UPPER PALAEOLITHIC SUPPLY SOURCES: ASSESSING CHERT OCCURRENCE AND AVAILABILITY IN THE LOWER DANUBE VALLEY

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Keywords: *field surveys, alluvial deposits, chert, external morphology analysis, occurrence, availability, supply sources, Lower Danube Valley, Upper Palaeolithic*
Abstract: *For a while now, lithic raw material studies have been focused mainly on the geochemical and petrographic characterization of specimens from host-rock deposits (primary geological position) and archaeological sites, and on identifying the supply source. For the Lower Danube Valley, chert occurrence and availability in alluvial deposits (secondary geological position) was assessed through field surveys and external morphology analysis of the collected samples. These investigations have shown that cherts are available in most of the gravel deposits from the Lower Danube Valley, in various forms, sizes and states of preservation. Those cherts were transported from the Bulgarian Tableland over short (Ciuperceni) to long (Ghizdaru) distances by the Balkan paleo-rivers and deposited as alluvial fans in southern Romanian (Frăteşti Formation), and reworked and re-deposited as terrace deposits by the Danube. The evidence also shows that the Upper Palaeolithic people living in the sites along the Lower Danube Valley used these allochthonous sources to extract chert clasts fitted for their needs of tool knapping.*

Cuvinte-cheie: *cercetări de teren, depozite aluviale, silicolit, analiză morfometrică, ocurență, disponibilitate, surse de aprovizionare, Valea Dunării inferioare, Paleolitic superior*
Rezumat: *De multă vreme încoace, studiile asupra materiilor prime utilizate pentru producerea uneltelor cioplite s-au concentrat pe determinarea provenienței celei mai probabile, prin tehnici analitice de investigație, care să reducă distanța dintre variațiile caracteristicilor sursei și artefactelor. Aspecte mai puțin abordate în aceste studii sunt ocurența și disponibilitatea materiilor prime. În cazul specific al Văii Dunării inferioare, ocurența și disponibilitatea silicolitelor utilizate în siturile paleolitice din această zonă au fost abordate prin investigații de teren (periegheze de o zi concentrate în jurul siturilor) și analiza morfometrică a probelor colectate. Perieghezele au confirmat existența silicolitelor în diverse depozite aluviale de pe Valea Dunării: în pietrișurile terasei inferioare la Grojdibodu și Gura Padinii (județul Olt, la sud de Vădastra); în pietrișurile luncii la Poiana și pietrișurile Formațiunii de Frătești la Ciuperceni (județul Teleorman); în pietrișurile Formațiunii de Frătești la Ghizdaru, Bălănoaia, Băneasa, Pietrele (județul Giurgiu); în pietrișurile terasei joase la vest și est de Giurgiu; în pietrișurile terasei superioare la Căscioarele (județul Călărași). Analiza morfometrică (dimensiuni, formă, sfericitate, grad de rotunjire) a probelor colectate a evidențiat faptul că silicolitele au diferite aspecte morfologice: claste foarte rotunjite de dimensiuni medii (6–8 cm lungime) transportate de către ape pe distanțe lungi (mai ales la Grojdibodu, Poiana, dar și la Ciuperceni); claste subangulare şi subrotunjite de dimensiuni medii (între 6 și 16 cm) ce atestă transportul pe distanțe scurte (mai ales la Ciuperceni, Căscioarele, dar și în zona Giurgiu); claste subangulare, subrotunjite și rotunjite de dimensiuni medii și mari (de la 6 la peste 20 cm) ce sugerează transportul pe distanțe mai mari (în depozitele Formațiunii de Frătești din zona Giurgiu). Aceste silicolite au fost transportate pe distanțe mai mici și mai mari din Podișul Prebalcanic de către râurile balcanice şi depozitate în sudul României sub formă de conuri aluviale (Formațiunea de Frătești), ulterior reciclate şi redepozitate în terasele Dunării. Examinarea probelor din situri arheologice a dovedit că aceste surse aluviale cu silicolite au fost utilizate pentru cioplirea uneltelor necesare oamenilor din Paleoliticul superior.*

INTRODUCTION

For a while now, lithic raw material studies have been focused mainly on the geochemical and petrographic characterization of specimens from host-rock deposits (primary geological position) and archaeological sites, and on identifying the supply source (for a general discussion and references see Delage 2003, p. 14–22). With some exceptions, most of them allocate a small space to the lithic raw material availability, *i.e.* the external morphological characteristics (size, shape), and occurrence in secondary geological contexts. Though in its infancy, the Romanian research for lithic supply sources is no different, and the recent advances in this field underline this exact point.

The present paper is a contribution related to chert occurrence and availability in alluvial deposits (secondary geological position) from the Lower Danube Valley, representing a part of the research carried on the lithic raw materials used for tool knapping in five Upper Palaeolithic open-air sites (Ciornei 2013) found within loess and loess-like deposits (Pl. 1). Previous archaeological research pointed out that flint was the main raw material used in these sites and that the possible supply sources were either alluvial sediments near them and/or the limestone and chalk deposits found north of the Danube (see Table 1 for details). Aside from the field surveys conducted in 1993–1995 by Păunescu (2000, p. 57) in the Giurgiu area, these assumptions were not backed by special field assessments or laboratory investigations. The study area is represented by a west-east portion of the Lower Danube Valley (comprising parts of the Oltenia and Muntenia regions in

Southern Romania) between west of the Olt Valley and east of the Mostiştea Valley, not extending beyond the northern limit of the Danube's valley (that is the geomorphologic contact between the Danube's terrace plain and the High Plain) and the river's water line (Pl. 1). Thus, the study area covers about 250 km of the valley's length, with a valley width of 4 to 18 km and an average valley surface of 2687 km^2. The geological context of the study area has already been described in previous papers related to the petrography of the Lower Danube cherts (Ciornei 2015; Ciornei *et alii* 2014).

Thus, to prove or disprove these assumptions regarding the supply sources, field research had to be carried in the areas around the archaeological sites, while the samples collected from the geological deposits and archaeological sites had to be examined for signs indicating the geological context (primary or secondary).

MATERIALS AND METHODS

In order to assess the occurrence of cherts in the Lower Danube Valley, in 2011, a series of one-day itinerary based and site-orientated field surveys have been carried throughout the year. These were walks from point A to point B in search of chert, equipped with a digital camera, a compass, a geological map of the area, photographic scales and the hammer, relying for transportation in and from the survey area on buses and hitch-hiking. Each itinerary was planned considering the presumed supply source of a particular Palaeolithic site and the reviewed geological information for that area. Chert availability in the study area was assessed using the data from the external morphology analysis performed in January 2012 on the samples collected during the field surveys (these and the ones from the archaeological sites were the subject of a petrographic analysis already published, Ciornei *et alii* 2014). The recorded parameters in this external morphology examination were: size (length, width, and thickness), weight, and surface texture (rind colour, thickness, consistency and type). The chert clasts were measured with a Vernier calliper on the longest, shortest and intermediate axes and weighed with a digital kitchen scale. Macroscopic photographs of the samples were taken with a Nikon digital camera D40 (AF-S Nikkor 18–55 mm, 1: 3.5–5.6 GII ED). The size parameters were used to: assign the clasts to one of the gravel grades in the Udden-Wentworth size scale; determine the clast form after Sneed, Folk (1958, p. 123); compute the maximum projection sphericity after Sneed, Folk (1958, p. 118); obtain the Oblate-Prolate index after Dobkins, Folk (1970, p. 1188). The roundness was determined by visual comparison of the clasts with a set of standard images of known roundness and samples were assigned (estimating the amount of wear of the corners and edges) to one of the six categories in the scale proposed by Powers (1953, p. 118). The amount of rind type on each clast was estimated as percentile coverage (1–99%). Based on the estimated amounts, a rind type ratio was calculated and the values logarithmically transformed ($\log_{10}$). All the data has been centralized on a spreadsheet.

CHERT OCCURRENCE IN THE LOWER DANUBE VALLEY

The field surveys in the Lower Danube Valley were carried in 13 separate days, totalling about 243 km in walking length, in general directions from east to west or south to north (and vice-versa). The main results were: 1) locating the exposures in the alluvial deposits along the Lower Danube Valley; 2) identifying and collecting cherts from those alluvial deposits; 3) acquiring first-hand knowledge about the geological setting and landscape of the area.

The field surveys around the Upper Palaeolithic site at Vădastra – *Măgura Fetelor* (Olt County, Pl. 2, Table 2) were poorly planned due to a limited review of the information regarding the geological deposits with cherts and their possible exposures in the area. The walks along Obârşia Valley (Pl. 2), a rivulet flowing from the WNW towards the ESE and cutting across all Danube's terrace levels found in this area (Pl. 1), have yielded no gravel or sand exposures, just a few loess exposures on the right side of the valley and along the flow channel (Pl. 3). The manual auger core drillings in the Obârşia's flood channel (for their positions see Pl. 2) have encountered the sand deposit at variable depths (0.55 m and 1.8 m), after passing through a green-greyish clay sediment, but were stopped (at depths of 1.8 m and 2.2 m) due to water washing the sand inside the auger, a sign that the phreatic aquifer related to the Danube's upper terrace (t_3) was reached (Bandrabur 1971, p. 123; Mateescu 1970, p. 67–68; Protopopescu-Pache *et alii* 1969, p. 138). These data suggest that, even if this water course existed during the Upper Palaeolithic occupation at *Măgura Fetelor*, it might have not exposed any gravel deposits. The walks along the Danube's lower terrace (t_2) from Orlea to Grojdibodu (Pl. 2, Table 2) have yielded chert clasts in two gravel exposures of the Danube's lower terrace (t_2), generally buried under a loess blanket thicker than 6 m (Pls. 3–4, Table 3). The findings from Gura Padinii and Grojdibodu have confirmed Sava Athanasiu's report from the 1920's regarding the existence of chert clasts in the gravel deposits of Danube's upper terrace exposed between Dăbuleni and Potelu (Bandrabur 1971, p. 84–85).

Initially only one visit was planned and carried out at the quarry near the Upper Palaeolithic sites from Ciuperceni (Teleorman County), but later an opportunity presented itself and it was possible to make two other field surveys (Pl. 5, Table 2). The trip from Turnu Măgurele to Olteanca was basically fruitless and one gets tired from seeing that much loess deposits just in one day (Pl. 6). At that time, not much attention was paid to the two relatively small chert clasts found on a dirt road west of Liţa village. These chert clasts are probably related to the existing spur of Upper Cretaceous chalks with nodular cherts extended between Islaz and Liţa (oriented SW–NE) found right under the floodplain deposits (Bandrabur 1971, p. 32). The two visits at the quarry near Ciuperceni yielded chert clasts and Palaeolithic objects in Danube's floodplain deposit south of Poiana village (Pl. 6, Table 3) and also a small number of lithic objects from the surface and loess profiles from both *La Tir* (Pl. 6) and *La Vii* sites.

The interdisciplinary research coordinated by V. Boroneanţ in the 1980s at the quarry near Ciuperceni uncovered the following geological sequence (Boroneanţ, Vlad 1979, p. 25; Boroneanţ *et alii* 1980, p. 652; Terzea, Boroneanţ 1979, p. 172–174): the bedrock is represented by an Upper Cretaceous (Campanian) chalk deposit with flints, covered by a thin olive-green clay (0.20 m thick); on these rests an alluvial sequence of grey-greenish and brown-reddish cross-stratified sand deposits with many flint concretions (2.2 m thick, Upper Pliocene) and clay interbeds, in the upper part with rare water worn clasts of flint and other rock types; it is followed by horizontally laminated clayey-silty sand deposits (0.60 m thick); greyish cemented gravels (0.60 m thick) and sand deposit (0.40 m thick) pertaining to "Frăteşti Gravels" (Lower Pleistocene); loessoid deposits (4–6 m thick). From the quarry near Ciuperceni samples were taken from a conglomerate deposit (Pl. 7 and Table 3), corresponding to what has been described as cemented greyish gravels (Ciup-Ca-1), and from the layer immediately underneath composed predominantly of rusty-brownish chert clasts in a sandy matrix (Ciup-Ca-2, Pl. 7), which I am not sure to what corresponds in the previous description.

The field surveys around the Upper Palaeolithic site at Giurgiu – *Malu Roşu* (Giurgiu County, Pl. 8 and Table 2) were very successful in sampling gravel deposits of both Frăteşti Formation (Pls. 9–10, Table 3) and Danube's t_1 terrace (Pls. 11–12, Table 3) in more than one exposure and gather a backbreaking amount of chert clasts. Added to these are a number of chert clasts collected from the surface: at Daia near the cemetery and between Frăteşti and Bălănoaia (from a ploughed field), which are very similar with those collected from the quarry at Ghizdaru (Pl. 8); in Danube's floodplain, south of Slobozia village; between the *Malu Roşu* site and the quarry near *Malu Roşu* topographical point (Pl. 8), which are very similar to materials from the Palaeolithic site. Further east from Giurgiu, the long walk between Prundu and Daia (Giurgiu County, Pl. 13/1 and Table 2) has produced three chert samples from two gravel exposures (Pl. 14, Table 3), gravels which may pertain to Frăteşti Formation (based on the covering deposits and the lithology of the geological deposits mentioned in that area). The field survey near Olteniţa (Călăraşi County, Pl. 13/2, Table 2) was conceived as a visit to a quarry mentioned by Coteţ (1976, p. 56) somewhere west of Chirnogi village, but the quarry was abandoned and no gravel exposures to sample. Thus, the survey was carried up to Căscioarele, where an unexpected number of chert clasts and some petrified bones were collected from the eastern shore of Cătălui Lake (Pl. 15, Table 3). Also, a chert clast collected from a road south of Chirnogi village suggests there may be a gravel deposit containing cherts very similar to the materials sampled at Căscioarele.

Though technically not one of my own field surveys, the trip by car from Călăraşi to the Upper Palaeolithic site Nicolae Bălcescu – *La Vii* (Călăraşi County), together with Emilian Alexandrescu (Faculty of History, University of Bucharest) and Cuzeli Ciprian (Călăraşi County Museum), has yielded just a chert clast collected from the surface of the northern shore of Gălăţui Lake (Alexandru Odobescu village), 0.4 km SSE from the county road DJ 307A. Due to objective reasons, the field research has been stopped after the Chirnogi-Căscioarele walking. Thus, the area around Nicolae Bălcescu – *La Vii* site was improperly covered and no chert samples collected from gravel exposures near it.

Summarizing, the field surveys have revealed that chert clasts are found in secondary geological contexts in: Frăteşti Formation at Ciuperceni, NW of Giurgiu and between Prundu and Daia; Danube's gravel deposits of the upper terrace (t_3) at Căscioarele, the lower terrace (t_2) south of Vădastra, the very low terrace (t_1) near Giurgiu, and the floodplain south of Ciuperceni.

CHERT AVAILABILITY IN THE LOWER DANUBE VALLEY

The external morphology analysis of the chert clasts has been conducted on 84 samples from 10 sampling locations (Table 3). The samples from the two geologically distinct layers at Ciuperceni were treated separately. The samples collected from the surface and/or in uncertain geological positions were not analysed.

All the samples analysed fall into two gravel size grades: pebbles (4–64 mm, n = 9) and cobbles (64–256 mm, n = 75). All the pebbles from this study are in the size range of 32–64 mm. The cobble range was divided in three equal-sized intervals and samples assigned to: small cobbles (64–128 mm, n = 55), medium cobbles (128–192 mm, n = 17), and large cobbles (192–256 mm, n = 3). Plotted on the form ternary diagram (Fig. 1), the analysed samples have a rather scattered distribution and fall in nine form categories: platy (n = 10), compact platy (n = 4), compact (n = 11), very bladed (n = 6), bladed (n = 12), compact bladed (n = 14), very elongated (n = 2), elongated (n = 12), and compact elongated (n = 13). The Oblate-Prolate index (Fig. 2) ranges from -11.08 (prolate) to +11.52 (oblate) and underlines even more this variability in form and the wide distribution from disk-like (prolate) to rod-like (oblate). In spite of the scatter distribution on the form triangle (Fig. 1), there is an obvious concentration in the bladed (n = 32) and rod-like (n = 27) categories (centre and right side), but no apparent control of the size on form (Fig. 3).

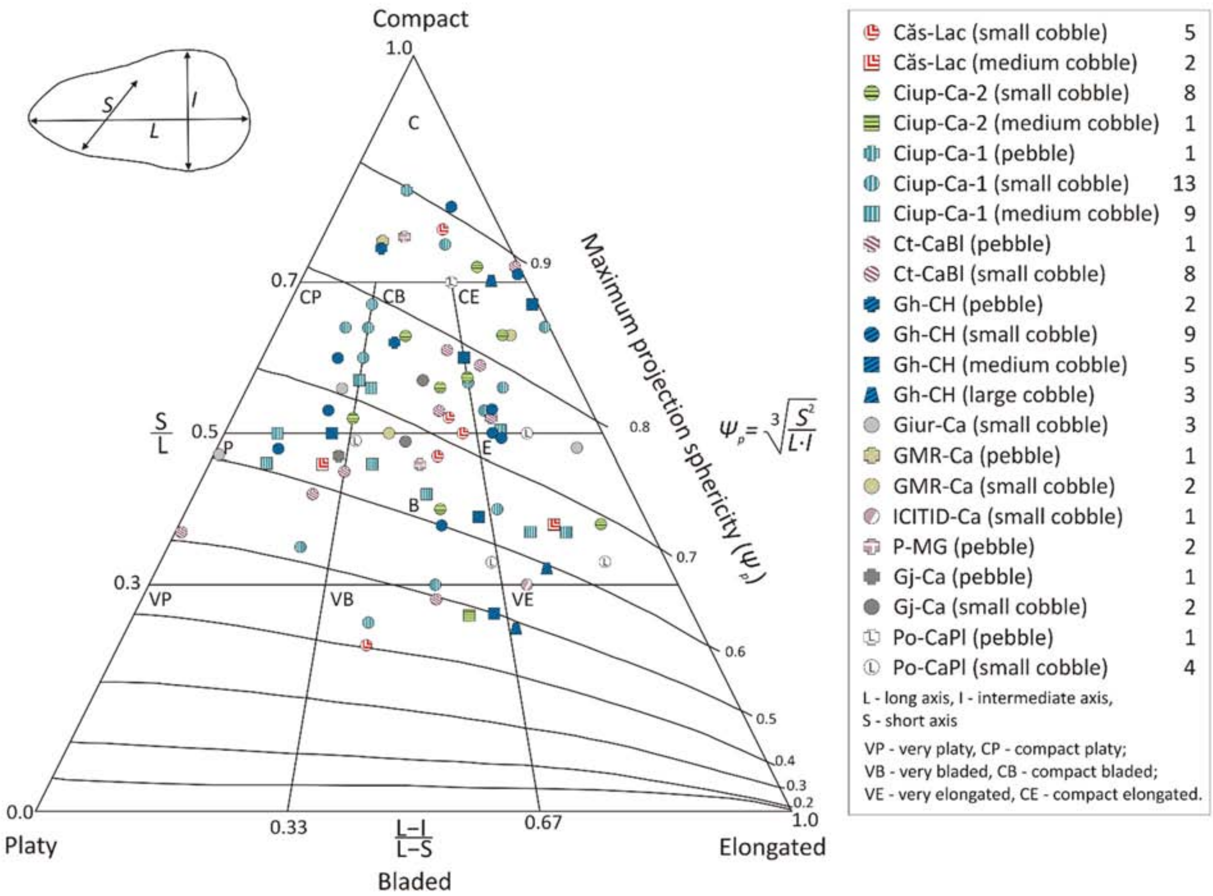

Figure 1. *Ternary plot of chert clasts from the Lower Danube Valley (form categories).*

The computed maximum projection sphericity (ψ_p), as a measure which reflects the departure of a body from equidimensionality, ranges from 0.42 to 0.91, with the bulk of the samples concentrated between 0.6 and 0.8 (Figs. 1 and 2). Compact forms have the highest sphericity, while the very bladed ones have the lowest values. Also, there is no strong control of size on sphericity values (Fig. 4), *i.e.* as the size increases, sphericity doesn't decrease (except for medium cobbles above 16 cm and large cobbles from Ghizdaru). In respect to their roundness, the analysed samples were found to be: subangular (n = 61), subrounded (n = 11), rounded (n = 6), and well-rounded (n = 6). The roundness of a sedimentary particle is generally associated with distance of transport and reworking by water, with the end members, very angular (0.12–0.17) and well-rounded (0.70–1.00), indicating proximity/ remoteness from the sediment source. In this study, the well-rounded and rounded clasts are small sized, pebble to small cobble, and have variable sphericity values and forms (Figs. 3 and 4). Subangular and subrounded clasts have variable sphericities and forms.

The surface texture analysis allowed the identification of two types of rind: 1) cortex, a remnant surface with different consistencies (carbonate, carbonate-porous, porous) and degrees of smoothness, reflecting the chert's host-rock (chalk or limestone) and the effects of transport and abrasion by water (Pls. 7/6, 10/7 and 14/5); 2) neocortex, a polished surface (with different degrees of smoothness) created by water transport and abrasion (Pls. 4/5, 6/3, 14/4, 14/6, 15/8). Based on the estimated amount, the samples were assigned to four categories: covered just by neocortex (n = 15); covered by neocortex (more than 50%) and cortex (n = 24); covered by cortex (more than 50%) and neocortex (n = 41); covered just by cortex (n = 4). Samples covered only by cortex indicate that the initial chert nodule/block has suffered minimal or no breakings during water transport (Fig. 5). The cortex-neocortex and neocortex-cortex surfaces are mainly associated with subangular and subrounded samples, indicating an incremental degree of breakage of the initial chert nodules/blocks. The final stages of this fragmentation are illustrated by the presence of the neocortex on a few subrounded and subangular clasts. With these exceptions, the neocortex is mainly present on well-rounded and rounded clasts. The clasts from the lower level at Ciuperceni (Ciup-Ca-2) have a rusty-brownish neocortex and the cortex is more abraded (the chalk was almost entirely removed). The clasts from the upper level (Ciup-Ca-1) have a chalky cortex ("fresh") and a neocortex which reflects a lower degree of abrasion (smoothened breaking surfaces which retain the chert's colour). Some of the clasts from Ciup-Ca-1 have the cortex-neocortex characteristics from Ciup-Ca-2, indicating they were recycled. The same characteristics of the cortex and neocortex from Ciup-Ca-2 were identified at Ghizdaru. More importantly, similar surface texture characteristics were identified on the archaeological samples examined from all the sites (Ciornei 2013, Pls. 40–49; Ciornei 2015, Figs. 2–3).

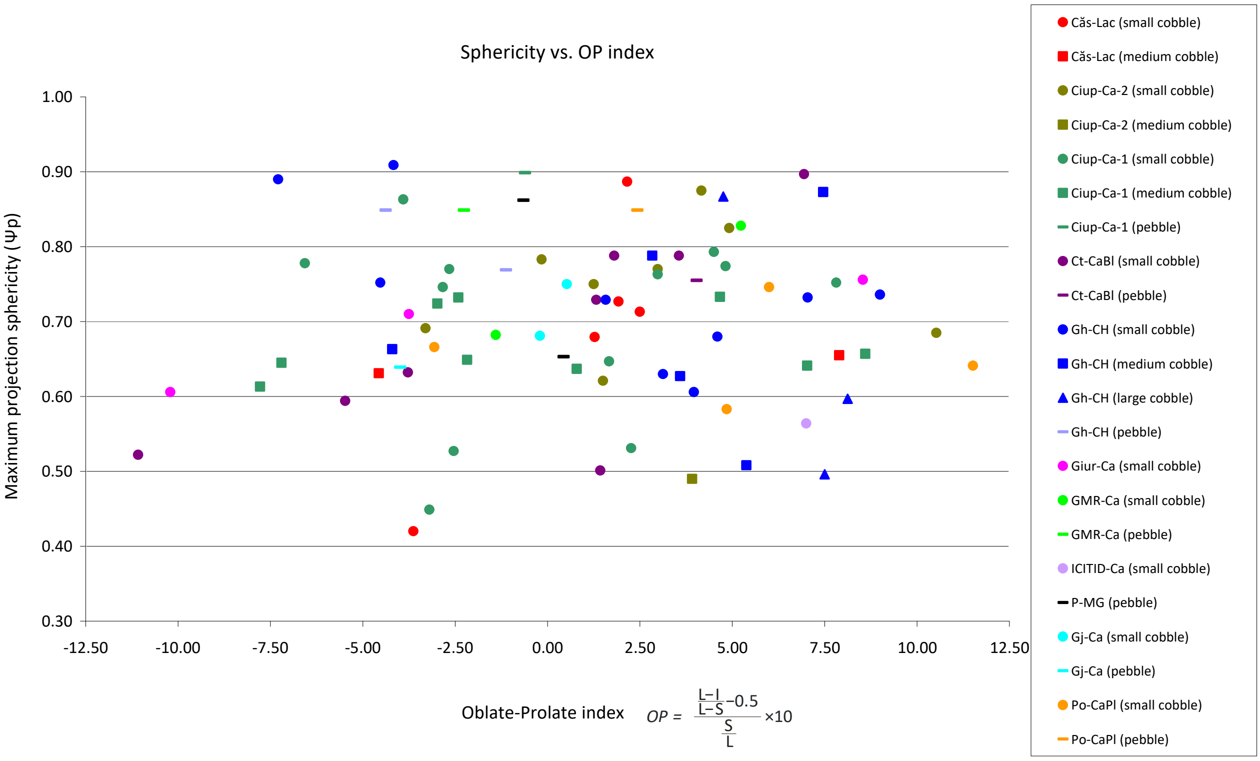

Figure 2. *Scatter plot of chert clasts from the Lower Danube Valley, based on the sphericity vs. Oblate-Prolate index values.*

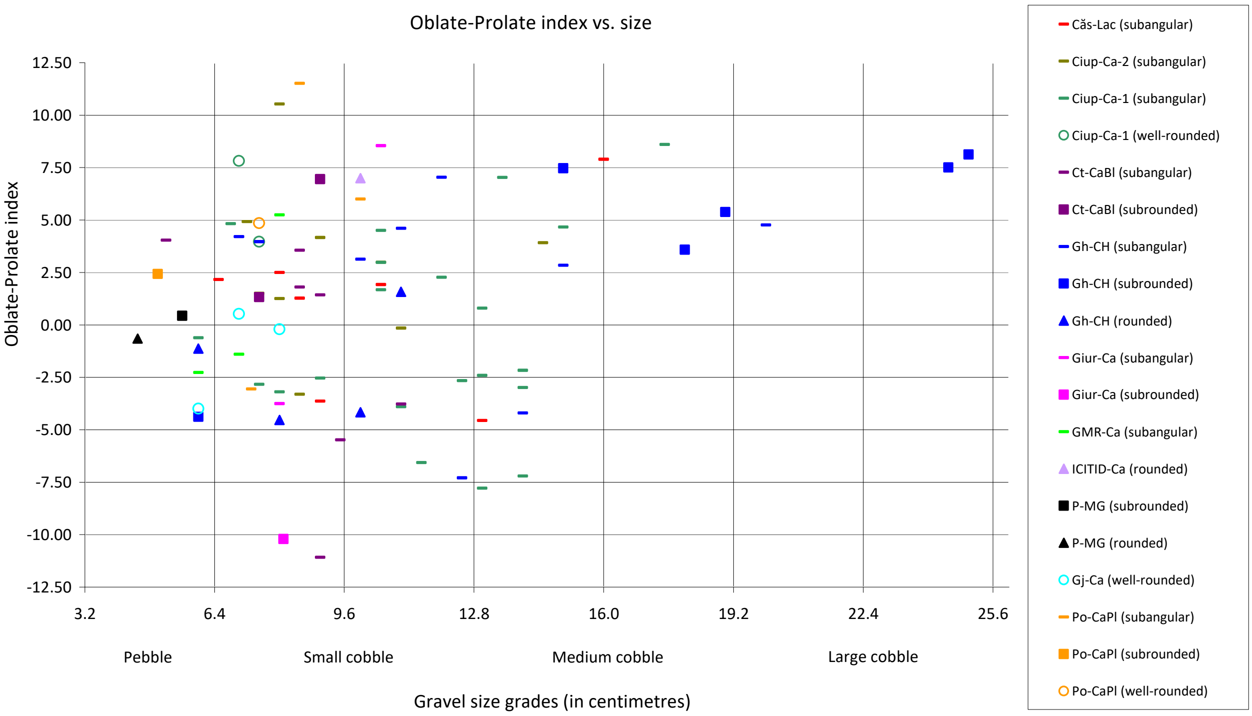

Figure 3. *Scatter plot of chert clasts from the Lower Danube Valley, based on the Oblate-Prolate index vs. size values.*

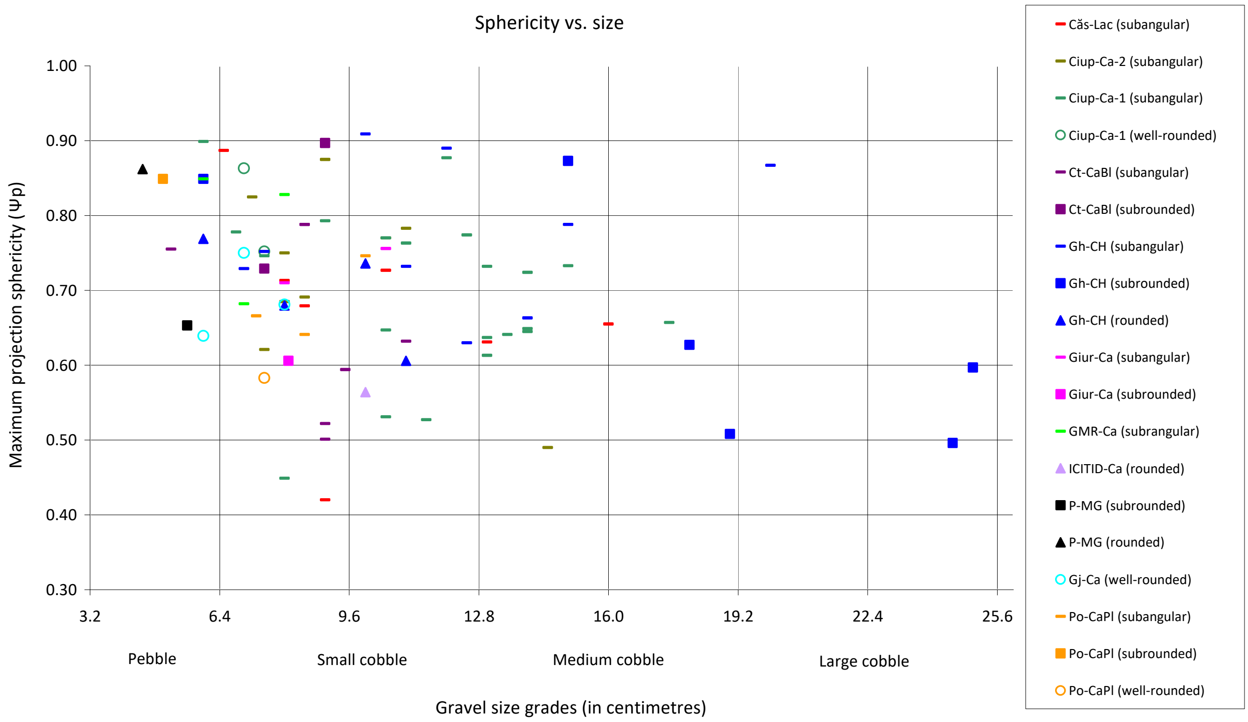

Figure 4. *Scatter plot of chert clasts from the Lower Danube Valley, based on the sphericity vs. size values.*

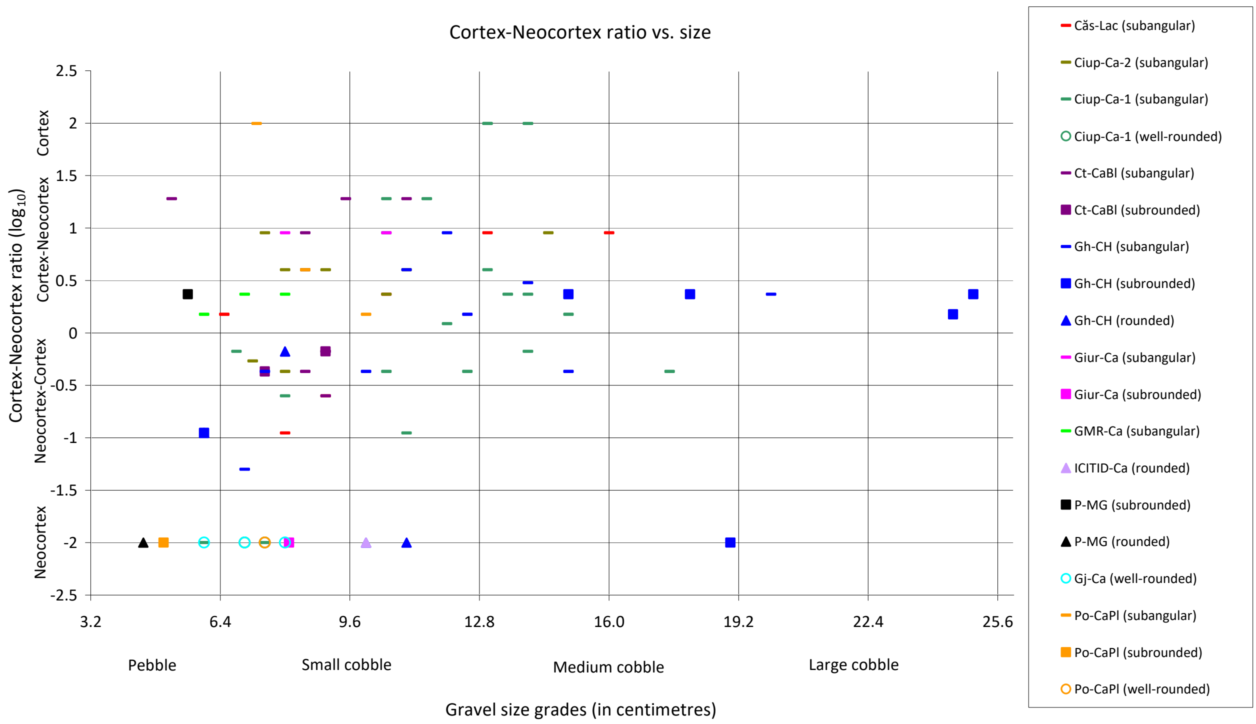

Figure 5. *Scatter plot of chert clasts from the Lower Danube Valley, based on the Cortex-Neocortex index vs. size values.*

Simply said, for the majority of the analysed samples the expressions of external morphology (form, sphericity, roundness and cortex) reflect actually the shape of the initial nodules/block in various states of fragmentation and abrasion during the water transport.

Aside from the well-rounded and rounded chert clasts (Figs. 3 and 4) which imply longer transport distances (above 150–200 km; Sneed, Folk 1958, p. 127–129, 148), the lack of differentiation in sphericity and form between clasts of different sizes suggests that most of the samples were not transported very far from their sources (Sneed, Folk 1958, p. 146). This is also confirmed by the large number of subangular clasts and the fragmentation (splintering) degree. Subangular to subrounded chert clasts were found in stream gravels of tributary valleys and the floodplain deposits of the Mississippi River (Cobb, Hester 1974, p. 14). Chert becomes subrounded after transport distances of about 100 km (Potter 1955, p. 22–23).

When the physiographic and geologic contexts are considered, it can be seen that well-rounded chert clasts appear in Danube's lower terrace (t_2) deposits at Grojdibodu (and the similar ones from Gura Padinii) and floodplain deposits at Poiana, but also in Frăteşti Formation at Ciuperceni (Figs. 3 and 4). Rounded pebbles and small cobbles (Figs. 3 and 4) were found only in Frăteşti Formation at Ghizdaru, Băneasa and Pietrele, associated with subrounded medium to large cobbles (at Ghizdaru), and subangular small to medium cobbles (Ghizdaru and Bălănoaia), indicating that Frăteşti Formation contains both cherts transported on longer and shorter distances (see discussion in Ciornei 2015, p. 55). Danube's very low terrace (t_1) in Giurgiu area contains mostly subangular and subrounded small cobbles (covered by cortex, but smoothened) which reflect a mix of chert clasts transported on short and long distances, and probably recycled from older alluvial deposits (Pls. 11 and 12). The chert clasts from Ciuperceni best reflect a short transport distance from a nearby host rock deposit: various forms, small to medium cobbles, high degree of fragmentation. As it was already mentioned above, in this area the Upper Cretaceous chalk deposits with flint are buried right under the floodplain deposits and outcrop on the right side of the Danube (see discussion and references in Ciornei *et alii* 2014, p. 146). The same short distance transport seems to be reflected by chert clasts from Căscioarele. Chert clasts from Danube's lower terraces (t_2 and t_1) and floodplain are generally smaller than chert clast from Frăteşti Formation and Danube's upper terrace. Also, the chert clasts from Ghizdaru are clearly larger than those from Ciuperceni and Căscioarele, though at Ciuperceni there was one sample around 25 cm in length (Pl. 7/7).

Taking into account these external morphological traits and the results of the petrographic investigations (Ciornei 2015; Ciornei *et alii* 2014), the Danube's alluvial deposits and the Frăteşti Formation can be considered as allochthonous sources of cherts (*sensu* Turq 2000, p. 106–107).

CONCLUSIONS

Given that all of the field surveys have been on a tight budget, oriented around the archaeological sites and driven by previous archaeological assumptions on the Upper Palaeolithic supply sources, there are some obvious drawbacks related to their outcome: insufficient number of walks/trips and limited coverage of each area (especially around Vădastra and Nicolae Bălcescu); insufficient number of sampling locations per geological deposit and area; inadequate/insufficient collection of information regarding the geology of each sampling location (due to a lack of geological training and experience); improper sampling strategy resulting from the lack of prior personal knowledge regarding the macroscopic aspect of the chert types used at the Palaeolithic sites.

The external morphology analysis of the samples collected in the field surveys has also some shortcomings: unequal number of analysed samples per sampling location/geological deposit (except Ciuperceni and Ghizdaru); simple statistical treatment of the data and lack of multivariate methods; no estimate of the quantities in which chert clasts are available at each geological deposit/sampling location.

In light of these shortcomings, the results should be taken with caution and not generalized or extended beyond the study area.

On the bright side, these investigations have shown that cherts are available in most of the gravel deposits from the Lower Danube Valley, in various forms, sizes and states of preservation. These cherts were transported over shorter (Ciuperceni) to longer (Ghizdaru) distances from the Bulgarian Tableland by the Balkan paleo-rivers and deposited as alluvial fans in Southern Romanian (the Frăteşti Formation), and reworked and re-deposited as terrace deposits by the Danube. The evidence also shows that the Upper Palaeolithic people living on the sites along the Lower Danube Valley used these allochthon sources to extract chert clasts fitted for their needs of tool knapping.

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Sites	Landmarks	Cultural framework	Absolute dates	Raw materials	Raw materials provenance	References
Vădastra – *Măgura Fetelor*	on Danube's upper terrace (t_3), 0.9 km SW from the village's church and 14 km NNW from Corabia (Olt County)	Early Aurignacian	-	grey and brown chalcedony	- "[...] in the surrounding area, transported by rivers inflowing on the right side of Danube [...] from the prebalkan platform, where, in the bed of rivers, there were many flint blocks from the limestone" - "from the Cretaceous of the prebalkan platform"	Protopopescu-Pache, Mateescu 1958, p. 13; Mateescu 1970, p. 69
				brownish flint	- "[...] local [...] in the gravels of Danube's terraces"	Păunescu 2000, p. 232
Ciuperceni – *La Tir*	on the high plain, 2.5 km NNE from Ciuperceni village (Teleorman County)	Late Aurignacian	-	yellowish-brown and grey-greenish flint	- "[...] from the natural exposures in the area and from Danube's riverbed"	Boroneanţ *et alii* 1983, p. 15
Ciuperceni – *La Vii*	on the high plain, 1.5 km E from Ciuperceni village, 7 km E from Turnu-Măgurele, and 2 km SE from La Tir site (Teleorman County)	Late Aurignacian	-	yellowish-brown flint	- "[...] certainly from the natural exposures of Frăteşti Gravels, very rich in Balkan flint boulders"	Păunescu 1966, p. 331
Ciuperceni – *La Vii 1*		Upper Palaeolithic (levels A, B, C, D1)	30±3 ka BP	"le silex de la craie" "silex exogène bleuté"	- "[...] deux origines différentes: les alluvions du Danube et un affleurement local probablement situé à faible distance"	Dobrescu *et alii* 2015, p. 21
		Ciuperceni type facies (level CR)	-			
Giurgiu – *Malu Roşu*	on Danube's t_1 terrace, 0.5 km ENE from Giurgiu (Giurgiu County)	Late Aurignacian/ Epiaurignacian	21140±120 BP 22790±130 BP	bluish-grey flint yellowish-brown flint	- "Danube's gavels [...] rich in flint [...] originating in the Prebalkan platform, in the Cretaceous deposits" - "[...] in the gravel quarries of the Lower Anthropozoic deposits at Daia, Frăteşti, Bălănoaia, Ghizdaru, with abundant flint pebbles with south Danube origin" - "[...] from the host-rock deposits and the natural openings of such deposits [...] south of Danube"	Nicolăescu-Plopşor *et alii* 1956, p. 225
					- "[...] near the site and that is across the Danube, from the Prebalkan platform"	Păunescu *et alii* 1962, p. 130
					- "[...] specific to Lower Danube Valley"	Păunescu, Alexandrescu 1997a, p. 25
					- "[...] Frăteşti Gravels [...] exposed some 6 km from the site" - "[...] somewhere in Danube's riverbed from that time"	Alexandrescu 1996–1998, p. 33, 47–48
					- "[...] from the alluvial sediments of the terrace they've lived on or from a nearby area" - in the Frăteşti Beds exposed at Ghizdaru and Bălănoaia quarries some 7 to 10 km NW from the site	Păunescu 2000, p. 57
Nicolae Bălcescu – *La Vii*	on Danube's t_2 terrace, 0.9 km SSW from the village's church (Călăraşi County)	Late Aurignacian/ Epiaurignacian	-	brownish flint	- "[...] from the right side of the Danube having a senonian age. Very possible to have been brought from the Moesian Platform"	Păunescu, Alexandrescu 1997b, p. 62

Table 1. *Possible provenance of raw-materials from the Upper Palaeolithic sites in the study area.*

Field surveys	Date	Travelled distance (On foot)	Route	Objectives	No. of stops	No. surface findings	No. of sampling locations
Vădastra – *Măgura Fetelor* – Obârșia Veche (Olt County)	17.05.2011	11 km	WNW of the site along Obârșia Rivulet up to Obârșia village and back	Locating exposures of Danube's gravel deposits along Obârșia's valley	2	0	0
Vădastra – *Măgura Fetelor* – Orlea (Olt County)	19.05.2011	30 km	SSW towards Orlea village, through Vădăstrița, and back	Locating openings in the gravel deposits of Danube's lower terrace (t_2)	3	2	0
Vădastra – Grojdibodu (Olt County)	22.05.2011	27 km	SSW towards Orlea and west reaching Grojdibodu village	Locating openings in the gravel deposits of Danube's lower terrace (t_2)	5	0	2
Vișina Veche – Vădastra (Olt County)	22.05.2011	8 km	East from Vișina Veche up to the road linking Brastavățu and Vădastra, then south	Assessing the surroundings north of Vădastra and Vișina Nouă	0	0	0
Vădastra – *Măgura Fetelor* – Obârșia River (Olt County)	25.05.2011	< 3 km	in Obârșia's flood channel	Core drilling using a manual auger in order to establish the depth of the sand/gravel deposits	3	0	0
Turnu Măgurele – Ciuperceni (Teleorman County)	29.10.2011	15 km	ESE of Turnu Măgurele city up to Poiana village and then N towards Ciuperceni	Locating exposures of gravel deposits along Danube's very low terrace (t_1) and the High Plain	3	1	2
Turnu Măgurele – Olteanca (Teleorman County)	19.11.2011	30 km	NNW of Turnu Măgurele along Sâiu River reaching Șegarcea Vale and Olteanca villages and back	Looking for gravel exposures along the morphological contact between Danube's lower terrace (t_2) and Sâiu's floodplain	3	2	0
Turnu Măgurele – Ciuperceni (Teleorman County)	20.11.2011	18 km	ENE of Turnu Măgurele towards Ciuperceni and back	Locating exposures of gravel deposits along the morphological contact between the high plain and Danube's very low terrace (t_1)	4	2	1
Daia – Ghizdaru (Giurgiu County)	20.08.2011	17 km	WSW from Daia through Frătești and Bălănoaia villages and reaching Ghizdaru	A tour of known gravel quarries along the morphological contact between the Burnas high plain and Danube's very low terrace (t_1)	5	2	2
Giurgiu – Slobozia (Giurgiu County)	20.10.2011	18 km	WSW of Giurgiu towards Slobozia village and back	Locating exposures in the gravel deposits of Danube's very low terrace (t_1)	3	1	1
Giurgiu – Comasca (Giurgiu County)	06.10.2011	13 km	East of Giurgiu up to the *Malu Roșu* topographical point and NE towards Comasca village	Locating exposures in the gravel deposits of Danube's very low terrace (t_1)	6	3	1
Prundu – Daia (Giurgiu County)	04.09.2011	> 30 km	WSW from Prundu passing south of Pietrele and Băneasa villages and up to Daia	Along the morphological contact between the Burnas high plain and Danube's floodplain looking for exposures of gravel deposits	3	0	2
Chirnogi – Căscioarele (Călărași County)	04.12.2011	20 km	West from Chirnogi up to Căscioarele and back	Locating gravel exposures along the morphological contact between the Burnas high plain and Danube's terrace deposits	3	1	1
Călărași – Nicolae Bălcescu – *La Vii* (Călărași County)	07.12.2010	< 3 km	By car, from Călărași county Museum to Nicolae Bălcescu village, passing through Alexandru Odobescu village	Short walk on the northern shore of Gălățui Lake south of Alexandru Odobescu village; short walk from Nicolae Bălcescu village towards the Upper Palaeolithic site	2	1	0

Table 2. *Field surveys along the Lower Danube Valley.*

No.	Sampling location	Landmarks	Geological context	Lithostratigraphic units	Samples collected	Macroscopic analysis	Acronym	Thin sections
6*	Grojdibodu – *The quarry west of the village* (Olt County)	1.4 km SW from the milestone 20 on the national road DN 54A	cross- and planar bedded sands with interbeds of planar bedded gravels (partially consolidated)	Danube's lower terrace (t_2)	3	3	Gj-Ca	0
7	Gura Padinii – *At the spring* (Olt County)	0.4 km SSE from the milestone 14 on the national road DN 54A	planar bedded gravels and sands	Danube's lower terrace (t_2)	2	0	GP-Iz	0
8	Poiana – *At the poplars* (Teleorman County)	0.5 km S of Poiana village and 3.4 km S of the milestone 48 on the national road DN 51A	planar bedded sands interbedded with gravel layers	Danube's floodplain	5	5	Po-CaPl	0
9	Ciuperceni – *At the quarry* (Teleorman County)	0.7 km E of the milestone 48 on the national road DN 51A (Turnu Măgurele-Zimnicea) and 1.4 km E of Ciuperceni village	planar bedded polymictic conglomerate with chert clasts (0.9 m thick)	Frătești Formation	> 45	23	Ciup-Ca-1	24
			planar bedded chert gravel (rusty brownish clasts) with a sandy matrix (exposed thickness of 0.3 m)	(?)		9	Ciup-Ca-2	
10	Ghizdaru – *The quarry near the train halt* (Giurgiu County)	0.2 km E from Oncești train station, 1.5 km NE from Ghizdaru village, and 7.6 km NW of Giurgiu city	tabular cross-bedded gravel layers fining upward into planar- and cross-bedded sand layers with thin gravel interbeds (5-6 m thick)	Frătești Formation	> 20	19	Gh-CH	18
11	Cetatea – *Bălănoaia quarry* (Giurgiu County)	0.7 km NNE from milestone 8 on the national road DN 5B, 2 km NW from Cetatea village	samples collected from the surface	Frătești Formation	9	9	Ct-CaBl	9
12	Giurgiu – *The quarry SW of the city* (Giurgiu County)	0.02 km SW from Voestalpine street, 4 km SW from Giurgiu city	cross- and planar bedded (5-7 m thick), planar bedded gravels (exposed thickness of 0.5)	Danube's very low terrace (t_1)	> 20	3	Giur-Ca	3
13	Giurgiu – *Malu Roșu quarry* (Giurgiu County)	3.6 km E from Giurgiu city and 4 km S from Oinacu village, 3.1 km E from Malu Roșu site	cross-bedded sands interbedded with planar bedded gravel layers, sandy clay (exposed thickness of 0.9 m)	Danube's very low terrace (t_1)	3	3	GMR-Ca	3
14	Băneasa – *The quarry near I.C.I.T.I.D.* (Giurgiu County)	0.7 km SE from I.C.I.T.I.D. (near the road leading to this research facility) and 0.7 km E of Băneasa vilage	planar bedded gravel layer (0.3 m thick)	(?)	1	1	ICITID-Ca	0
15	Pietrele – *Between Măgura Gorgana site and the village* (Giurgiu County)	1.3 km E from Pietrele village	planar bedded gravel layer (0.6 m thick)	(?)	2	2	P-MG	0
16	Căscioarele -*The Eastern shore of Cătălui Lake* (Călărași County)	0.2 km E from Căscioarele village and 7 km W from Chirnogi village	planar bedded sands and gravels	Danube's upper terrace (t_3) (?)	> 30	7	Căs-Lac	7

***** The numbers correspond with sampling locations numbering in Pl 1.

Table 3. *Sampling locations from the Lower Danube Valley.*

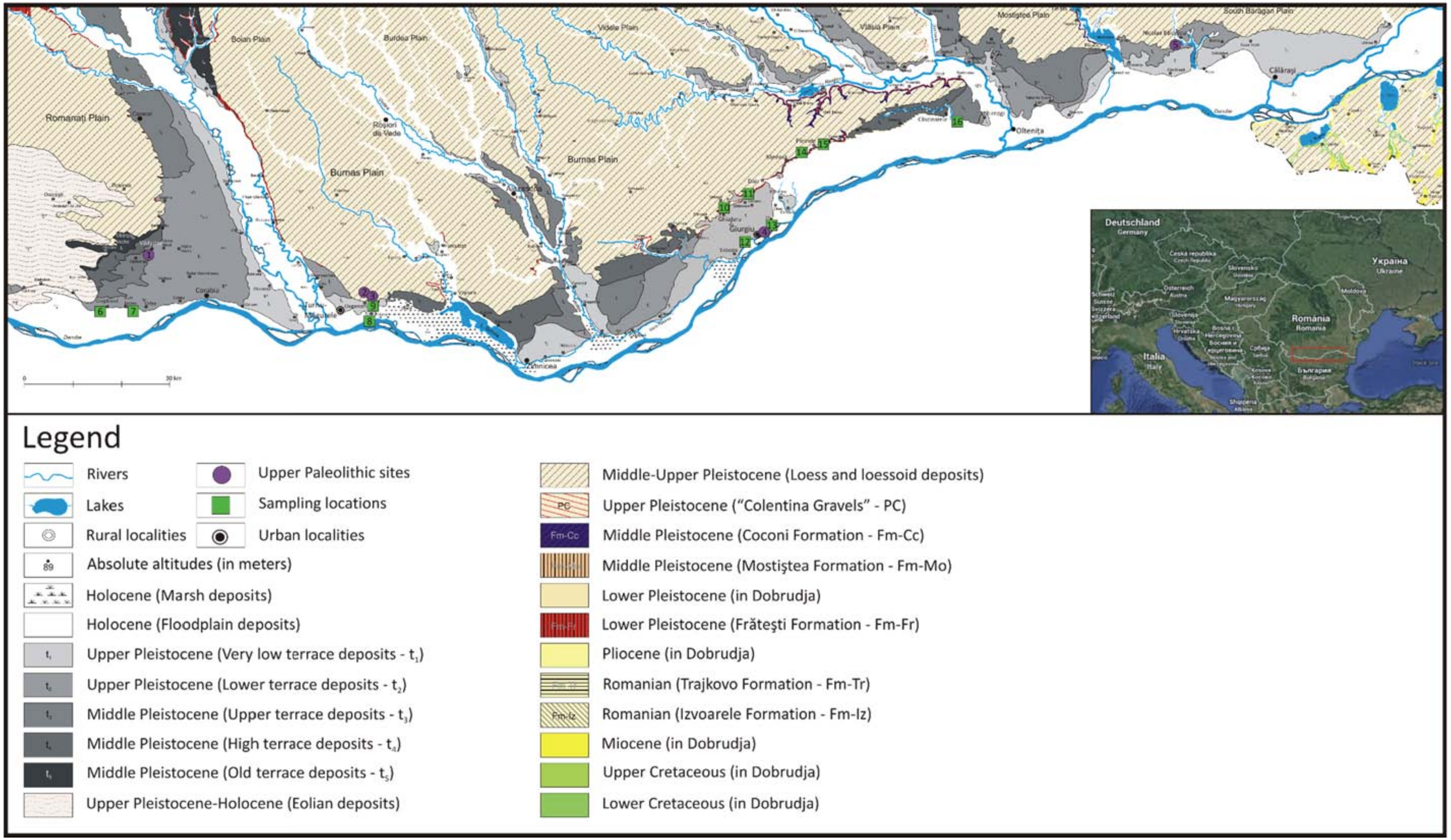

Plate 1. *Geological map of the study area with the position of archaeological sites and sampling locations: 1. Vădastra – Măgura Fetelor; 2. Ciuperceni – La Tir; 3. Ciuperceni – La Vii; 4. Giurgiu – Malu Roşu; 5. Nicolae Bălcescu – La Vii; 6. Grojdibodu – The quarry West of the village; 7. Gura Padinii – At the spring; 8. Poiana – At the poplars; 9. Ciuperceni – At the quarry; 10. Ghizdaru – The quarry near the train halt; 11. Cetatea – Bălănoaia quarry; 12. Giurgiu – The quarry SW of the city; 13. Giurgiu – Malu Roşu quarry; 14. Băneasa – The quarry near I.C.I.T.I.D.; 15. Pietrele – Between Măgura Gorgana site and the village; 16. Căscioarele – The Eastern shore of Cătălui lake; Digital map redrawn after the Geological Map of Romania 1:200000 (1966-1968), Sheets Turnu Măgurele, Slatina, Neajlov, Giurgiu, Bucharest and Călărasi, with modifications.*

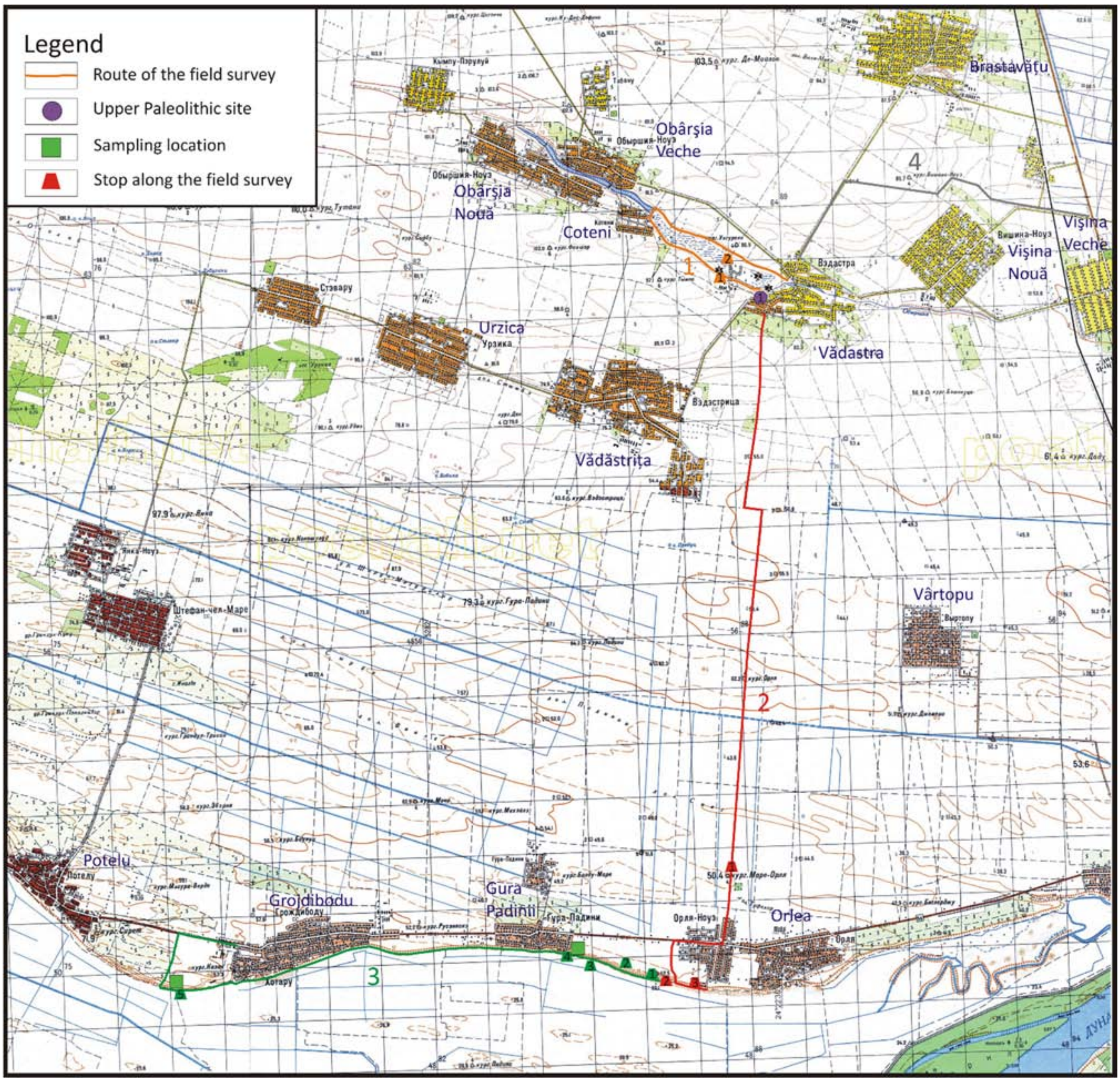

Plate 2. *Field surveys in the area around the Upper Palaeolithic site of Vădastra – Măgura Fetelor (Olt County): 1. Along Obârşia valley from Vădastra to Obârşia Veche and back (route and stops in orange), Stop 1 - Exposure of the loess deposits near Moara Ruinată (600 m from the site), Stop 2 - Exposure of loess deposits in Obârşia rivulet, black stars - Location of core drillings with the manual auger in Obârşia's flood channel; 2. Across Danube's upper and lower terraces from Vădastra to Orlea, and along the morphological contact between Danube's lower terrace (t_2) and floodplain south of Orlea (route and stops in red), Stop 1 - Surface finding of a Neolithic flint object (on the road near the cemetery), Stop 2 - Exposure of the loess covering the alluvial deposits of Danube's lower terrace (t_2), Stop 3 - Surface finding of a Neolithic flint object; 3. Across Danube's upper and lower terraces, from Vădastra to Orlea, and along the morphological contact between Danube's lower terrace (t_2) and floodplain, from Orlea to Grojdibodu (route and stops in green), Stops 1 and 2 - Exposures of the loess covering the alluvial deposits of Danube's lower terrace (t_2), Stop 3 - Exposure of Danube's floodplain alluvial deposits; Stop 4 - Gura Padinii – At the spring, an exposure of Danube's lower terrace (t_2) gravels; Stop 5 – Grojdibodu – The quarry West of the village, an exposure of sand and gravel deposits of Danube's lower terrace (t_2); 4. Across Danube's upper and lower terraces, from Vişina Veche to Vădastra (route in grey); the base map is composed from parts of the sheets K-35-001-A (1975), K-35-001-B (1975), K-35-001-C (1984), K-35-001-D (1984) of the Soviet topographic map of Romania 1:50000 (free download from http://www.geo-spatial.org/download/hartile-sovietice-50k).*

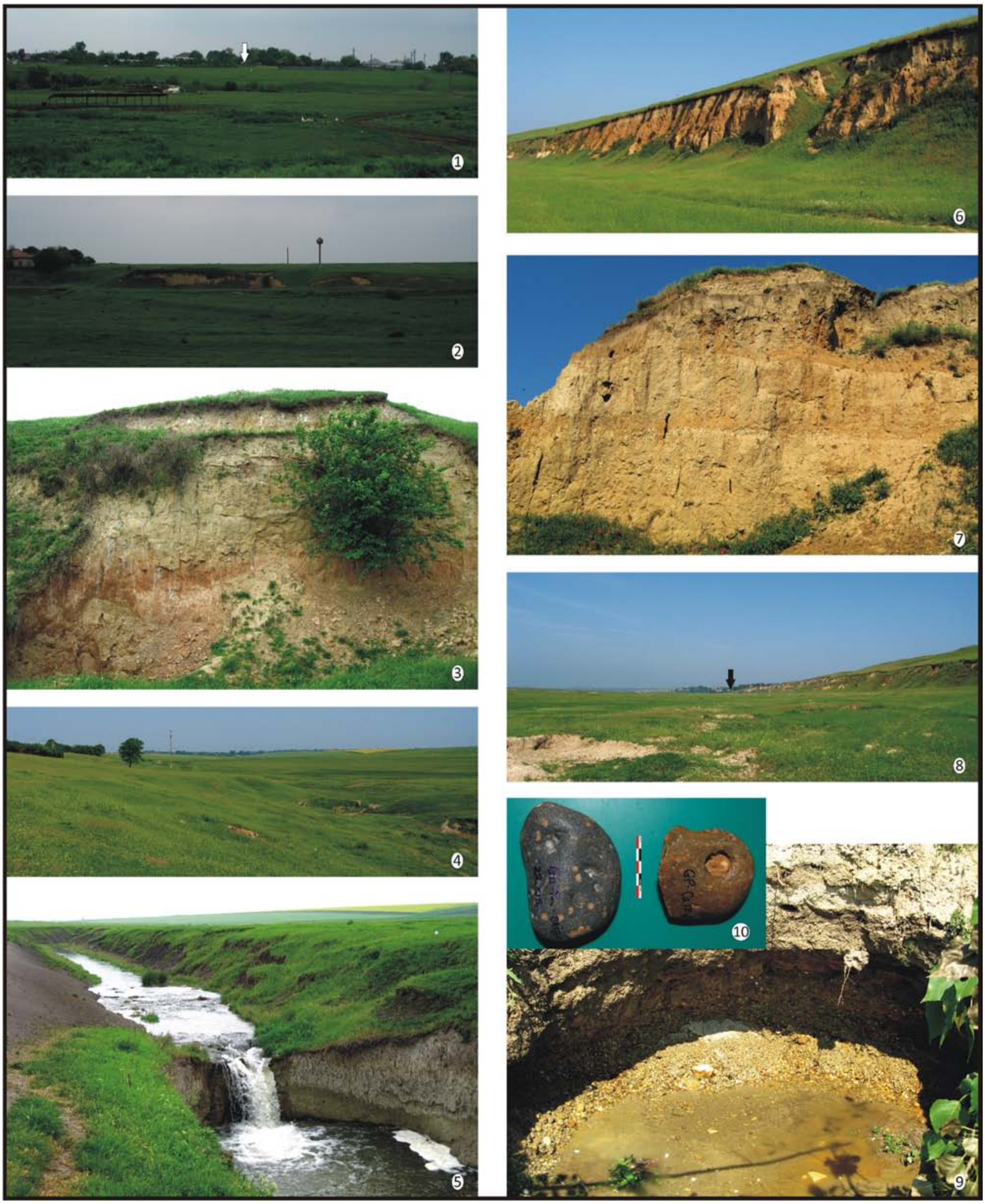

Plate 3. *Field surveys in the area around the Upper Palaeolithic site of Vădastra – Măgura Fetelor (Olt County): 1. Location of the Palaeolithic site (white arrow) on the right side of Obârşia valley; 2–3. Loess exposure near Moara Ruinată (600 m WNW of the site); 4. Obârşia valley looking towards Obârşia village; 5. Loess exposure in Obârşia's channel; 6–7. Exposures of the loess covering the alluvial deposits of Danube's lower terrace (t_2) west of Orlea village (the hammer is 40 cm long); 8. Danube's t_2 terrace looking towards Gura Padinii (black arrow); 9. Gura Padinii – At the spring, an exposure of Danube's t_2 terrace gravels; 10. Chert clasts collected from Gura Padinii (scale is 2.5 cm).*

Plate 4. *Grojdibodu – The quarry West of the village (Olt County): 1. General view of the abandoned quarry located at the western end of Grojdibodu village, the arrows indicating the location of the profiles shown in photos 2 and 3; 2–3. Cross-sections in the alluvial deposits of Danube's lower terrace (t_2), Upper Pleistocene (cross- and planar bedded sands and gravels); 4. Conglomerate slab at the surface of the quarry; 5. Chert clasts collected from the quarry; the hammer is 40 cm long; the scale is 2.5 cm.*

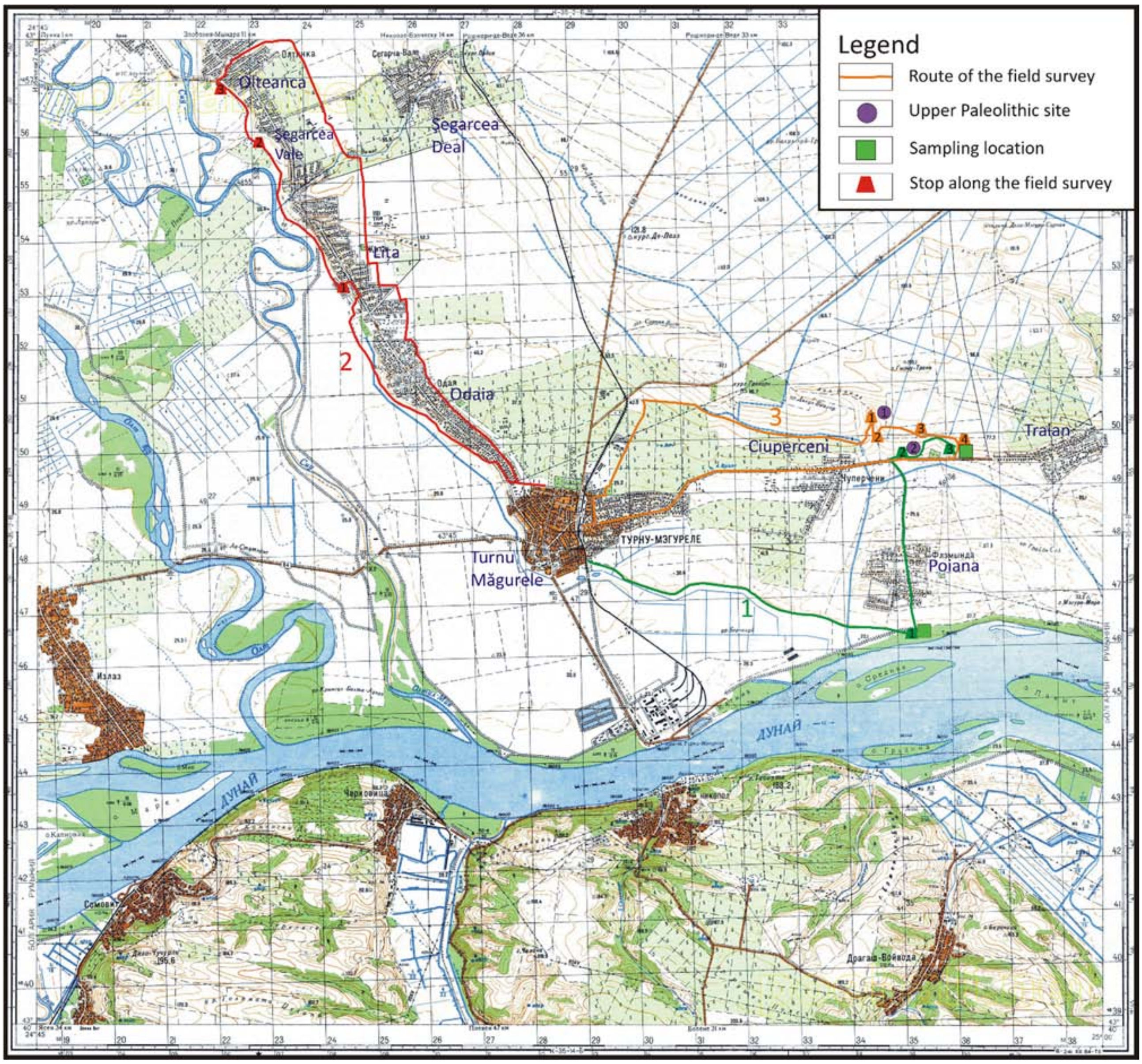

Plate 5. *Field surveys in the area around the Upper Palaeolithic sites from Ciuperceni (Teleorman County): 1. Along the morphological contact between Danube's very low terrace (t_1) and floodplain, from Turnu Măgurele to Poiana, and along the morphological contact between Danube's very low terrace (t_1) and the High Plain, East of Ciuperceni village (route and stops in green), Stop 1 – Poiana – At the poplars, exposure of sands and gravels of Danube's floodplain deposits (Holocene), Stop 2 - Findings of in situ lithic objects from Ciuperceni – La Vii, Stop 3 – Ciuperceni – At the quarry, an exposure in the gravel deposits of Frăteşti Formation (Lower Pleistocene); 2. Along the morphological contact between Danube's lower terrace (t_2) and Olt River floodplain, from Turnu Măgurele to Olteanca and back (route and stops in red), Stop 1 - Surface finding of chert clasts (on the dirt road) and exposure of the loess covering the alluvial deposits of Danube's lower terrace (t_2), Stop 2 - Surface finding of a prehistoric flint object (on a dirt road in the floodplain) and exposure of the loess deposits, Stop 3 - Exposure of the loess deposits; 3. Along the High Plain, from Turnu Măgurele to Ciuperceni (route and stops in orange), Stop 1 - Surface and in situ finding of lithic objects from Ciuperceni – La Tir, Stop 2 - Exposure of the loess deposits of the High Plain, Stop 3 - Surface finding of lithic objects from Ciuperceni – La Vii site, Stop 4 – Ciuperceni – At the quarry; the base map is Sheet K-35-002-D (1984) of the Soviet topographic map of Romania 1:50000 (free download from http://www.geo-spatial.org/download/hartile-sovietice-50k).*

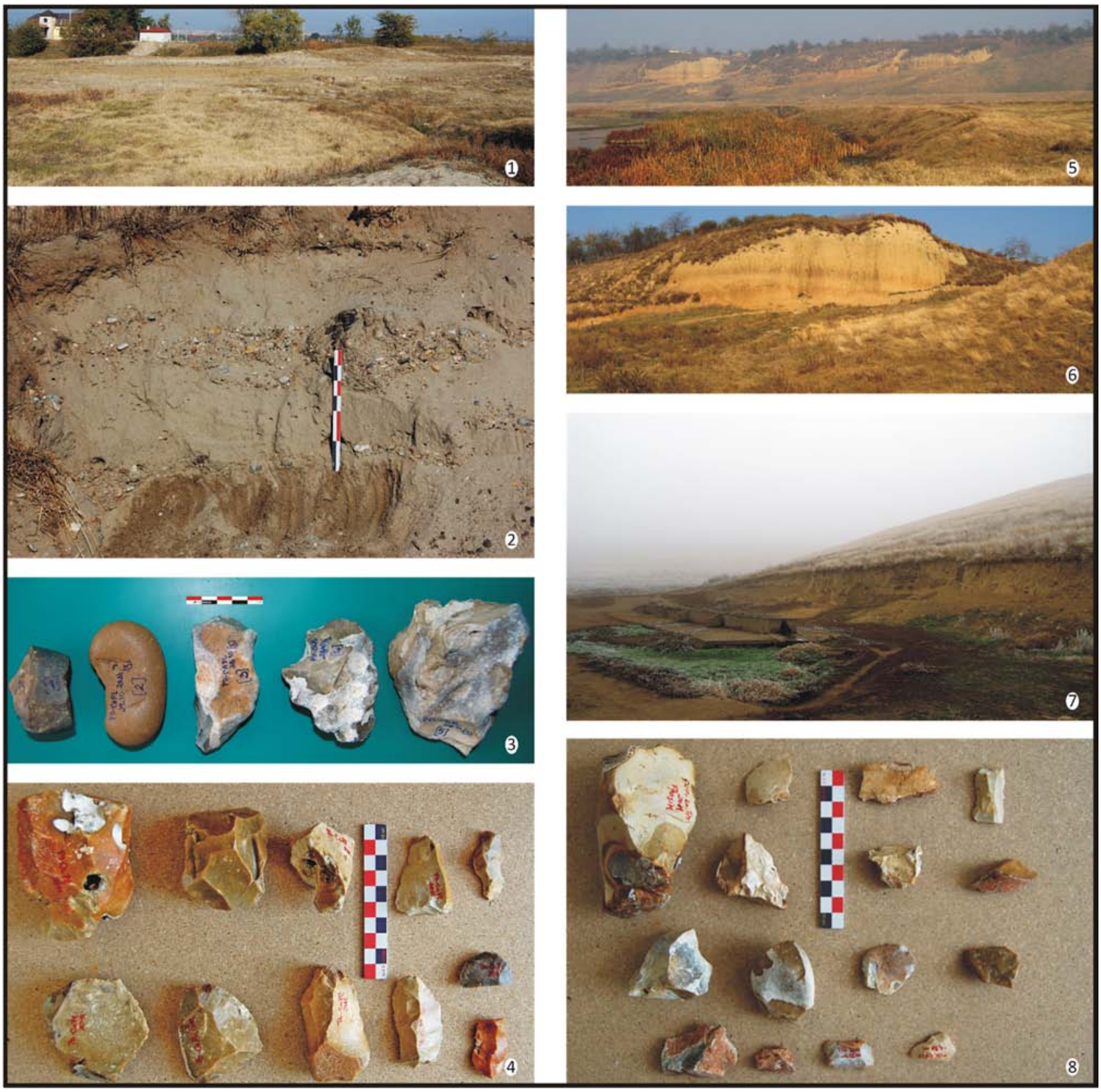

Plate 6. *Field surveys in the area around the Upper Palaeolithic sites from Ciuperceni (Teleorman County): 1. Exposure of Danube's floodplain deposits south of Poiana village (At the poplars); 2. Cross-section showing planar bedded sands interbedded with gravel layers from Poiana – At the poplars (scale is 40 cm); 3. Chert clasts collected from Poiana – At the poplars (scale is 5 cm); 4. Palaeolithic objects collected from Poiana – At the poplars (scale is 10 cm); 5. General view of the loess deposits covering Danube's lower terrace (t_2) near Liţa village; 6. Loess deposits near Liţa village; 7. General view of the location where lithic objects where collected from the surface and the loess profile (the position corresponding to Ciuperceni – La Tir site); 8. Lithic objects collected from the dirt road to Ciuperceni – La Tir site (scale is 10 cm).*

Plate 7. *Ciuperceni – At the quarry (Teleorman County): 1. General view from the south showing the position of the quarry (white arrow) and the Upper Palaeolithic site "La Vii" (grey arrow) in relation to the cemetery; 2. The quarry seen from the High Plain, with the position of the photographed profiles in photos 3 (green arrow) and 4 (yellow arrow); 3. Cross-section of the exposed planar bedded polymictic conglomerates with chert clasts; 4–5. Cross-section of the exposed planar bedded gravel with rusty brownish chert clasts in a sandy matrix (at the base) and the planar bedded polymictic conglomerate with chert clasts (on top); 6. Rusty brownish chert clasts from the bottom layer; 7. Chert clasts from the polymictic conglomerate layer; the scales are 40 and 25 cm.*

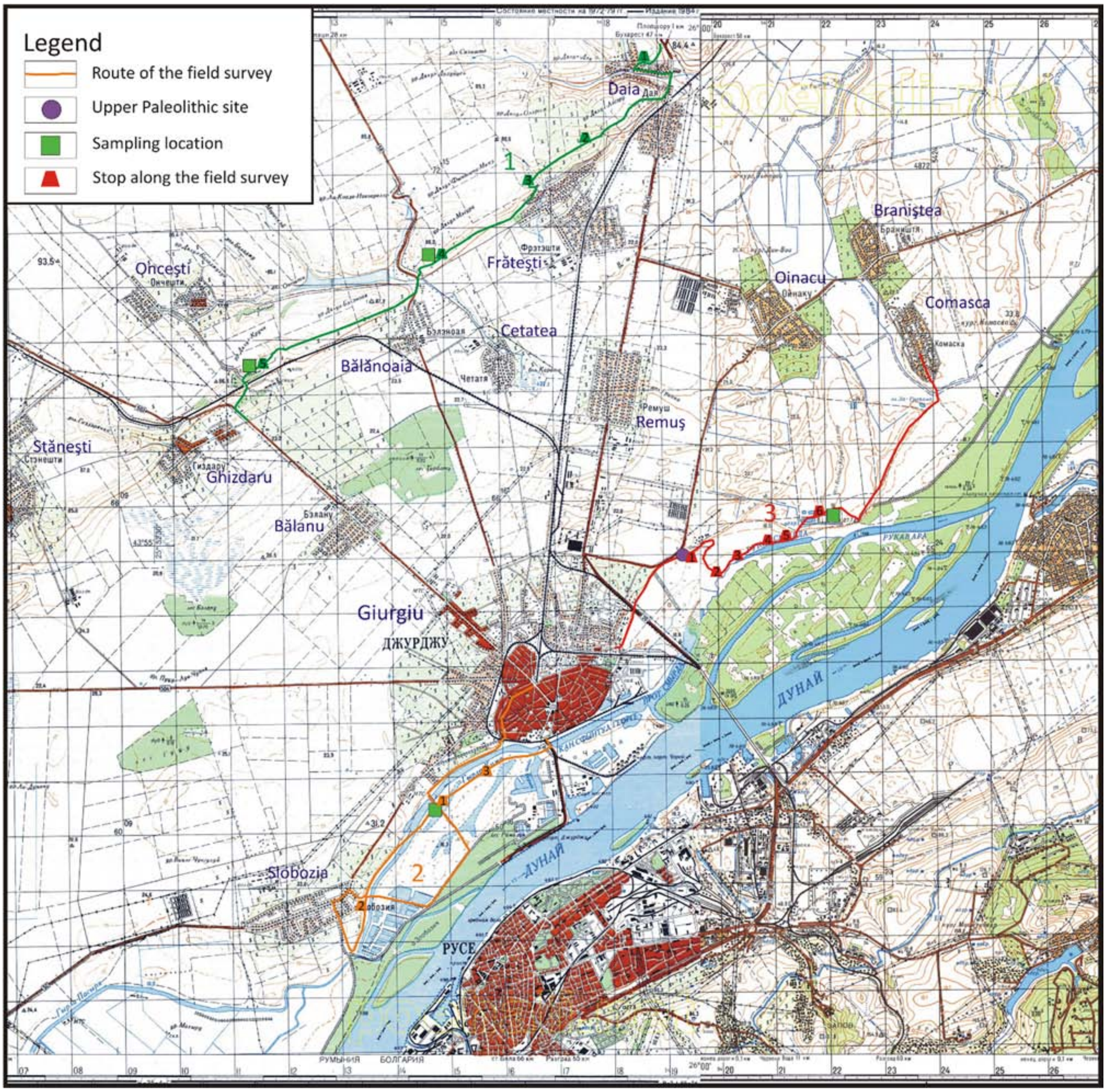

Plate 8. *Field surveys in the area around the Upper Palaeolithic site from Giurgiu – Malu Roşu (Giurgiu County): 1. Along the morphological contact between Danube's very low terrace (t_1) and the Burnas High Plain, from Daia to Ghizdaru (route and stops in green), Stop 1 – Daia – Behind the cemetery, exposure of a sand deposit in the abandoned quarry and surface finding of a chert clast (on the dirt road leading to the church), Stop 2 – Surface findings of chert clasts from a ploughed field between Daia and Frăteşti, Stop 3 – Frăteşti – The quarry behind the church, Stop 4 – Cetatea – Bălănoaia quarry, Stop 5 – Ghizdaru – The quarry near the train halt; 2. Along the morphological contact between Danube's very low terrace (t_1) and floodplain, from Giurgiu to Slobozia (route and stops in orange), Stop 1 – Giurgiu – The quarry SW of the city, an exposure of sand and gravel deposits of Danube's very low terrace (t_1), Stop 2 – Surface finding of a chert clast SE of Slobozia village, Stop 3 – Exposure of Danube's t_1 terrace sand deposits near Groapa de Cenuşă lake; 3. Along the morphological contact between Danube's very low terrace (t_1) and floodplain, from Giurgiu to Comasca (route and stops in red), Stop 1 – Giurgiu – Malu Roşu site, Stop 2 – Exposure of Danube's floodplain deposits near Mocănaşu pond; Stops 3–5 – Surface findings of chert clasts on the dirt road leading to the Malu Roşu topographical point, Stop 6 – Giurgiu – Malu Roşu quarry, an exposure of sand and gravel deposits of Danube's very low terrace (t_1) near the Malu Roşu topographical point; the base map is composed from parts of the sheets K-35-004-B (1984) and K-35-005-A (1991) of the Soviet topographic map of Romania 1:50000 (free download from http://www.geo-spatial.org/download/hartile-sovietice-50k).*

Plate 9. *Cetatea – Bălănoaia quarry (Giurgiu County): 1. General view from SW of the abandoned quarry near Bălănoaia village; 2. The NE side of the quarry (grey arrow in photo 1) with exposures of the upper part of the loess deposits (Upper Pleistocene) covering the gravels of the Frăteşti Formation (Lower Pleistocene); 3. Conglomerate slab found at the surface of the quarry (the hammer is 40 cm); 4. Detail of photo 3 showing a chert clast (sample no. 1 from the petrographic study); 5. Loess exposures in the SW side of the quarry (white arrow in photo 1), where the chert clasts were collected (on the surface).*

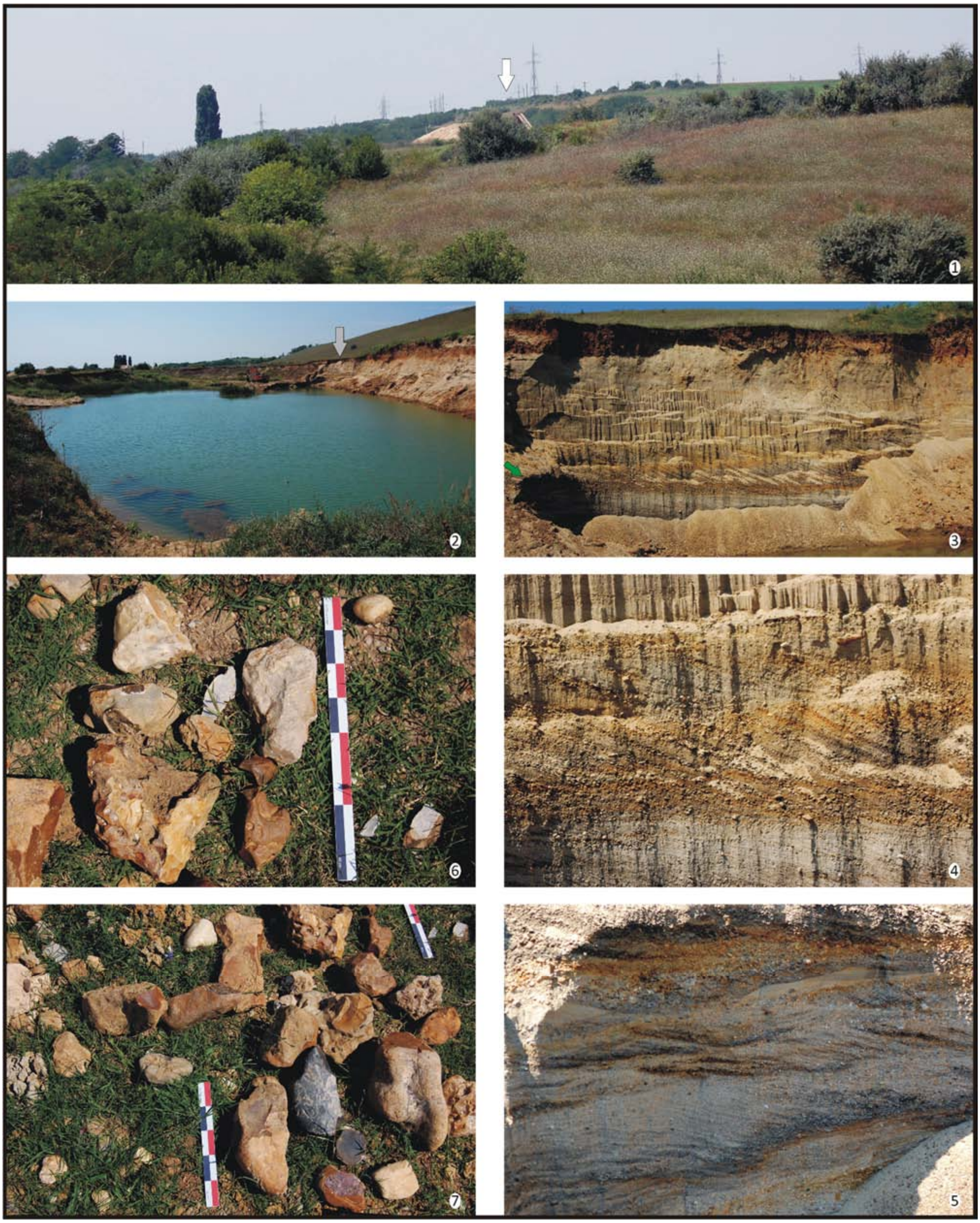

Plate 10. *Ghizdaru – The quarry near the train halt (Giurgiu County): 1. View from the NE of the quarry; 2. View from the east inside the quarry exploitation (grey arrow indicates the profile in photo 3); 3. Cross-section (NW profile) of the exposed deposits of Frăteşti Formation (Lower Pleistocene) composed of tabular cross-bedded gravel layers fining upward into planar- and cross-bedded sand layers with thin gravel interbeds; 4. Detail of the lower part of the NW profile; 5. Western profile (green arrow in photo 3); 6-7. Cherts collected from a pile of sorted clasts (the scales are 25 and 40 cm).*

Plate 11. *Giurgiu – The quarry SW of the city (Giurgiu County): 1. General view from the SW showing the quarry in relation to the Voestalpine street leading into the city (its periphery seen in the background); 2–3. Cross-sections of the exposed sand deposits (cross- and planar bedded) of Danube's very low terrace (t_1); 4–5. Cross-sections of the exposed gravel layer with small chert clasts in the same location; 6–7. Chert clasts collected from the gravel layer; hammer is 40 cm, scale in photo 3 is 40 cm, scale in photos 6–7 is 2.5 cm.*

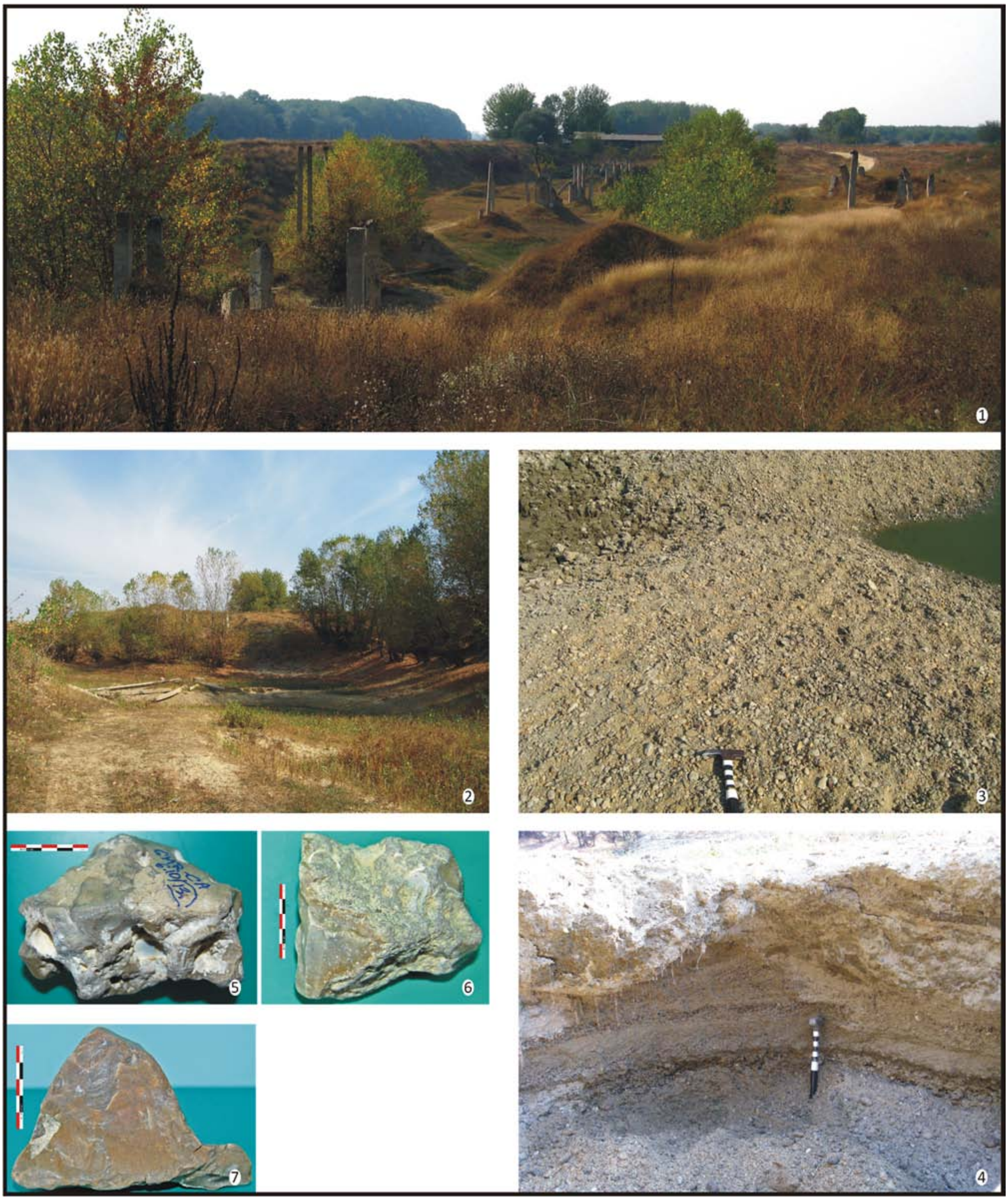

Plate 12. *Giurgiu – Malu Roşu quarry (Giurgiu County): 1. General view from the east showing the position of the location near the dirt road coming from the Palaeolithic site and leading to Malu Roşu topographical point; 2–3. View inside the abandoned structure used as a gravel quarry by the locals; 4. Cross-section of the exposed deposits of Danube's very low terrace (t_1) composed of cross-bedded sands interbedded with planar bedded gravel layers; 5–7. Chert clasts collected from this location; hammer is 40 cm, scale in photos 5–7 is 2.5 cm.*

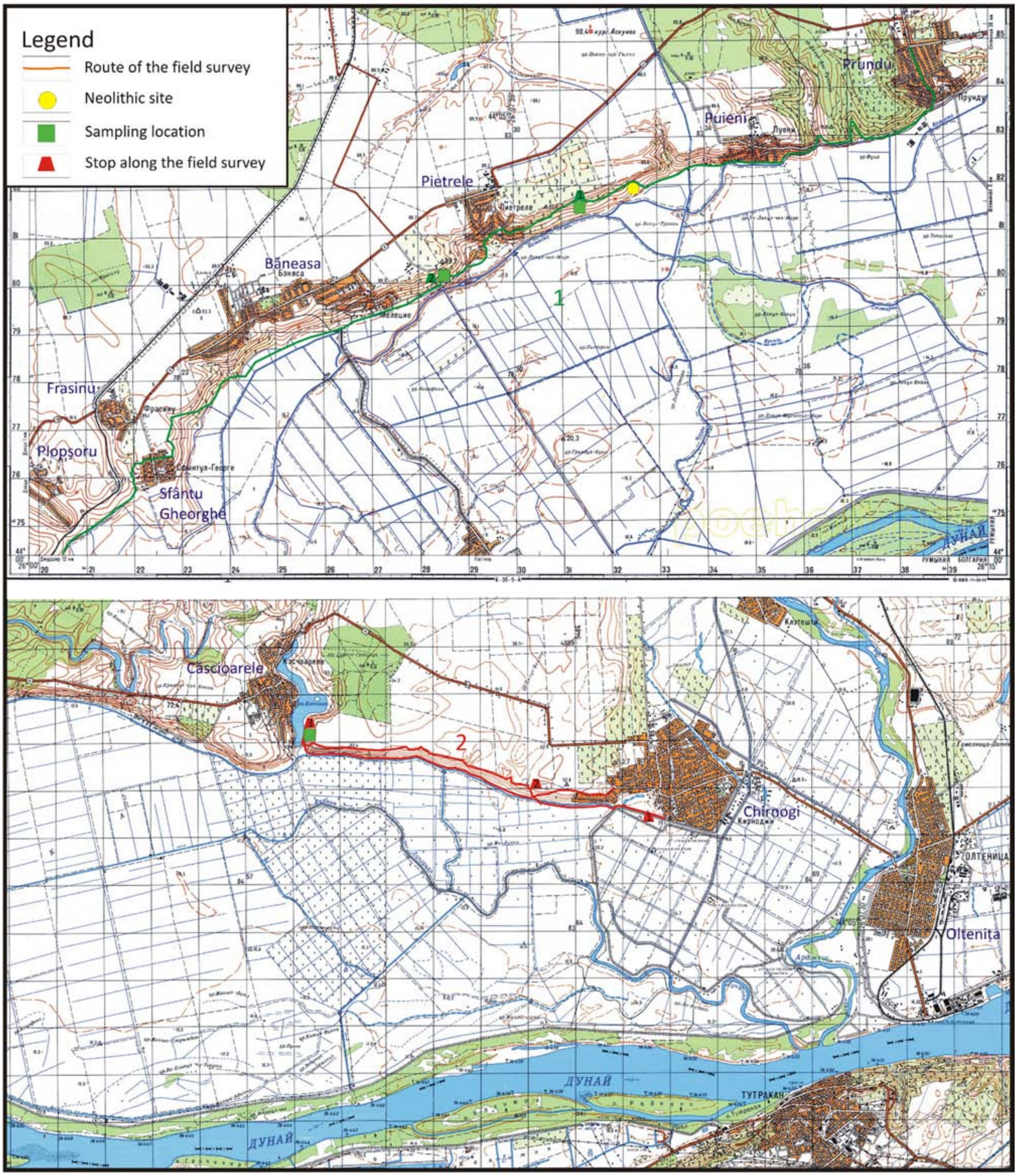

Plate 13. *1. Field survey along the morphological contact between Danube's floodplain and the Burnas high plain, from Prundu to Daia (Giurgiu county, route and stops in green): Stop 1 – Exposure of gravel deposits in a ravine between Măgura Gorgana site and Pietrele village, Stop 2 – Exposure of gravel deposits between Pietrele and Băneasa villages (the quarry near I.C.I.T.I.D.); the base map is part of Sheet L-35-137-C (1991) of the Soviet topographic map of Romania 1:50000; 2. Field survey along the morphological contact between Danube's floodplain and the Burnas High Plain, from Chirnogi to Căscioarele (Călăraşi county, route and stops in red): Stop 1 – Surface finding of a chert clast, Stop 2 – The abandoned quarry from Chirnogi, Stop 3 – Exposure of gravel deposits along the eastern shore of Cătălui Lake near Căscioarele; the base map is composed from parts of the sheets L-35-138-C (1991) and L-35-137-D (1991) of the Soviet topographic map of Romania 1:50000 (free download from http://www.geo-spatial.org/download/hartile-sovietice-50k).*

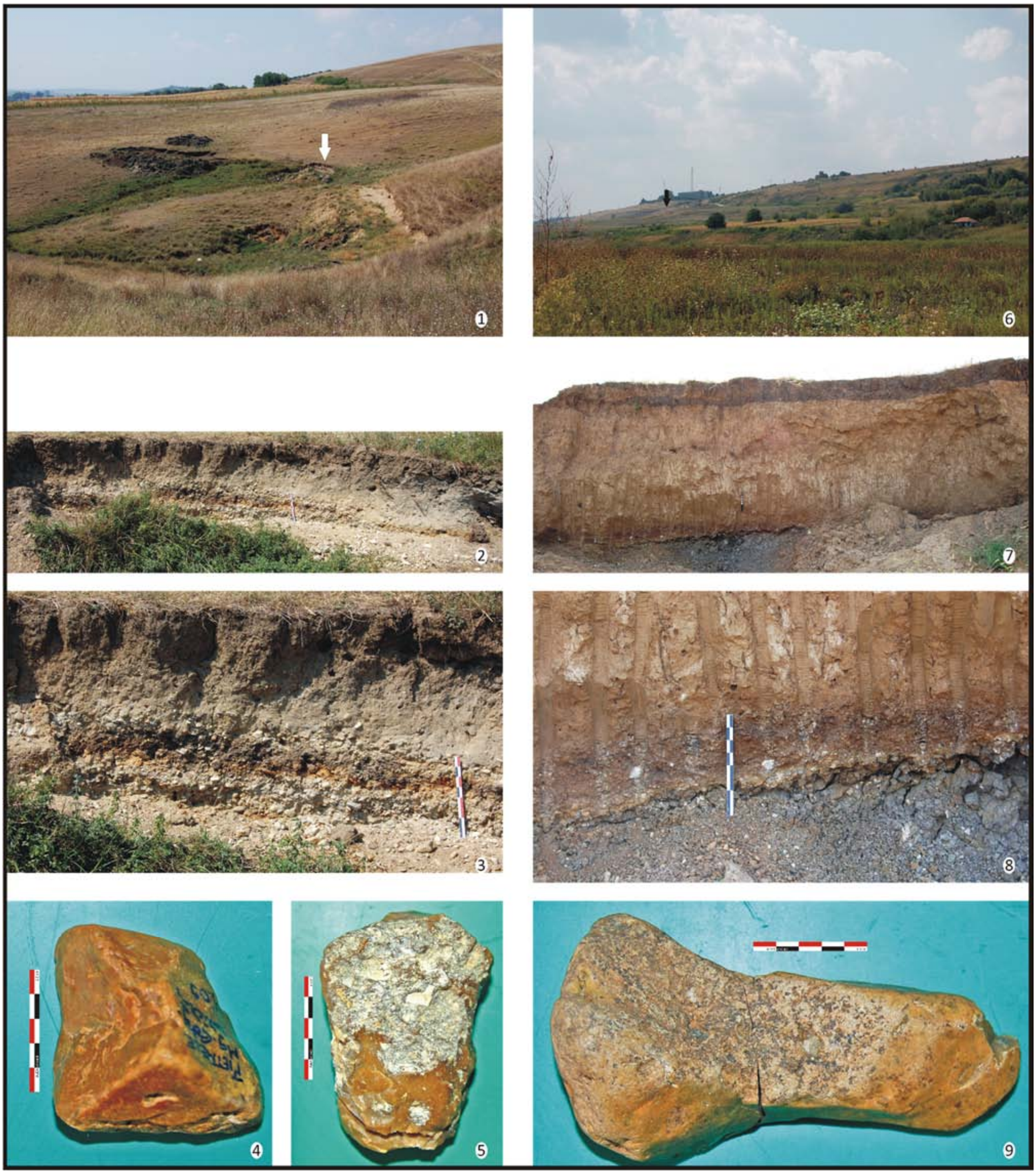

Plate 14. *Prundu–Daia field survey (Giurgiu County): 1. General view of the sampling location (a sheep watering place) found at the half distance between the Neolithic site of Măgura Gorgana and the Pietrele village (white arrow indicating the profile shown in photos 2–3); 2–3. Cross-section of the exposure showing a planar bedded gravel layer under the loess deposit (scale is 40 cm); 4–5. Chert clasts collected from this location (scales are 2.5 cm); 6. Location of Băneasa-The quarry near I.C.I.T.I.D. (black arrow); 7–8. Cross-section of the exposure showing the planar bedded gravel layer between a greyish clay deposit and the loess covering (hammer is 40 cm, scale is 40 cm); 9. Chert clasts collected from this location (scale is 2.5 cm).*

Plate 15. *Căscioarele – The eastern shore of Cătălui Lake (Călăraşi County): 1. View of Cătălui Lake from the east, with Căscioarele village on the background; 2. View of the eastern side of the lake; 3. The eastern shore of the lake along which the samples were collected (white arrow indicates the position of the profile in photo 4); 4. Cross-section in the alluvial sediments exposed by the lake (scale is 40 cm); 5–7. Chert clasts collected from the surface of the eastern shore; 8–10. Chert samples from the petrographic study collected on the surface of the eastern shore; in photos 5–10 the scale is 2.5 cm.*

ABRÉVIATIONS / ABBREVIATIONS / ABREVIERI

AA – Archäologischer Anzeiger. Deutsches Archäologisches Institut, Darmstadt, München, Tübingen–Berlin
Acta MN – Acta Musei Napocensis Cluj-Napoca
ActaMP – Acta Musei Porolissensis, Zalău
AJA – American Journal of Archaeology, Boston
Altertum – Das Altertum, Deutsche Akademie der Wissenschaften zu Berlin Sektion für Altertumswissenschaft Akademie der Wissenschaften der DDR Zentralinstitut für Alte Geschichte und Archäologie, Berlin
AnB – Analele Banatului, Muzeul Banatului, Timişoara
Antiquity – Antiquity. A Review of World Archaeology, Durham, UK
ArchBulg – Archaeologia Bulgarica, Sofia
AIGR – Anuarul Institutului Geologic al României, Bucureşti
AIIA Cluj – Anuarul Institutului de Istorie şi Arheologie, Cluj-Napoca
AM – Mitteilungen des Deutschen Archäologischen Instituts, Athenische Abteilung
Apulum – Acta Musei Apulensis. Muzeul Naţional al Unirii, Alba Iulia
ArchKorr – Archäologisches Korrespondenzblatt, Mainz
Argesis – Argesis. Muzeul Judeţean Argeş. Piteşti
ArhMold – Arheologia Moldovei, Iaşi
BA – Biblioteca de Arheologie, Bucureşti
BAI – Bibliotheca Archaeologica Iassiensis, Iași
BARIntSer – British Archaeological Reports. International Series, Oxford
BCȘS – Buletinul Cercurilor Științifice Studențești. Arheologie – Istorie – Muzeologie, Alba-Iulia
BICS – Bulletin of the Institute of Classical Studies of the University of London, London
Bjb – Bonner Jahrbücher des Rheinischen Landesmuseums in Bonn, Bonn
BMA – Bibliotheca Memoriae Antiquitatis, Piatra-Neamţ
BMJT – Buletinul Muzeului Judeţean Teleorman, Alexandria
BMMN – Buletinul Muzeului Militar Naţional, Bucureşti
BMTA Giurgiu – Buletinul Muzeului „Teohari Antonescu", Giurgiu
BPS – Baltic-Pontic Studies, Poznań
Britannia – Britannia. A Journal of Roman-British and Kindred Studies. Society for the Promotion of Roman Studies, Cambridge
BSA – British School at Athens, Athens
BSPF – Bulletin de la Societé Préhistorique Française, Paris
CA – Cercetări Arheologice, Bucureşti
Carpica – Carpica. Complexul Muzeal „Iulian Antonescu" Bacău, Bacău
Carst – Cercetare, explorare, Actualitatea speo, Recenzii, editorial, Știință, Tehnică, Cluj-Napoca
CCA – Cronica Cercetărilor Arheologice din România, Bucureşti
CCDJ – Cultură şi Civilizaţie la Dunărea de Jos, Călăraşi
CEFR – Collection de l'École Française de Rome
CercIst – Cercetări Istorice, Iaşi
Dacia – Dacia (Nouvelle Série). Revue d'archéologie et d'histoire ancienne. Académie Roumaine. Institut d'archéologie « V. Pârvan », Bucarest
Documenta Praehistorica – Documenta Praehistorica, University of Ljubljana, Faculty of Arts, Department of Archaeology
EphemNap – Ephemeris Napocensis. Academia Română, Institutul de Arheologie şi Istoria Artei, Cluj-Napoca
ERAUL – Études et Recherches archéologiques de l'Université de Liège
ÉtThas – Études thasiennes, École Française d'Athènes, Athènes-Paris
EurAnt – Eurasia Antiqua. Deutsche Archäologisches Institut, Berlin
GodișnikSofia – Godişnik na Sofijaskija Universitet „Sv. Kliment Ochridski", Istoriceskij fakultet, Sofia
Hesperia – Hesperia. Journal of the American School of Classical Studies at Athens, Cambridge
IFAO – Institut français d'archéologie orientale, le Caire
JAS – Journal of Archaeological Science

Kernos – Revue internationale et pluridisciplinaire de religion grecque antique, Liège
Marisia – Marisia. Studii şi materiale. Arheologie – Istorie – Etnografie, Târgu Mureş
MemAnt – Memoria Antiquitatis, Piatra Neamţ
MCA – Materiale şi Cercetări Arheologice, Bucureşti
OLBA – Mersin University Publications of the Research Center of Cilician Archaeology, Mersin, Turkey
Paléo – Paléo. Revue d'Archéologie Préhistorique, Les Eyzies, France
Peuce – Peuce, Studii şi cercetări de istorie şi arheologie, Institutul de Cercetări Eco-Muzeale, Tulcea
Pontica – Pontica. Studii şi materiale de istorie, arheologie şi muzeografie, Muzeul de Istorie Naţională şi Arheologie Constanţa
Quartär – International Yearbook for Ice Age and Stone Age Research
RCRFActa– Rei Cretariae Romanae Fautorum
RE – Realenzyklopädie: Paulys realenzyklopädie der klassischen Altertumswissenschafts, Stuttgart, 1893
RI – Revista Istorică. Academia Română, Institutul de Istorie „Nicolae Iorga”, Bucureşti
RESEE – Revue des Études Sud-Est Européennes. Academia Română, Institutul de Studii Sud-Est Europeene, Bucureşti
RevBistr – Revista Bistriței. Complexul Muzeal Bistriţa-Năsăud, Bistriţa
SAA – Studia Antiqua et Archaeologica, Iaşi
SCIV(A) – Studii şi Cercetări de Istorie Veche (şi Arheologie), Bucureşti
SlovArch – Slovenská Archeológia, Nitra
SMMIM – Studii și Materiale de Muzeografie și Istorie Militară, București
SP – Studii de Preistorie, Bucureşti
Suceava – Suceava. Anuarul Muzeului Bucovinei, Suceava
Th-D – Thraco-Dacica, București
Transylvanian Review – Transylvanian Review. Centrul de Studii Transilvane, Cluj-Napoca
Tyragetia – Tyragetia. Anuarul Muzeului Naţional de Istorie a Moldovei, Chişinău
VT – Vetus Testamentum