

ANNEX A.
FLINT AND SILICEOUS ROCK TYPES FROM THE MIDDLE PRUT VALLEY, ROMANIA

1. STUDY AREA AND FIELD DATA

The focus of this study are the geological materials derived from field surveys along the Middle Prut Valley (Botoșani County, Northeastern Romania). The area covered by these field surveys is herein referred to as the Middle Prut (MidPrut) research perimeter. From a physiographic point of view, the researched area covers a segment of the middle course of the Prut River (Moldavian Plain), which corresponds from a tectonic point of view to the Moldavian Platform (part of the Eastern-European Platform). The Moldavian Plain is an undulating landscape (270–200 m a.s.l. on interfluvies and 128–63 m a.s.l. for Prut Valley) dominated by the widespread Miocene limestones, gently sloping (5–6°) towards SW (Băcăuanu 1968, p. 26–29; 56–60; Juravle 2009, p. 19; Saulea, Popescu 1966, p. 8–13).

According to the geological and petroarchaeological literature (Simionescu 1897, p. 93; Simionescu 1902, p. 37, 39; Moroșan 1938, p. 16, 21; Albu *et alii* 1960, p. 11; Saulea, Popescu 1966, p. 9–10; Muraru 1990, p. 150–151; Văleanu 2015a, p. 15–22), flint is hosted in the Cenomanian marly limestone deposits (1–6 m thick). However, the information regarding the outcropping area of the Cretaceous deposits is split between two accounts: 1) several authors mention these deposits for the right side of the Prut between Rădăuți-Prut and Mitoc localities (Simionescu 1897, p. 93; Simionescu 1902, p. 37–39; Simionescu 1903, p. 99; Atanasiu, Macarovici 1950, Carte géologique de la Moldavie Orientale; Băcăuanu 1961, p. 434; Băcăuanu 1968, p. 26; Săndulescu *et alii* 1978; Juravle 2009, p. 19); 2) other authors mention these deposits for the right side of the Prut between Rădăuți-Prut and Liveni/Șerpenița localities (Macovei, Atanasiu 1930, Geologische Kartenskizze; Moroșan 1937, p. 55; Saulea, Popescu 1966, p. 9–10; Saulea *et alii* 1966; Muraru 1990, p. 150–151; Mutihac *et alii* 2007, p. 25)¹. In addition to these, several secondary occurrences are mentioned: very little worn or rolled flint nodules in the Badenian (Tortonian) conglomerates (2–6 m thick) found on-top of the Cenomanian limestones and outcropping in the same area; rounded flint nodules in the Badenian sand deposits which laterally replace the conglomerates between Rădăuți-Prut and Miorcani; rounded flint elements in the Prut's gravel deposits between Rădăuți-Prut and Liveni, but also downstream from the last locality². The petrographic nature of the flint (from nodule size and shape to microscopic traits and micropaleontological content) has also been described in some of the previous works, mostly based on observations made in the quarry exploitations from Rădăuți-Miorcani area (for example, see Albu *et alii* 1960, p. 11–14; Muraru 1990, p. 151–152). For a more detailed review of the geological data regarding the flint deposits see Văleanu (2015a; 2015b).

The field research from 2021–2024 amounted to 19 surveys (Tab. A1; Pl. A1) and covered a strip of land (some 31 sq. km) between Darabani, Rădăuți-Prut, Cotu Miculinți, Mitoc, and Ripiceni localities (Botoșani County, Northeastern Romania). Siliceous rocks were identified in several geological contexts³ (Tab. A2–A6; Pl. A2):

- 1) Cretaceous flint in a whitish chalk (6–7 m thick), only in Cotu Miculinți subsector (Pls. A3, A4/1–4, A5/1–3);
- 2) Cretaceous flint in a “breccia-like” deposit (4–5 m thick) representing a decalcified chalk sequence (eluvium with flint), in Rădăuți-Prut, Cotu Miculinți, and Mitoc subsectors (Pls. A4/5–6, A5/4–5, A6/2–4, A7, A8/4–7);
- 3) Cretaceous flint and Carpathian siliceous rocks in the gravel lenses of a sand deposit (intercalated between the eluvium and the *Lithothamnium* limestones), only in Rădăuți-Prut subsector (Pl. A6/5);
- 4) Cretaceous flint and Eastern Carpathians siliceous rocks in a matrix-supported conglomerate (found at the base of the *Lithothamnium* limestones and above the eluvium), in Rădăuți-Prut, Cotu Miculinți, and Mitoc subsectors (Pls. A5/5, A6/6, A7/4, A8/2–3, A9/1–4);
- 5) Cretaceous flint in the colluvial fans formed by torrents cutting through the chalk/eluvium (Pl. A10/1–5);
- 6) Cretaceous flint and Eastern Carpathians siliceous rocks in the scree deposits at the base of the chalk and eluvium (Pl. A10/6–8);

¹ On the left side of the Prut (in the Republic of Moldova), the Cretaceous deposits outcrop between Tețcani/Lipcani and Badragii Vechi/Badragii Noi (Simionescu 1897, p. 93; Văcăuțanu 1923, p. 295; Văcăuțanu 1925, p. 239–240). According to Moroșan (1937, p. 55), the Cretaceous deposits outcrop only as far as Vișoara (2 km downstream from the confluence of Lopatnic and Prut). Later accounts describe the Cenomanian deposits (glauconitic-quartzitic sands and sandstones sitting on top of light grey spongoliths) as outcropping between Criva and Badragii Vechi (Sobetsky, Yanovskaya 1969, p. 125; Osadchaya *et alii* 1969).

² The gravels of the lower terrace (10–15 m) and of the alluvial plain are predominantly (up to 80%) composed of flint (Băcăuanu 1961, p. 436–438; Băcăuanu 1968, p. 125, 148). South of Ripiceni village, the large flint concretions become more and more rare and replaced by small clasts in the rounded gravels (Moroșan 1938, p. 60). Even further downstream (more than 75 km SSE from Ripiceni), at Sculeni (Victoria commune, Iași County, Romania), the gravels of the terrace deposits contain quartzite and flint elements not bigger than a chicken egg (Moroșan 1938, p. 62–63).

³ The so-called Ibănești flint (Comșa 1968, p. 30–31) was not identified during these field surveys nor any geological deposits that might contain such a flint. In Ibănești-Pomirla area, the information from drill cores indicates that the Badenian (Tortonian) detrital horizon with flint elements is replaced by a calcareous sandstone with *Lithothamnium* (Bîgu 1965, p. 220).

7) Cretaceous flint and Eastern Carpathians siliceous rocks in gravels of the Prut's terrace deposits and current river bed, in Darabani, Rădăuți-Prut, Cotu Miculinți, Mitoc, and Ripiceni subsectors (Pls. A11, A12).

2. PETROGRAPHIC CHARACTERISATION OF THE SILICEOUS ROCKS FROM THE STUDY AREA

During the field surveys a total of 355 samples were collected from 45 geological locations (Tabs. A2–A5; Pl. A1). The samples were macroscopically classified and grouped into rock categories and subcategories (Tabs. A7–A8), and 100 of them were used in the microscopic analysis.

All samples were submitted to a petrographic analysis (for a basic methodological description and chert microfacies criteria see Ciornei *et alii* 2014), which in this case included: a) the macroscopic examination (naked eye, hand lens) of all geological hand samples collected during the field surveys or derived from previous research; b) the microscopic analysis of water-immersed unprepared samples (in reflected light under a Nikon SMZ 800N trinocular stereomicroscope with magnifications ranging from 10× to 160×) and thin sections of representative geological materials (in transmitted light under a Nikon Eclipse E200 Pol trinocular microscope with magnifications ranging from 40× to 400×). Photomicrographs of the thin sections and unprepared samples were taken with a Nikon D5600 DSLR camera mounted on the above-mentioned microscopes. The petrographic analysis was conducted between January 2022 and February 2026 at the Petroarchaeology Laboratory of the “Vasile Pârvan” Institute of Archaeology in Bucharest.

2.1. CRETACEOUS FLINT

Based on macroscopic and macroscopic traits and in accordance with field observations, several Cretaceous flint types (Tabs. A7–A8; Pls. A13–A23) were differentiated for the studied area:

Prut flint type B – siliceous material of black colour, very fine-grained, semi-opaque, silky lustre (Pls. A13, A23/1, A23/5); it has centimetre-sized carbonate spots (greyish, irregular to oval shaped), chalky whitish very fine dot-like reminiscences disseminated in the siliceous material or as large spots (millimetre to centimetre in diameter); the cortex is chalky, whitish, thick (more than 1–2 cm in thickness), with a medium-grey subcortical band, dull, semi-opaque; microscopically it can be described as a phytoplanktonic-bioclastic wackestone (coarse silt, moderately-well sorted) with siliceous groundmass varies from crypto- to microcrystalline quartz; it is dominated by very fragmented remains of phytoplanktonic organisms, with planktonic and benthic foraminifera (some agglutinated), rare radiolarians, but also variable amounts of bioclasts (echinoderms, mollusc shells, and sponge spicules), sporadic mica and rounded detrital quartz (Pl. A14); the amount of bioclasts varies from less than 10% to 15–20%, with localized abundance of sponge spicules (up to 10–15%) in the lower part of the nodule; the microfacies of the flint (Pl. A15/1–2) differs from that of its chalk cortex (A15/3–4) and from that of the chalk samples (Pl. A15/5–8); this material was identified as layered nodules (Pls. A4/1, A4/4, A5/2) or discontinuous beds/lenses (Pls. A4/2–3, A5/1–2) in the whitish chalk deposit, but also in the lowermost part of the eluvium (Pl. A5/3);

Prut flint type FB – siliceous material of blackish colour with a slight blueish hue, very fine-grained, semi-translucent, greasy lustre (Pls. A16, A23/2, A23/6); it has centimetre to millimetre-sized carbonate spots (greyish, irregularly shaped), millimetre-sized chalky whitish reminiscences, and grey-blueish siliceous spots (irregularly-oval shaped) with white-greyish carbonate rim; the cortex is whitish-yellowish, chalky, thin (less than 0.5 cm in thickness) in direct contact with the siliceous groundmass; microscopically it can be described as a bioclastic-phytoplanktonic microfacies; moderately-well sorted wackestone (very fine to fine sand) dominated by bioclasts (echinoderms, mollusc shells, and sponge spicules) in variable amounts (from 15 to 35%), very fragmented remains of phytoplanktonic organisms, planktonic and benthic foraminifera (some agglutinated), rare radiolarians, sporadic mica and rounded detrital quartz (Pl. A17); the siliceous groundmass varies from crypto- to microcrystalline quartz; this material was identified as nodules or discontinuous beds/lenses (Pls. A5/4, A7/7) in the lower-middle part of the eluvium;

Prut flint type TDG – siliceous material of dark-grey colour, very fine-grained, translucent, greasy lustre (Pls. A18/1–2, A23/3, A23/7); it has predominantly dot-like greyish carbonate spots (more rarely millimetre-sized and irregularly-oval shaped), millimetre-sized chalky whitish reminiscences, but also grey siliceous spots (irregularly-oval shaped) with white-greyish carbonate rim; the cortex is whitish-yellowish, chalky, thin (less than 0.5 cm in thickness) in direct contact with the siliceous groundmass; microscopically it can be described as a spiculitic-phytoplanktonic microfacies; moderately sorted wackestone (very fine to fine sand) dominated by bioclasts (mainly sponge spicules reaching 15–20%, but also echinoderms and mollusc shells), mica, detrital quartz, remains of phytoplanktonic organisms, rare radiolarians, planktonic and benthic foraminifera held in a crypto- to microcrystalline silica groundmass (Pl. A19); this material was identified as nodules (Pls. A5/5, A7/6) in the middle-upper part of the eluvium;

Prut flint type TLG – siliceous material of medium to light grey colour, sometimes with a grey-brownish colour towards the cortical area, very fine-grained, translucent, greasy lustre (Pls. A18/3–4, A23/4, A23/8); it has millimetre-sized carbonate spots (greyish, irregularly shaped), millimetre-sized chalky whitish reminiscences, and grey siliceous spots (irregularly-oval shaped) with greyish carbonate rim; the cortex is whitish-yellowish, chalky, thin (less than 0.5 cm in thickness) in direct contact with the siliceous groundmass; microscopically it can be described by the same spiculitic-phytoplanktonic microfacies (Pl. A20) associated with the TDG type; this material was identified as nodules (Pls. A4/5–6, A5/5, A6/2–4, A7/5) or discontinuous beds/lenses (Pl. A8) in the upper part of the eluvium;

Prut flint type M – siliceous material of murky light grey or murky darker grey colour, concentrically banded, very fine-grained, semi-translucent, greasy to dull (Pl. A21); the cortex is whitish-yellowish, chalky, thick (more than 1 cm in thickness), continued to the exterior of the nodule with a carbonate cement with Miocene fossils; under the microscope, the whitish bands are dominated by very fragmented remains of phytoplanktonic organisms (moderately-well sorted wackestone, coarse silt) in a cryptocrystalline quartz groundmass, while the clear grey bands are dominated by bioclasts (echinoderms, mollusc shells, and sponge spicules) and planktonic foraminifera (moderately-well sorted wackestone, very fine sand) in microcrystalline quartz groundmass of (Pl. A22); this material was identified as nodules (Pls. A5/5, A6/6, A7/4, A8/2–3, A9/2) in the Miocene matrix-supported conglomerate up to the contact with the eluvium.

All Cretaceous flint types exhibit a series of traits resulted from bioturbation processes: very fragmented bioclasts, jumbled-up and mixed with the phytoplanktonic remains (A14/7–8, A17/7–8, A19/7–8, A20/7–8), sometimes forming agglomerations (whitish-grey spots) with a distinct outline and shape (oval or irregular); patchy particle distribution with local abundance of either phytoplanktonic remains or bioclasts; very fragmented sponge spicules, the longest pieces having around 300 to 400 μm , but most of them are around 100–200 μm (Pl. A19/7); clear difference in fabric between the siliceous mass of the black flint (Pl. A15/1–2), its cortical area (Pl. A15/3–5) and the chalk samples (Pl. A15/5–8); clear difference in fabric between the siliceous mass and the cortex for the other flint types (Pls. A17/1–4; A19/1–4, A20/1–4, A22/1–4). Additional evidence of bioturbation is provided by field observations regarding the chalk, where the nodules are very abundant and closely packed, sometimes overlapping each other (Pls. A3/2–3, A4/1, A5/1).

From a mineralogic point of view, all Cretaceous flint types are dominated by authigenic silica (more than 90%): the micro-quartz makes-up the entirety of the groundmass, but it is also present in bioclasts and phytoplankton remains, while chalcedony is present in voids and moulds of fossils. Other mineral phases are represented by calcium carbonate, pyrite, iron oxides-hydroxides, but also by detrital quartz, phyllosilicates, and heavy minerals (2–3%).

The phytoplanktonic remains are represented by coccolithophores, dinoflagellates, planktonic cyanobacteria, with grain-sizes ranging from very fine to coarse silt, generally opaque (either pyritized or containing organic matter). The presence of phytoplanktonic remains speaks to similar and stable depositional conditions for the entire sequence.

In previous works (Tab. A6), the chalk with flint from the Middle Prut Valley has been considered as Cenomanian based on macrofauna, such as *Exogyra columba* Desh., *Holaster laevis* Ag., *Ostrea cf. canaliculata* Sow., *Lima globosa* Sow. (Saulea, Popescu 1966, p. 10). The deposit here called eluvium has been assigned to the Badenian (Miocene). In an earlier petrographic work, the presence of *Globotruncana stuarti* Lapp. (a Maastrichtian planktonic foraminifera) was noticed in a thin section through a flint sample derived from the Miocene sands (Albu *et alii* 1960, p. 14). Also in a previous study, the presence of Campanian and Maastrichtian foraminifera and microflora species (Muraru 1990, p. 152) was mentioned in samples of ashy to brownish translucent flint (Muraru 1990, p. 151), which would correspond in this study with the grey translucent flint (TDG, TLG) from the middle-upper part of the eluvium. Even if the association of planktonic foraminifera (*Globotruncana*, *Heterohelix*), observed in all samples from the chalk to the eluvium, indicates the Upper Cretaceous (Pls. A15/2, A15/5–7, A19/7, A20/7), the absence of a specialized micropaleontological analysis for the current study impedes a more constrained chronostratigraphic assignment.

2.2. EASTERN CARPATHIANS SILICEOUS ROCKS

Based on their macroscopic and macroscopic traits, several types of Eastern Carpathians siliceous rocks (Tabs. A7–A8; Pls. A24–A25) were differentiated for the studied area:

Undefined Mesozoic radiolarites – very fine-grained siliceous rocks ranging in colour from brown-yellowish to reddish or greenish, greasy to dull, semi-opaque (Pl. A24/1); microscopically they are composed of a siliceous groundmass mixed with limonite (yellowish variety), chlorite (greenish variety) or iron oxi-hydroxides (reddish variety), radiolarians, pyrite, rare detrital quartz and phyllosilicates (Pl. A25/1–3); such materials occur in Triassic to Lower Cretaceous deposits of the Eastern Carpathians;

Audia-type siliceous sandstone – medium grey sandstone (Pl. A24/2) composed of lithoclasts, quartz grainclasts, mica, glauconite peloides (3%), bioclasts (sponge spicules, echinoderms), planktonic and benthic foraminifera, with the

space between the particles filled by a siliceous groundmass (Pl. A25/4); this type of siliceous sandstone is widespread in the Upper Member of the Audia Formation (Lower Cretaceous, Audia Nappe, Eastern Carpathians);

Doamna chert – siliceous material of dark brownish colour, greasy lustre, semi-translucent (Pl. A24/3); under the microscope it can be described as a bioclastic wackestone with a siliceous groundmass holding together sponge spicules, echinoderms, planktonic and benthic foraminifera, radiolarians, detrital quartz, pyrite and large calcite crystals (Pl. A25/5); this chert type is associated with Doamna Formation (Eocene) from the Eastern Carpathians Flysch area;

Undefined EC chert – siliceous material of medium grey colour, dull, semi-translucent (Pl. A24/4); under the microscope it can be described as a bioclastic packstone (very fine to fine sand) with fragmented echinoderms and sponge spicules, intraclasts, detrital quartz, rare phyllosilicates and pyrite (Pl. A25/6); this material could not be associated to a specific type of chert from the Eastern Carpathians;

Menilite – siliceous material of dark grey-brownish to rusty brownish, greasy to glassy lustre, in some cases with whitish bands/laminae at regular intervals and fractures oblique or perpendicular to the lamination (Pl. A24/4); under the microscope it can be described as a siliceous cementstone (microquartz) with disseminated organic matter, pyrite crystals, rare bioclasts, rare phyllosilicates and detrital quartz (Pl. A25/7–8); the whitish bands or laminae are composed of detrital quartz; this material is derived from Oligocene deposits of the Eastern Carpathians Flysch area.

3. OCCURRENCE, ABUNDANCE AND AVAILABILITY

3.1. OCCURRENCE, ABUNDANCE AND AVAILABILITY OF THE CRETACEOUS FLINT TYPES

The Cretaceous flint types follow a strict vertical distribution in the stratigraphic sequence (Pl. A2): from bottom, type B, to top, type M. Although types B and FB share many macroscopic and microscopic traits, they can be differentiated based on the cortex appearance (Pl. A13 vs Pl. A16) and transition to the groundmass (Pl. A14/1–4 vs. Pl. 17/1–4), abundance and size of bioclasts, but also by the morphology of the nodule (Pl. A23/1–2). Types FB, TDG and TLG show a gradual change on the grey scale from black to dark and light grey. Some samples of TLG have an outer subcortical area which is dark-grey or brownish (Pl. A18/3–4). Types FB, TDG, and TLG have in common not only similar external (nodule, cortex) and internal (fabric) traits, but also microscopic traits. However, the microfacies of type FB is different than that of types TDG and TLG. Despite his secondary stratigraphic position (at the base of and in the Miocene conglomerate), type M has a similar microfacies to TDG and TLG.

The nodules of type B have a branchy or irregular shape and variable sizes, most often around 10–15 cm in diameter, but also larger (more than 30 cm in diameter) or smaller (finger-like concretions), with a smooth chalky exterior surface without asperities (Pl. A23/1). The nodules of types FB, TDG and TLG are irregular to oval, tabular or globular, with numerous perforations (tube-like) and a rough and uneven chalky exterior surface, and various sizes ranging from a few centimetres to 20–30 cm in diameter (Pl. A23/2–4).

The flint samples collected from Miocene and Quaternary deposits retain enough morphological traits to render their correct identification as types B, FB, TDG or TLG (Pl. A23/5–8). The materials found in the scree deposits either retain their full original shape and size (with an altered cortex), or they are found as angular fragments detached from the original nodules. The flint nodules from alluvial fans are cobble to boulder in size and retain most of the original nodule characteristics (with an altered cortical surface). The flint elements from Quaternary gravels are pebble to cobble in size and have subangular to subrounded shape with an exterior surface that retains an altered chalky cortex (Pl. A23/5–8). The flint elements from the Miocene gravels are pebble to cobble in size and have a subrounded to rounded shape with an exterior surface represented by neocortex.

Based on their geological contexts and the characteristics of cortical surfaces, the flint occurrences can be classified (Turq 2000, p. 106–107) as: 1) primary autochthonous sources (the chalk deposit with flint); 2) sub-autochthonous sources (the eluvium with flint); 3) secondary autochthonous sources (the scree formed at base of the chalk and the colluvial fans); 4) allochthonous sources (the gravel deposits with flint).

The good to excellent knapping quality of the Prut flint has been remarked in previous accounts. Without contradicting this general opinion, the field observations suggest notable differences in knapping quality between the flint from the scree at the base of the chalk and eluvium (where the nodules most often break on preexisting cracks or they need a lot of knapping to get to the good parts) and the flint from the gravels (especially from the Miocene ones, which is the material of the highest quality).

All visited outcrops suggest an overwhelming abundance of flint. In the chalk deposits, the black flint (type B) nodules are very frequent (sometimes forming rows of overlapped nodules, but also discontinuous layers/lenses), the nodule density leaving the impression of flint with chalk. The eluvium is made up of blackish (B, but mainly FB), dark grey (TDG) and light grey (TLG) flint nodules (and layers/lenses) supporting each other, giving the impression of a breccia-like deposit. Of these, type FB occupies two thirds of the eluvium's volume. Taking in consideration the stratigraphic position of the flint types and the thickness of the flint units (Pl. A2), it can be said that the most abundant

material is type FB, closely followed by type B, both of which represent around two thirds of the overall stratigraphic column (Pl. A2), while type M is the most infrequent one. The same overwhelming abundance of flint was also noted in the fossil and Holocene gravel deposits, where the black flint types B and FB are more frequent than the light-coloured varieties types TDG, TLG, while type M is rather rare (thus mirroring the situation from the flint sequence).

The landscape between Rădăuți-Prut and Miorcani was heavily transformed by the quarry and mine exploitations for flint from this area. In one of these abandoned quarries (GPS point Va-Ca 03, near Miorcani village), only the top part of the eluvium was visible (Pl. A6/2–4), but during the field surveys the chalk and the eluvium with flint were not encountered in natural exposures. The older geological literature signals the chalk with flint outcropping South of Rădăuți-Prut near Șerăuți (on the left side of the Prut, in the Republic of Moldova, on the other side of Miorcani) and up to Cotu Zamca/Cotu Miculinți (Simionescu 1902, p. 37). In the Cotu Miculinți area, upstream the Palaeolithic site, the complete sequence with flint (chalk with flint, eluvium) is naturally opened by the Prut and a series of Quaternary gullies cutting through them (Pls. A3–A5). Downstream the CM-GM site up to the outskirts of Crasnaleuca village there are no more exposures of the flint deposits (covered by bushes and small trees, no gullies), a situation similar to the one observed around the Upper Palaeolithic site of Crasnaleuca – *Faleza Pârâul Staniștei*. Although not visible due to vegetation and lack of exposures, the same geological sequence as for Cotu Miculinți was described in early geological works (Simionescu 1902, p. 39).

Further downstream, in Mitoc and Ripiceni subsectors, three situations were encountered:

1) at Cotu Mic (upstream from the village) the upper part of the eluvium with flint was exposed (around 2.5 m thick), but the rest is completely covered by scree (Pl. A7);

2) South of the Palaeolithic site Mitoc – *Malu Galben*, only the top part of the eluvium (1 m) was exposed on the Prut's bank for a distance of approximately 100–150 m at Mitoc 954, but towards the far end of the outcrop (Pls. A8, A9/1) and on Ghireni brook (Pl. A9/2–3) only the Badenian (Miocene) conglomerate with type M flint is outcropping;

3) Around the Upper Palaeolithic site of Ripiceni – *La Izvor* only the Sarmatian (Miocene) Reefal limestones outcrop (Pl. A9/5–8), while the Cretaceous flint types (FB, TDG and TLG) occur only in the gravel deposits (Pl. A12/7–9).

Although the chalk was not directly visible at Cotu Mic, this is most certainly present here because: a) in an old geological account, the Cretaceous chalk is mentioned at Cotu Mic upstream from the village (Simionescu 1897, p. 93); b) type B flint is present in the scree deposits (GPS point Mitoc 01) and the Quaternary terraces from Cotu Mic (Pl. A11/2–3); c) the calculated thickness of the deposits covered by scree is at least 4.5 m, which together with the exposed sequence of 2.5 m, provides an overall thickness that should include the upper part of the chalk (see Pl. A2).

The situation from Mitoc 954 cannot be explained by high water levels of the river, because in 2021 the water level of the Prut was at a record low since the water dam at Stâncă was in use (information provided by a local border policeman). According to some of the geological accounts (Moroșan 1937, p. 55–56; Moroșan 1938, p. 54; Saulea, Popescu 1966, p. 9–10), the Cenomanian deposits are mentioned as far as Liveni and Șerpenița, while others (Simionescu 1902, p. 39; Băcăuanu 1961, p. 434) are very clear that Mitoc is the endpoint for the outcropping area of the Cretaceous deposit and of the Badenian (Tortonian) conglomerates with flint (here called eluvium), disappearing under the Sarmatian Reefal limestone. This information is in accordance with the stratigraphic situations encountered at Mitoc 954 and Ripiceni. However, because there were no field surveys carried out in-between downstream from Mitoc 954 and upstream from Ripiceni (Pl. A1), the situation described in the above-mentioned geological papers remains to be checked by future research.

The Miocene matrix-supported conglomerate (found between Rădăuți-Prut and Mitoc) and the Miocene sands with gravel lenses (only found between Rădăuți-Prut and Miorcani) represent the oldest geological contexts which contain reworked and recycled flint eroded from the chalk and eluvium deposits (Pls. A6/2, A6/5–6, A8/2–3, A9/3–4). Flint elements of various sizes, shapes, and colours are present in the alluvial fans of the gullies cutting through the chalk and the eluvium, but also in the scree found at the base of these deposits (Pl. A10). The same flint is also present in the gravel deposits of the Prut River (Pls. A11, A12/5–9), starting from Horodișteea village (Hor 01, the most northwestern point with flint identified during these surveys) and all the way to South of Ripiceni (Rip 02, the most southeastern point in the research perimeter). Both of these (Hor 01, Rip 02) are located in areas where the flint sequence is not outcropping on any side of the Prut River, and in both extreme locations type B seems to be missing.

In short, the sources of Cretaceous flint from the Middle Prut Valley can be characterized as physiographically limited (from Horodișteea to at least Ripiceni, only along the valley) but with flint of very good quality for knapping found in extreme abundance and generous availability in various nodule shapes and sizes. Accessibility to the flint deposits during the prehistoric times would have been limited or impeded only by water levels, snow and vegetation cover.

3.1. OCCURRENCE, ABUNDANCE AND AVAILABILITY OF THE EASTERN CARPATHIANS SILICEOUS ROCKS

The Eastern Carpathians siliceous rocks were found in the gravel deposits of the Prut River from Darabani to Ripiceni (Pl. A12), but some of them were also observed in the Miocene conglomerate and the scree deposits between Rădăuți-Prut and Mitoc. Of the above-mentioned materials, Menilite is the most abundant. This can be found as subrounded and rounded pebbles and cobbles (sometimes more than 10 cm in diameter) and has a splintery-chunky break which makes this material unsuitable for knapping (Pl. A24/5). The radiolarites are frequent enough, but mostly found as small subrounded and rounded pebbles (frequently less than 3 cm in diameter) which can barely be knapped. The other Eastern Carpathians siliceous rocks were sporadically found as subrounded and rounded small pebbles (less than 3 cm in diameter).

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No.	Date	Field survey	Distance (km)	Area (sq. km)	Stops*	Samples	Objectives
01	2021.10.18	Stâncă Ripiceni - Ripiceni	1.0	0.01	2	12	Observe the geology of the area
02	2021.10.18	Mitoc-Malu Galben - Ghireni Valley - downstream Prut towards Mitoc 954	4.9	0.09	1	0	Identify the outcrops near Mitoc mentioned by Văleanu (2015a) and Lazarovici <i>et alii</i> (2018)
03	2021.10.19	around Cotu Miculinți-Gârla Mare site	3.8	0.07	1	0	Observe the geology near the Upper Palaeolithic site
04	2021.10.19	Cotu Miculinți upstream Prut towards CM 941	2.5	0.01	1	2	Identify the outcrops near Cotu Miculinți mentioned by Văleanu (2015a)
05	2021.10.20	Rădăuți-Prut - Miorcani (old mining and quarrying area) - Cariera Vărărie (limestone quarry)	24.2	0.20	6	67	Identify the outcrops mentioned by Albu <i>et alii</i> (1960, p. 10-11) and Văleanu (2015a); Sampling at Vărărie point, the location from where Muraru (1990, p. 157) described the geological sequence
06	2021.10.21	around Crasnaleuca-Faleza Pârâul Staniștei	2.2	0.01	1	11	Observe the geology near the Upper Palaeolithic site
07	2021.10.21	Mitoc-Cotu Mic downstream Prut toward Mitoc 954	11.3	0.20	6	42	Sampling the outcrops near Mitoc mentioned by Văleanu (2015a) and Lazarovici <i>et alii</i> (2018)
08	2021.10.22	Sampling at CM 941	1.8	0.02	1	47	Sampling the sequence with Prut flint observed at CM 941
09	2021.10.23	Darabani - Păltiniș - Bajura - Horodiștea	75.1	24.50	4	13	Checking gravels along Prut valley upstream from Rădăuți-Prut
10	2021.10.24	CM 941 downstream Prut towards CM-GM	13.1	2.80	5	28	Identify outcrops between Cotu Miculinți village and the Palaeolithic site (CM-GM)
11	2022.10.21	Cotu Miculinți-Gârla Mare (CM-GM) upstream Prut towards CM 04	3.3	0.02	6	27	Sample the sequence with Prut flint between the palaeolithic site (CM-GM) and Cotu Miculinți village
12	2022.10.22	Mitoc-Cotu Mic downstream Prut	2.6	0.03	1	22	Sampling the flint outcrops near Mitoc mentioned by Văleanu (2015a)
13	2022.10.24	Cotu Miculinți-Gârla Mare (CM-GM) downstream Prut towards Crasnaleuca village	3.2	0.01	0	0	Identify outcrops between the palaeolithic site (CM-GM) and Crasnaleuca village
14	2023.10.22	Mitoc-Cotu Mic upstream Prut towards Cotu Mare	1.1	0.01	5	58	Verify and sample the gravels with cherts at the base of the loess profile
15	2023.10.22	Mitoc-Cotu Mic downstream Prut towards MCM 02 and Mitoc 1	3.2	0.20	1	1	Doublecheck previous observations regarding the geological sequence
16	2023.10.23	Cotu Miculinți-Gârla Mare (CM-GM) - Gârla Mare ravine	1.3	0.01	2	10	Sample the sequence with Prut flint near the Palaeolithic site
17	2024.10.19	Cotu Miculinți-Gârla Mare (CM-GM) upstream Prut towards CM 03 and CM 941a	13.7	1.60	10	0	Revisit sampling locations from 2021-2022
18	2024.11.11	Ripiceni village - towards Ripiceni-La Izvor and downstream	4.9	0.30	4	4	Check flint occurrence on the shore of the artificial lake Stâncă-Costești downstream from the Upper Palaeolithic site of Ripiceni-La Izvor
19	2024.11.15	Ripiceni-La Izvor - downstream Prut towards Rip 02 - Ripiceni village	4.7	0.80	1	11	Check flint occurrence on the shore of the artificial lake Stâncă-Costești downstream from the Upper Palaeolithic site of Ripiceni-La Izvor
			177.9	30.89	45	355	
* Observation and sampling points							
The field surveys were carried by car and by foot, having broadly predetermined paths (areas to be checked) and specific objectives. All stops and field survey routes were recorded with a handheld GPS (Garmin eTrex 35, accuracy of max. 3 m).							
Field surveys participants for 2021: A. Ciornei, M. Brandl, and M. Händel; Field surveys participants for 2022-2024: A. Ciornei							
The major objective of the field surveys from 2021 has been to visit locations of primary and secondary deposits with flint mentioned in the archaeological and geological literature and perform sampling for petrography and geochemistry. The surveys from subsequent years (2022-2024) were focused on enriching the first-hand observations.							

Table A1. Field surveys conducted along the Middle Prut Valley between Darabani, Rădăuți-Prut, Mitoc, and Ripiceni (Botoșani County).

Stops	Elevation (m a.s.l.)	GPS coordinates		Geological context	Lithology	Period	Rock types sampled	Samples		
		Lat. N	Long. E					Co	MA	MiA
Baj 01	107.03	48.21247	26.52186	point bar deposits	gravel	Quaternary	EC siliceous rocks	5	5	4
Baj 02	107.77	48.21301	26.53657	point bar deposits	gravel	Quaternary	-	0	0	0
Pal 01	100.11	48.24058	26.61913	point bar deposits	gravel	Quaternary	EC siliceous rocks, EC metamorphics	4	4	3
Hor 01	97.24	48.24844	26.73554	point bar deposits	gravel	Quaternary	Prut flint	4	4	3
Rad-Mio 01	87.89	48.23772	26.82513	Detrital horizon	gravel	Miocene	Prut flint, context rocks	29	29	0
Rad-Mio 03	69.00	48.22570	26.83570	surface/at the top of the soil	-	-	Prut flint	7	7	0
Va-Ca 01	85.34	48.22172	26.85434	Detrital horizon; Detrital limestones with <i>Lithothamnium</i>	sand, gravel; conglomerate	Miocene	Prut flint, context rocks	7	7	0
Va-Ca 01b	91.00	48.22138	26.85422	Detrital limestones with <i>Lithothamnium</i>	limestone	Miocene	-	0	0	0
Va-Ca 02	94.24	48.22133	26.85472	Detrital horizon; Detrital limestones with <i>Lithothamnium</i>	sand, gravel; conglomerate	Miocene	Prut flint, context rocks, EC metamorphics	21	21	0
Va-Ca 03	94.42	48.22149	26.85501	eluvium (decalcification clay) with flint nodules	"flint breccia"	?	Prut flint	3	3	0
10								80	80	10
Co – collected; MA – number of samples in the macroscopic analysis; MiA – number of samples in microscopic analysis; EC – Eastern Carpathians.										

Table A2. Stops (observation and sampling points) recorded between Darabani and Miorcani (Botoșani County).

Stops	Elevation (m a.s.l.)	GPS coordinates		Geological context	Lithology	Period	Rock types sampled	Samples		
		Lat. N	Long. E					Co	MA	MiA
CM 941a	89.24	48.18503	26.92128	chalk with flint nodules; eluvium (decalcification clay) with flint nodules; Detrital limestones with <i>Lithothamnium</i>	flint in chalk; "flint breccia"; conglomerate	Upper Cretaceous; ?; Miocene	Prut flint, context rocks	47	47	0
CM 942a	95.09	48.18927	26.91915	chalk with flint nodules	flint in chalk	Upper Cretaceous	Prut flint, context rocks	2	2	0
CM 02	135.60	48.18833	26.94918	point bar deposits	gravel	Quaternary	Prut flint	9	9	0
CM 03	149.05	48.17194	26.93158	Detrital limestones with <i>Lithothamnium</i>	conglomerate	Miocene	Prut flint	1	1	0
CM 04	138.13	48.16926	26.93131	chalk with flint nodules; eluvium (decalcification clay) with flint nodules	flint in chalk; "flint breccia"	Upper Cretaceous; ?	Prut flint, context rocks	13	13	0
CM 05	140.96	48.16790	26.93138	eluvium (decalcification clay) with flint nodules	"flint breccia"	?	Prut flint	2	2	0
CM 05b	108.43	48.16789	26.93164	chalk with flint nodules; eluvium (decalcification clay) with flint nodules	flint in chalk; "flint breccia"	Upper Cretaceous; ?	Prut flint	4	4	0
CM 06	132.65	48.16638	26.93250	chalk with flint nodules	flint in chalk	Upper Cretaceous	Prut flint	5	5	0
CM 06b	112.18	48.16633	26.93233	eluvium (decalcification clay) with flint nodules; Detrital limestones with <i>Lithothamnium</i>	"flint breccia"; conglomerate	?; Miocene	Prut flint	5	5	0
CM 07a	104.58	48.16561	26.93316	chalk with flint nodules	flint in chalk	Upper Cretaceous	Prut flint, context rocks	4	4	0
CM 07b	105.49	48.16597	26.93282	chalk with flint nodules	flint in chalk	Upper Cretaceous	Prut flint	1	1	0
CM 01a	115.56	48.16310	26.93445	Detrital limestones with <i>Lithothamnium</i>	limestone	Miocene	-	0	0	0
CM 01b	101.43	48.16366	26.93555	alluvial fan	gravel	Quaternary	Prut flint	11	11	0
CM 01c	107.00	48.16315	26.93504	chalk with flint nodules; eluvium (decalcification clay) with flint nodules	flint in chalk; "flint breccia"	Upper Cretaceous; ?	Prut flint, context rocks	4	4	0
CM 01d	113.58	48.16324	26.93540	eluvium (decalcification clay) with flint nodules	"flint breccia"	?	Prut flint, context rocks	6	6	0
Cr 01	95.99	48.13743	26.95342	point bar deposits	gravel	Quaternary	Prut flint	11	11	0
16								125	125	54
Co – collected; MA – number of samples in the macroscopic analysis; MiA – number of samples in microscopic analysis.										

Table A3. Stops (observation and sampling points) recorded between Cotu Miculinți and Crasnaleuca (Botoșani County).

Stops		GPS coordinates	Geological context	Lithology	Period	Rock types sampled	Samples
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	Elevation (m a.s.l.)	Lat. N	Long. E					Co	MA	MiA
MCM 01	110.44	48.12931	27.03665	point bar deposits	gravel	Quaternary	Prut flint, EC siliceous rocks, EC sandstone	18	18	2
MCM 02	109.00	48.12506	27.03112	eluvium (decalcification clay) with flint nodules; Detrital limestones with <i>Lithothamnium</i>	"flint breccia"; conglomerate; limestone	?; Miocene	Prut flint	22	22	13
MCM 03	90.83	48.12306	27.02742	terrace deposits	gravel	Quaternary	Prut flint, context rocks, EC siliceous rocks, EC sandstone, EC metamorphics	24	24	2
MCM 04	88.20	48.12339	27.02569	terrace deposits	gravel	Quaternary	EC siliceous rocks, EC sandstone	5	5	2
MCM 05	88.11	48.12388	27.02446	terrace deposits	gravel	Quaternary	EC siliceous rocks, Prut flint	2	2	0
MCM 06	95.22	48.12493	27.02240	terrace deposits	gravel	Quaternary	Prut flint, EC siliceous rocks, EC sandstone	5	5	2
MCM 03-06	-	-	-	terrace deposits	gravel	Quaternary	Prut flint, EC siliceous rocks, EC sandstone, context rocks, EC metamorphics	22	22	4
Mitoc 01	120.79	48.11346	27.03444	talus	scree	Quaternary	Prut flint, EC siliceous rocks	16	16	0
Mitoc 02	85.00	48.09600	27.01930	Detrital limestones with <i>Lithothamnium</i>	conglomerate	Miocene	-	0	0	0
Mitoc 954	-	-	-	talus	scree	Quaternary	EC siliceous rocks, Prut flint, EC sandstone	4	4	0
Mitoc 954a	120.00	48.08870	27.02512	eluvium (decalcification clay) with flint nodules	"flint breccia"	?	Prut flint	1	1	1
Mitoc 954c	122.00	48.08822	27.02552	eluvium (decalcification clay) with flint nodules	"flint breccia"	?	Prut flint	1	1	1
Mitoc 954b	122.48	48.08797	27.02576	eluvium (decalcification clay) with flint nodules; Detrital limestones with <i>Lithothamnium</i>	"flint breccia"; conglomerate	?; Miocene	Prut flint, context rocks	3	3	2
13								123	123	29
Co – collected; MA – number of samples in the macroscopic analysis; MiA – number of samples in microscopic analysis; EC – Eastern Carpathians.										

Table A4. Stops (observation and sampling points) recorded around Mitoc village (Botoșani County).

Stops	Elevation (m a.s.l.)	GPS coordinates		Geological context	Lithology	Period	Rock types sampled	Samples		
		Lat. N	Long. E					Co	MA	MiA
Rip 01	111.60	47.96190	27.13296	Reefal limestones	limestone	Miocene	context rocks	3	3	0
Rip 02	97.89	47.91343	27.14256	point bar deposits	gravel	Quaternary	Prut flint	9	9	3
Rip 03a	97.89	47.91343	27.14256	Reefal limestones	limestone	Miocene	-	0	0	0
Rip 03b	110.61	47.96540	27.14120	terrace deposits	gravel	Quaternary	Prut flint, EC sandstone, EC siliceous rocks	4	4	0
Rip 04a	111.00	47.96597	27.14012	terrace deposits	gravel	Quaternary	-	0	0	0
Rip 05a	113.13	47.96425	27.14265	terrace deposits	gravel	Quaternary	Prut flint	11	11	3
6								27	27	6
Co – collected; MA – number of samples in the macroscopic analysis; MiA – number of samples in microscopic analysis; EC – Eastern Carpathians.										

Table A5. Stops (observation and sampling points) recorded around Ripiceni village (Botoșani County).

Field notes (this study)					In geological literature* described as			
GPS points	Geological context		Thickness	Age				
Rip 01, Rip 03a	cochiliferous limestones with mollusc shells (<i>Cardium</i>)	Reefal limestones	> 2 m	Sarmatian, Miocene, Neogene	Limestones with <i>Cardium</i> and <i>Serpula</i> (Buglovian = Sarmatian, Miocene)			
Va-Ca 01, Va-Ca 01b, Va-Ca 02, CM 941a, CM 03, CM 06b, CM 01a, MCM 02, Mitoc 02, Mitoc 954a, Mitoc 954c, Mitoc 954b	detrital limestones interlayered with conglomerate and sandstone/marl	Detrital limestones with <i>Lithothamnium</i>	> 2 m	Badenian, Miocene, Neogene	Detrital limestones with fragments of <i>Lithothamnium</i>	Limestone horizon (30 m)	The marl-limestone facies (Tortonian = Badenian, Miocene)	
	conglomerate with flint and Carpathian rocks, matrix-supported, carbonate cement, clasts from a few cm to 10-15 cm in diameter		0.40/0.60 to 1.20 m					
Va-Ca 01, Va-Ca 02, Va-Ca 03	grain-supported flint gravel	Detrital horizon	0.25-0.30 m	Badenian, Miocene, Neogene	sands with well-rolled flint nodules, North of Miorcani	Detrital horizon (2-6 m)		
	laminated clay/marl with limestone (?) nodules		0.20-0.25 m					
	whitish-yellowish sand interlayered with grain-supported flint gravel		2.5 m					
Rad-Mio 01	whitish marl layer/lens, planar bedded		0.10-0.60 m					
	grain-supported flint gravel with grey-brownish sandy-clayish matrix, oblique bedding		1.5 m					
Va-Ca 03, CM 941a; CM 03, CM 04, CM 05, CM 05b, CM 06b, CM 01d, CM 01c, MCM 02, Mitoc 02, Mitoc 954a, Mitoc 954c, Mitoc 954b	Eluvium (chalk decalcification clay) with flint, grain-supported, breccia-like, with a rusty-grey-greenish marly matrix	Eluvium with flint	4-5 m	?	conglomerate with flint nodules (almost not rolled / breccia-like) / “horizon conglomeratique”, South of Miorcani			
CM 941a, CM 942a, CM 04, CM 05b, CM 06, CM 07a, CM 07b, CM 01c	massive chalk with black flint nodules distributed at regular intervals (oriented along the stratification plane), with at least one chalk layer (hardground?) and a poorly silicified chalk layer	Chalk with flint	6-7 m	(Late) Cenomanian, Upper Cretaceous, Cretaceous	Chalky limestones (1-6 m) with frequent siliceous accidents / whitish-grey limestones and marly limestones, chalk-like with frequent flint layers (Cenomanian, Upper Cretaceous)			
* Albu <i>et alii</i> 1960, p. 11; Saulea, Popescu 1966, p. 9-12; Muraru 1990, p. 150, 156; Juravle 2009, p. 19; for a synthesis of the geological info see Văleanu (2015a; 2015b).								
? - Based on its stratigraphic position, the eluvium with flint could have formed during the interval after the Upper Cretaceous and the Middle Miocene (Badenian).								

Table A6. Litho-stratigraphy for the pre-Quaternary deposits sampled between Rădăuți-Prut and Ripiceni (Botoșani County).

Rock categories and subcategories	MidPrut				Darabani				Rădăuți-Prut				Cotu Miculinți				Mitoc				Ripiceni			
	MA	MiA	Stm	Pol	MA	MiA	Stm	Pol	MA	MiA	Stm	Pol	MA	MiA	Stm	Pol	MA	MiA	Stm	Pol	MA	MiA	Stm	Pol
Prut flint type M	8	3	4	3	0	0	0	0	0	0	0	0	2	2	3	2	5	1	1	1	1	0	0	0
Prut flint type TLG	92	24	26	15	3	2	2	0	28	0	0	0	22	10	12	6	32	11	11	9	8	1	1	0
Prut flint type TDG	35	9	10	6	0	0	0	0	15	0	0	0	11	6	7	4	8	2	2	2	1	1	1	0
Prut flint type FB	51	15	18	6	1	1	1	0	5	0	0	0	17	7	9	3	17	3	3	3	11	4	5	0
Prut flint type B	68	24	30	15	0	0	0	0	10	0	0	0	49	24	30	15	8	0	0	0	0	0	0	0
Context rocks (Cenomanian chalk, eluvium matrix and other sediments, Miocene conglomerate, Miocene limestone)	39	5	0	5	0	0	0	0	7	0	0	0	24	5	0	5	5	0	0	0	3	0	0	0
Undefined Mesozoic radiolarites	9	4	4	0	1	1	1	0	0	0	0	0	0	0	0	0	8	3	3	0	0	0	0	0
Audia-type siliceous sandstone	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Doamna chert	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Menilite	29	9	9	0	5	3	3	0	0	0	0	0	0	0	0	0	22	5	5	0	2	1	1	0
Undefined EC chert	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
EC sandstone	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	1	0	0	0
EC metamorphics	7	4	4	0	1	1	1	0	2	0	0	0	0	0	0	0	4	3	3	0	0	0	0	0
	355	100	108	50	13	10	10	0	67	0	0	0	125	54	61	35	123	29	29	15	27	7	8	0
sampling locations in Darabani area: Baj 01, Baj 02, Pal 01, Hor 01																								
sampling locations in Rădăuți-Prut area: Rad-Mio 01, Rad-Mio 03, Va-Ca 01, Va-Ca 01b, Va-Ca 02, Va-Ca 03																								
sampling locations in Cotu Miculinți area: CM 941a, CM 942a, CM 02, CM 03, CM 04, CM 05, CM 05b, CM 06, CM 06b, CM 07a, CM 07b, CM 01a, CM 01b, CM 01c, CM 01d, Cr 01																								
sampling locations in Mitoc area: MCM 01, MCM 02, MCM 03, MCM 04, MCM 05, MCM 06, MCM 03-06, Mitoc 01, Mitoc 02, Mitoc 954, Mitoc 954a, Mitoc 954c, Mitoc 954b																								
sampling locations in Ripiceni area: Rip 01, Rip 02, Rip 03b, Rip 05a																								
MA – number of samples in the macroscopic analysis; MiA – number of samples in microscopic analysis; Stm – number of subsamples analysed with a stereomicroscope; Pol – number of subsamples (thin sections) analysed with a polarizing microscope; EC – Eastern Carpathians.																								

Table A7. Rock categories and subcategories characterised by subsectors of the MidPrut research perimeter.

Rock categories and subcategories	MidPrut				Talus and surface/at the top of the soil				Quaternary gravels				Miocene deposits				Eluvium with flint				Chalk with flint			
	MA	MiA	Stm	Pol	MA	MiA	Stm	Pol	MA	MiA	Stm	Pol	MA	MiA	Stm	Pol	MA	MiA	Stm	Pol	MA	MiA	Stm	Pol
Prut flint type M	8	3	4	3	2	0	0	0	2	0	0	0	4	3	4	3	0	0	0	0	0	0	0	0
Prut flint type TLG	93	24	26	15	9	0	0	0	32	3	3	0	21	0	0	0	31	21	23	15	0	0	0	0
Prut flint type TDG	35	9	10	6	2	0	0	0	9	1	1	0	14	0	0	0	10	8	9	6	0	0	0	0
Prut flint type FB	51	15	18	6	7	0	0	0	26	5	6	0	3	0	0	0	15	10	12	6	0	0	0	0
Prut flint type B	67	24	30	15	1	0	0	0	17	0	0	0	10	0	0	0	4	3	2	1	35	21	28	14
Context rocks (Cenomanian chalk, eluvium matrix and other sediments, Miocene conglomerate, Miocene limestone)	39	5	0	5	0	0	0	0	4	0	0	0	12	0	0	0	5	0	0	0	18	5	0	5
Undefined Mesozoic radiolarites	9	4	4	0	0	0	0	0	9	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0
Audia-type siliceous sandstone	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Doamna chert	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Menilite	29	9	9	0	5	0	0	0	24	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0
Undefined EC chert	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
EC sandstone	14	0	0	0	1	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EC metamorphics	7	4	4	0	0	0	0	0	5	4	4	0	2	0	0	0	0	0	0	0	0	0	0	0
	355	100	108	50	27	0	0	0	144	29	30	0	66	3	4	3	65	42	46	28	53	26	28	19
sampling locations for Talus and surface/at the top of the soil: Rad-Mio 03; Mitoc 01, 954																								
sampling locations for Quaternary gravels: Baj 01, Pal 01, Hor 01; CM 01b, 02, Cr 01; MCM 01, 03, 04, 05, 06, 03-06; Rip 02, 03b, 05a																								
sampling locations for Miocene deposits: Rad-Mio 01, Va-Ca 01, 02; CM 941a, 03, 06b; MCM 02, Mitoc 954b; Rip 01																								
sampling locations for Eluvium with flint: Va-Ca 03; CM 941a, 04, 05, 05b, 06b, 01c, 01d; MCM 02, Mitoc 02, 954a, 954c, 954b																								
sampling locations for Chalk with flint: CM 941a, 942a, 04, 05b, 06, 07a, 07b, 01c																								
MA – number of samples in the macroscopic analysis; MiA – number of samples in microscopic analysis; Stm – number of subsamples analysed with a stereomicroscope; Pol – number of subsamples (thin sections) analysed with a polarizing microscope;																								

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