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Content

Uncovering Lithic Artefacts in the Dinaric Karst: Challenges of Field Survey in Bristivica near Trogir

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The Dinaric karst landscape presents challenging conditions for the implementation of standard field survey methods. The ubiquitous practices of intensive field clearance and a high level of parcellation of arable land resulted in various types of drystone walls and stone cairns at the edges of fields. In the Dalmatian hinterland, this practice was the main agency of intensive transformation of the landscape and thus the cause of alteration of the surface archaeological record. These factors resulted in a landscape fragmented into small drystone-bounded fields that are mostly unconnected and thus do not form continuous surfaces favourable for field survey practices. On the other hand, the recent general abandonment of agricultural activities, as a consequence of the continuous deruralisation of the Dalmatian hinterland, resulted in an increase in dense vegetation on abandoned fields, significantly reducing the surface soil's availability and visibility.

For these reasons, this paper presents an artefact-based field survey approach, adapted to the described conditions, simultaneously aimed at recording types of surveyed units (drystone wall, cairn, soil surface, scree, etc.) and their visibility rate. The procedure was carried out in the area of Bristivica village, located in the hinterland of Trogir, where different types of surface archaeological material were recorded. As the collected assemblage is marked by the significant presence of lithic artefacts and chert raw materials, the objective is to present the potential of the employed approach for detecting lithic scatters in a Dinaric karst landscape, as well as the difficulties that arise in evaluating the spatial context of their appearance and a more specific chronological frame to which they could be determined.

Keywords: *Central Dalmatia, surface archaeological material, Palaeolithic, lithic scatters, chert, raw material*

Introduction

Lithic scatters represent a significant element of the surface archaeological record, and their systematic recording, together with ethnographic records on hunter-gatherer societies, was instrumental in forming the comprehension of complex patterns of regional mobility, occupational systems and use of the landscape. The advent of systematic field surveys and the change of focus from conventional sites to individual artefacts as the main analytical unit of study placed the lithic scatters at the base for conceptualising Foley's off-site archaeology (Foley 1981), which, in turn, will have a significant impact on the further development of archaeological landscape studies.

Regardless of their significant presence in the landscape and somewhat extensive research, lithic scatters still represent an undervalued and poorly understood component of the archaeological record (Wenban-Smith 1995; Schofield 2000; Altschul 2005; Sirovica 2018: 58-61). The main reasons for their prevailing dismissal as a valuable data source can be attributed to the lack of contextual integrity, as well as the general absence of a significant quantity of chronologically diagnostic artefacts (Carr 2008: 188-191; Cain 2012: 208). The described challenges are further magnified by the fact that their significance is perceived as of a lesser value compared to the data quality of sites with high artefact and/or feature densities and preserved depositional contexts. This view towards surface archaeological data still prevails, regardless of its extensive criticism (Dunnell & Dancey 1983).

Adhering primarily to high-density definitions of archaeological sites had a significant impact on the general perception of the nature of the archaeological record which systematically excludes smaller sets of data (Plog et al. 1978: 387). However, a growing body of literature successfully surpasses such a rigid view and recognises the value of lithic scatters for archaeological inference, although issues regarding their management and protection within many cultural resource management policies remain unsolved (Rieth 2008: 5; Bond 2011: 41; Cain 2012: 208-210; Manning 2016: 7-8).

The interpretative value of lithic scatters is recognised by employing a wider regional view that transcends the conventional high-density site perspective as the concept of landscape opened meaningful possibilities for the comprehension of this type of archaeological phenomenon by treating different frequencies of archaeological surface finds as part of the continuous spatial variables whose informative potential lies in the relationship with other data on landscape characteristics (Briuer & Mathers 1996; Carman 1999; Altschul 2005). These considerations include both physical and symbolic dimensions of the landscape. With the growing popularity of social theory from the mid-1990s onwards, lithic scatters are being considered components of the socially constructed landscape and are interpreted as places of communal life, daily routines and habitual technological practices (Bond 2011: 32). Through the creation of places, lithic scatters are incorporated into the theoretical framework of human–landscape relationships and are consecutively a part of the processes that assign a social, symbolic and historical value to the landscape (Tilley 1994: 17-18).

In the background of such conceptualisation of the landscape, the methodological and theoretical development of artefact-based systematic field surveys is also located. Since the 1970s, the systematic field survey has become an extremely widespread research method, especially in the Mediterranean (Novaković 2008: 35; Knodell et al. 2023: 270), and in the 1980s, regional projects focused on the area of Dalmatia were also being established (Chapman 1989: 6; for individual projects see also Bintliff & Gaffney 1988; Chapman & Shiel 1988; Slapšak 1988; Bintliff et al. 1989; Chapman et al. 1996; Gaffney et al. 1997). Within the framework of regional research projects carried out in Greece (Bintliff 1985), Italy (Terrenato 1996), and also Croatia (Bintliff et al. 1989; Chapman 1989), some of the crucial theoretical and methodological principles of systematic field survey were developed. These encouraged principal considerations on the specific problems of systematic surveying of the Dinaric karst landscape, especially in the context of land use and agricultural practices (Slapšak 1988; Gaffney et al. 1991), which are reconsidered even today (Čučković 2012a; 2012b; Kulenović 2019; Dubolnić et al. 2020).

The Dinaric karst landscape is dominated by carbonate rocks and characterised by high susceptibility to natural processes, mostly connected with sub-surface hydrology and dissolution of the carbonate rocks (Lewin & Woodward 2009; Wainwright 2009). Under these conditions, the Dinaric karst represents a highly geomorphologically diverse environment characterised by a high rate of yearly rainfall but with a generally low surface water retention rate (Matas 2009). As such conditions are accompanied by significant temperature variability, the Dinaric karsts encompass a wide range of diverse climate conditions that range from typical Mediterranean to mountainous (Šegota & Filipčić 2003). Besides susceptibility to natural processes, the formation of the Dinaric karst landscape is highly exposed to intensive human impact, especially in areas with more substantial *terra*

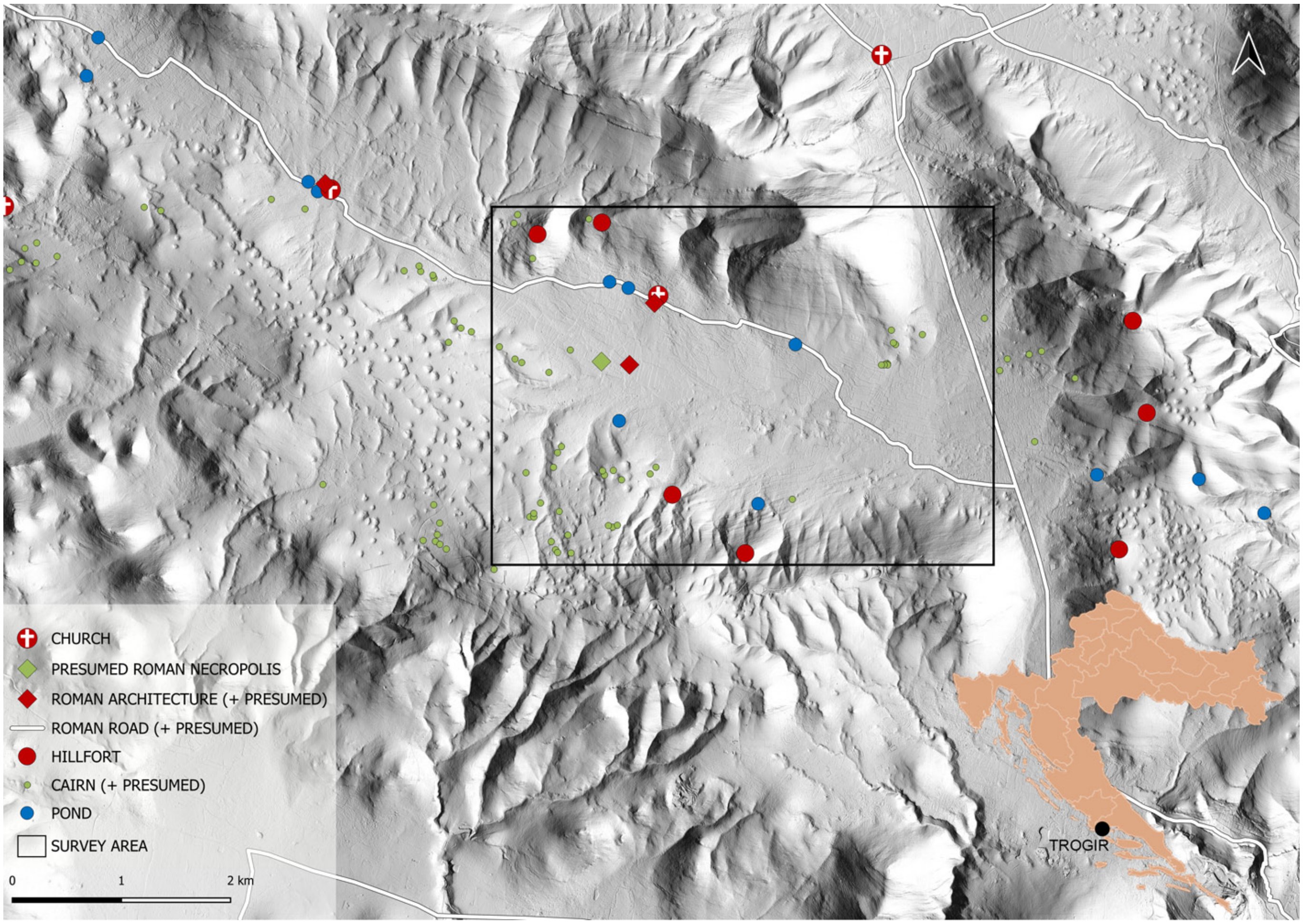


Figure 1. Location of survey area with known archaeological remains in the wider area of Bristivica (made by L. Paraman, M. Bažoka; basemap: State Geodetic Administration of the Republic of Croatia – Digital Elevation Model from Laser Scanning Data in a resolution of 1x1 m, DEM-DGU).

rossa soils. The ubiquitous practices of relief modification and soil cover displacement through terracing, intensive field surface clearance, and a high level of parcellation of arable land resulted in a landscape fragmented into small drystone-bounded plots and terraces, today mostly abandoned and covered in dense vegetation.

These very features are characteristics of the wider area of Bristivica village, where a small-scale field survey project has been carried out thus far.[1] Bristivica is located in Split-Dalmatia county, in the hinterland of Trogir (Fig. 1). This is a karstic valley, *polje* in Karst geomorphological terminology (Monroe 1970), surrounded by a 700 m high Vilaja mountain on the north, Labinštica mountain in the east, and somewhat lower mountains on the south and east. The valley and its surrounding hills and mountains have a characteristic Dinaric direction of extension from the northwest to the southeast. Towards the west, the valley ascends into a karstic plain covered by shrubby vegetation and occasional groves, and with many karstic dolinas. The valley is predominantly used for agriculture with a significant proportion of natural plant cover surrounded by successional forests in the middle and on the edges of the valley. Successional forests, together with Mediterranean shrubby vegetation, natural grasslands and deciduous forests, are also present on the slopes of the surrounding hills and mountains (CLC 2018).

A geological map of Croatia, available on a scale of 1:100 000, shows lithostratigraphic units related to Upper Cretaceous limestones (Marinčić et al. 1971). The north-

[1] The survey was conducted as part of the "Beyond Town Walls" project, carried out in collaboration between the Trogir Town Museum and the Archaeological Museum in Zagreb and it is aimed at valorization and long-term preservation of archaeological heritage in the wider Trogir surroundings. The overall results of the Bristivica field survey were processed as part of MA thesis "Metodologija sustavnog terenskog pregleda krškog krajolika na primjeru zaleđa Trogira" (Bažoka 2024) at the University of Zadar.

Figure 2. Aerial photo of the Bristivica landscape (photo by M. Bažoka).

ern part encompasses the southern slopes of the Vilaja mountain and consists of bouldery and layered limestones with layers of dolomite of the Senonian age, while the lowland part consists of limestones of the Turonian age. To a lesser extent, the existence of clastic and carbonate flysch deposits of Eocene age is possible, which is better represented and mapped in the Labinštica area. In terms of pedology, apart from rocks, the area is covered with brown soil and clay, while Holocene deposits of the *terra rossa* type were confirmed in the field during the survey. All present soils were formed by intense chemical weathering of the carbonate matrix under the influence of rainwater (Magaš & Marinčić 1973; Vukadinović & Vukadinović 2011).

The area has no constant natural water supply in terms of flowing water or lakes. The only water sources are, for karst characteristic natural phenomena, ponds (Croat. *lokve*). The most notable in terms of size and importance is the pond in the centre of Bristivica village, whose water level is maintained by artificial means. In the middle of the valley, close to the centre of the village, there is a small stream channel through which, depending on the intensity of rainfall, water flows intermittently.

Due to the lack of sufficient archaeological research, the history of the area of Bristivica village is scarcely known. Most previously recorded archaeological features refer to visible aboveground structures on the mountains and hills surrounding the valley. Among them, the most notable are prehistoric structures defined as the Bronze and/or Iron Age enclosures located on hilltops (Babić 1984: 28, 31-32; Miletić 2007; Šuta & Bartulović 2007: 20, 40; Šuta 2009: 152-153; 2010: 14-15; Bažoka 2020: 34-43; Paraman et al. 2020: 250-252). Other potential prehistoric remains are many stone cairns (Croat. *gomile*) that are mostly concentrated around the valley edges (Madiraca 2012: 21-24, 30-37; 2013: 828; Paraman et al. 2020: 250; Bažoka 2020: 20-24, 31-33, 43-44; Kudelić et al. 2023: 105-106). Regarding later historical periods, there

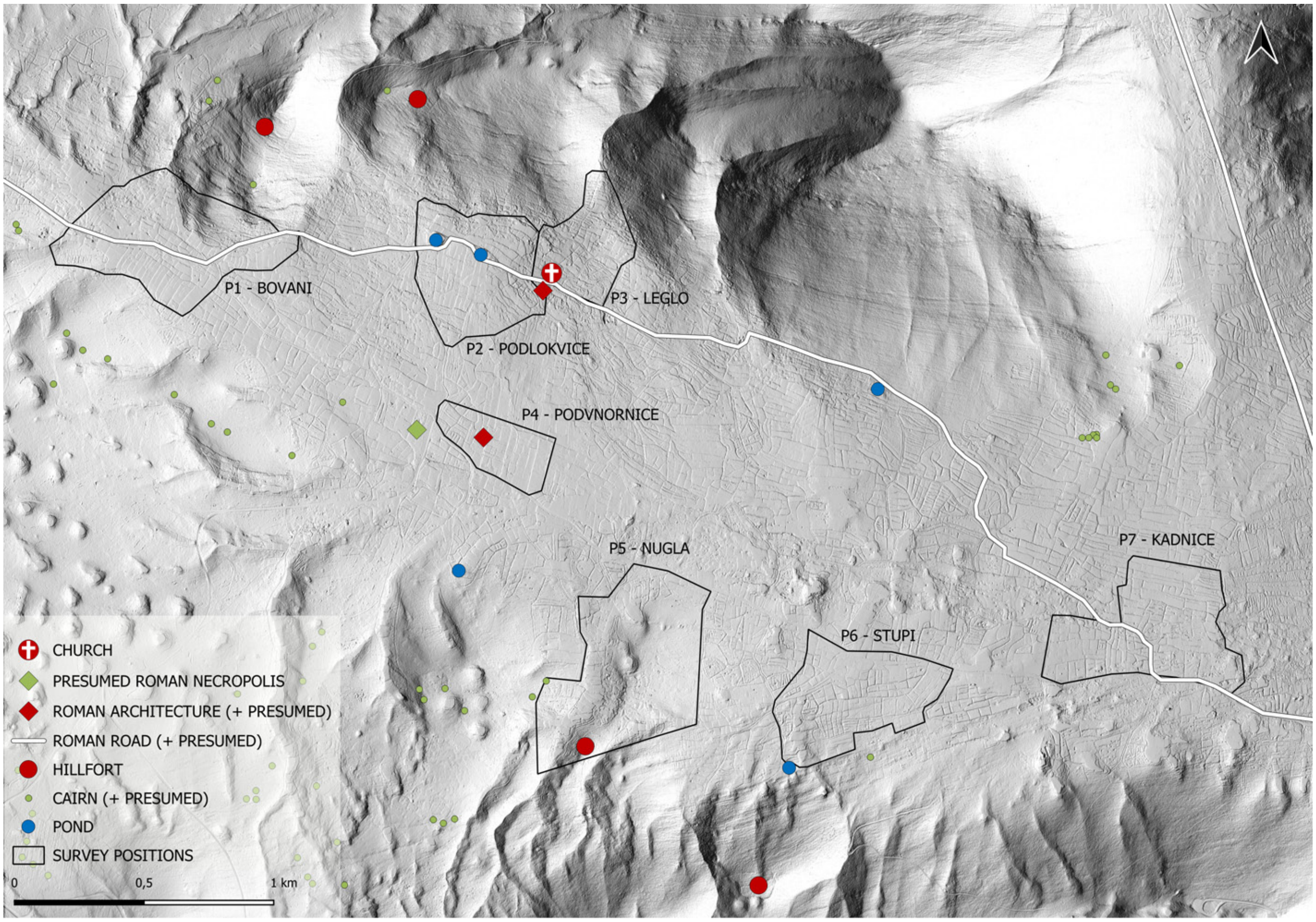


Figure 3. Division of the survey area into seven positions (made by M. Bažoka; basemap: DEM-DGU).

is even less data. Few grave goods brought by the locals to Trogir City Museum in the late 1970s indicate the existence of a Roman-period cemetery while one record in the older literature also mentions the remains of Roman architecture (Babić 1984: 51, n. 50). In the early mediaeval period the area of Bristivica village is known to be a royal feudal estate in Croatian, and later Hungarian-Croatian Primorje (Klis) county (Croat. *županija*, formally established in 9th c. CE), which was passed on to Trogir municipality in 1251. by King Belá IV as a privilege for their help during the Mongol invasion (Burić 2020: 54-55; Bećir 2023: 16-17). Late medieval historical records indicate a well-populated and developed medieval village until the start of the Ottoman raids and later Ottoman-Venetian wars in Dalmatia (Burić 2020: 60, 147, 175; Bećir 2023: 21-22), which was at the time also a parish centre for the surrounding villages of Trogir municipality (Andreis 1977: 195-196, 309-310).

Materials and methods

The landscape of Bristivica is characterised by numerous above-ground drystone structures which form a series of scattered smaller fields under a sporadic tillage system and are generally covered with dense vegetation which contributes to poor ground visibility (Fig. 2). However, the poor visibility is somewhat compensated for by the presence of many above-ground drystone structures, primarily drystone walls and stone cairns. Those structures are a product of local field-clearing practices which are aimed at obtaining as much arable land as possible. During that process, different artefacts are often moved together with the stones. Although through this process the material may undergo multiple displacements, in general, it can be assumed that it would not be displaced too far from its original context.

To adjust the survey methodology to the described conditions, the fieldwork procedure was based on the theoretical and methodological framework developed in the wider Mediterranean area (Bintliff 1985: 200-207; Bintliff et al. 1989: 43-44; Terrenato 1996: 217-221) but methodologically adapted to the specific conditions that occur in the Dinaric karst landscape, anticipating the low level of land cultivation with low visibility of surface soil but with frequent presence of surveyable above ground drystone structures (after Slapšak 1988; Gaffney et al. 1991).[2] Before the fieldwork, the area of Bristivica was divided into smaller units designated as positions. The criteria for selecting positions were the landscape characteristics, recognisable on the Croatian basemap and orthophotographs, that are suitable for conducting a field survey. Criteria primarily included steepness and surface visibility, so the positions that were selected are not too steep and are either not covered by dense vegetation or have an above-ground drystone structure. Also, the assumed archaeological potential of the area based on previous knowledge was taken into account. The predetermined positions were marked with a unique label consisting of the abbreviation P (position), unique numbers and toponym, which were taken from the topographic map (TK25, 1:25000) and the Croatian basemap (HOK, 1:5000). In this way, the area of Bristivica is divided into a total of seven positions (P1–7; Fig. 3).

The field survey was conducted by three participants for nine days. Regarding the situation established in the field and depending on the determined visibility, each predetermined position of the survey was divided into smaller spatial units – locations. Locations were marked with a unique label that consists of the letter L (location) and a unique numeric mark. The main criterion for recording the location was a minimum visibility of 50%. Types of locations were also recorded and they were categorised as fields, drystone walls or sub-walls, or as rubble, cairns, scree, etc. This approach enabled the analysis of data on the distribution of surface archaeological material relative to the type of location and visibility quality. The position of each surveyed location was recorded with coordinates obtained with a hand-held GPS device, and all locations were drawn and sketched on a printout of a digital orthophoto map and photographed. At the same time, every artefact was recorded, while all the data was written into the predesigned forms. Based on GPS data, field sketches, and orthophoto maps, all surveyed locations and constructions were drawn in a GIS environment and attributed with collected data in a tabular form.

[2] A methodological approach developed for this purpose was for the first time used during research conducted as part of the project of a systematic field survey of the municipality of Baška on the island of Krk (Sirovica & Mihelić 2018; Sirovica 2019; Sirovica et al. 2020), and then further elaborated during a field survey in the wider Trogir surroundings.

According to pre-agreed criteria, finds were separated and counted by type, while all statistically and diagnostically significant archaeological material was collected for post-processing. These were, first of all, fragments of pottery, and then other types of archaeological finds: for example, lithics, metal, slag, glass, etc. Simultaneously, building materials, mostly bricks and roof tiles were quantified, occasionally photographed and left on-site. As the area is quite rich in chert, which can only by indirect evidence be considered as raw material and mostly represents natural fragments or geofacts, finds of chert were differently processed. As counting each piece would be impractical and time-consuming, chert was mostly tentatively quantified and its general presence was recorded as low, medium or high, while samples from all locations were collected, giving priority to pieces most likely to present artefacts.

Results

The systematic field survey of the wider area of Bristivica covered a total of seven positions (P1–7) within which a total of 396 locations were surveyed. The data collected refers to the spatial distribution of surface archaeological material on a total area of about 100 ha. A total of nine different types of locations were registered, of which, in terms of quantity, walls and fields dominate (Fig. 4). Among various types of archaeological artefacts (Fig. 5), fragments of pottery predominate. However, the most numerous finds are different pieces of chert, as the counted chert represents only a part of the determined quantity. As the presence of chert is quite substantial throughout the research area, only the pieces that could be considered artefacts or potential raw materials were collected and counted. In most locations, due to its exceptional abundance, the presence of chert was estimated as low, medium or high (Fig. 6). The distribution map shows its highest presence is towards the north and northwest of the valley, at the southern foot of the Vilaja mountain.

Of the 384 pieces of chert collected, 118 (31%) can be considered artefacts, i.e. classified into the categories of standard techno-typological analysis based on morphological features. The rest of the collected material consists of fragments of chert created by natural cracking processes as well as surface alterations due to anthropogenic influences such as tillage. The majority of artifacts (75%) were found on fields or soil surfaces while only a minor number were recorded on drystone structures.

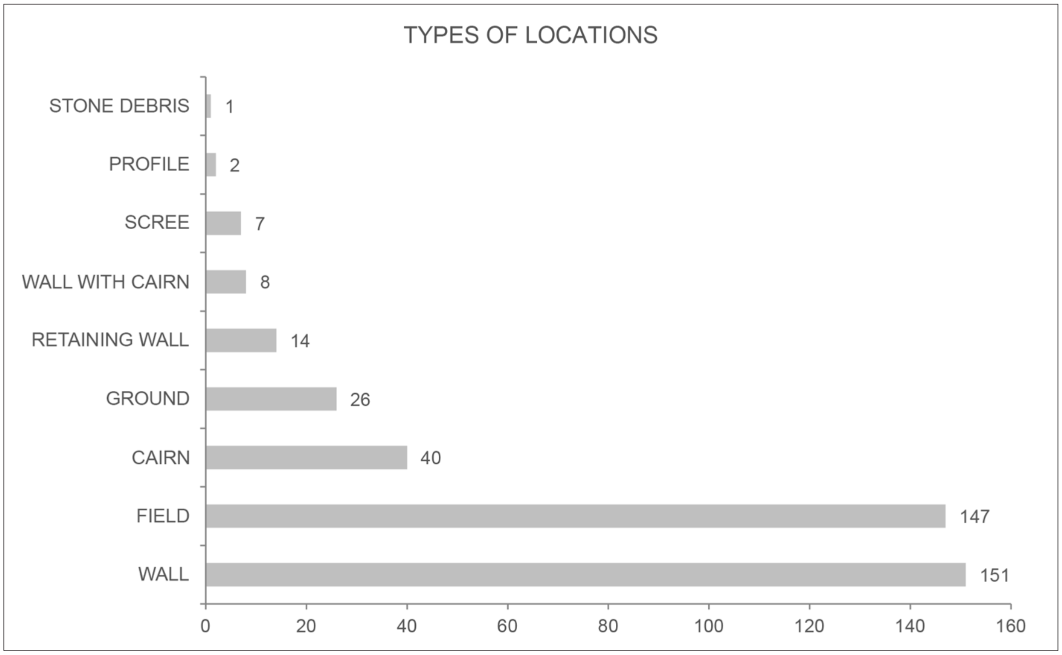


Figure 4. Types of locations recorded during the survey (made by M. Bažoka).

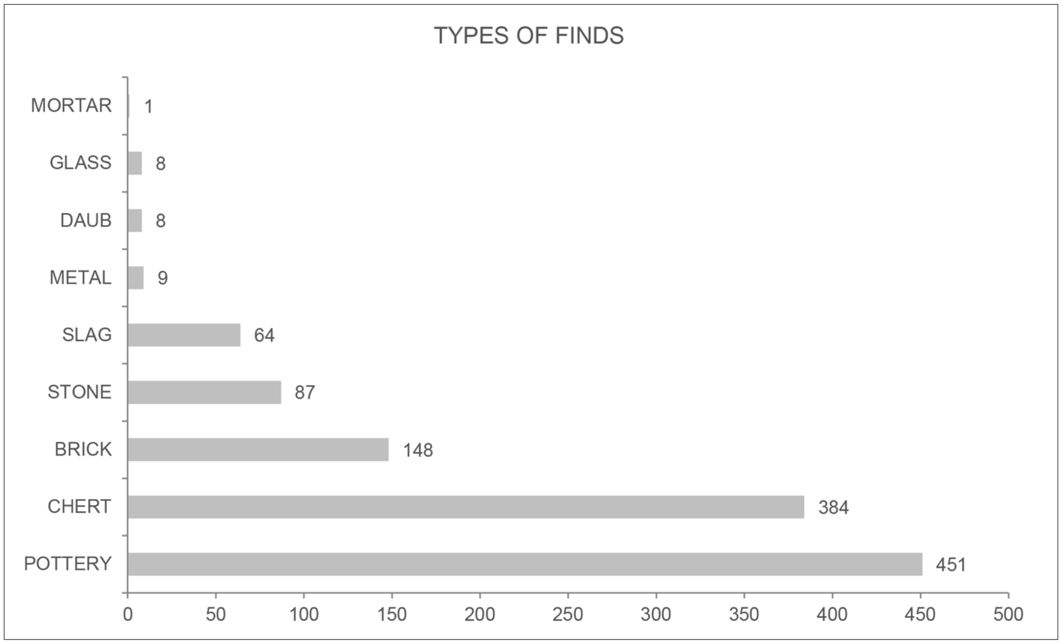


Figure 5. Types of finds collected during the survey (made by M. Bažoka).

The conducted lithic analysis was primarily focused on the separation of artefacts from geofacts and other materials, following the protocol established by Lubinski (Lubinski et al. 2014), with the application of the principle that the attribution of pieces is carried out following the generally prevailing characteristics. This subjective approach leaves the possibility of incorrect attribution, which was to some extent compensated by prioritising the characteristics suggested for geofacts during the final classification. Technological analysis was carried out by classifying materials into basic categories, according to their place in the production process (Inizan et al. 1999). The category *undeterminable* was added for fragments of debitage whose original shape could not be determined due to subsequent fractures. The technological analysis determined that in the total inventory of 118 artefacts (Fig. 7, 8), the most numerous technological category of finds are cores (n=47; 40%), which together with core fragments (n=12; 10%) represent half of the artefacts (T. 1: 1–2, 4, 7; 2: 3, 5). Among the deb-

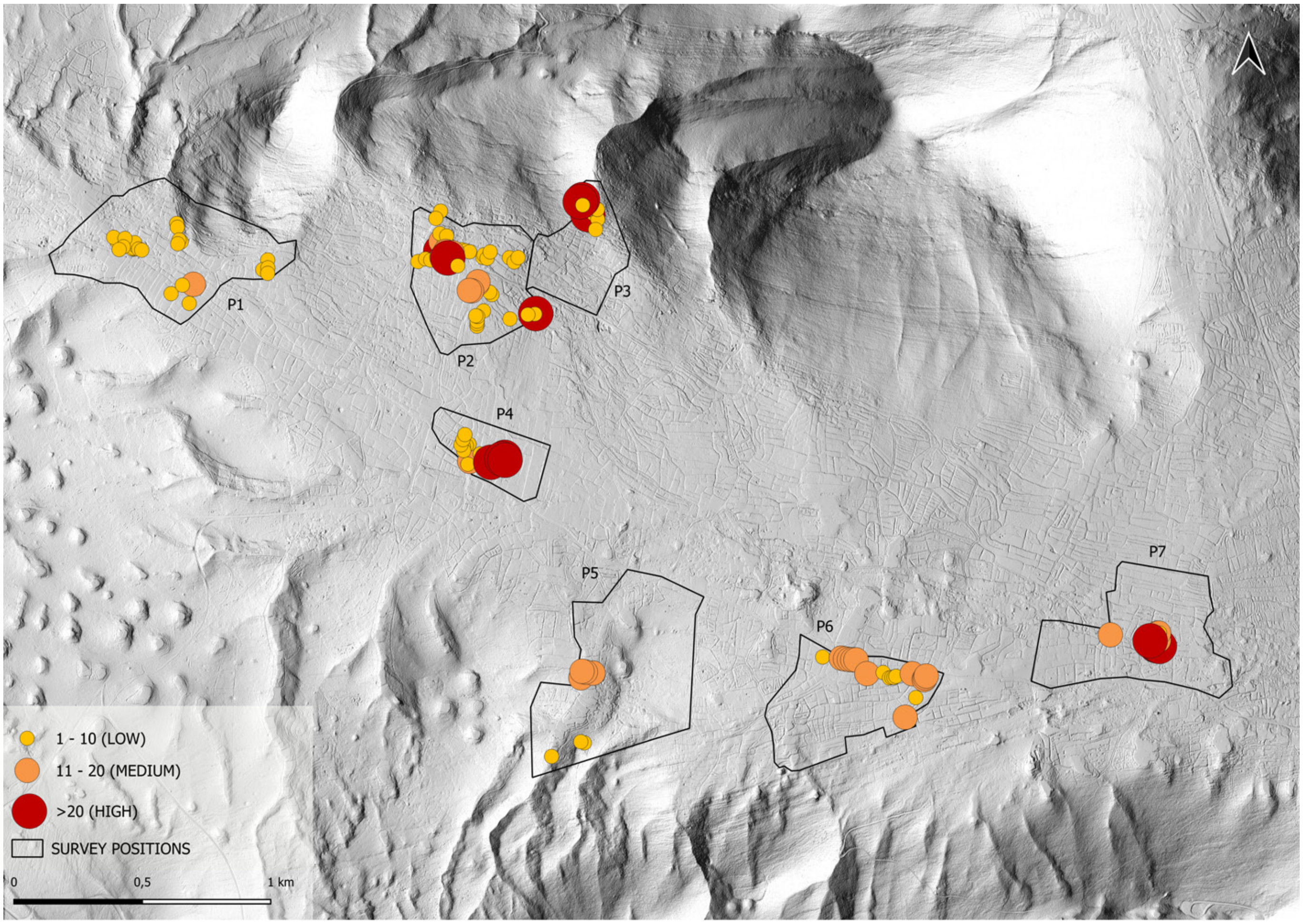
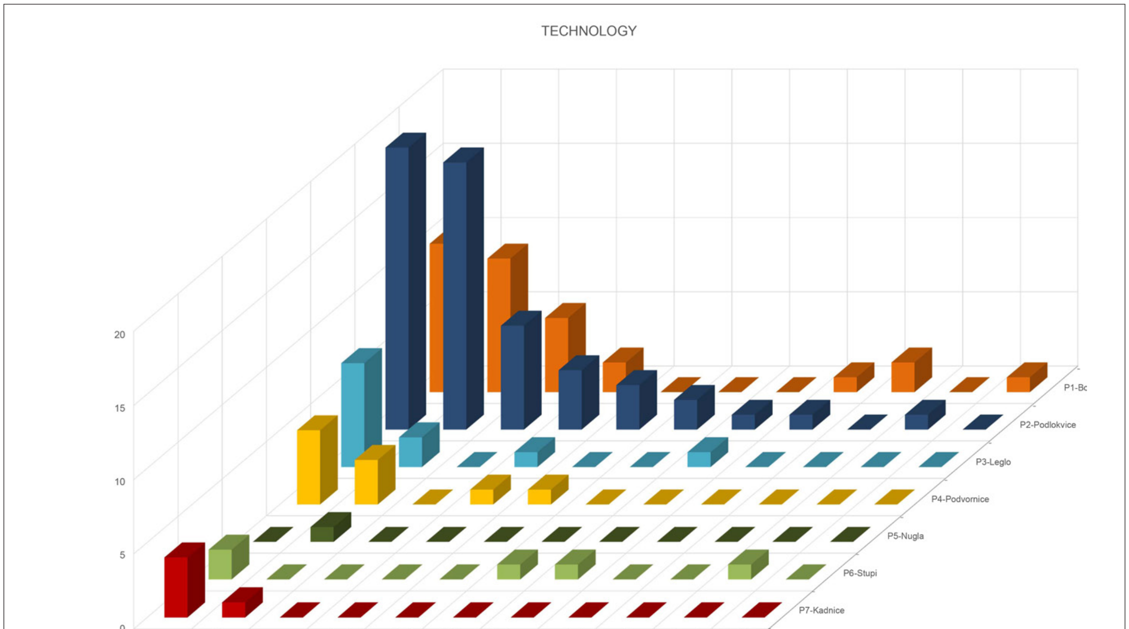


Figure 6. Spatial distribution of chert (made by M. Bažoka, basemap: DEM-DGU).

itage products in total assemblage, the most common are flakes (n=34; 29%), while blades and bladelets are very rare (n=3; 3%). Blades and bladelets are of irregular shape (T. 1: 5), often with remnants of the cortex, and do not indicate the standardised organisation of production or the organisation of the core. The same can be said for the collected cores, which are mostly amorphous. In general, these are flake cores, with multi-directional debitage, on which the roundness and wear of the edges can be noticed, which in some cases have significantly changed the morphology of the object.

Cortex was recorded on less than 10% of the material, which can be partly explained by the discrimination during the survey. As the collection procedure prioritises pieces with possible negative fractures, i.e. evidence of conchoidal breakage as one of the main characteristics of lithic artefacts, limestone cortex would be more often dismissed as a geofact. Positive discrimination during collection, on the other hand, may partially explain the high proportion of cores, which are easily detectable due to the recognisable traces of negatives and the sheer size.

Most of the artefacts on the surface have visible taphonomic changes, primarily patination, which is most pronounced on the material collected in lowland locations. There, iron oxide stains predominate, which probably developed in contact with the geological matrix of the red clay of the *terra rossa* type. Fractures and patina consistent with burning processes are also present in some positions (P1-Bovani and P4-Podvornice). Post-depositional processes of anthropogenic character, such as field cultivation and ploughing, which are credited for the creation of most geofacts, are also evidenced on artefacts in the form of fractures and small edge removals. In some cases, the latter were difficult to distinguish from intentional finishing or retouching, and they were



	core	flake	core fragment	semicortica l flake	cortical flake	blade	platform renewal flake	cortical blade	nodule	undetermin ed	bladelet
P7-Kadnice	4	1	0	0	0	0	0	0	0	0	0
P6-Stupi	2	0	0	0	0	1	1	0	0	1	0
P5-Nugla	0	1	0	0	0	0	0	0	0	0	0
P4-Podvornice	5	3	0	1	1	0	0	0	0	0	0
P3-Leglo	7	2	0	1	0	0	1	0	0	0	0

Figure 7. Frequency of technological categories in assemblages from various positions (made by M. Bodružić).

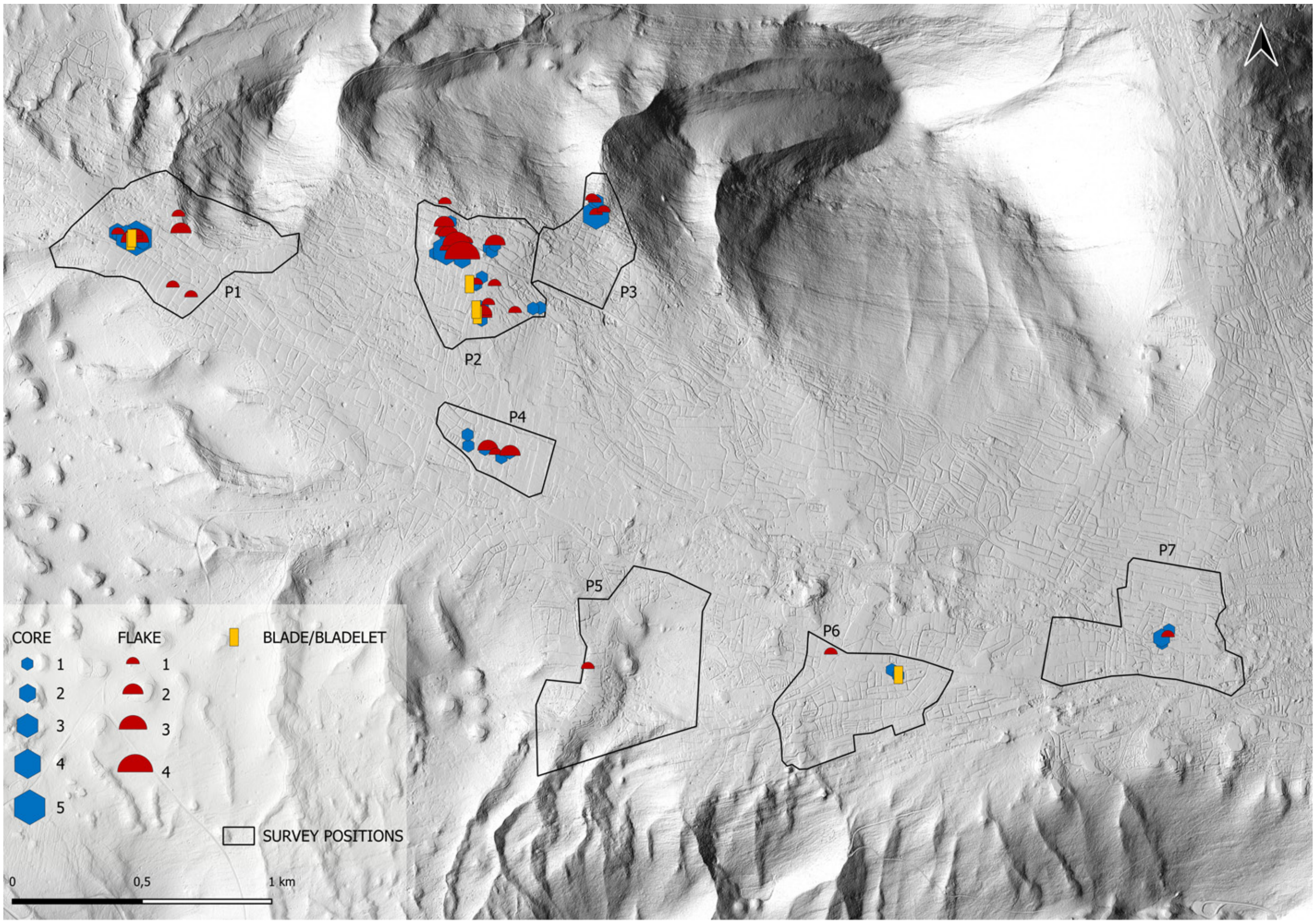
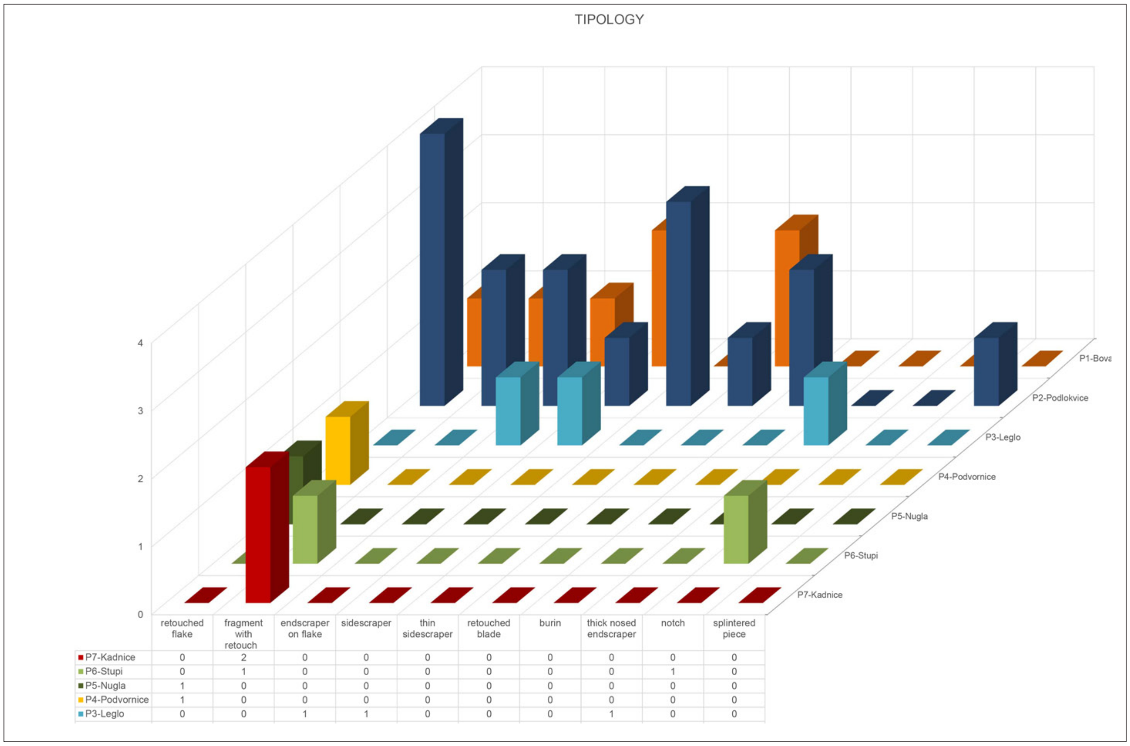


Figure 8. Spatial distribution of cores, flakes, and blades/bladelets (made by M. Bažoka; basemap: DEM-DGU).



	retouched flake	fragment with retouch	endscraper on flake	sidescraper	thin sidescraper	retouched blade	burin	thick nosed endscraper	notch	splintered piece
P7-Kadnice	0	2	0	0	0	0	0	0	0	0
P6-Stupi	0	1	0	0	0	0	0	0	1	0
P5-Nugla	1	0	0	0	0	0	0	0	0	0
P4-Podvornice	1	0	0	0	0	0	0	0	0	0
P3-Leglo	0	0	1	1	0	0	0	1	0	0

Figure 9. Frequency of typological categories in assemblages from various positions (made by M. Bodružić).

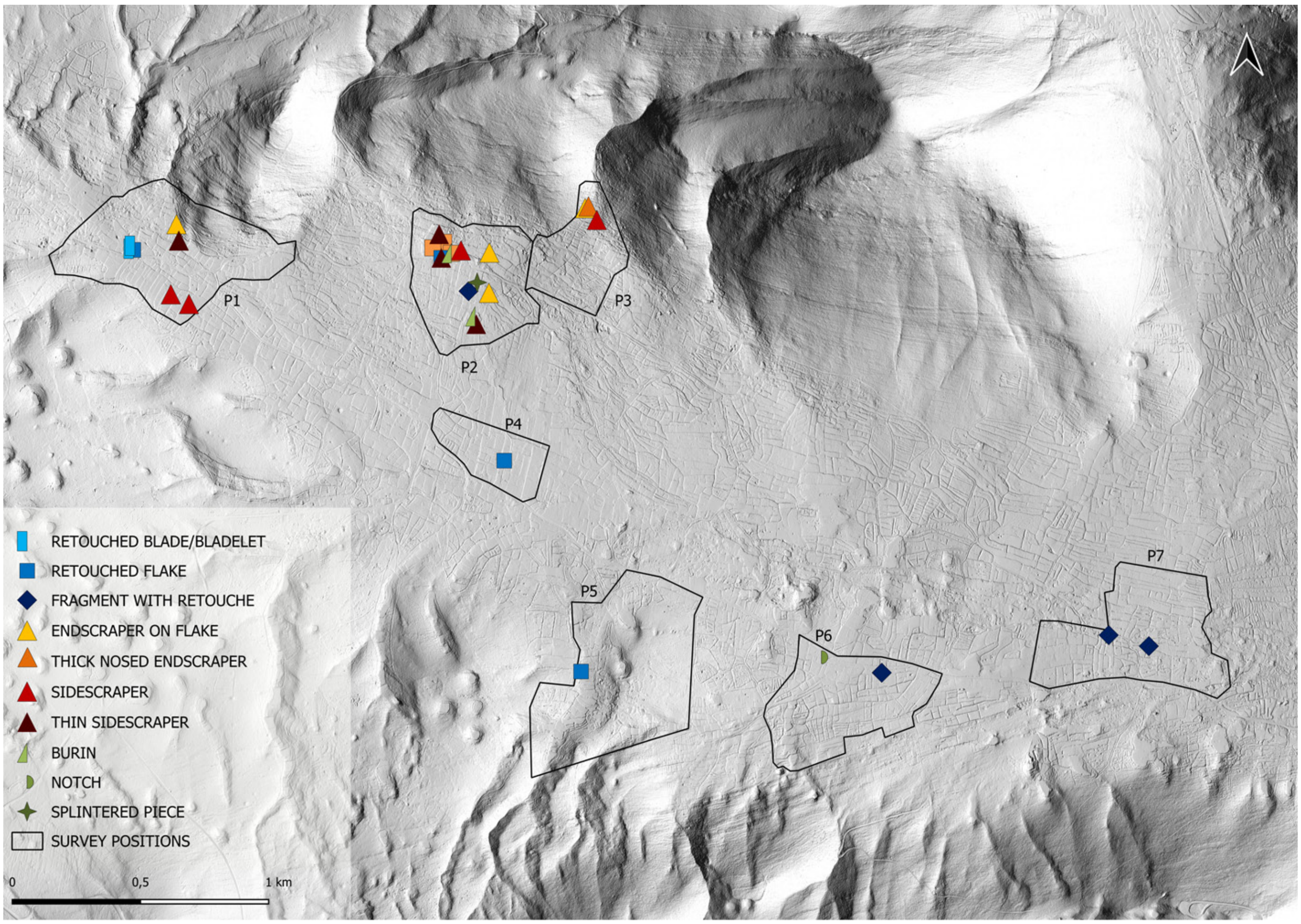


Figure 10. Spatial distribution of lithic tool types (made by M. Bažoka; basemap: DEM-DGU).

excluded from the typological categories unless the morphology of the retouch or the entire piece suggested an intentional action of tool shaping.

Most of the artefacts had traces of small fractures on the edges, and some of the retouched pieces showed subsequent edge fractures that overlapped with older ones. Among them, 32 pieces, or 34%, can be considered tools (Fig. 9, 10) and are classified according to retouch characteristics, morphology and position of retouched edges within the categories of basic typological analysis (Debénath & Dibble 1994). The assemblage is dominated by general types such as retouched flakes (n=7; 21.9%; T. 1: 6; 2: 7) and retouched fragments (n=6; 18.8%), as the category that represents fragmented tools that could not be determined more precisely. Several endscrapers (n=4; 12.5%; T. 1: 3-4; T. 2: 1) and sidescrapers (n=4; 12.5%; T. 2: 4, 6) were also found, followed by thin sidescrapers (n=3; 9.4%; T. 2: 2), retouched blades (n=3; 9.4%; T. 1: 5) and burins (n=2; 6.3%). Thick-nosed endscrapers, notches, and splintered pieces (T. 2: 3) are represented with one specimen each.

The largest number of artefacts were collected at the positions of P2-Podlokvice and P1-Bovani, while at other positions they rarely occur. Geofacts and chert fragments, despite not being the products of human action, suggest the presence of raw material both in positions at the foot of the surrounding hills (P3-Leglo and P1-Bovani), and in low-lying positions within the karst fields (P2-Podlokvice, P4-Podvornice and P6-Stupi), while two nodules at the P1-Bovani position additionally confirm that the source of raw material is located somewhere in the immediate vicinity.

Discussion

As a ubiquitous type of site, lithic scatters display extensive variability in size, patterning and composition. The majority of them, as deprived of depositional contexts, are considered of low interpretable value, although in many regions lithic scatters are the only available data from certain periods (Carr 2008: 191-192; Billington 2016: 22). This is especially true for arid and semiarid environments where identifying archaeological evidence of human occupation is often problematic (Knight & Stratford 2020). The available literature does not provide a universal definition of this type of archaeological record, and they are commonly described as assemblages mostly or completely consisting of debitage (Reith 2008: 1-2; Manning 2016: 5-6). Accordingly, it is relevant to perceive traceable archaeological evidence on the surface as a reflection of human activities in the landscape, which can be analysed independently or relative to high-density locations. With the advent of systematic field surveys, emphasised by processual archaeology, the recognised importance of surface archaeological data resulted in its extensive reconsiderations which repeatedly accentuated that agricultural disturbances do not completely eradicate patterns in the archaeological record. Despite later numerous and well-founded criticisms, developed in the framework of post-processual archaeology, the continuous revision of methodological approaches, the re-examination of theoretical background and constant technological innovations, followed by increased use of their potential (Novaković 2008: 35-39), still make systematic field surveys one of the fundamental methods of landscape archaeology. Although patterns that can be traced on the surface might be variably blurred, and the causes of their occurrence are occasionally incomprehensible, the surface archaeological remains still contain viable data on the human–landscape relationship (Shott 1995: 487; Carr 2008: 192-194).

All the considered features are inevitable characteristics of the surface archaeological record documented in the area of Bristivica. Due to the natural complexity of karstic processes, caused by natural processes or the intensive human impact on the karstic landscape, it's impossible to determine the extent of changes that the landscape of Bristivica has endured after the primary deposition of recorded finds. The same processes have an intensive impact on the archaeological records from all periods, so the primary contexts are often irretrievably lost. However, some characteristics of the recorded distribution suggest that, in general, we can still quite surely assume that the collected lithics could not have been displaced too far from its original contexts. As artefacts are mostly found on soil surfaces, grouped on levelled plateaus or flat fields at the foot of the steep and mostly impassable south side of the Vilaja Mountain, the positions with established finds show no evidence of possible susceptibility to a long-range displacement of material.

This indicates that the area of Bristivica was rich in raw material and represents a known and used source of chert. In the wider area of the Trogir coast and the hinterland, several positions with chert outcrops in lithostratigraphic units of Upper Cretaceous and Eocene age have been identified so far (Perhoč 2009a; 2009b; 2020a), the closest of which is located on the western slope of Sirištak hill, a few kilometres away from the research area. Based on the macroscopic appearance of the material from Bristivica, most of it can be linked to

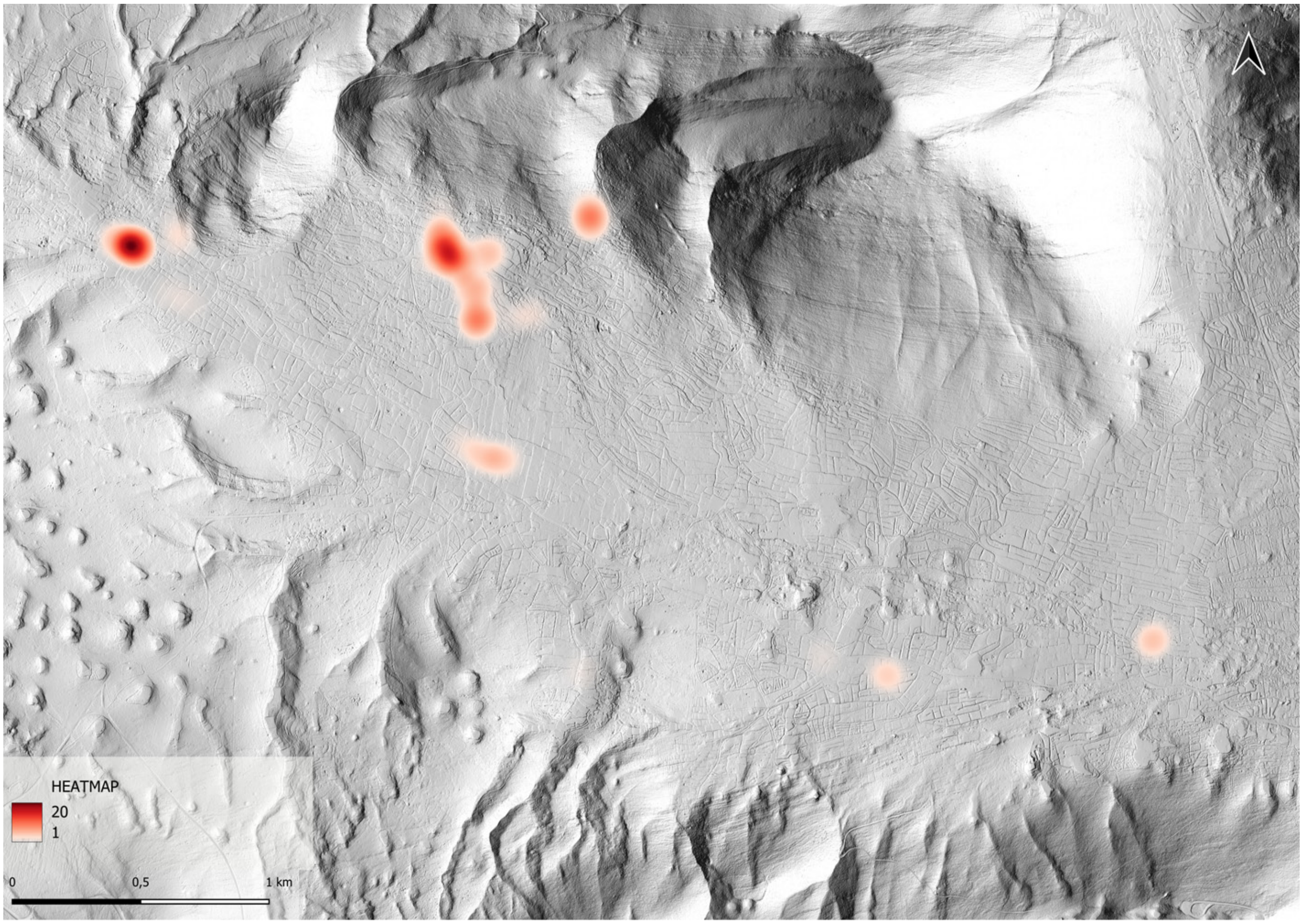


Figure 11. Heatmap (R = 100 m) representing lithic artefact distribution in Bristivica (made by M. Bažoka; basemap: DEM-DGU).

Upper Cretaceous cherts (LMT 48 – Chert Type Vilaja after Perhoč 2020a), but with great caution, since for a reliable attribution, a detailed petrographic analysis is needed. Cherts of this type are present in lithic assemblages of archaeological sites in central Dalmatia, such as Mujina pećina (Karavanić et al. 2008; Perhoč 2020b), Konjevrate-Groblje (Kačar & Podrug 2024; Perhoč 2020a) and Zemunica (Šošić Klindžić et al. 2015), in layers dating from the Middle Palaeolithic to the Late Neolithic periods.

In the Bristivica assemblage, the retouched pieces do not represent morphologically specific shapes, while the scrapers appear throughout the Palaeolithic and do not enable narrower chronological determination. Certain types, such as endscrapers, burins, thin sidescrapers and splintered pieces, are more characteristic of the Upper Palaeolithic, but they also appear in the earlier period.

Even though more precise dating is not possible, extensive studies in debitage analysis provided an understanding of how technological characteristics of lithics may be successfully associated with specific lithic industry types and consequently with corresponding periods. Aided by comparison with data from primary and dated contexts, this enables the grouping of lithic material into relative technological and chronological assemblages (Bond 2011: 32). Even when reliable attribution is not possible, potential attribution precludes dismissal and provides the possibility of inclusion in future research (Cain 2012: 214). Regarding that, it can be expected that with an increase in the number of surveyed units, especially in the vicinity of the two richest positions, there would be an increase in the number of found artefacts which would possibly enable more precise chronological determination. But, as they would still be found on the surface, deprived of their original context, in comparison with complex archaeological sites, this type of data represents very fragmented information whose meaning in many ways eludes us. Nevertheless, if we rid ourselves of an obligation to talk about sites, and see specific differences between positions with archaeological remains

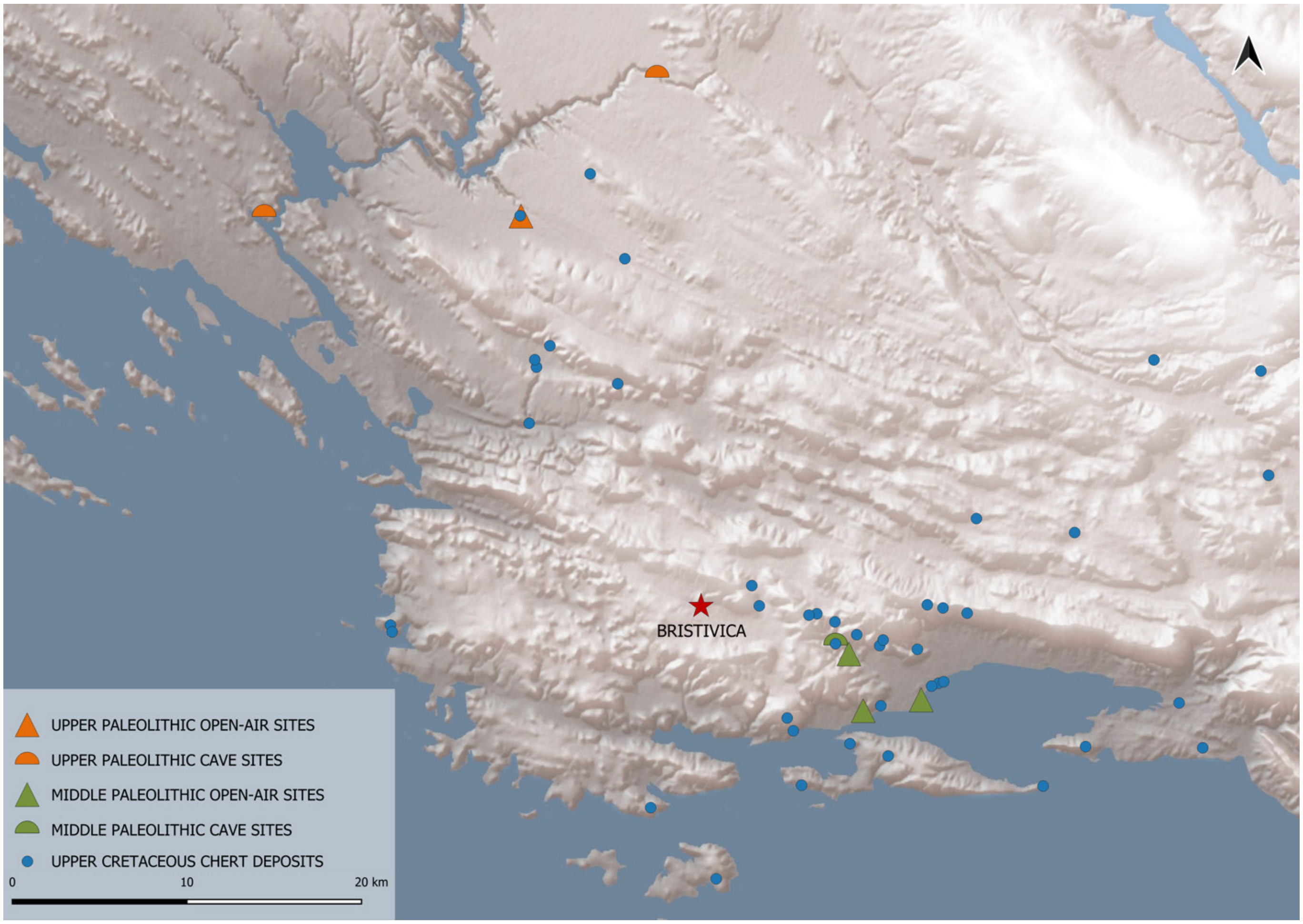


Figure 12. Known Palaeolithic sites and Upper Cretaceous chert deposits in Middle Dalmatia (made by M. Bodružić, M. Bažoka after Perhoč 2020a: Tabelle AS10; Tabelle AS 11).

as reflections of differences in the type and intensity of performed activities, the collected assemblage becomes capable of representing a reflection of a single or a whole variety of activities performed during one or many different points in time (Fig. 11).

As the assemblage collected in Bristivica can be placed in a general timeframe, it ought to be considered in the currently known context of the Palaeolithic in the wider area of Central Dalmatia (Fig. 12). Until recently, the only evidence of Palaeolithic occupation in the relative vicinity was the Mousterian cave site of Mujina pećina (Petrić 1979; Karavanić & Kamenjarin 2020). Due to recently conducted field surveys and rescue archaeological excavations, a denser concentration of Mousterian sites was established. Lithic scatters or open-air sites were established at Karanušići and Malo polje-Krban (Karavanić et al. 2023), the submerged site was discovered at Kaštel Štafilić-Resnik (Barbir et al. 2022), while two isolated finds were recorded at Trogir-Lapidarium of Trogir City Museum and on a submerged position of Malo polje-Kopilica (Karavanić & Paraman 2022). All positions are located south of Mujina pećina, at the fringe of the now -submerged plain between Kaštela and Čiovo. During the Pleistocene, this was probably a karstic field transected by rivers, such as Jadro and its smaller tributaries, which provided a sustainable environment for smaller Neanderthal groups.

Further to the northwest, evidence of Palaeolithic occupations is scarce, with only two known Upper Palaeolithic sites. Jama in Šarina draga was a relatively recently excavated cave site which offers a solid lithic and osseous assemblage along with reliable radiocarbon dates that place the occupation in the early upper palaeolithic (Vujević & Podrug 2015). In Brina near Drniš, two out of three caves, with mainly paleontological evidence and some archaeological finds dated by radiocarbon analysis to the Epigravettian, were excavated in the 1960s (Klisović 2015). A recent excavation at the position of

Konjevrate-Groblje documented an open-air Neolithic and also the only confirmed open-air Epigravettian site in the wider area (Kačar & Podrug 2024). The Epigravettian lithic assemblage of Konjevrate-Groblje, with high quantities of cortical pieces and debris, flakes from the early stages of reduction, opening flakes and cores, implies that the site or its excavated portion probably functioned as a working area orientated mostly towards exploitation of various local and regional cherts, especially Upper Cretaceous cherts of which the so-called Vilaja chert type, characteristic to Bristivica area, represents the most numerous one (Perhoč 2020a: Tabelle KE 1a).

In this context, the Bristivica assemblage can be considered a reflection of activities carried out around the southern slopes of Vilaja mountain and their immediate vicinity. The high ratio of cores, partially explainable as a result of the discrimination process during the survey, could also represent the preferential exploitation of local chert, possibly for opportunistic purposes aimed at carrying out tasks at hand. This is also suggested by high quantities of generic forms such as retouched flakes and fragments, which could point to the opportunistic exploitation of raw material to obtain *ad hoc* tools intended for a specific purpose, possibly followed by immediate disposal.

Although only assumptions, these types of data enable a better understanding of the activity ranges of Palaeolithic communities in the landscape and they can also be considered in the context of newly emerging open-air sites in the wider area of Central Dalmatia. This evidence points to the wide spatial distribution of raw materials and specific characteristics of tool production and utilisation, while simultaneously reflecting human mobility through the area testifying to the complex activities carried out across landscapes. In the same context, the data collected in Bristivica shows that even more demanding terrains were actively used during the considered period.

Another important aspect of these types of lithic scatters is their potential to represent single occupation sites which provide insight into specific applications of technologies for specific purposes (Binzen 2008: 37-39). They are also valuable data sources for inferring the variability of the archaeological record in the landscape which further advances the understanding of regional occupational patterns (Sullivan 1992: 107-111) Accordingly, it is possible to highlight that, regardless of the lack of large continuous areas with good visibility, a well-designed field survey can represent a suitable method for systematic recording of the surface archaeological material in the Dalmatian Dinaric karst landscape. The results gained emphasise the possibilities of this method which can be further expanded for specific investigation of individual positions or their environmental context. By adjusting sampling strategies to enable the collection of environmental data, similar to the methodological framework proposed by Knight and Stratford (2020: 781), this data can considerably expand and complement the knowledge of karst landscape use patterns during the Palaeolithic.

Conclusion

The Dinaric karst landscape presents challenging conditions for the implementation of standard field survey methods. The ubiquitous practices of intensive field clearance and a high level of parcellation of arable land resulted in various types of drystone walls and stone cairns at the edges of fields. In the Dalmatian hinterland, this practice was the main agency of intensive transformation of the landscape and thus the cause of alteration of the surface archaeological record. These factors resulted in a landscape fragmented into small drystone-bounded fields that are mostly unconnected and thus do not form continuous surfaces favourable for field survey practices.

An artefact-based field survey approach, adapted to the described conditions, was conducted in the wider area of Bristivica, located in the hinterland of Trogir. It was aimed at recording the distribution and frequency of surface archaeological material relative to different types of surveyed units (drystone wall, cairn, soil surface, rubble, scree, etc.) and their visibility rate. The gained result showed a high frequency of chert finds among which a significant number of lithic artefacts were recorded which evidence the potential of the employed approach for detecting lithic scatters in a Dinaric karst landscape. Although the artefacts were found on the surface, deprived of their original context, they can have considerable potential to expand our understanding of karst landscape use patterns. Regardless of the difficulties that arise during the process of technological, typological and chronological determination, which can be seen as disabling factors, analysis of collected data enables attempts to their more comprehensive consideration in a given spatiotemporal context. In that context, the Bristivica assemblage shows that this area, rich in raw material, represents a known and used source of chert during the Palaeolithic, thus becoming indispensable evidence of past human activities performed in this specific karst landscape.

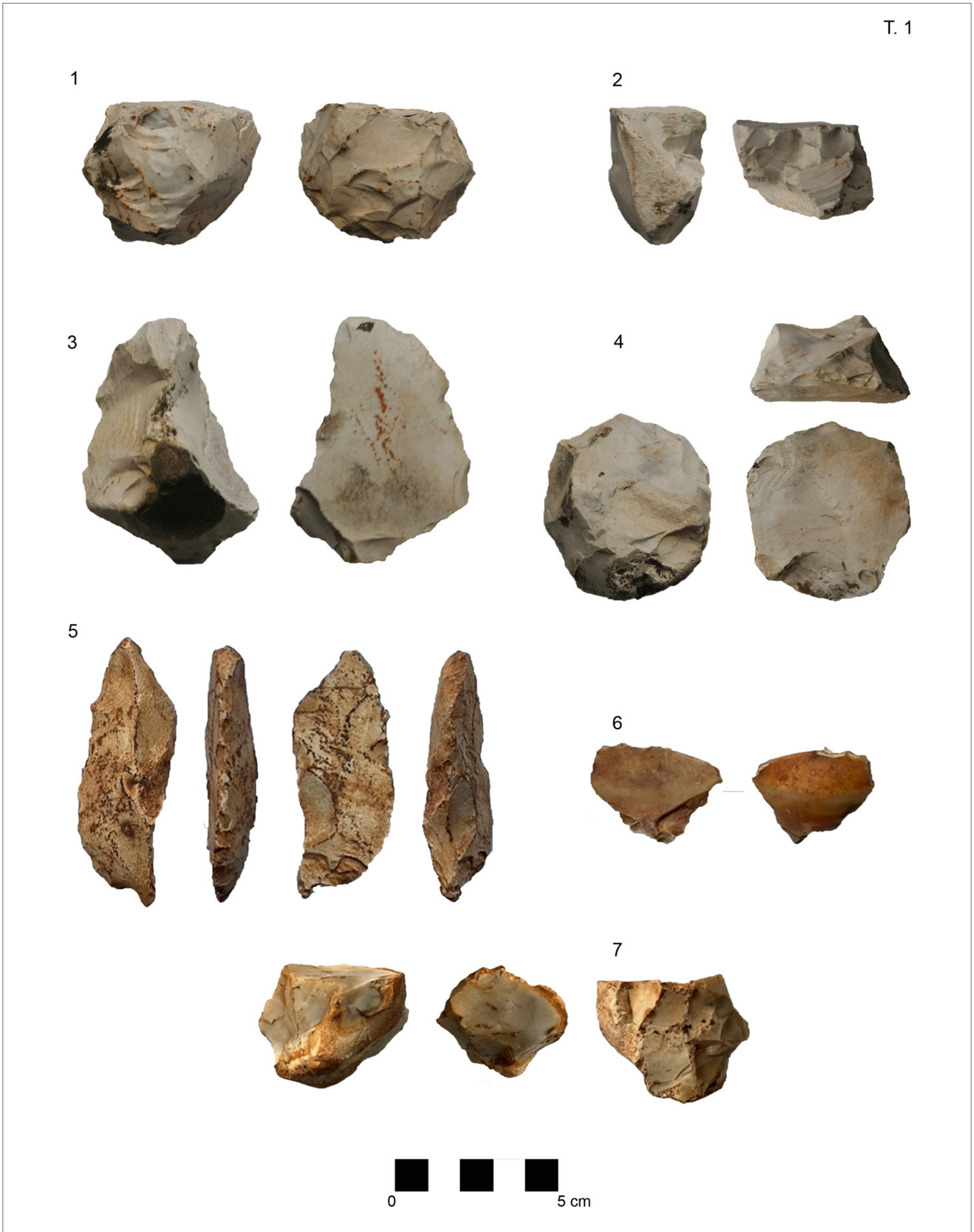


Table. 1. Lithic artefacts from positions P3-Leglo (1–4) and P2-Podlokvice (5–7): 1–2, 7) flake core, 3) endscraper, 4) endscraper on core, 5) retouched blade, 6) retouched flake (made by M. Bodružić).

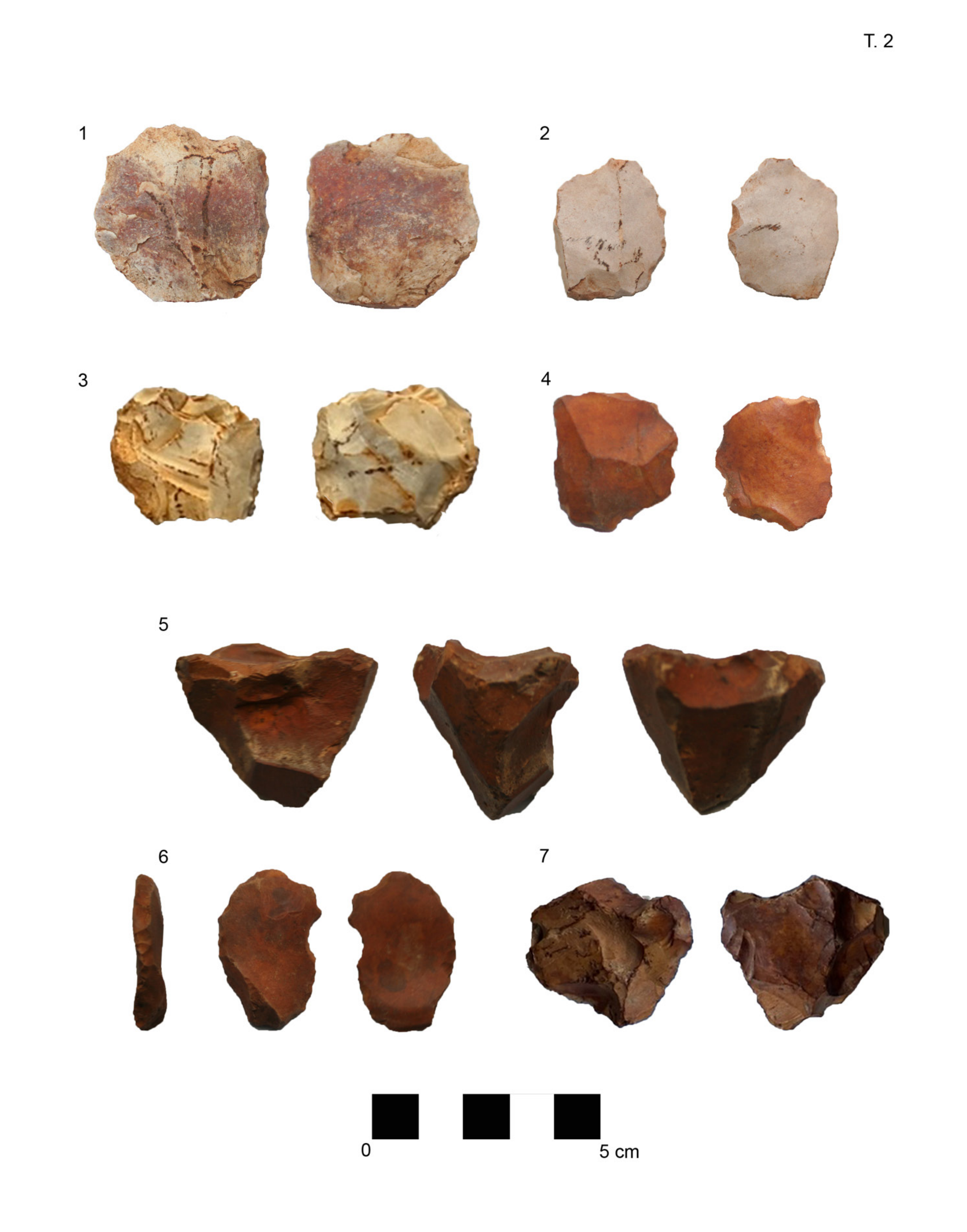


Table. 2. Lithic artefacts from positions P2-Podlokvice (1-6) and P4-Podvornice (7): l) endscraper on flake, 2) thin sidescraper on flake, 3) splintered piece/core on flake, 4) sidescraper, 5) flake core, 6) sidescraper, 7) retouched flake (made by M. Bodružić).

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