core rejuvenation flakes typical of the Palaeolithic, one transformed into an end-scraper.

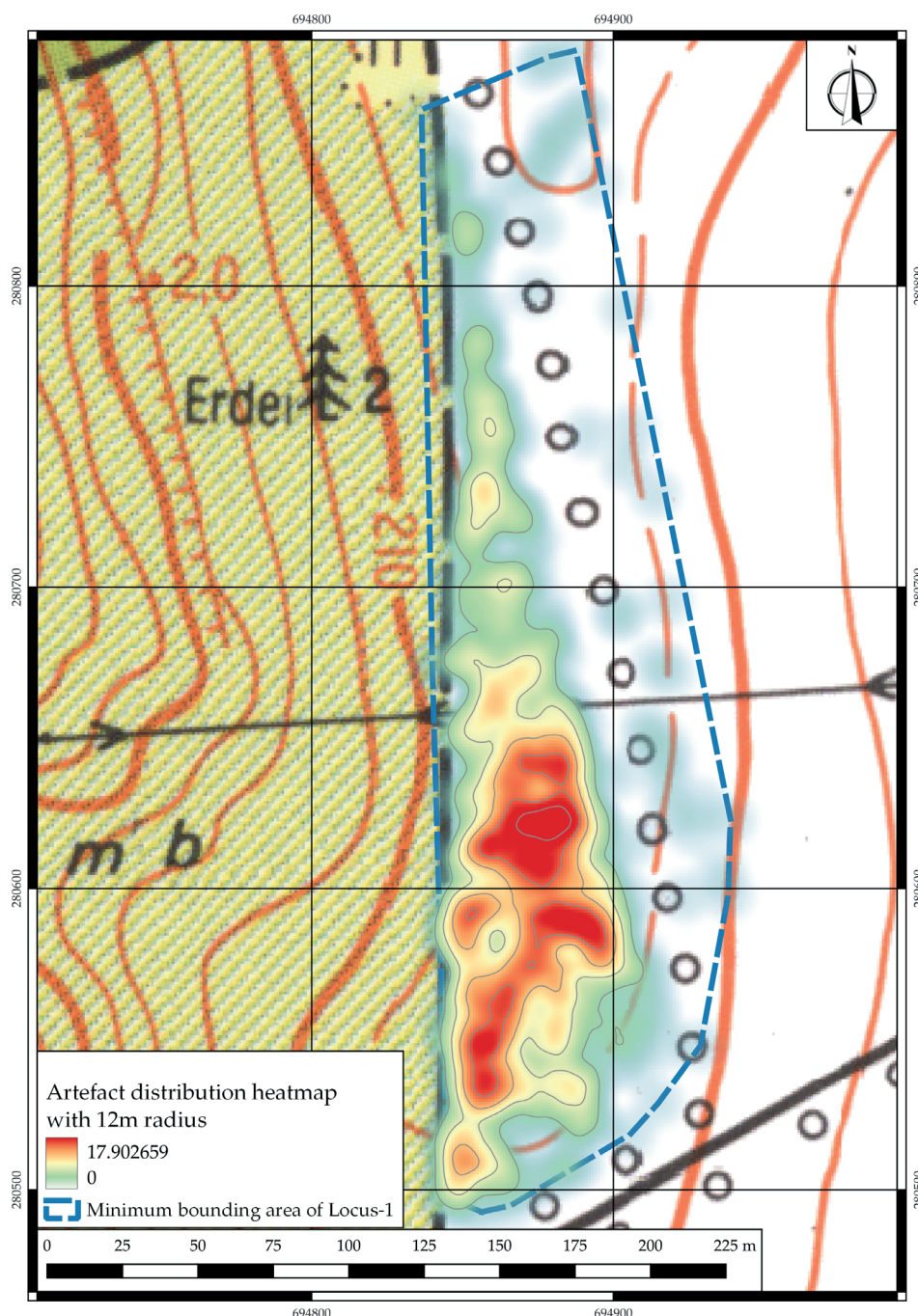


Fig. 15. Kernel density map of the scatter of artefacts ($d=12$ m).

Overall, both the Palaeolithic and Neolithic parts of the assemblages collected by László Tóth and the authors represent a flake industry.

The tools

The assemblage collected by László Tóth consists of 43 tools (3.72%). The dominant tool type is the end-scraper (23 pieces, 58.14% of the toolkit), of which twenty were made on flakes and three on blades. Based on morphological characteristics, twenty end-scrapers are Palaeolithic, but the remaining three cannot be dated. The end-scrapers are very diverse: some are two-pointed (*grattoir ogival*), three are high, and four are carinated (the latter were probably microblade cores).

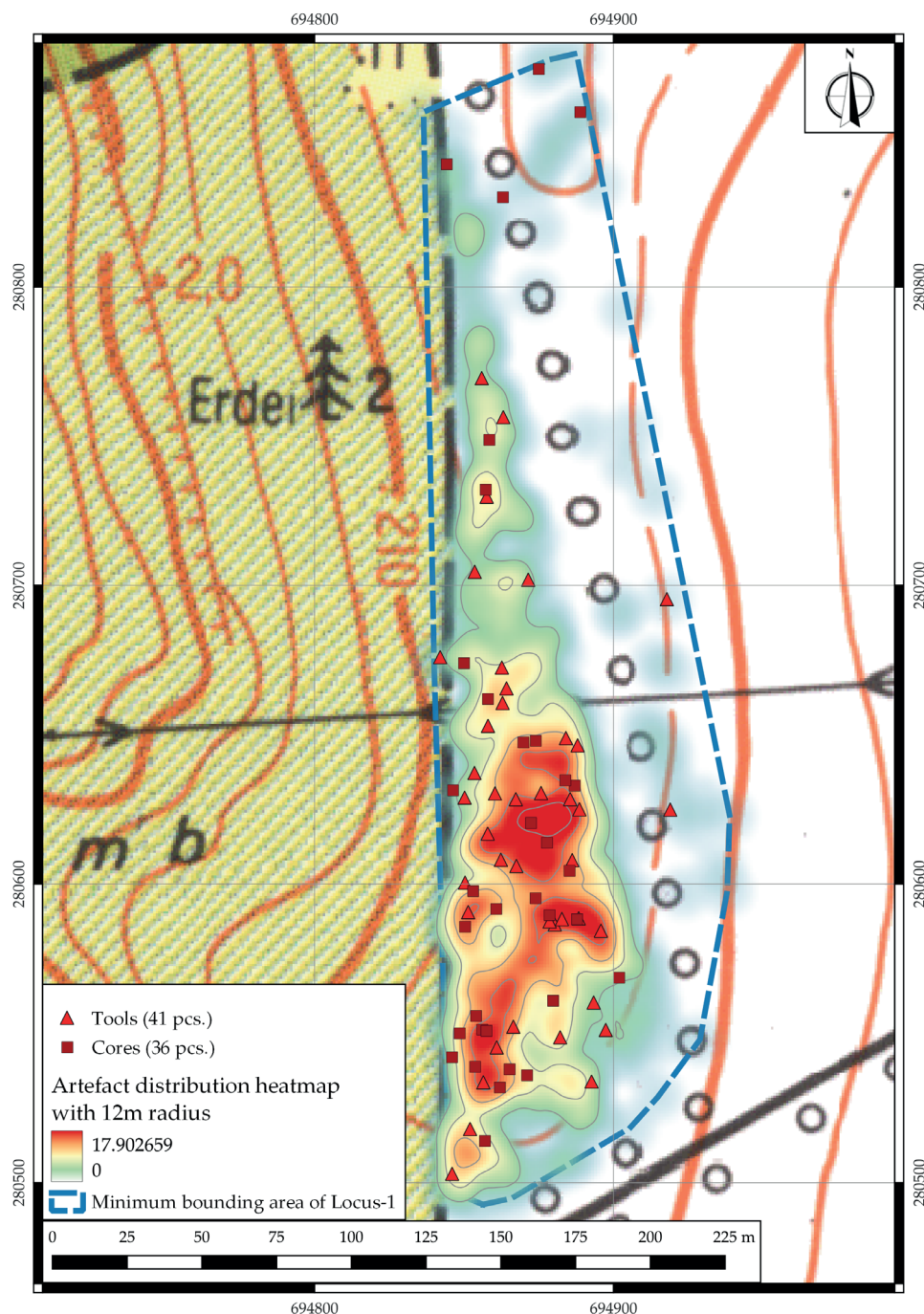


Fig. 16. Kernel density map of the scatter of tools and cores (d=12 m).

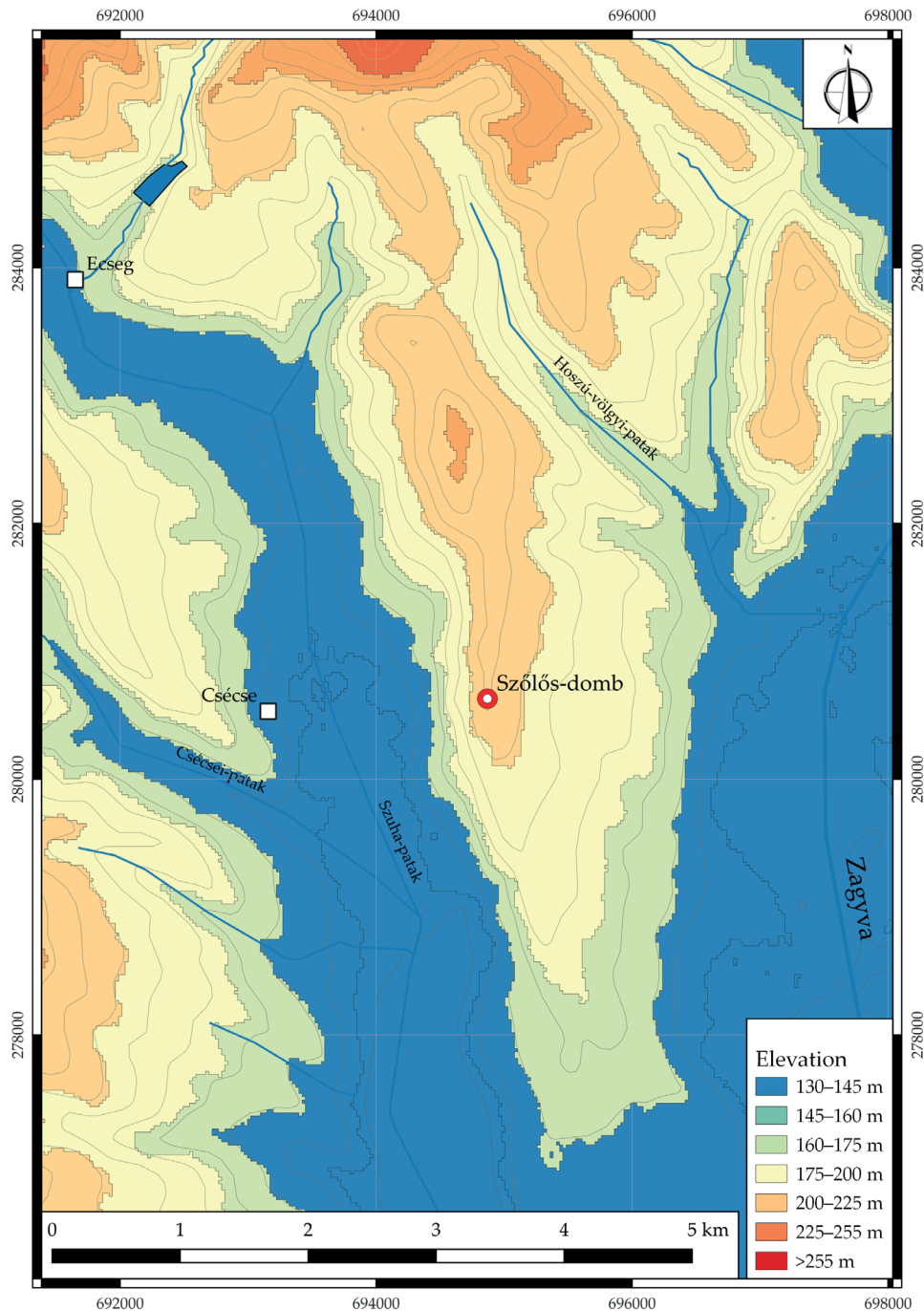


Fig. 17. Elevation map of Szuha Valley.

Two of the six rather atypical burins were made on microblades and four on flakes or raw material fragments. An angular burin made on a microblade and a burin made on an elongated flake may be Neolithic, but four are certainly Palaeolithic. The assemblage includes a few retouched blades (5 pieces), two side-scrapers, and other tools made on flakes. Overall, 32 of the 41 retouched tools were made on flakes and nine on blades or microblades.

The 44 stone tools collected by the authors represent 5.11% of the total. The dominant tool type is the end-scraper (23 pieces, 52.27% of the tools), of which 21 were made on flakes, and two on blades; seven are carinated (Fig. 4.2,6–7, Fig. 5.3, Fig. 6.3, Fig. 13.2,5), four are nosed (Fig. 4.1,3, Fig. 5.7, Fig. 13.3), and one is shouldered (this one is also a double end-scraper; Fig. 5.1, Fig. 13.4). These

are probably recycled microblade cores. Besides, there are also pointed end-scrapers and another double one (Fig. 5.6). Two burins were made on blades (Fig. 6.4,7), while a double burin (Fig. 6.5) was made on an undeterminable blank, either a damaged flake or a raw material fragment. The collection includes a few retouched blades (3 pieces, Fig. 7.7–8, Fig. 8.5) or microblades (one piece), five retouched flakes (Fig. 7.9), a double side-scraper (Fig. 8.8), a borer (Fig. 7.2), a notched tool, and four other, fragmentary or unclassifiable tools made on flakes. In summary, 35 of the 41 retouched tools were made on flakes and six on blades or microblades.

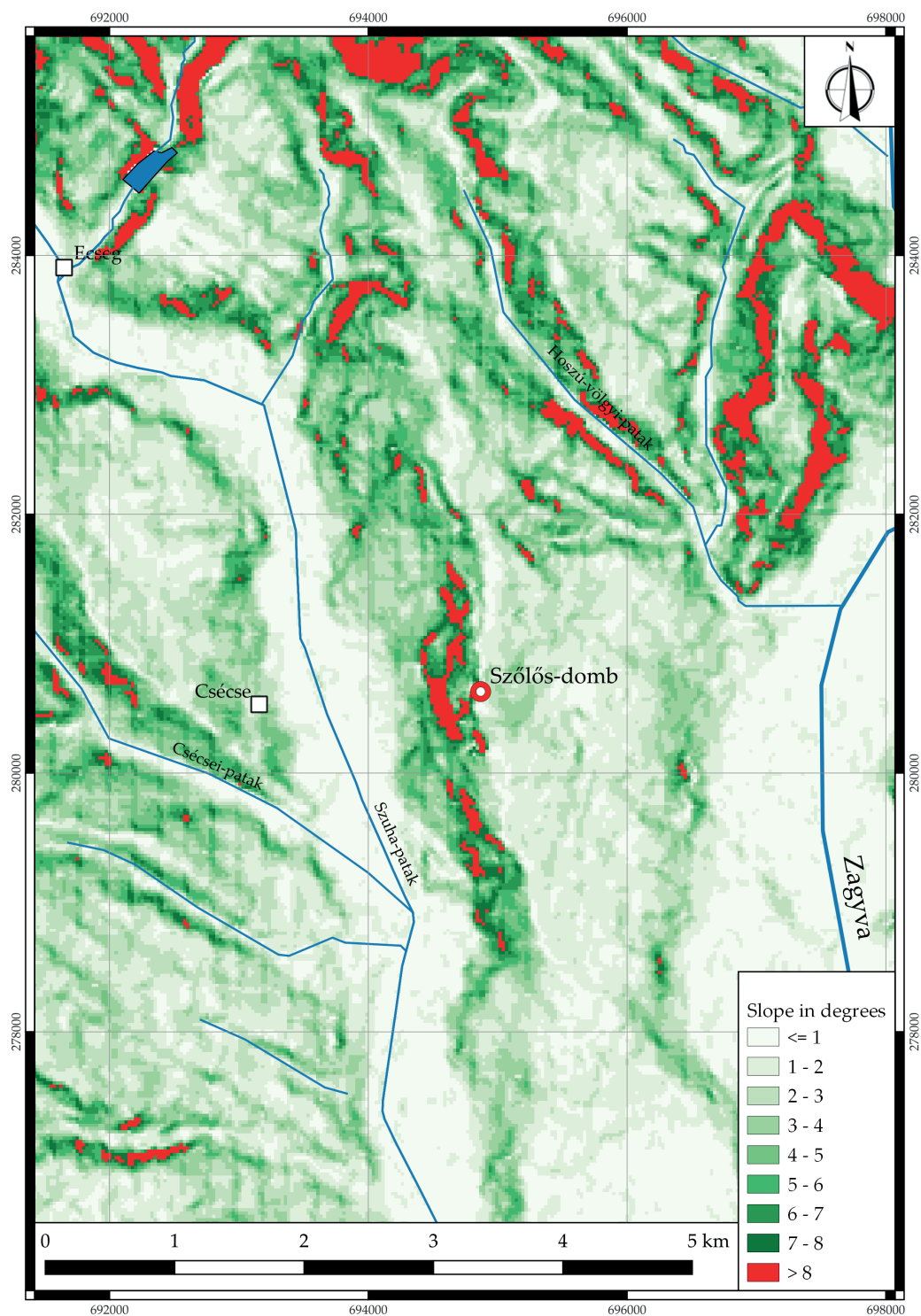


Fig. 18. Sloping of the terrain in the Szuha Valley.

Geospatial analysis

The authors collected 858 artefacts and recorded the coordinates of their findspots with a handheld GPS (Fig. 14; for clarity, only the tools, cores, pre-core stones, and the smallest possible site polygon outlined by their distribution are marked on the image). Fig. 15 presents a kernel density heatmap illustrating the distribution of finds, with a 12-meter radius used to define the local neighbourhood around each point. The spatial distribution of the artefacts is rather sporadic along the eastern edge and the northern part of Locus-1, which is clear evidence of the spatial distinction of Locus-1 and Locus-2. The higher artefact intensity in Locus-1 is limited to an area of 175×65 m (Fig. 15), but tools and cores are also present in the lower-intensity area in the north (Fig. 16). Based on the large number of cores, flaking products, byproducts of toolmaking, and the high variety of tools, the site was probably an occasionally (likely seasonally) visited hunting camp amidst gently sloping ridges stretching north-northwest to south-southeast between the Zagyva River and the Szuha Stream (Fig. 17). As the wide valley of the Szuha Stream with the small basin in the area of today's Ecseg village provided ideal grazes for prey animals, the Szuha Valley was likely the primary hunting area of the related communities.

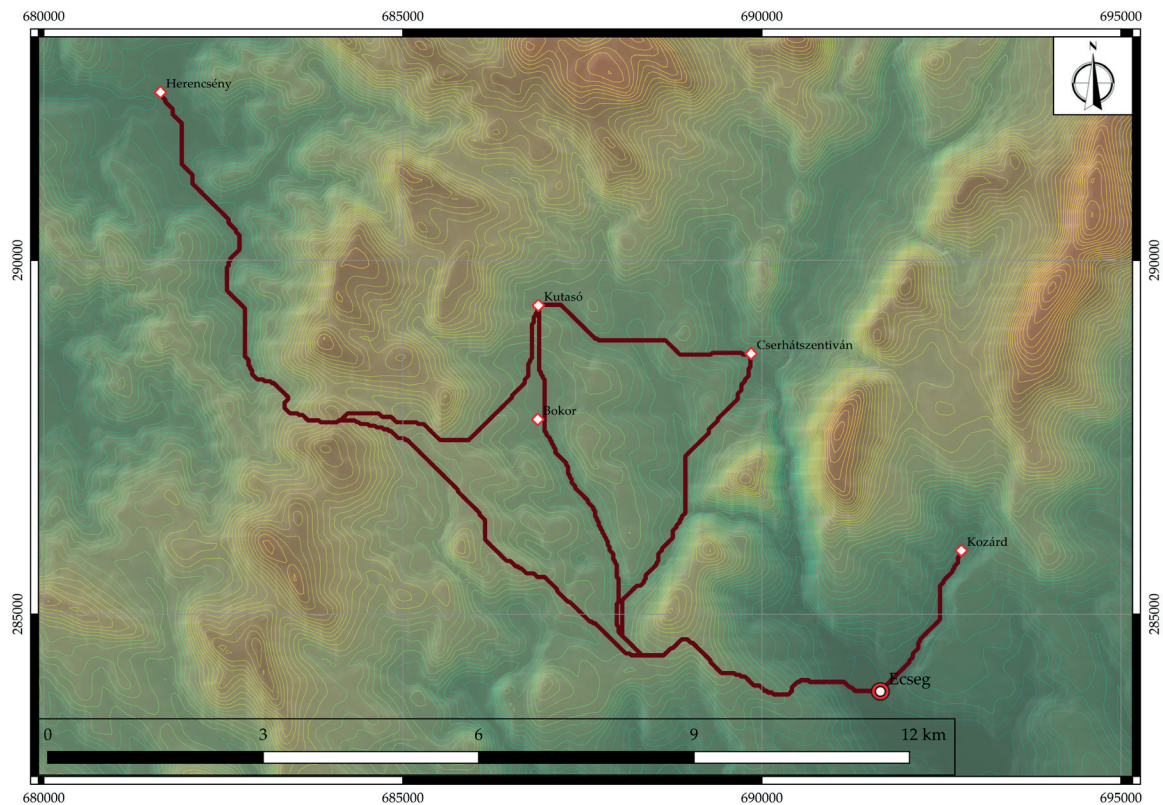


Fig. 19. Least-cost paths that prey arriving from the Ecseg Basin might have used.

Although the dating of the find is based only on technological and typological considerations, the site is clearly Palaeolithic. Therefore, the question of the hunting of the Pleistocene megafauna must be included in its discussion. The related archaeological literature consists mainly of studies on the migration and grazing behaviour of ungulates.

In their geospatial modelling of caribou migrations at Palaeoindian sites in northeastern Lower Michigan State in the US, Frank J. Krist and Daniel G. Brown,²⁷ drawing upon extensive literature

27 KRIST – BROWN 1994.

on animal behaviour, identified slopes of 8° (14.05%) or steeper to be the absolute limit for the movement of these animals. David Ganskopp and Martin Vavra²⁸ conducted studies on the slope use of various ungulates, including cattle, wild horses, deer, and Canadian wild sheep. Their research indicates that these species preferred slopes flatter than 19% on undulating or rugged terrain. Based on a large number of observations, Ganskopp *et al.*²⁹ investigated the grazing habits of cattle on undulating pastures. The average sloping of the pastures was 13.5% (7.69°), yet the slopes with cattle tracks were significantly flatter, averaging 8%, i.e. less than expected given the overall sloping of the pasture. The average slope of the trails was 5.2% (2.98°), markedly lower than the average sloping of the pastures and the terrain traversed by these trails. It can be assumed that these values can also be applied to the potential prey (Pleistocene megafauna) of the hunters inhabiting the site. Fig. 18 illustrates the sloping of the area in Fig. 17, revealing that theoretically, a large part of the area between the valleys of the Szuha Stream and the Zagyva River could have been suitable for animal migration, as the average sloping of the area is 2.96° (5.17%).

According to empirical data published by Eduard Imhof,³⁰ most studies applying least-cost path analysis use Tobler's hiking function³¹ to estimate travel times. Nicholas Tripcevich presented a practical adaptation of the function,³² taking into account only the sloping of the terrain; the calculated speed on flat terrain is 5.037 km/h. Archaeologist Patricia A. Murrieta-Flores³³ proposed a

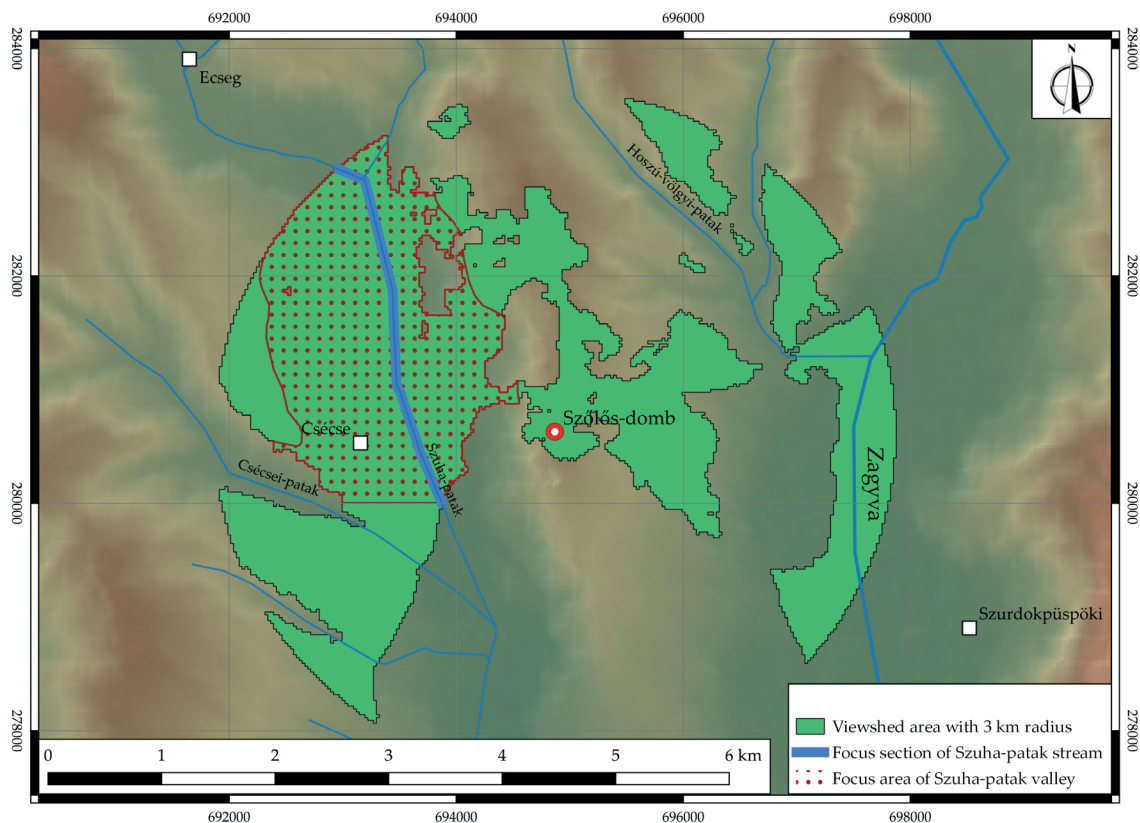


Fig. 20. Visibility within 3 km from the site.

28 GANSKOPP – VAVRA 1987.

29 GANSKOPP *et al.* 2000.

30 IMHOF 1950.

31 TOBLER 1993.

32 TRIPCEVICH 2009.

33 MURRIETA-FLORES 2012.

more realistic and acceptable function for estimating the speed of movement of migrating groups, assuming a travel speed of only 4.19 km/h. This data can presumably be applied in the case of the assumed migratory prey animals.

According to Steven G. Fancy and Robert G. White,³⁴ the optimal speed for caribou is between 3.0 and 4.1 km/h. The least-cost path network connecting current settlements north of Ecseg, generated with an eye on the constraint represented by steep slopes, is shown in Fig. 19. In the case of Kozárd, Cserhátszentiván, and Kutasó, a northbound path is not possible, likely due to the topographical complexity of the terrain due partly to the system of the Szuha Stream mentioned at the beginning of this article. Thus, the Ecseg basin could be entered and left in the north through the valley of the Zagyva River or in the area of Herencsény northwest of Ecseg, which suggests significant two-way animal migration in the valley of the Szuha Stream.

Finally, Fig. 20 shows the visibility within a 3 km radius of Locus-1 at an altitude of 210–215 m a.B.s.l. The areas marked in green are visible from the site, representing only 12.49 km², 44.17% of the 28.27 km² total. The thin blue lines indicate the streams in the surrounding area and the Zagyva River. A 3,529 m long section of the Szuha Stream, marked by a thick blue line, is visible from the site, and the 4.54 km² part of the valley with moderate slopes marked by the red dots may have been the primary hunting field. The site was most likely a short-lived hunting camp, its life connected to the optimal hunting conditions along both banks of the Szuha Stream.

Tab. 5. The totaled lithic toolkit by raw materials.

Tools / Raw material	Limnic silicite	Siliceous pebble	Bükk radiolarite	Silicified sandstone	Silicified aleurolite	Carpathian radiolarite	Erratic flint	Total	%
<i>End-scraper on blade</i>	5							5	6.10
<i>End-scraper on flake</i>	34	5	1	1	1		1	43	52.44
<i>Burin</i>	4	2					3	9	10.98
<i>Retouched blade</i>	5	1				1	1	8	9.76
<i>Retouched microblade</i>	1							1	1.22
<i>Retouched flake</i>	4	1	1					6	7.32
<i>Side-scraper</i>	2	1						3	3.66
<i>Diverse other tool</i>	5		1			1		7	8.54
<i>Total</i>	60	10	3	1	1	2	5	82	
<i>%</i>	73.17	12.20	3.66	1.22	1.22	2.44	6.10		100

Discussion and conclusion

The evaluation of surface find assemblages is always problematic, especially because sites with favourable topographical conditions usually contain artefacts from several different archaeological periods. In other words, the lithic records of these sites likely have a mixed character. In the case of the Locus-1 at Csécse-Szölös-domb, the tools collected by László Tóth and the authors can be dated by possible analogies. Based on typology, the vast majority of the tools are Palaeolithic. The few andesite ground stone tools and quartzite pebble hammerstones are not diagnostic, although they

³⁴ FANCY – WHITE 1987, 123.

are more likely Neolithic. Overall, we believe the analysed lithic material is a fairly homogeneous Palaeolithic assemblage with relatively small amounts of young prehistoric elements.

More than half of the 82 chipped tools (48 pieces, 58.54%) are end-scrapers, most of which were made on flakes (Tab. 5). Eleven of them are carinated; these are probably recycled microblade cores. The second biggest tool group is burins (9 pieces, 10.98%), most representing a simple angular variant. Eight retouched blades (9.76%), a retouched microblade (1.22%), and six retouched flakes (7.32%) can be classified as edge-retouched non-formal tools. The three side-scrapers account for 3.66% of the record. Other tools include a borer, a notched tool, and some non-classifiable fragments (7 pieces, 8.54%). Based primarily on the carinated end-scrapers, the assemblage was tentatively assigned to the Aurignacian technocomplex; currently, the Aurignacian-like assemblage rich in end-scrapers is unparalleled in Hungary.

A more accurate cultural attribution of the assemblage needs further field collecting surveys and test excavations. Concerning the name of the location ('Szőlös-domb'), it should be mentioned that on the map of the Second Military Survey of the Habsburg Empire (1819–1869), only the northern part of the road between Csécse and Pásztó was marked as an area under vine cultivation ('Szőlők', 'Szőlők Dűlő Domb' [Vineyard, Vineyard Field]). The map of the Third Military Survey of the Habsburg Empire (1869–1887) is misleading, as, in addition to that area, the area in focus is also named (erroneously) as 'Psz. Szőlő Domb' [Deserted Vineyard], although the area is not marked as a vineyard. The vines in the original 'Szőlők' area were certainly destroyed by the phylloxera epidemic in 1874–1914, and the area is no longer marked as a vineyard on the 1941 Military Survey map. Consequently, the area of the site has likely never been deep ploughed, that is, exposed to agricultural works causing substantial soil redeposition.

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