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THESPROTIA EXPEDITION III
LANDSCAPES OF NOMADISM AND SEDENTISM

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Cover: The Bronze Age site of Goutsoura seen from the south. Photo: Björn Forsén

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Beyond Sites: Tract Finds and Hidden Landscapes

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Everyone conducting an intensive field survey has at some stage been faced with the question of how to identify a site.[1] Decisions are often taken at short notice in the field and the results cannot necessarily be checked by revisits. Especially difficult to comprehend are large sites stretching over several fields, of which part may be totally overgrown with zero visibility, or sites that partly are covered by later sterile depositions.[2] In northwestern Greece, as in other regions, pottery produced during certain prehistoric periods is less likely to be preserved on the surface ('low-visibility phases', according to Rutter).[3] It has been suggested that some prehistoric sites are not noted at all in field surveys, thus creating a 'hidden landscape' that can be visualized only by increased attention at a stage of research following initial work in the field.[4]

Taking into account that 'archaeological sites do not exist *sui generis*, but must be defined via an act of archaeological interpretation',[5] the Thesprotia Expedition from the early stages of designing its surface survey strategy employed an array of criteria for site definition. Special emphasis was laid on lithics, as the survey was concentrated on the Kokytos valley, which, like other regions in northwestern Greece and the Ionian islands, is known as a countryside where flint abounds.[6] During the 1960s Dakaris even marked the whole valley from Neochori in the north up to Skandalo and Gardiki in the south on his site distribution maps as a ca. 60-65 km^2 large continuous carpet of dispersed lithic finds.[7] This trait of the regional archaeological record clearly made it more difficult to recognize prehistoric sites and to define their borders. Nonetheless, some clearly visible lithic concentrations were during the field work identified as sites on the basis of high density and diagnostic artefacts, sometimes together with pottery and/or tiles, and subsequently published as individual sites in *Thesprotia Expedition* I and II.[8]

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[1] E.g. Bailey *et al.* 1997; Bintliff and Snodgrass 1988; Cherry *et al.* 1991; Gallant 1986; Mee and Forbes 1997. The drawings of the lithics in this chapter were made by Christina Papoulia and inked by Nikoletta Dolia. All maps were made by Esko Tikkala.

[2] For this latter phenomenon in the Kokytos valley, see e.g. Lavento 2009 or Forsén and Forsén 2012.

[3] Rutter 1983, 138-139.

[4] Bintliff, Howard and Snodgrass 1999, 139-168. However, Davis 2004, 22-34, believes that this explanation may be applicable only to certain regions of Greece, such as Boeotia.

[5] Mee and Forbes 1997, 36.

[6] Dakaris *et al.* 1964; Higgs and Vita-Finzi 1966. For northwestern Grecee and the Ionian islands, see e.g. Bailey *et al.* 1997; Wiseman and Zachos 2003; Tartaron 2004; Wijngaarden *et al.* 2008; Galanidou 2014a.

[7] Dakaris 1972, 44-70, figs. 12-20, mentions that a total of 14 sites and 10 flint "quarries" dating from the Palaeolithic period until the Bronze Age have been identified inside the area of dispersed lithic finds, but never gives any information on their exact location, which thus can no longer be confirmed.

[8] Forsén *et al.* 2011 with all further references.

In this chapter we shall focus on the tract data collected by the Thesprotia Expedition in order to investigate their potential to reveal information about hidden landscapes. Our meta-analysis aims to explore the latent patterns of human presence in the Kokytos valley beyond the sites that were identified during our original work in the field. By so doing we divert from the canon of our publication practice, and the majority of Mediterranean surface artefact survey reports, to publish selectively those lithics associated either with discrete sites[9] or periods.[10] We use lithic technology and typology, qualitative and quantitative criteria to describe the knapped-stone component deriving from the Thesprotia Expedition tracts. We address: i) the presence of additional sites or other human activity that were not identified as such in the earlier stages of research and publication, ii) the level of background noise of finds, i.e. lithics and pottery/tiles, in the Kokytos valley, and iii) whether part of the valley really is covered by a 'continuous carpet of lithic finds', or not.

Survey methodology

During an intensive survey artefacts are usually collected, processed and spatially referenced either as parts of tracts or sites. These two contexts of recovery are critical for the interpretation of past human activity in the area under study across the space, the geographical frame of consideration, and their subsequent dating for their assessment across time, the temporal frame of consideration. During the field survey of the Thesprotia Expedition the landscape was divided into arbitrary areas or tracts with an average size of 1.22 ha which were walked across in parallel alignments by team members spaced 10-15 m apart. The total number of lithic finds versus pottery and tile fragments was recorded for each tract, thus giving information of the density and distribution of finds. Our main aim of walking tracts was to localise sites, which were defined according to the following three criteria set up some 20 years ago by the Keos survey.[11] Firstly, the *artefact density* of a site should be anomalously high in relation to the levels of the background noise. Furthermore the site should stand out through *discreteness*, which implies that it has edges where the density falls off markedly; and *continuity*, meaning that it consists of a contiguous area with higher density (otherwise the registered artefacts should be interpreted as stray or fortuitous finds).

Once identified in the field, sites were searched more intensively than tracts, usually with team members returning to walk as close as 1-3 m apart and collect all diagnostic artefacts. The site density was calculated in circular sampling units of 5 m^2. Within them all artefacts were counted, thus creating a new set of densities that is not comparable with the tract densities. 22 out of a total of 45 sites were gridded into 10x10 m or 20x20 m large squares.[12] For the gridded sites the density was calculated at each

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[9] E.g. Foss 2002a; Foss 2002b; Runnels *et al.* 2003; Parkinson and Cherry 2010.
[10] E.g. Runnels and van Andel 2003; Carter and Ydo 1996; Carter 2003.
[11] Cherry *et al.* 1991, 28. Cf. also Gallant 1986.
[12] The sole exception to this practice was at the sites Mikro Karvounari and Megalo Karvounari (PS 22 and PS 23) that bear witness to intense Palaeolithic presence and activity. These sites were subdivided into areas on the basis of the topography of the highly undulating terra rossa landscape. Cf. Forsén *et al.* 2011.

square's centre in a 5 m^2 circle, thereby revealing differences in find density inside the site itself. These differences could indicate centres of past human activity or perhaps even the existence of architectural remains below surface, or could be merely the result of natural formation processes.[13]

In those cases when we came upon an obvious site we would initially try to find its boundaries, without counting or collecting anything. Once found, it would be treated as a site and thus named PS, followed by a consecutive number. However, in most cases we would first walk over the putative site as one or several tracts, thus obtaining also tract density sets for several of the sites. Such tracts, which in the Appendix are marked as being part of a site, should according to the definition of a site have clearly anomalous densities, compared with the normal background noise. Other tracts that have higher than normal densities are tracts located very close to the actual sites, so-called associated tracts, where the densities normally increase due to a *halo effect*.[14] Close to a third of the tracts, 114 out of the total number of 318, were interpreted as being either part of a site or associated with a site. On the basis of these 114 tracts, the parameters for what may be considered an anomalous level of artefact density have been defined as being 40 or more finds/ha with respect to pottery and tile fragments.

Calculating the tract density of lithic finds proved more complex due to the very rich occurrence of unworked flint in the tracts covered at the beginning of the first field season (in the area between modern villages of Xirolophos and Rachouli and the Liminari and Agios Georgios hills).[15] This trait, combined with a survey team with restricted experience of knapped-stone essentials, made it difficult to decide on the spot which flints were indeed artefacts and should be counted. Therefore the tract densities of lithic finds during the first year were calculated only on the basis of the number of lithics actually brought back to the stores. For the tracts covered in the following years the densities were calculated on the basis of all lithics that were considered possibly worked and thus counted, but out of which only a part was collected. This difference in counting obviously has led to somewhat higher densities of lithic finds for all B, C, D and E tracts than what the case was for the A tracts. In an attempt to take this difference into account the level for anomalous densities of lithic finds has been put slightly lower for the A tracts (15 or more finds/ha) than for the B, C, D and E tracts (20 or more finds/ha). Densities of lithic finds above 10 per ha are considered symptomatic, although not anomalous.

The numbers and sizes of the tracts, the densities of lithic finds versus pottery and tile fragments, and the ground visibility, expressed in a 4-point scale with I = 80-100%, II = 60-80%, III = 30-60% and IV = 0-30%, are presented in the Appendix. Anomalous densities of lithic finds and/or pottery and tile fragments are there marked by shaded areas. Most of those tracts can either be described as part of, or associated with sites. However, the Appendix includes another 37 tracts with densities of lithic finds[16] and 10 with densities of pottery and tile fragments that can be described as anomalous[17] (two

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[13] Schiffer 1983.
[14] Cf. e.g. Alcock *et al.* 1994, 141-170.
[15] Cf. Concentration VI below.
[16] These are the tracts A 10, A 11, A 12, A 13, A 15, A 19, A 20, A 25, A 27, A 28, A 29, A 34, A 108, A 109, A 110, A 111, A 113, B 30, B 31, B 32, B 33, B 34, B 35, B 36, B 38, B 39, B 40, B 43, C 5, C 14, C 25, C 41, C 44, D 24, D 29, D 30 and D 69.
[17] These are tracts A 48, A 49, A 55, A 71, A 72, A 78, A 92, C 14, C 25 and C 40.

of these tracts, i.e., C 14 and C 25, have anomalous levels of lithic finds, as well as of pottery and tile fragments). The rather high number of these tracts, which neither are part of, or associated with sites, indicates that part of the signatures of past human activity in the Kokytos valley has not been adequately dealt with in terms of our sites. There are many reasons why these tracts were not treated as sites. Because of the absence of easily recognisable or datable finds they were not immediately treated as sites but rather put aside as tracts that needed to be revisited and re-evaluated, something that then could not be done because of time restrictions, cultivation or hostile land owners.

On the basis of their geographical location the tracts with anomalous densities of lithic finds are discussed here in terms of five concentrations (Concentration I-V), i.e., areas with contiguous high density of lithics in the tracts, in between which much fewer finds were recorded (Fig. 1). These concentrations are not necessarily sites per se, though they all include some sites dating to prehistoric or historical times. As only a small part of the valley could be intensively surveyed the division into concentrations is suggestive rather than conclusive and ought to be further explored working with the archaeological evidence from a larger regional unit in the future.[18]

The tract lithic finds

We have employed observations of chipped stone artefact technology and typology to decipher out of a general palimpsest of tract finds those ones that could be attributed to distinctive chronological units. Observations of raw material type (i.e. flint, chert, obsidian) and properties (i.e. grain and colour), surface alterations (i.e. patina, weathering, abrasion etc.) as well as macroscopically visible use-wear traces (such as silica gloss) are also used. Particular tool types and debitage pieces associated with distinctive reduction sequences are discussed. Assigning flaked stone to temporal components is best achieved on the basis of morphological and technological attributes as well as contextual association with datable items such as pottery, architecture etc. Due to the scarcity of reference lithic collections deriving from closed and securely dated contexts in northwest Greece and taking into account that there exists no clear-cut chronology for the local handmade, coarse pottery which has a tendency to be very poorly preserved in surface assemblages,[19] our interpretation draws its *comparanda* from published evidence originating from Greek, Albanian and Anatolian sites.

A total of 2568 artefacts of knapped stone were collected from the surface of tracts A, B, C, D, E and PS 5, 7, 8, 10, 14, 17, 18, 20, 21, 25, 27, 28, 29, 31, 32, 34, 35, 36, 46. Of these, 2417 finds were part of different concentrations. Most of the concentrations identified include artefacts from different periods of the past, are thus multicomponent, and only in a few cases temporal patterns emerge. A high degree of uncertainty is noted for the majority of the debitage pieces and cores. Only 3.5% (n=84) of the 2417 artefacts is

[18] A handful of the tracts with high density of lithics (C 17-C 18, D 29-D 30) could not be attributed to any of our five concentrations. C 17-C 18 could constitute part of a sixth concentration, although this is difficult to state, as so little of the surrounding landscape could be walked there.

[19] For an overview of the difficulties in dating Epirote prehistoric pottery, see e.g. Tartaron 2004, 29-30. The situation will slowly improve when more stratified pottery sequences are published. Cf. e.g. J. Forsén, this volume.

N

Pankratai

↑ Paramythia

Chrysaugi

Elea

Prodromi

Daphnoula

Sevasto

Rachouli

Xirolophos

Kamini

Zervochori

Kyra Panagia

Asphaka

Agios Donatos

Kioteza

Agora

Skandalo

Mikro Karvounari

Karvounari

Megalo Karvounari

Kokytos

↓ Parga

↘ Glyki

1

2

3

4

5

6

0 1 km

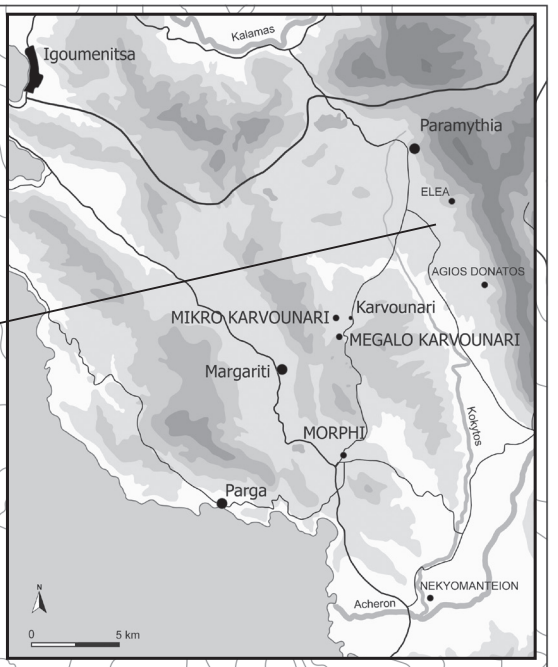

Fig. 1. The location of the six concentrations of lithics in relation to Megalo and Mikro Karvounari as well as the tracts walked by the Thesprotia Expedition 2004-2007.

attributable to a specific period in terms of typology, technology and preservation[20] (Fig. 2). Apart from a single Levallois core and a couple of pressure bladelet cores, the majority of the cores recovered are ones for small flakes, of uncertain industrial and chronological attribution. Similarly, some of the tools collected (e.g. piercers, truncations etc.) might exist as early as the Upper Palaeolithic but continue to being utilised throughout the Holocene until the end of the Bronze Age. On the other hand, the arrowheads and the sickle elements can be set in more strict temporal categories.

Concentration	I		II		III		IV		V		VI		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
MPal	3	0.3	2	4.2	6	0.6	1	0.9	-	0	1	0.5	13	0.6
UPal	5	0.6	-	0	2	0.2	1	0.9	-	0	-	0	8	0.3
Mes	-	0	-	0	3	0.3	-	0	-	0	-	0	3	0.1
Neo	18	2.0	-	0	11	1.1	-	0	-	0	-	0	29	1.2
BA	10	1.1	-	0	2	0.2	5	4.7	4	3.6	-	0	21	0.9
Late BA and / or Historical	-	0	-	0	-	0	-	0	-	0	10	5.2	10	0.4
Total Datable	36	4.0	2	4.2	24	2.3	7	6.5	4	3.6	11	5.7	84	3.5
Total Undatable	875	96.0	46	95.8	1021	97.7	100	93.5	108	96.4	183	94.3	2333	96.5
Total	911	100	48	100	1045	100	107	100	112	100	194	100	2417	100

Fig. 2. Number and percentage of the chipped-stone artefacts from each concentration. MPal – Middle Palaeolithic; UPal – Upper Palaeolithic; Mes – Mesolithic; Neo – Neolithic; BA – Bronze Age.

Concentration I

Concentration I is located on the alluvial fan at the lowermost foothills of the Paramythia mountain and to the west of Agios Donatos of Zervochori. Tracts B 22-B 24, B 26, B 28-B 40, B 43-44, B 48, B 59-60, D 74, as well as B 47 are part of the concentration.[21] Five Neolithic to Bronze Age sites were identified on the alluvial fan, PS 17, PS 18, PS 20, PS 21 and PS 28,[22] of which PS 21 is located at the border between the fan and the plain (Fig. 3). The four uppermost sites are located at an altitude between 142 and 162 masl, whereas PS 21 lie between 120 and 121 masl. The total size of the concentration is at most ca. 1500×1000 m. No clear borders could be found, as the lower slopes of the Paramythia mountain range, as well as also several fields in the valley, were badly overgrown. However, the density of lithic finds clearly falls off in tracts located towards the southwest (cf. D 81 and D 82) and the west (cf. B 1-B 9) of Concentration I. It should be noted that the distance in the south between Concentration I and Concentration II is at most some 50-100 m (Fig. 1).

Concentration I is dissected by two large and deep ravines flowing from the lowermost slopes of the Paramythia mountain range towards the southwest and the

[20] Surface alteration due to patina was taken into account, though this was neither the first nor the only criterion for chronological attributions.

[21] B 47 was in geographical terms clearly part of the concentration, in addition to which the level of its density of lithics was symptomatic.

[22] Forsén *et al.* 2011, 106-109, where the following dates were suggested for the prehistoric sites. PS 17: BA to EIA, also some LC to EHl finds; PS 18: BA, also some EIA and LC to EHl finds; PS 20: FN to MBA, also some LC to EHl finds; PS 21: BA (?); PS 28: Neo to BA. On the basis of the reexamination of all tract finds these sites could now be somewhat differently dated. PS 17, BA to EIA, also some Neo and LC to EHl finds; PS 18: Neo to BA, also some EIA and LC to EHl, PS 20: Neo to MBA, also some LC to EHl finds; PS 21 and PS 28: Neo to BA.

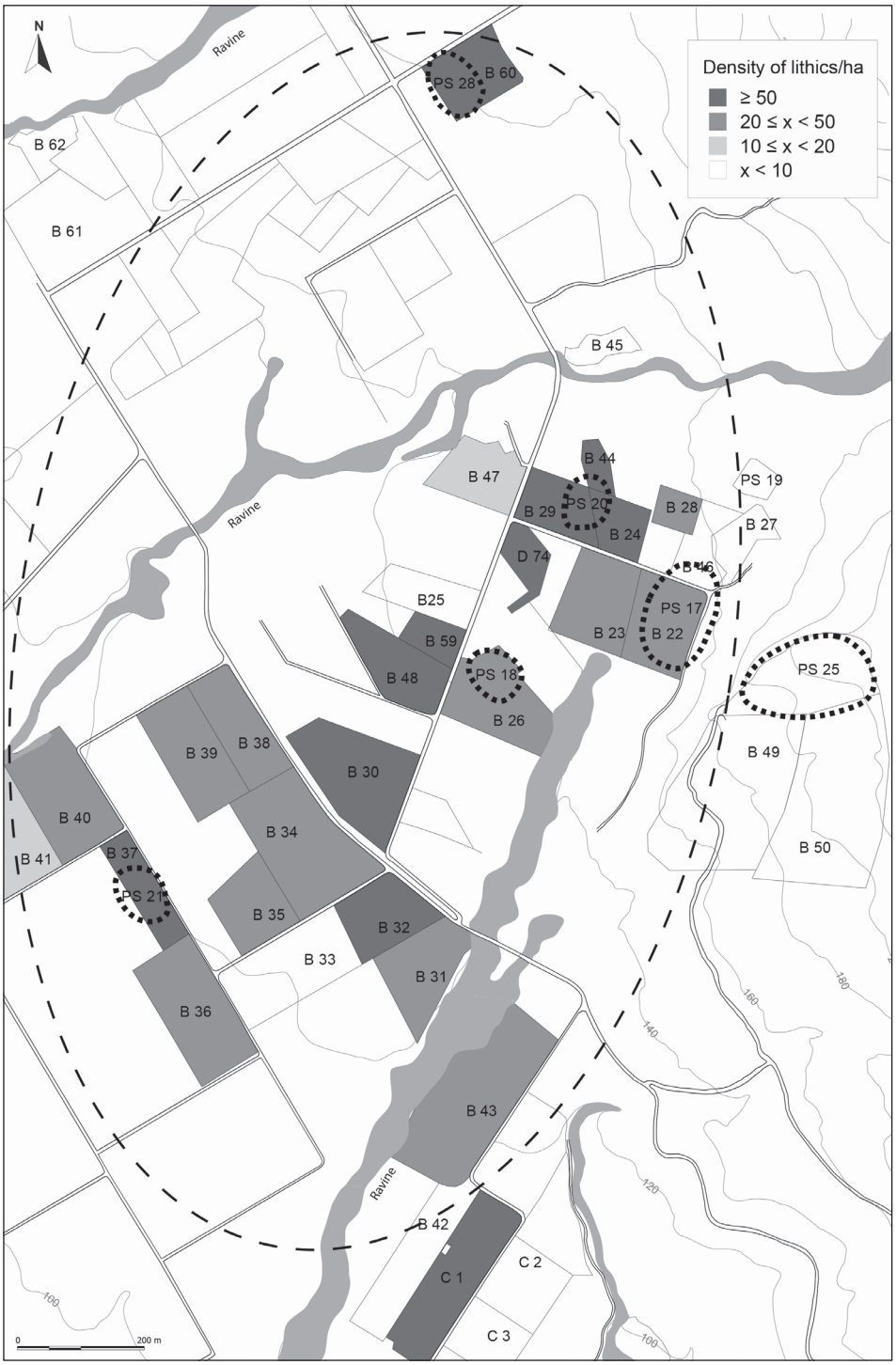

Fig. 3. Tracts and sites of Concentration I.

Kokytos. The northernmost ravine originates at rich springs and nowadays is filled with water even in the middle of the summer. It separates PS 28 from PS 17, PS 18 and PS 20 that are located further towards the south in a semicircular arrangement around a half-dried up spring, from where the second ravine originates.

The density of lithics in the tracts of Concentration I is typically ca. 25-100 finds/ha and in some cases even higher (cf. Appendix). The tracts associated with, or part of PS 17 and PS 20 also produced anomalous densities of pottery and tiles (B 22-24, B 28 and B 40). Elsewhere the density of pottery and tiles is very low. All prehistoric sites in this concentration, namely PS 17, PS 18, PS 20, PS 21 and PS 28, yielded some prehistoric pottery. Most pottery was found in PS 17, which produced one medium-coarse body sherd of possible Early Bronze Age date, seven sherds dating to the Middle Bronze Age, 10 to the Late Bronze Age and 27 to the Early Iron Age. There are also a handful of Late Classical and Early Hellenistic sherds.[23] This is apart from Goutsoura (PS 12), the only site which during the survey produced larger amounts of prehistoric pottery.[24] PS 18 in its turn had one possible Bronze Age body sherd, some possible EIA sherds and a Late Classical to Early Hellenistic ring base, and PS 20 a handful of prehistoric sherds, including a body sherd with painted lines (Matt-painted MBA) and a horizontal handle, a few Early Iron Age sherds, as well as a fine ware ring-base and a hydria/jug handle of Late Classical to Early Hellenistic date. PS 21 produced a fragment of a possible spindle whorl and five sherds, one of which is a red-slipped body sherd of Bronze Age date,[25] whereas PS 28 finally three 'pseudo' Grey Minyan (MBA?) sherds.[26]

The location of Concentration I on the alluvial fan at the lowermost foothills resembles very much the location of Goutsoura (PS 12) on the northwestern side of the valley, the prehistoric site that was excavated by the Thesprotia Expedition between 2007 and 2010.[27] Concentration I is a rich concentration (n=911) with a predominant lithic component attributed to the Neolithic period and the Bronze Age (Fig. 4). There

Site/tracts	Cores	Core fr	Tools	Flakes	Blades	Bladelets	Chips	Tech.	Unworked	Other	Total
C. I Tracts	25	3	103	66	9	1	4	3	1	4	219
PS 17	0	0	13	3	1	1	0	1	1	0	20
PS 18	3	0	42	20	7	1	0	0	0	1	74
PS 20	36	6	256	165	5	6	3	10	0	10	497
PS 21	9	1	22	30	0	1	0	1	0	1	65
PS 28	5	3	15	12	0	0	0	0	0	1	36
Total	78	13	451	296	22	10	7	15	2	17	911

Fig. 4. Lithic finds from Concentration I.[28]

[23] Forsén *et al.* 2011, 108-109.

[24] For Goutsoura see Forsén *et al.* 2011, 79-82; Forsén, this volume and J. Forsén, this volume.

[25] For PS 19 see Forsén *et al.* 2011, 109, for PS 20 Forsén *et al.* 2011, 107-108 and for PS 21, Forsén *et al.* 2011, 106.

[26] Forsén *et al*. 2011, 106.

[27] See apart from Forsén *et al*. 2011, 79-82 also the contributions by Forsén, J. Forsén, Lima and Doulkeridou, in this volume.

[28] PS 17 consists of B 22 and B 23, PS 28 of B 60, whereas PS 20 also includes B 44 and PS 21 in its turn B 37. PS 18, PS 20 and PS 21 were later studied in more detail: lithics were collected in connection with a grid system and these are included in fig. 1. PS 17 was also gridded and sampled in a total of 57 squares of 20x20 m. However, the lithics collected from the PS 17 grid system, due to practical constrains during the study season, were not included in fig. 1.

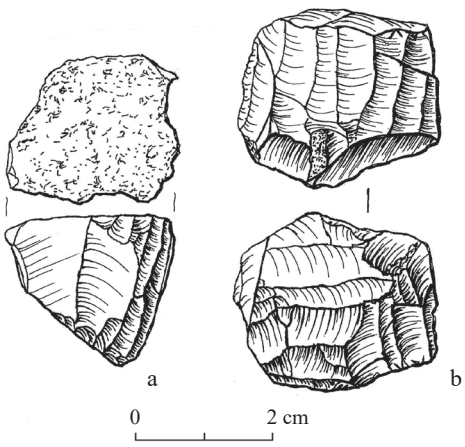

Fig. 5. Small bladelet cores from Concentration I (a from B 35, b from D 74).

is a predominance of retouched tools (49%), followed by flakes (32.3%), cores (8.6%) and blades (2.5%). The cores are mainly flake cores but there is a significant presence of small bladelet cores as well (Figs. 5a-b).

The presence of a Middle Palaeolithic component in Concentration I is indicated by only a few specimens. These comprise a heavily patinated flake with centripetal scars, a naturally-backed knife and perhaps a few more flakes/flake tools. A pseudo-Levallois point (Fig. 6a) with facetted butt, having a notch and possible impact scars on the proximal and distal parts perhaps associated with hafting and use as a hunting tool, also belongs to this group.

The Late Upper Palaeolithic / Mesolithic period as a terminus post quem can be proposed for a small group of artefacts (n=5) with pink patina which consists of retouched and unretouched blades and bladelets and a small nosed endscraper.

An Early Neolithic component is perhaps suggested by an asymmetric trapeze formed on a double truncation (Fig. 6b)[29] which could, however, together with a borer made on a backed blade (Fig. 6c), indicate even earlier dates (Late UPal/Mes). Two lunates with abrupt retouch having almost the same dimensions (20×16×5 mm, 19×16×5 mm) have also been found at the concentration and were probably used as parts of projectile points (Figs. 6d-e). A denticulate from the same site bears resemblance to a couple of artefacts from PS 43 in terms of raw material, size and typological characteristics (Fig. 6f). The particular tool together with the lunates mentioned above most probably provides Early Neolithic dates.[30]

A Middle Neolithic component is represented by the bifacially worked transverse arrowhead group. In particular, there is an arrowhead of an orthogonal triangular shape (Fig. 6g)[31] and two more, one of which is semi-worked, made of beige, slightly translucent flint (Figs. 6h-i)[32] At PS 18, one more transverse arrowhead with bifacial, low-angle, invasive retouch (25×19×5 mm, Fig. 6j) can be even more securely dated to the Middle Neolithic period.[33]

A Neolithic date can perhaps be proposed for four more artefacts. These are a tanged point with possible hafting modification (Fig. 6k), a proximal part of a tanged point made of reddish/brown flint (25×19×6 mm, Fig. 6l),[34] a trapeze (23×19×4 mm) and a proximal part of a semi-worked elongated tool, possibly an arrowhead, with bifacial,

[29] Perlès 2004, fig. 6.3.6; Perlès 1990, fig. 16.21.
[30] Perlès 1990, fig. 17.3.
[31] Perlès 2004, fig. 8.4.3.
[32] Perlès 2004, fig. 8.4.4.
[33] Perlès 2004, fig. 8.7.6. But see also Forsén *et al.* 2011, 107.
[34] Papathanasopoulos 1996, fig. 61; Forsén *et al.* 2011, 108, fig. 28.

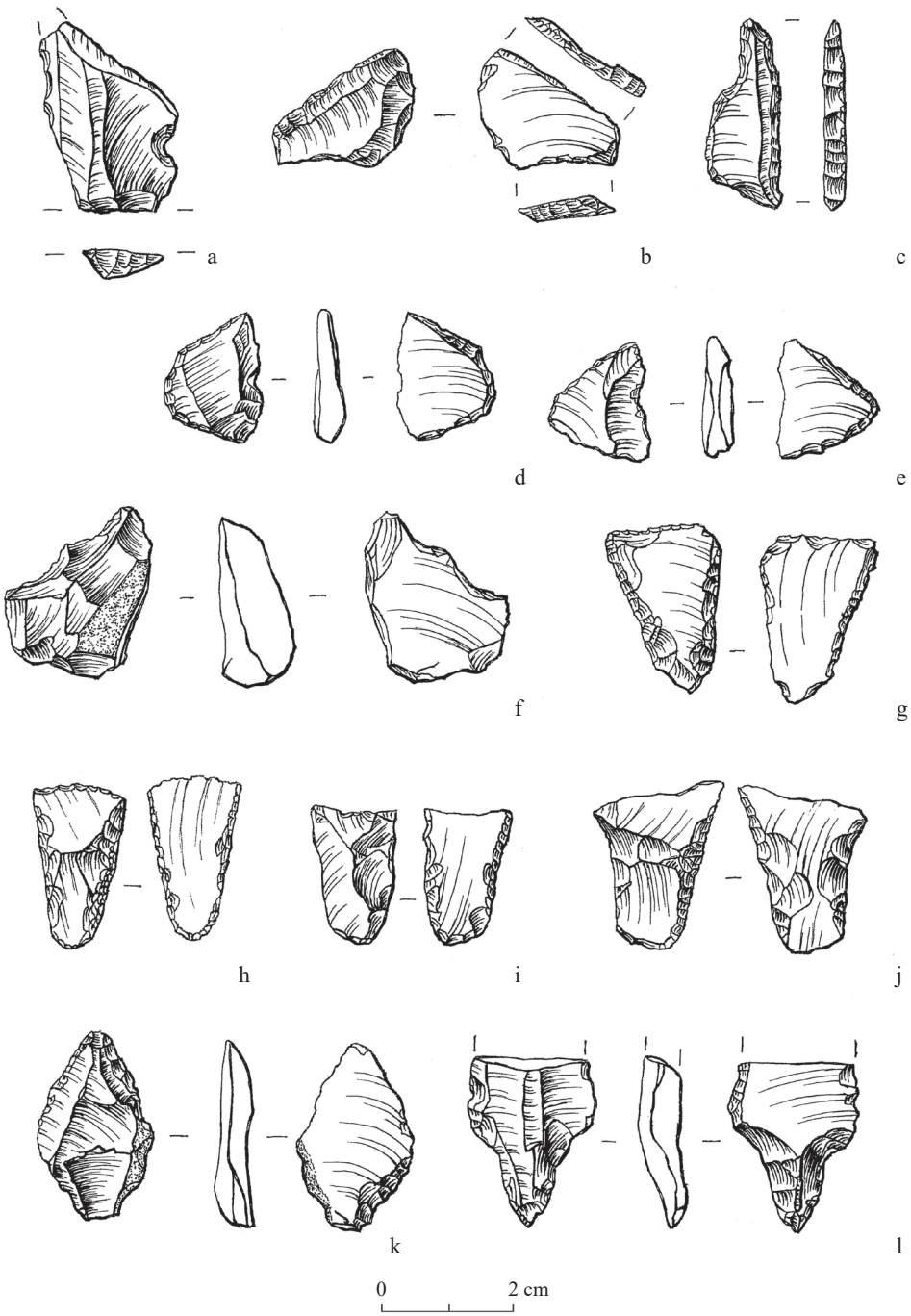

Fig. 6. Retouched artefacts from Concentration I: retouched pseudo-Levallois point (a from B 28), truncation (b from PS 18/1), backed blade (c from PS 18/6), microlithic lunates (d from PS 20/26, e from PS 20/2), denticulate (f from PS 20/10), transverse arrowheads (g from B 22; h from B 34; i from B 44, j from PS 18), tanged points (k from PS 18, l from PS 20/15).

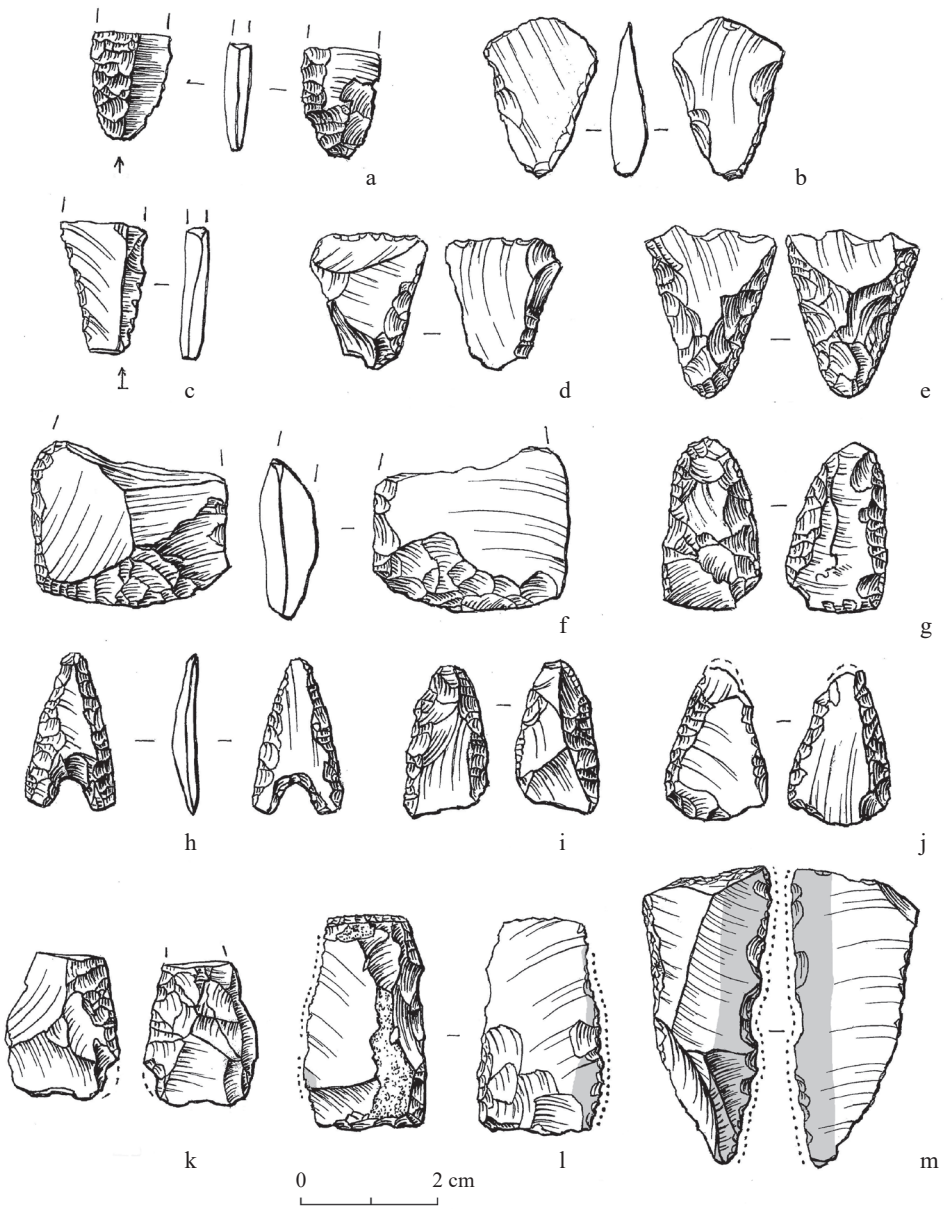

Fig. 7. Retouched artefacts from Concentration I: bifacially worked piece (a from PS 18), transverse arrowheads (b, d-e, all from B 60), obsidian blade (c from PS 21), geometric tool (f from PS 28), unfinished arrowheads (g, i-k, all from PS 20), hollow-based arrowhead (h from PS 20), sickle elements (l from B 31, m from D 74).

invasive, pressure retouch (Fig. 7a). At PS 21 there was a broken, marginally retouched and/or used blade made of black obsidian with translucent stripes (19×13×3 mm, Fig. 7c) which may also be attributed to the Neolithic period. This is the only obsidian artefact found both from the survey and the excavations conducted by the Thesprotia Expedition, and macroscopically appears to be of Melian origin.

Finally, PS 28 (B 60) has yielded three transverse arrowheads (Figs. 7b, d-e), a microlith and a large broken geometric tool (Fig. 7f), artefacts that could be attributed either to the Middle Neolithic period or the Early Bronze Age, as well as a few Holocene flake cores.[35]

An Early/Middle Bronze Age component is manifested by a hollow-based arrowhead from PS 20 (Fig. 7h).[36] It is made of fine-grained white/beige flint and measures 22×15×3 mm. Three more arrowheads made of the same raw material and of similar dimensions (22×14×4 mm, 25×14×5 mm, 22×13×5 mm) could perhaps be regarded as either unfinished hollow-based arrowheads dated to the Early/Middle Bronze Age,[37] or as used/further retouched transverse arrowheads of a Middle Neolithic date (Figs. 7g, i-j).[38] A broken bifacially worked piece made on a thicker flake might also be interpreted as an unfinished arrowhead (Fig. 7k) similar to a Bronze Age one from Psari in the Peloponnese.[39] Lastly, an artefact which may have been a discoid core turned into a leafshaped point, bears reasonable affinities with the amygdaloid points from Nydri, Lefkas (Fig. 10a).[40]

A large geometric sickle element of quadrilateral shape is made of a medium-grained greenish flint with inclusions (Fig. 7l) and may date to the Middle/Late Bronze Age.[41] Another large geometric tool of rectangular shape has been inversely retouched in an identical manner although, in this case, there are no macroscopically observable traces of silica gloss. There is one more sickle element having as blank a coarse-grained flint blade with macroscopically visible gloss on both faces (43×28×6 mm, Fig. 7m), which should also be attributed to the Bronze Age.[42] Two additional sickle elements with silica gloss on both faces have been found at PS 17. Their blanks are backed laminar flakes and these may also be dated to the Bronze Age (Figs. 8a-b).[43] While the aforementioned

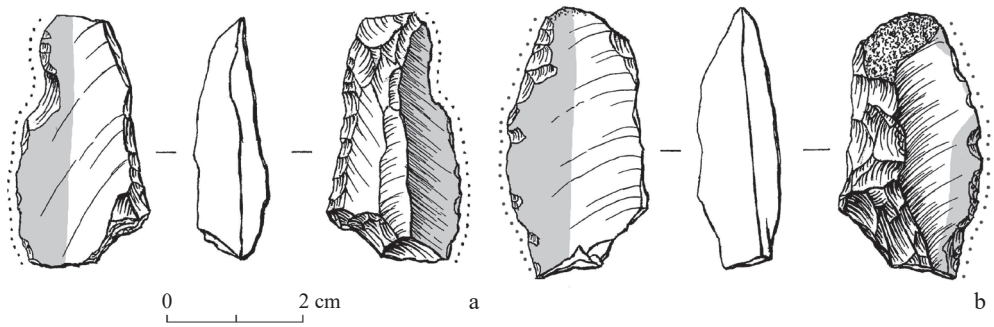

Fig. 8. Sickle elements from Concentration I (a-b, both from PS 17).

[35] For the arrowheads see: Perlès 2004, fig. 8.4.3, 8.4.4; Forsén *et al*. 2011, p. 106; fig. 26. But similar types exist at the EBA layers of Demircihuyuk (Baykal Seeher 1997 as cited in Blitzer 1998, fig. 262). See also Dakaris *et al*. 1964, fig. 9a.

[36] Dakaris *et al.* 1964, fig. 9.a; Runnels 1985, fig. 6.B Blitzer 1998, fig. 84.B; 82.H; Forsén *et al*. 2011, p. 108; fig. 28.

[37] Matzanas 2010, fig. 2.Δ4068, 5.Λ6193β; Forsén *et al*. 2011, p. 108; fig. 28.

[38] Perlès 2004, figs. 8.4.3, 8.4.4, 8.4.5, 8.4.12.

[39] Matzanas 2010, fig. 2.Δ4065.

[40] Kilian-Dirlmeier 2005; Kourtessi-Philippakis 2008.

[41] Kourtessi-Philippakis 2010, fig. 4.4; Rosen 1997, fig. 3.15.6; Karimali 2010, 162.

[42] Rosen and Vardi 2014, fig. 26.3e.

[43] Forsén *et al*. 2011, 109.

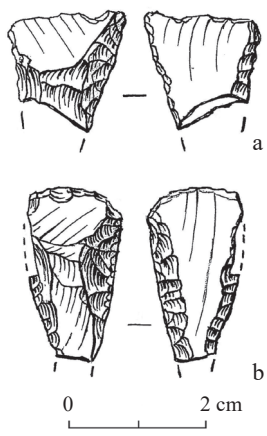

Fig. 9. Broken transverse arrowheads (a from B 41, b from C 23).

sickle elements have thick blades, sometimes also backed, as blanks, the type of blank used at the excavated site of Goutsoura (PS 12)[44] is a thin, less than 20 mm wide blade. Also, the retouch and/or use scars on the sickle elements from Goutsoura are either inverse or alternate, of very short extent and continuous. These differences, however, are less surprising than the total absence of arrowheads from Goutsoura. Behavioural, rather than chronological differences are our proposed interpretation for such an absence. Lastly, it should be mentioned that two more Middle Neolithic arrowheads come from tracts B 41 and C 23, which are not included in the concentration (B 41 is situated at its border and C 23 ca. 800 m to the southwest of it, Figs. 9a-b). Both artefacts are broken.

In sum, the area of Concentration I is an extensive distribution of relatively homogenous chipped-stone artefacts. Its archaeology derives mainly from activity conducted by Neolithic and Bronze Age groups. The odd earlier artefact present must have been recovered in secondary deposition or is the remains of eroded surfaces.

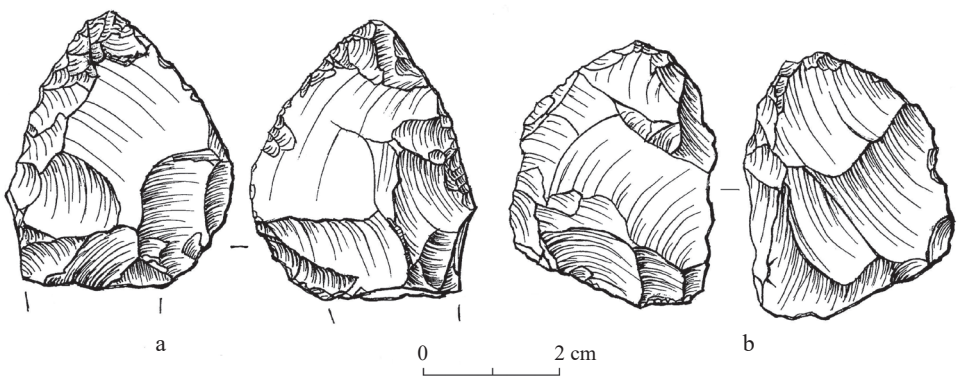

Fig. 10. Bifacially worked cores/points (a from D 74 of Concentration I, b from D 61/PS 45 of Concentration III).

Concentration II

Concentration II is located on the alluvial valley bottom between two deep ravines, only some 50-100 m to the south of Concentration I. Tracts C 1, C 5, C 8, C 14, C 44, as well as C 4, C 7, C 9, C 12-C 13 and D 76 are part of this concentration.[45] Three sites of Late Classical to Early Hellenistic date, PS 30 and PS 38, PS 29, PS 49, are also part of it (Fig. 11).[46] The total size of the concentration is at most ca. 900×300 m and its altitude varies between 85 and 114 masl. It is bordered to the west and east by the two ravines.

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[44] Doulkeridou this volume.

[45] C 4, C 7, C 9, C 12-C 13 and D 76 were all in geographic terms clearly part of the concentration, in addition to which they had symptomatic densities of lithics (C 9 just below 10 finds/ha).

[46] Forsén *et al*. 2011, 116-119.

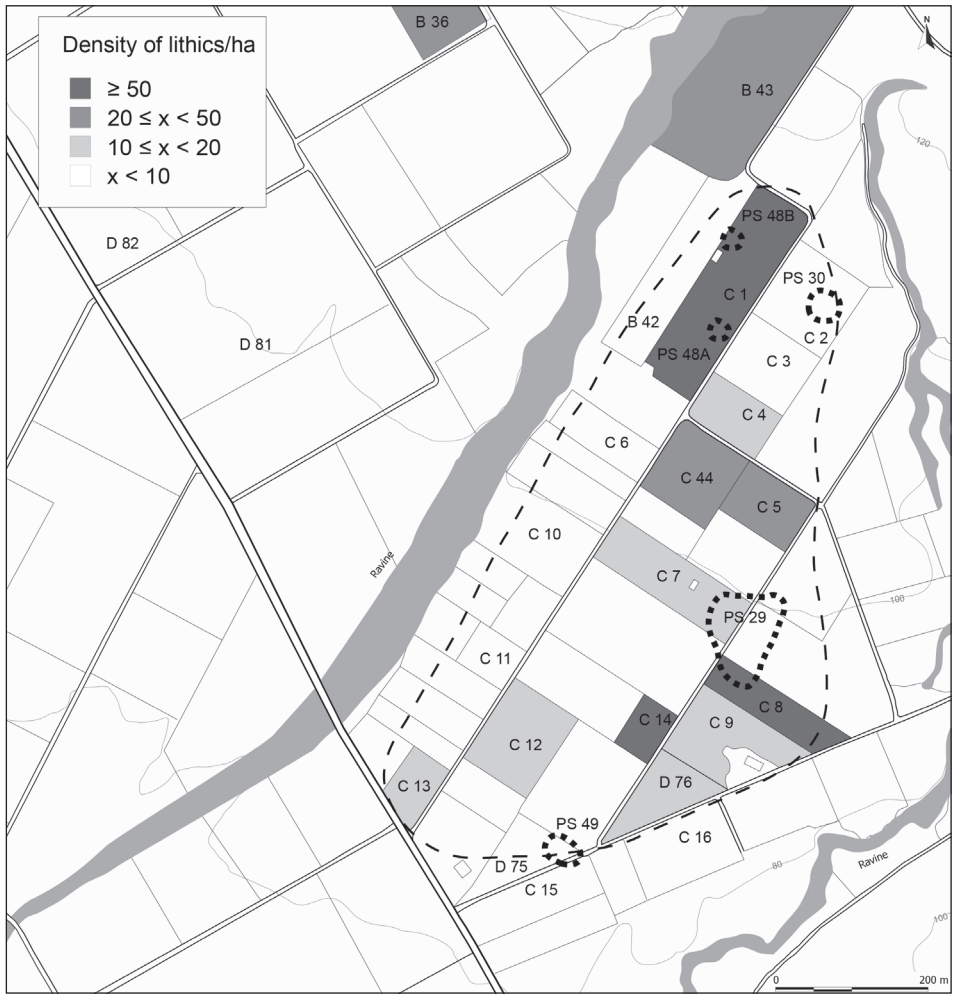

Fig. 11. Tracts and sites of Concentration II.

The density of lithics in the tracts seems to be highest along the highest point of the ridge between the ravines and to fall off closer to the ravine (e.g. C 6, C 10-C 11, C 15-C 16). The border of the concentration towards southwest is unclear, as that part of the valley was never surveyed.

Tracts C 1, C 5, C 8, C 14 and C 44 exhibit very high lithic densities, varying between ca. 35 and 105 finds/ha, whereas D 76 has a density of only 16.87 finds/ha and C 4, C 7, C 9, C 12 and C 13 one varying between ca. 10 and 15 finds/ha (cf. Appendix). Some of the tracts also have a high density of pottery and tile fragments due to the closeness to PS 29, PS 49 as well as PS 30 and PS 48 (C 1, C 4, C 7-C 9, C 14, D 75 and D 76). However, no prehistoric pottery was found in Concentration II, its earliest sherd dating to the Late Archaic to Early Classical period.[47]

[47] A Laconian pithos or crater rim, dated by Forsén *et al.* 2011, 119, fig. 39 to between 550 and 500 BC, whereas by Turmo, this volume, to between 525 and 450 BC.

Site/Tracts	Cores	Core fr	Tools	Flakes	Blades	Bladelets	Chips	Tech.	Unworked	Other	Total
C. II Tracts	5	1	23	12	0	1	0	0	1	4	48

Fig. 12. Lithic finds from Concentration II.[48]

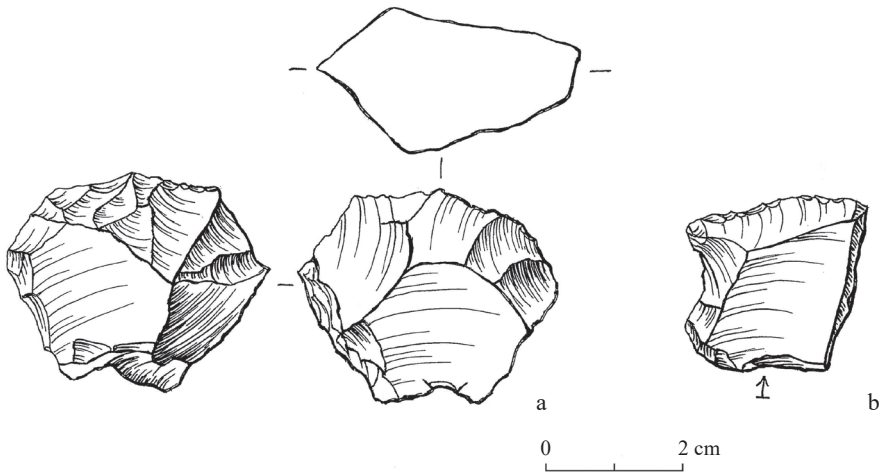

Fig. 13. Levallois core (a) and pseudo-Levallois point (b) from Concentration I (both from C 5).

Concentration II produced a total of 48 lithic artefacts (Fig. 12). A Middle Palaeolithic component is suggested by a small Levallois core (Fig. 13a) with a very high degree of patination and rounded edges due to trampling, and a retouched flake resembling the pseudo-Levallois points (Fig. 13b), which could have been used as a hafted point. The rest of the artefacts are either undiagnostic or of a Holocene age, including a non-geometric microlith and a small scraper made of mauve flint.

Concentration III

Concentration III is located at the westernmost edge of the alluvial valley bottom at a distance of only some 100-200 m from the Kokytos. Tracts C 24-C 26, C 28, C 33, C 41, D 1-D 2, D 7-D 9, D 22, D 24-D 28, D 33-D 35, D 38-D 42, D 61, D 80, as well as C 27, C 29-C 32, D 3, D 5 and D 23 are part of this concentration (Fig. 14).[49] The concentration includes several sites, among which there are four with a prehistoric (PS 36, PS 43, PS 45 and PS 46),[50] four with a Late Classical to Hellenistic (PS 35, PS 37, PS 44, PS 46/E

[48] A handful of lithics sampled as part of PS 29 have been included among the overall count of lithics from the tracts of Concentration II.

[49] C 27 contained large numbers of lithics, but no density was calculated. C 30-C 32, D 3, D 5 and D 23 were all in geographic terms clearly part of the concentration, in addition to which they all had symptomatic densities of lithics (C 29 just below 10 finds/ha). The low density of D 22 is explained by the fact that lithics were not counted in the southeast part of the tract, which we first considered as the core of the prehistoric site PS 43.

[50] Forsén *et al*. 2011, 90-91, 99-100 and 102-103. For PS 43, see also Galanidou and Papoulia, this volume. PS 45, which in the site catalogue (Forsén *et al.* 2011, 90) was preliminarily dated as Upper Palaeolithic (?), can now be more precisely dated. Although an Upper Palaeolithic component might be hidden in a few (patinated) truncations and a burin, these types can also be part of Neolithic (and perhaps even Bronze Age) assemblages. Taking into account the presence of a very characteristic (unpatinated) sickle element and the overall absence of other diagnostic tools it is difficult to agree with the characterization of the site catalogue solely on the basis of these few possible Upper Palaeolithic types. Thus, we are rather dealing with a Neolithic site with some possible earlier intrusions.

Fig. 14. Tracts and sites of Concentration III.

9),[51] and six with a Roman or Late Roman component (PS 32, PS 33, PS 38, PS 39, E 22 and E 23),[52] one with a Hellenistic and Roman component (E 8) and one of unclear historical date (E 24).[53] The total size of the concentration is at most some 1500×1000 m and its altitude varies between ca. 90 and 108 masl. The concentration is bordered to the southwest by the Kokytos. The densities of lithics fall off clearly towards the south (D 10, D 12-D15, D 31), the southeast (D 11, D 16-D 18), the east (B 14, B 16, B 56, C 43, D 20, D 43) and the north (D 32, D 36-D 37, D 54, D 56-D 59).

Concentration III is partly located around Mavromandilia, characterised by its very fertile soil fed by several abundant springs where the water surfaces in the middle of the alluvial plain through the soil.[54] The northern part of the concentration is intersected by a deep ravine originating at the lowermost slopes of the Paramythia mountain range

[51] Forsén *et al*. 2011, 97-99 and 101-103.
[52] Forsén *et al.* 2011, 91 and 95.
[53] Forsén *et al.* 2011, 99.
[54] For a more detailed description of the geomorphology, etc., of the Mavromandilia area, see Lavento and Lahtinen 2009; Forsén and Forsén 2012, 301-305.

on the other side of the valley, from where it leads water down to the Kokytos. The landscape within the concentration is lightly undulating, with identified sites being located at somewhat more elevated points with good visibility towards the south and the Kokytos itself.

The density of lithics in the tracts belonging to Concentration III is typically between 25-100 finds/ha. The tracts associated with, or part of PS 32 (C 31), PS 33 (C 33), PS 35 (C 24, D 26), PS 37 (D 1-D 2, D 9), PS 44 (D 27), PS 46 (C 25, D 7, D 25) and E 24 (C 28 and C 29) also produced anomalous densities of pottery and tiles (cf. Appendix). Elsewhere the density of pottery and tiles is very low, with the exception of D 24 which is located around one of the local springs which the farmers have tried to dry out by filling it up with stones and tile fragments. The only sites that produced prehistoric pottery during the survey were PS 46 and PS 36. PS 46 had a total of six prehistoric sherds, including one flaring rim of coarse ware with a *taenia* band (Bronze Age) and two wishbone handles (LBA or EIA in date).[55] PS 36, which was excavated later, dates mainly to the Early Iron Age, although it also includes some Late Bronze Age, Archaic, Classical and Hellenistic finds.[56]

A total of 1045 lithic tract finds belong to Concentration III, 429 of which are presented in this chapter.[57] The most striking element of Concentration III is the overrepresentation of tools (75%) and the small number of cores or core fragments and debitage products (Fig. 15). Assuming that our random sample of tract lithics is representative of a true pattern, such an overrepresentation should most probably be interpreted in terms of behavioural preferences and be linked with particular activities in the vicinity of the fresh water springs and at landscape locales with good visibility.

Site/Tracts	Cores	Core fr	Tools	Flakes	Blades	Bladelets	Chips	Tech.	Unworked	Other	Total
C. III tracts	12	0	78	32	3	0	0	0	0	2	127
PS 35	4	1	50	6	1	0	0	0	0	0	62
PS 36	2	0	35	7	0	0	0	0	3	0	47
PS 43	34	2	235	299	23	7	19	2	0	30	651
PS 45	4	1	101	7	1	0	0	0	0	1	115
PS 46	2	1	28	8	1	2	0	0	1	0	43
Total	58	5	527	359	29	9	19	2	4	33	1045

Fig. 15. Lithic finds from Concentration III.[58]

Although the majority of the blanks are retouched, only a few are diagnostic in terms of dating. The majority of cores are globular flake cores of relatively small dimensions having light degrees of patina; there are also a couple of blade/bladelet cores.

With the exception of a bec manufactured in coarse-grained flint, having a heavy degree of patina, as well as a naturally backed knife which might be broadly attributed to

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[55] Forsén *et al.* 2011, 102-103.

[56] For PS 36, see apart from Forsén *et al*. 2011, 99-100, also J. Forsén 2009, 56-87; Tzortzatou and Fatsiou 2009, 39-43 and Forsén and Forsén 2012.

[57] The remaining 616 have been studied separately and their detailed analysis can be found in Galanidou and Papoulia, this volume.

[58] PS 35 includes also lithics from tracts C 27 and D 26 and PS 46 lithics from tract D 7. PS 43 also includes D 22 and D 28. PS 45 consists of lithics collected in tracts D33-35, D 38-42 and D 61. A handful of single lithics collected in the sites PS 32 and PS 33 have been included among the total count from the tracts of Concentration III.

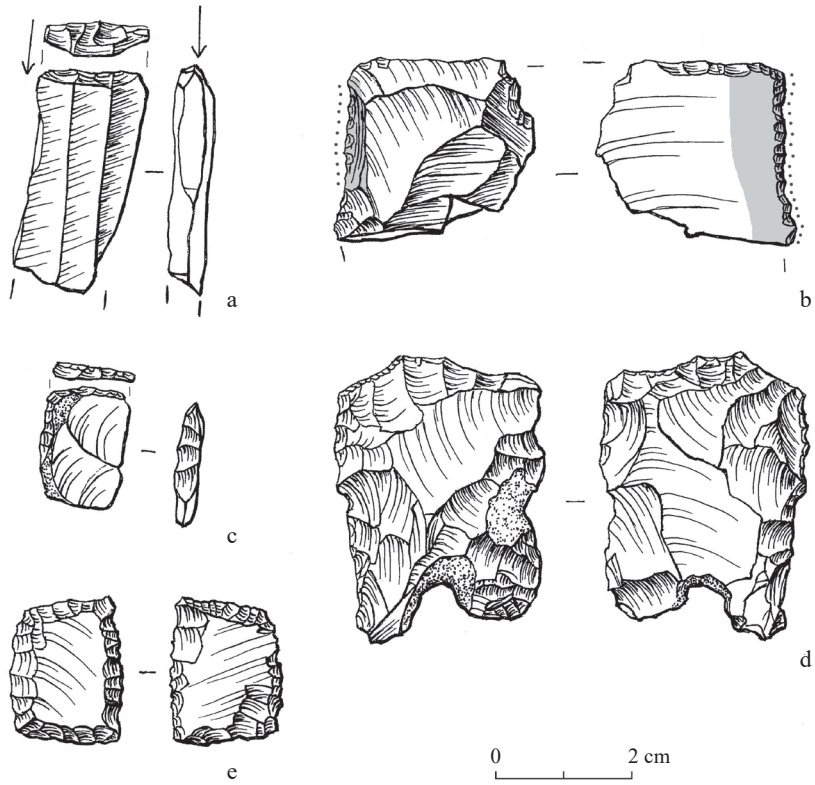

Fig. 16. Retouched artefacts from Concentration III: burin on a truncation (a from D 33/PS 45), sickle blade (b from PS 35/47B), backed truncation (c from D 38/PS 45), bifacially worked piece (d from D 42/PS 45), geometric piece – possible sickle element (e from D 41/PS 45).

the Pleistocene, all the lithic artefacts of Concentration III are of Holocene age. A possible Upper Palaeolithic component may be indicated by two artefacts: a dihedral burin on a distal truncation made of coarse-grained white patinated flint or chert (Fig. 16a) and a truncation made of beige/white flint. Other than these, the majority of the artefacts seem to derive from Neolithic and/or Bronze Age activity. Most of the artefacts have medium degrees of patina. The raw material of these specimens is the light blue/grey fine-grained flint, commonly used in the Kokytos valley since the Pleistocene.[59] A borer having a large triangular cortical flake of reddish colour as blank bears resemblance to the lithics from PS 4 in terms of raw material, preservation and technology.

The majority of the finds seem to be of Neolithic date, although a Mesolithic component should not be excluded, since a distinct microlithic element is present. Among the many retouched tools, there are seven microliths, one of which can be related to finds from Sidari level D.[60] There are also three cores of roughly the same size (e.g. 39×42×30 mm) that have produced both flakes and bladelets, five small, yet not microlithic tools, two small retouched blades, and a burin.

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[59] See Papoulia 2011; Galanidou *et al*., this volume.
[60] Sordinas 1970, fig. 4.33.

Fig. 17. Polished stone axe from Concentration III (from PS 32).

The *Neolithic* component includes an unpatinated geometric tool and a retouched fragment made of yellow flint with limited degree of patina, perhaps part of an original transverse arrowhead. PS 32, apart from a ground-stone tool, a polished axe (Fig. 17), has also yielded a Neolithic transverse arrowhead. A Neolithic *terminus post quem* can also be proposed for the broken sickle element from PS 35 (Fig. 16b). It is made from a fine-grained flint flake of dark red colour and has macroscopically visible gloss on both faces.

Geometric tools, microlithic and larger, are the best examples of tools with elaborate retouch, such as the geometric microlith (18×12×4 mm), which is abruptly backed and distally truncated (Fig. 16c). Due to preservation and context the particular microlith is quite unlikely to be dated to the Mesolithic. It could be of a Neolithic/Early Bronze Age age, as may other retouched tools, including a nosed endscraper on a blade, a composite tool (piercer and scraper made by means of bifacial pressure retouch on the left lateral) and a number of piercers. Lastly, there is a large bifacially worked tool (Fig. 16d) which has a naturally hollowed, cortical proximal part. Perhaps such a tool could have been hafted on a wooden shaft and used as an axe.

An Early/Middle Bronze Age component is testified mainly by two artefacts. The first is a geometric tool (21×17×5 mm) of a trapezoidal shape, which has been bifacially retouched by means of abrupt and semi-abrupt retouch of relatively short extent and regular delineation. The tool has also been thinned on its ventral face by means of partial, low angle removals (Fig. 16e) comparanda for which can be found at Sovjan and Messenia.[61] It is not impossible that the aforementioned piece was part of a sickle, despite the absence of macroscopically visible gloss on it. The second piece is a large (30×19×4 mm) denticulated sickle element which has been bifacially worked and preserves silica gloss on both faces.[62] Interestingly, in contrast to the majority of the artefacts from the concentration which have lesser or greater degrees of patina, this one is almost totally unpatinated, and the translucency of the grey raw material is still observable. Lastly, a relatively flat, bifacially-worked core made on a flake bears resemblance to the leaf-shaped point also found in Concentration I and might perhaps be interpreted as an unfinished point, and thus may also be attributed to the Bronze Age (Fig. 10b).

[61] Kourtessi-Philippakis, 2010, fig. 4.1, 4.3; Blitzer 1998, fig. 48.A, 71.E, 166.B, 166C.
[62] Blitzer 1998, fig. 47.E, 70.B.

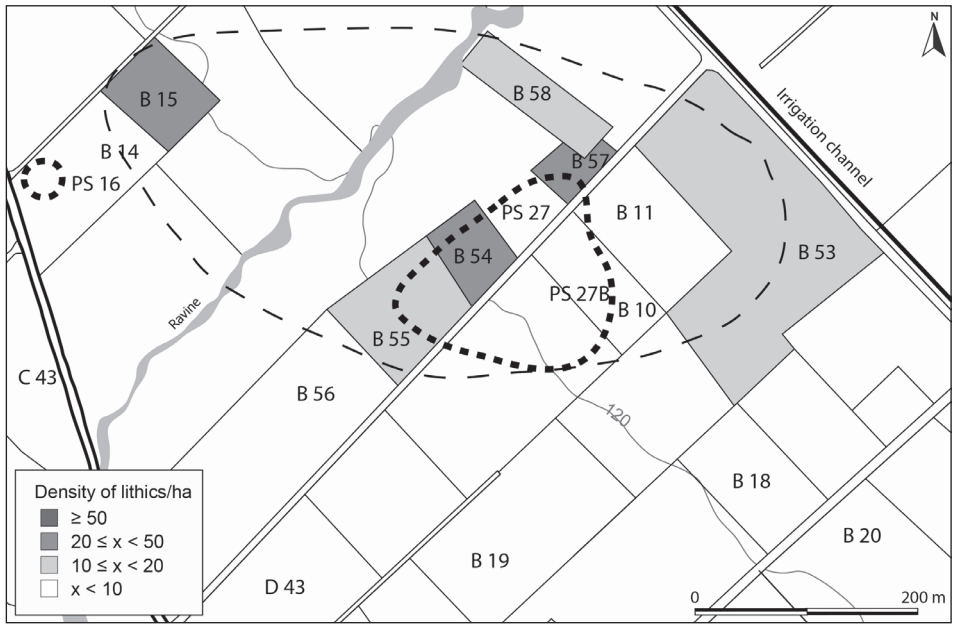

Fig. 18. Tracts and sites of Concentration IV.

Concentration IV

Concentration IV is located in the middle of the fertile alluvial valley bottom, on both sides of a small ravine bringing water from Kamini in the Paramythia mountain range down to the Kokytos, further towards the west. There are no modern springs within the concentration, which is located around the Late Roman village and basilica at Palioklissi of Zervochori (PS 27). It includes at least the tracts B 15, B 54 and B 57, as well as B 53, B 55 and B 58 (Fig. 18).[63] The total size of the concentration is ca. 600x300 m and it is located at an altitude between 118 and 126 masl. Concentration IV is separated from Concentration III further towards the southwest by a ca. 250-300 m wide corridor consisting of tracts with low densities of lithics, such as B 14, B 16, B 19, B 56, C 43 and D 43 (Fig. 1). The density of lithics clearly falls off towards the southeast and east in D 17-D 18, B 12, B 16 and B 18-B 21. The borders of Concentration IV to the north and northeast are unclear, although B 17 has a low density of lithics.

The density of lithics is in B 15, B 54 and B 57 between 40 and 50 finds/ha. B 53, B 55 and B 58 have a density between ca. 15 and 20 finds/ha (cf. Appendix). Lithics were also collected from the gridded area PS 27B in B 56. Strangely enough, no lithics were recorded in B 10 and B 11 although, to judge by their location geographically, they are part of Concentration IV. Neither were any lithics collected when B 10 was gridded as part of PS 27. All the tracts belonging to Concentration IV have high densities of pottery and tiles (presumably connected with the LR activity in the same area). However, no prehistoric or Early Iron Age pottery was noted.

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[63] B 53, B 55 and B 58 were all in geographic terms clearly part of the concentration, in addition to which they had symptomatic densities of lithics.

Site/Tracts	Cores	Core fr	Tools	Flakes	Blades	Bladelets	Chips	Tech.	Unworked	Other	Total
C. IV Tracts	8	2	41	44	2	1	1	1	0	7	107

Fig. 19. Lithic finds from Concentration IV.[64]

Concentration IV comprises a total of 107 (Fig. 19) artefacts. In terms of dating, 16 artefacts from B 54, B 55 and B 56 could be Palaeolithic, however none is diagnostic. Likewise, the presence of sub-centripetal scars and high degrees of patina on some of the B 57 and B 58 flakes hints at a Middle Palaeolithic component. Out of an overall inconclusive industrial palimpsest, a broken transverse scraper (Fig. 20a) and a carinated endscraper (Fig. 20b) suggest a Middle Palaeolithic and an Early Upper Palaeolithic / Aurignacian component,[65] respectively. Among the finds there are also 3 flake cores, a bec made of light grey/blue flint with light patina and a small carinated endscraper with a flat butt made of reddish brown flint, which should date to the Holocene, perhaps the Bronze Age.

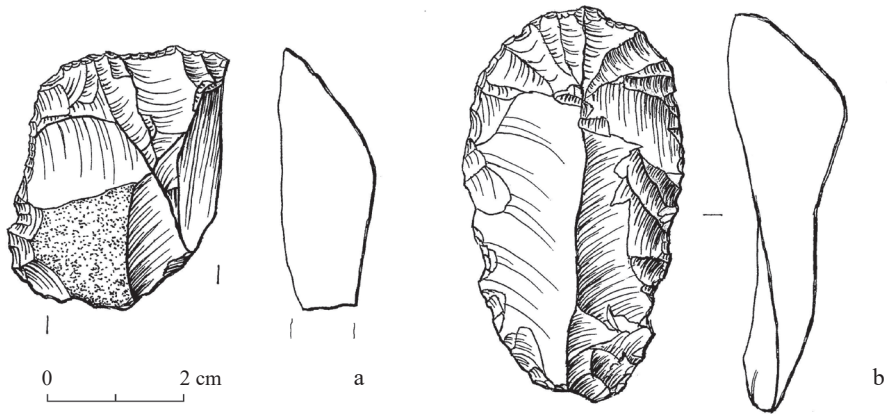

Fig. 20. A transverse scraper (a) and a carinated endscraper (b) from Concentration IV (both from B 15).

Concentration V

Concentration V is located in the middle of the fertile alluvial valley bottom, ca. 500 m to the southwest of the modern village Daphnoula in the region known as Chersa or Aerodromio. The landscape slopes towards the northeast and a ravine some 200 m away, but also towards the southwest and the Kokytos located at a distance of ca. 1.2 km to the southwest. There are no natural springs inside the concentration today. It consists of a thin scatter of lithics covering at least the tracts A 108-A 111, A 113, D 69, but perhaps also A 101, A 112, A 103-A 104 and A 97.[66] It also includes a small site, PS 11, which has provisionally been dated to the Early Hellenistic period (Fig. 21).[67] The total size of the concentration is at most ca. 500x500 m and it is located at an altitude of ca. 120-125

[64] Concentration IV includes PS 27.

[65] See Galanidou 1997, fig. 26.4.2 for a similar carinated endsraper recovered from the lowermost stratum 9 of Kastritsa Cave, on the Pamvotis Lake shore near Ioannina. A large number of carinated endscrapers is also reported in the Aurignacian layers of Klissoura Cave 1 in the Argolid by Kaczanowska *et al.* 2010.

[66] The five last tracts are geographically located in connection with Concentration IV and all have higher densities of lithics than the surrounding tracts, although only A 97 (rewalk) and A 101 produced symptomatic density values.

[67] Forsén *et al*. 2011, 88.

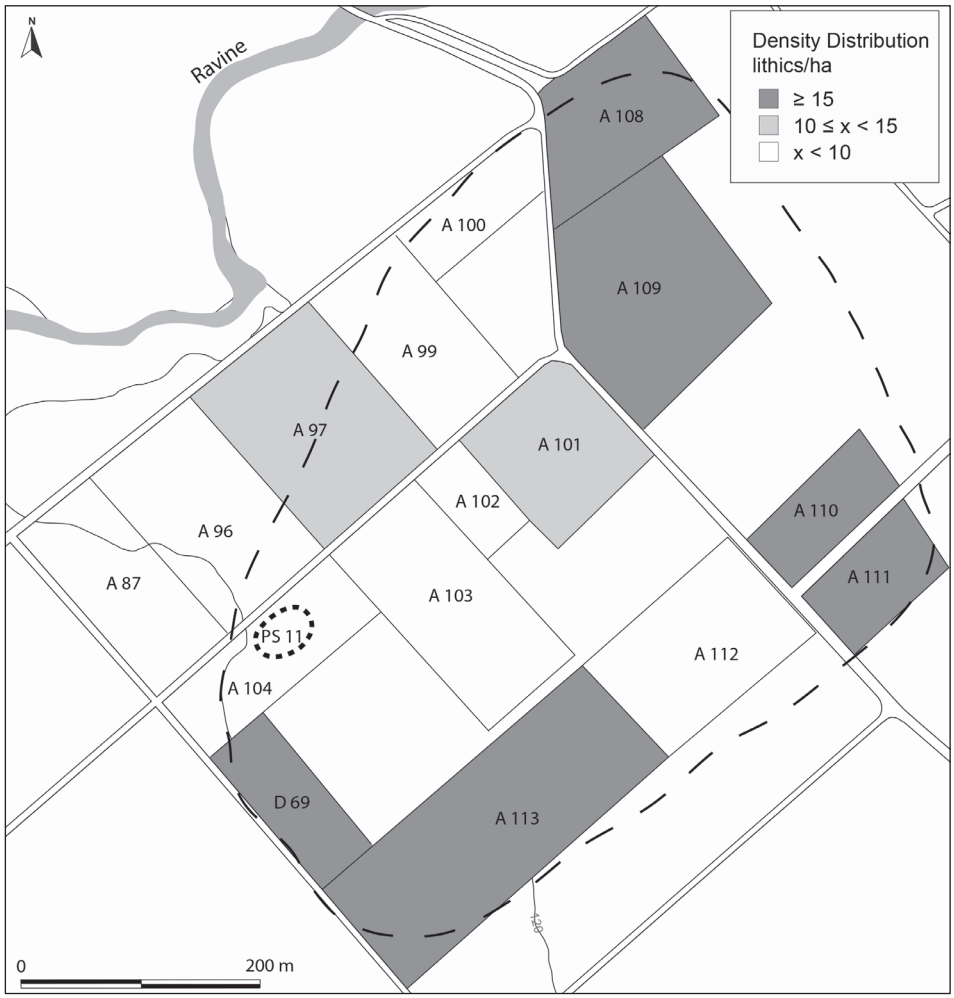

Fig. 21. Tracts and sites of Concentration V.

masl. The density of lithics clearly falls off towards the south (cf. D 65, D 68, D 71-D 72, D 62) and towards the west and northwest (cf. A 85-A 87, A 96, A 98, A 82). The borders towards the northeast and the modern village of Daphnoula are unclear. The concentration may well continue further in that direction.

The density of lithics in Concentration V tracts varies between 15 and 25 finds/ha, with A 101 having an only slightly lower density (12.42) (cf. Appendix). This is only a somewhat higher than normal density of lithics in the Kokytos landscape.[68] Characteristic for all these tracts is a very low density of pottery and tiles, except for A 104 (part of PS 11). One prehistoric body sherd of "orange ware", probably dating to the LBA was found in A 111.[69]

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[68] The way of calculating lithics in 2004 is not comparable to that of the other years: see above, under survey methodology.

[69] Jeannette Forsén, pers. comm. May 2012.

Site/Tracts	Cores	Core fr	Tools	Flakes	Blades	Bladelets	Chips	Tech.	Unworked	Other	Total
C. V Tracts	8	5	33	52	6	1	2	1	1	3	112

Fig. 22. Lithic finds from Concentration IV.[70]

Concentration V has yielded 112 lithic artefacts dating mainly to the Neolithic and Bronze Age periods (Fig. 22). A pre-Neolithic component should not be excluded, though diagnostic artefacts are absent. Among the 6 blade fragments there are a couple of medial parts of blades with parallel ridges attributed more securely to the Neolithic period and/or the Bronze Age due to their probable manufacture by means of pressure flaking (Figs. 23a-b). Also the majority of the cores seem to be of a Holocene age.

An Early/Middle Bronze Age component is suggested by a broken arrowhead (18×12×4 mm) retouched by means of bifacial pressure flaking, comparanda for which can be found in Bronze Age sites of the Peloponnese (Fig. 23c),[71] while a larger example has also been found at Sidari, level A.[72] Pressure retouch is also observed on the left lateral of a proximal part of a blade (Fig. 23d), a possible comparandum for which might be traced at Bronze Age Psari, in the southwestern Peloponnese.[73]

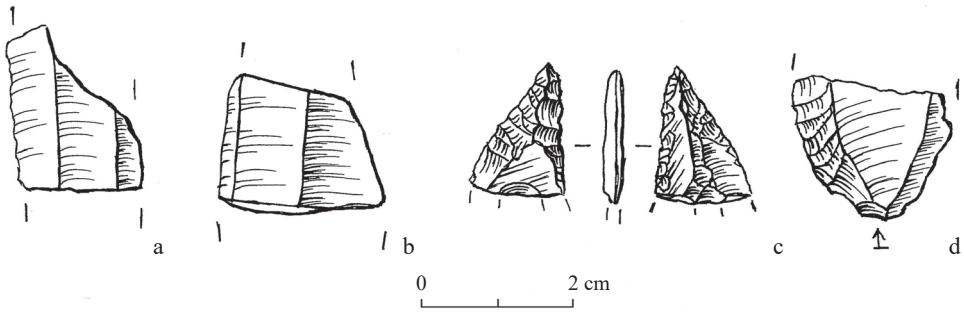

Fig. 23. Two medial parts of blades (a-b from D 69), a broken hollow-based arrowhead (c from A 97) and a proximal part of a retouched blade (d from A 108) from Concentration V.

Concentration VI

Concentration VI (Fig. 24) is located along the lowermost slopes opening towards a flat and watery, and during winter, even marshy flat plain which in the east is bordered by the Kokytos. The plain is in the south bordered by the Xirolophos hill, in the west by the Liminari hill and in the north by the Agios Georgios hillock. In the northeast, in the middle of the plain and next to the Kokytos there is a small limestone hillock on top of which the modern village Rachouli is located. This concentration consists of tracts A 7-A 13, A 15-A 16, A 18-A 20, A 25, A 27-29, A 34, A 39, A 42, A 121, as well as A 4, A 21, A 24, A 30, A 33, A 37-A 38 and A 105.[74] There are four prehistoric sites within or close to the concentration. PS 1 and E 16 are situated on the northernmost slopes of

[70] Concentration V includes PS 11.

[71] Kardulias 1992, 429, fig. 2e; Runnels 1985, 387, fig. 17B; Hartenberger and Runnels 2001, 360, fig. 4i; Matzanas 2010, fig. 2. Λ5494.

[72] Sordinas 1970; fig. 6.15.

[73] Matzanas 2010, fig. 3.6054.

[74] A 4, A 21, A 24, A 30, A 33, A 37-A 38 and A 105 were in geographical terms clearly part of the concentration, in addition to which they all had symptomatic densities of lithics (A 33 just below 10 finds/ha).

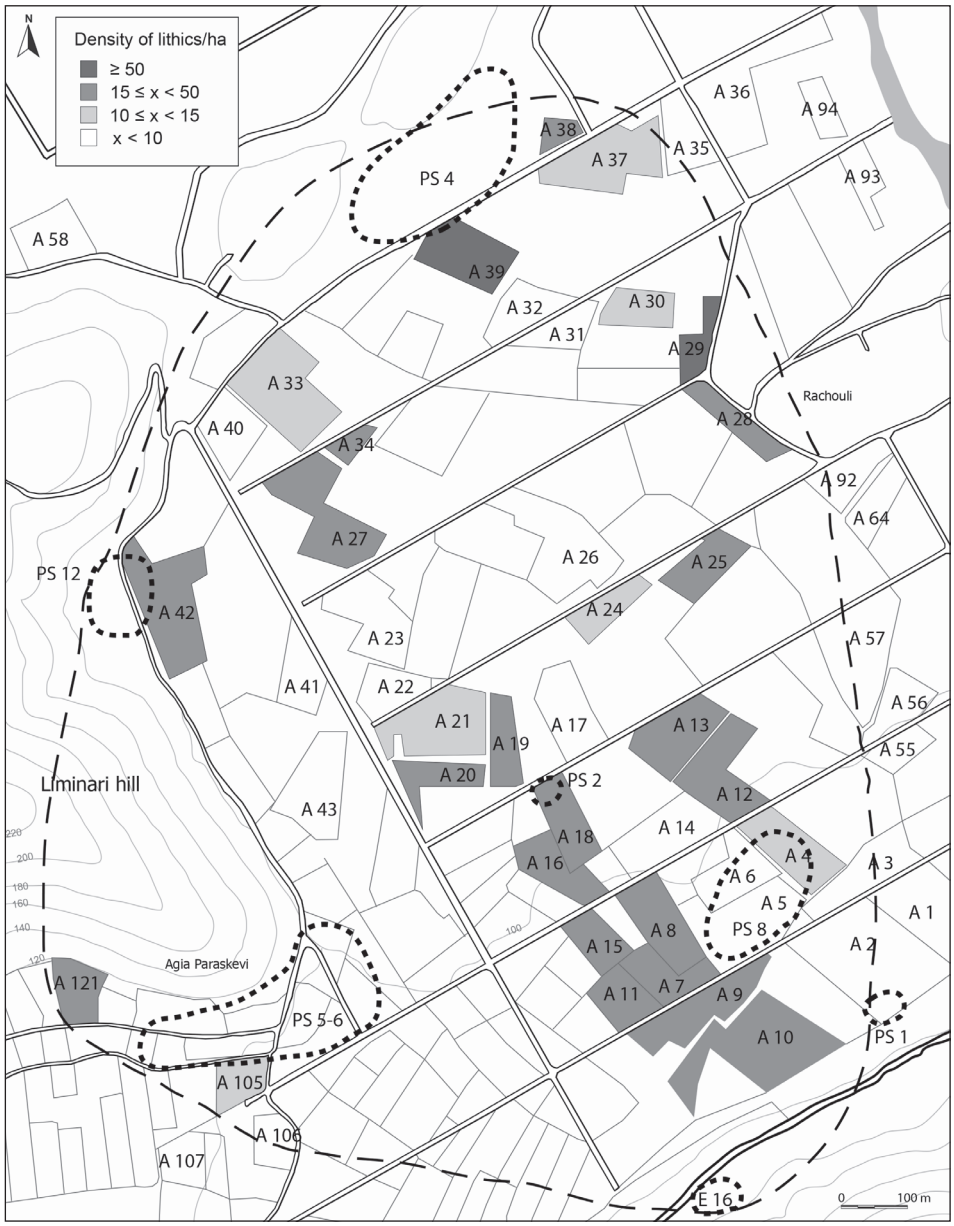

Fig. 24. Tracts and sites of Concentration VI.

the Xirolophos hill. PS 12 is on the lowermost eastern slope of the Liminari hill and PS 4 on the southernmost slope of the Agios Georgios hill.[75] At the southeasternmost tip of the Liminari hill there is also PS 5-6, a Late Archaic to Early Roman village with a

[75] Forsén *et al.* 2011, 79-82, 84-86. For PS 12, see also the contributions by Forsén, J. Forsén, Lima and Doulkeridou in this volume.

sanctuary and graves.[76] Two Early Modern pottery or tile manufacture sites (PS 2 and PS 8) on the flat marshy plain complete the picture.[77] The total size of the concentration is ca. 1500x1500 m and covers an area located at an altitude between 98 and 116 masl. The density of lithics in the tracts clearly falls off towards the southwest (A 106-A 107) and the east (A 1, A 3, A 35- A 36, A 55-A 57, A 64, A 69-A 70, A 92-A 94).

The lithics of Concentration VI were mainly found along on the slopes on the southern, western and northern side of the flat marshy plain, although lithics also were recovered from the very flat plain, especially its southwestern part. There are no springs within the concentration itself, but the water level is very high in the plain today. During the winter months the area turns clayish and nearly marshy, whereas during the summer it can be used as grazing ground. The plain drains towards the east and the Kokytos, mainly along a ravine leading from the west through the southern parts of the plain to the Kokytos in the east. All the slopes surrounding the plain are rich in natural flint, especially the Xirolophos hill and the Agios Georgios hillock. On the lower slopes of the latter there is even a multi-period prehistoric flint quarry site, PS 4.

The density of lithics in the tracts belonging to Concentration VI is typically between 15 and 60 finds/ha (cf. Appendix). Tract A 39, which is associated with PS 4, had the highest density of flint (81.64 finds/ha). High densities of pottery and tiles were only recorded in the tracts that were either part of or associated with the Early Modern manufacture sites PS 2 (A 16) and PS 8 (A 7, A 9) or with the Late Archaic to Early Roman site PS 5-6 (A 105). The only prehistoric pottery was found in tract A 42, which is associated with the Bronze Age site PS 12.

Concentration VI consists of a total of 194 lithic finds (Fig. 25). This concentration contains material of little diagnostic value, including a number of red/brown flint artefacts, similar to the finds encountered at PS 4. The special feature of most of the finds recovered from this concentration is the close to total absence of patina. There is, also, a significant occurrence (9.8%) of randomly worked or totally unworked pieces.

Site/Tracts	Cores	Core fr	Tools	Flakes	Blades	Bladelets	Chips	Tech.	Unworked	Other	Total
C. VI Tracts	8	1	77	36	3	1	9	12	19	5	171
PS 12	2	0	8	11	2	0	0	0	0	0	23
Total	10	1	85	47	5	1	9	12	19	5	194

Fig. 25. Lithic finds from Concentration VI.[78]

Apart from a retouched Levallois flake with a facetted butt (Fig. 26a) that can be dated to the Middle Palaeolithic, and a dihedral burin made on a backed bladelet (Fig. 26c) that might be of an Upper Palaeolithic date, there is no other indication of Palaeolithic or Mesolithic presence. Among the debitage pieces there is a translucent grey flint flake with a platform produced by soft hammer percussion (13×26×5 mm), two cortical flakes, and a broken blade made of dark red/brown flint with a cortical butt and a few cresting scars (50×21×9 mm, Fig. 26b). Among the few formal tools there are a couple of scrapers made of yellow flint (32×25×13 mm, 34×35×11 mm), a bifacially worked flake with a soft

[76] Forsén *et al*. 2011, 82-83.
[77] Forsén *et al*. 2011, 85 and Forsén 2009, 6-7 and 16-17.
[78] Concentration VI includes PS 5 and PS 8. PS 12 here includes only the lithics collected during the surface survey in A 42. The lithics collected during the excavation of Goutsoura (PS 12) are discussed by Doulkeridou, this volume.

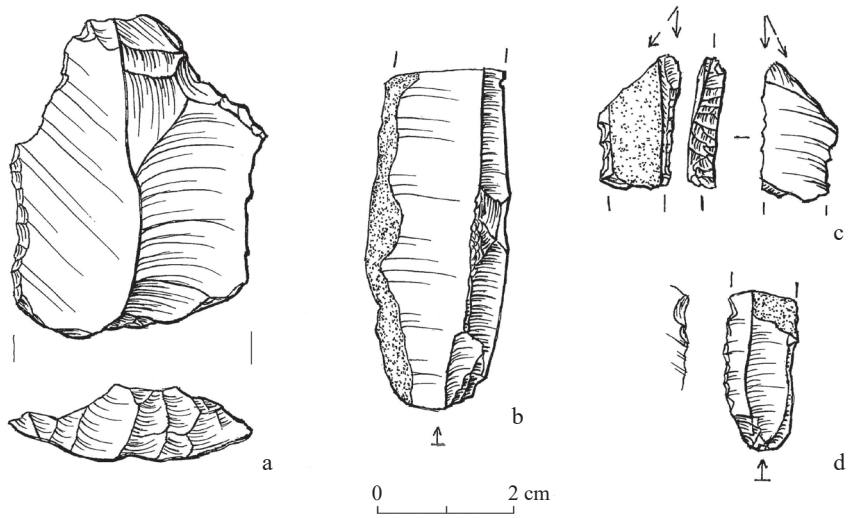

Fig. 26. A retouched Levallois flake (a from A 121), a partially crested blade (b from A 15), a dihedral burin on a backed bladelet (c from A 39) and a retouched bladelet with alternating marginal retouch (d from A 9) from Concentration VI.

hammer platform, a retouched bladelet with alternating marginal retouch (Fig. 26d) and a couple of splintered pieces. All flake cores imply Holocene dates. The raw material in the majority of the blanks and tools from tracts A 25 and A 29 is very similar in colour and surface alterations to the fine-grained flint used at PS 12. This might speak for a Bronze Age date for certain of the artefacts from Concentration VI. Nonetheless, the majority of the specimens might equally be part of a later, *Historical* component.

Discussion

The first issue that emerges from our study is the remarkable low proportion of artefacts that can be attributed with confidence to a period of human activity compared to the proportion of undatable artefacts that make up the lion's share. Out of 2568 artefacts studied[79] only a small number of tools, debitage and technical pieces has been illustrated and received special treatment here, for it lends itself to chronological assignments, coarse as they may be, to the various periods of the Kokytos prehistory. Beyond 'high definition dating' which cannot be addressed through the tract record, tract lithic finds do shed light on some aspects of the long history of human presence at Kokytos.

The artefacts presented here are prehistoric, yet knapped-stone tools are found in and around almost every historical period site in the surveyed area. Two possible explanations may account for this. The first is that a good number of the undatable lithic finds are manifestations of flint knapping activity and usage that took place during historical times and perhaps also extending to modern times, though we have not recorded any strike-a-light, tribulum or gun-flint in the collection. The fact, that we are unable to

[79] These include the 616 artefacts from PS 43 that are presented in Galanidou and Papoulia, this volume.

pinpoint any ancient or medieval lithics as such, has more to do with our training and the compartmentalization of modern archaeology. The limited research on the ways flint was knapped and used by societies of the ancient and the medieval world, that would offer comparanda, makes our study biased towards the prehistoric component of the Kokytos lithics. We can only describe and elaborate on the portion of the archaeological record that we are familiar with.

An alternative but not mutually exclusive explanation is that the undatable lithics may be described as normal background noise related to the local flint-rich geology.[80] We have lithics in practically every walked field or tract and thereby hardly surprising also in close to every site. But we have no ancient or medieval site that would have shown a clearly higher occurrence of lithics than what could be described as normal background noise. There is thus no clear indication of flint having been used to any larger degree in any ancient or medieval site, the only exception being ancient and medieval sites that clearly have a prehistoric component.

More research is clearly needed on the ancient and medieval sources that refer to knapped-stone tool use and more lithic data ought to be collected in systematic excavations. These two combined will help us build a corpus of evidence on the ancient and medieval knapped-stone tool usage. This may be the only path to discovering hitherto unknown phases of human presence in the Kokytos valley and elsewhere. Archaeological surface surveys with a diachronic research agenda would benefit enormously from the output of such a study initiative.

The second issue that emerges from our examination is the overall smaller Palaeolithic component compared to those of the Neolithic period and Bronze Age. With the exception of the sites at Mikro Karvounari[81] and Megalo Karvounari,[82] with their rich Palaeolithic record, and the quarry site PS 4,[83] only Concentrations I and III had less than a dozen Palaeolithic finds. In the rest of the surveyed area the Palaeolithic record has been scant and discontinuous. Of importance in this context is tract B 52, which is not part of any of the concentrations. It is located just below the modern village of Zervochori, on the lower foothills of the Paramythia mountain range, ca. 700 m to the northwest of Concentration I at an altitude of approximately 150 masl. It has yielded a broken pointy flake with a double bulb and a broken Levallois flake with a facetted platform (Figs. 27a-b). Both artefacts exhibit high degrees of patination and oxidized stains on their surfaces, implying long-term contact with the *terra rossa* deposits of the valley. It is not impossible that such stray finds originate from the open-air Middle Palaeolithic sites of the Paramythia foothills. This Levallois flake is the best Middle Palaeolithic example coming from the area covered by the Thesprotia Expedition, apart from the lithics recovered from the two sites at Karvounari.

The larger yields of Middle Palaeolithic artefacts from Mikro and Megalo Karvounari compared to the smaller yields from the rest of the valley make a case for a preference to, or repeated activity of the Neanderthal groups in the karstic basins with seasonal or perennial water.[84] The fresh-water springs in the area of Concentration

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[80] For background noise, cf. e.g. Gallant 1986.
[81] Papagianni 2000; Papoulia 2011.
[82] Galanidou *et al.*, this volume; Ligkovanlis 2011; Ligkovanlis 2014.
[83] Forsén *et al*. 2011, 84-85.
[84] Cf. van Andel and Runnels 2005.

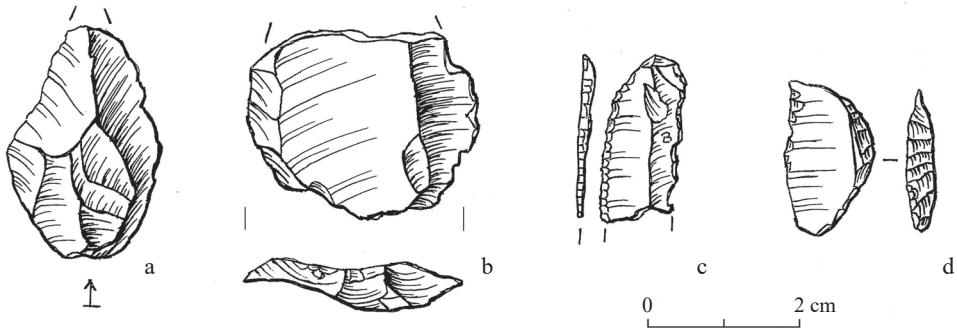

Fig. 27. A distally broken pointy flake (a) and a Levallois flake (b) from B 52 and a backed bladelet (c) and a microlithic lunate (d) from A 76.

III and the overall excellent landscape visibility obtained at most locales of the same Concentration and Concentration I at the Paramythia foothills may in part explain the larger numbers of Middle Palaeolithic artefacts present on their surfaces. Likewise the abundant flint at PS 4 in Concentration VI was another resource that attracted Middle Palaeolithic groups in the area.

The Early Upper Palaeolithic – Aurignacian has a good example of a carinated endscraper in Concentration I. There is only a small number of truncations, microliths and piercers which might be attributed to the late Upper Palaeolithic and/or the Mesolithic period and an overall absence of backed bladelets from the concentrations. Only tract A 76, which is not part of the concentrations, has returned a broken backed bladelet (Fig. 27c) and a microlithic lunate of the type encountered at Ouriakos, the open-air final Upper Palaeolithic site of Lemnos island (Fig. 27d).[85] The scanty Upper Palaeolithic component is of little help in the identification of Upper Palaeolithic areas of activity at the Kokytos and might be interpreted as stray finds, belonging to the same broader technological tradition encountered in cave and open air sites of southeast Europe.

Neolithic and Bronze age finds are more commonly distributed in the Kokytos landscape compared to Palaeolithic and Mesolithic finds. Is this quantitative difference between Pleistocene and Holocene assemblages associated with true differences in the settlement pattern and demography that became denser and more intense over time? Alternatively, does it merely reflect differences in preservation, visibility and site formation conditions, with the odd Palaeolithic find recovered from the surface in secondary deposition due to erosion or tectonic activity? None of these explanations can be excluded with the data to hand. The question can profitably be addressed once we introduce the landscape history, altitude and geomorphology in our discussion. Out of the three major geographic divisions of the surveyed area – the alluvial fan in the western flanks of the Paramythia mountain range, the valley lowlands and bottom, and the western part, where the Karvounari complex is situated – the last has returned a robust Palaeolithic signal whereas the rest present the odd Pleistocene find, typically in association with lithic or water resources and high visibility locales.

The areas that were surveyed were mostly below the 200 m contour and the concentrations identified above lie between 90 and 162 masl. With the passage of time,

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[85] Efstratiou *et al.* 2014.

and as the Kokytos incised deeper the Epirotic landscape, new opportunities for activity on the river and ravine banks were made available to Neolithic and Bronze Age groups. It is thus not unexpected that late prehistoric activity is attested in the Kokytos valley bottom and the lowermost foothills of the Paramythia mountain range. The concentrations located in the valley bottom (e.g. II, IV, V) produced none or very few early prehistoric finds. Although mountains have for long remained marginal to Palaeolithic research, recent work in the Pindus mountain, the Alps and the Caucasus has radically changed the picture. It shows them to offer multiple attractions to Middle and Late Upper Palaeolithic groups.[86] Beyond the karstic basins around Karvounari and the springs of Concentration III it is probable that focal areas of intense and recurrent Palaeolithic activity may have also been up in the Paramythia mountain range. The largest portion of the surveyed area lies between the two areas, and this might account for the overall low numbers of early finds recovered.

An important observation is that the Palaeolithic finds from the various concentrations bear little resemblance to the characteristic Middle Palaeolithic tools recovered both at Megalo Karvounari and Mikro Karvounari.[87] Situated to the west of the surveyed region, at 140-220 masl and 140-184 masl respectively, in the upper limit and higher up compared to the altitude of any concentration, these twin *terra rossa* sites must have not been alone in the landscape. Our working hypothesis is that Pleistocene finds and sites with greater resemblance to the Karvounari finds remain to be discovered higher up in the Paramythia mountain range. This could be tested by future research.

The third issue that emerges from the study of tract finds is that a dominant and recurrent type of artefact from most prehistoric periods is the point or pointed flake. These must be associated with Middle Palaeolithic, Upper Palaeolithic, Neolithic and Bronze Age hunting activity taking place around the Kokytos valley. Human groups of each period were employing their own particular technological principles to produce specific hunting equipment (e.g. Levallois or pseudo-Levallois points in the Middle Palaeolithic, backed bladelets that could be inserted to Upper Palaeolithic hunting tools, tanged points and transverse arrowheads in the Neolithic period, projectile points retouched by means of pressure during the Bronze Age), yet the common denominator of the record is the very activity that the finds point to, irrespective of the period and the technology of production.

A first reading of the predominant point presence and attaching to them a functional significance as inserts to hunting equipment suggests a landscape suitable for hunting activities. At the same time a landscape used by groups with residential mobility, since there is limited evidence for prehistoric settlement other than the Early Bronze Age Goutsoura. We can envision the ravines originating from the Paramythia mountain range and the Kokytos itself attracting smaller or larger mammal and bird game and likewise attracting prehistoric transhumant groups. This highly specialized activity is underlined by the smaller number of sickle elements that are regarded as tokens to agricultural or plant harvesting activity, and are present in a ratio of 2:9 compared to the Neolithic/ Bronze Age arrowheads (six sickle elements versus 27 arrowheads).

The excavated site of Goutsoura (PS 12) is also relevant to this discussion and offers a good example of the hidden prehistoric landscape, glimpses of which only can be

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[86] Efstratiou *et al*. 2006; Galanidou and Efstratiou 2014 and references therein.
[87] See Ligkovanlis 2011; Papoulia 2011; Galanidou *et al*., this volume.

found on the surface. In the survey we had some minuscle, badly rolled prehistoric sherds that on first inspection were dated to the end of the Neolithic period or the Early Bronze Age. The excavation of the site revealed an Early Bronze Age settlement, on top of which a Middle to Late Bronze Age cemetery was placed. The site stands out totally from the finds collected during the surface survey in that it has not yielded a single arrowhead. It moreover shows the advantage of incorporating small-scale excavation during surface survey, a strategy that is usually not possible due to the archaeological legislation in Greece.

Conclusion

The study of the lithic finds from the tracts has refined the picture obtained already from the sites, though it has not led to identification of additional sites *sensu stricto*. It has revealed aspects of local archaeology that a 'site-focused' approach is inadequate to identify, for it masks the kind of variation manifested in the tract finds. Grouping individual tract finds into larger concentrations has proved here a viable way to identify broad patterns of human presence at Kokytos and reveal hidden elements of the archaeological landscape. Between the traditional units of archaeological reference, the site and the find, there is indeed much more space for archaeological interpretation. Agreeing upon and acknowledging this is the first step before it is solidified in field protocols and legislation.

The Palaeolithic tract record, despite its small sample size, is different from that recovered from Megalo and Mikro Karvounari. It thus enriches and diversifies the Pleistocene hunter/gatherer archaeology of Thesprotia. This difference must relate to hominin activity at different times of the Pleistocene and at different parts of a landscape with a complex topography and hydrology. Concentrations of Palaeolithic artefacts here typically feature at least one or a combination of elements that attracted Palaeolithic groups: presence of water, commanding views on the landscape, abundant flint. Presence of these should prove particularly useful in future field investigations in the Paramythia highlands and the mountainous transhumance routes and passageways.[88]

A robust signal of the Neolithic period and the Bronze Age, comes from the western flanks of the Paramythia mountain range (Concentration I), as well as from around the Mavromandilia springs close to the Kokytos (Concentration III) (Fig. 1). The excavated Bronze Age site of Goutsoura (PS 12, part of Concentration VI) is in its turn located further to the west, next to a flat marshy plain. The occurrence of different period ceramic and lithic finds under the Bronze Age umbrella, as well as a settlement and a cemetery at Goutsoura, is suggestive of a certain attraction of the Kokytos valley and small-scale change of site location with the passage of time. Taking into account that only Concentration VI had an Early Bronze Age settlement, Goutsoura, the location and character of the settlements of the Neolithic, the Middle and Late Bronze Age tool-using people must await future intrusive research in the field.

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[88] Galanidou 1996; Galanidou 2014b; Green 1997; Ligkovanlis 2014.

Appendix. Find densities and visibility of the tracts walked in 2004 - 2007

An r after a tract number implies that it has been re-walked. All find densities are given as finds/ha, visibility again according to a 4-point scale with I = 80-100%, II = 60-80%, III = 30-60%, IV = 0-30%. Anomalous densities are marked by shaded areas. The sites are dated according to Forsén *et al.* 2011, except for PS 17, PS 18, PS 20 and PS 28 which are dated according to n. 22 and PS 45 according to n. 50 in this chapter, as well as PS 43 which is dated according to Galanidou and Papoulia, this volume.

No. tract	Area in ha.	Density lithics	Density pott+tiles	Vis.	Comments
A 1	1.237	6.47	12.1	I	
A 2	2.262	4.86	6.63	I	Ass. w PS 1 (Mes?).
A 3	0.7552	2.65	3.97	I	
A 4	0.9594	12.50	315.82	I	Part of PS 8 (EMod).
A 5	1.294	6.18	276.66	I	Part of PS 8 (EMod).
A 6	0.8047	1.24	18.64	IV	Ass. w PS 8 (EMod).
A 7	0.5694	24.59	175.62	I	Ass. w PS 8 (EMod).
A 8	0.963	30.11	22.84	I	Ass. w PS 8 (EMod).
A 9	1.075	30.70	155.35	I	Ass. w PS 8 (EMod).
A 10	2.006	17.95	7.98	I	Not far from PS 1 (Mes?).
A 11	0.4748	48.84	4.21	IV	
A 12	1.115	23.32	4.48	II	
A 13	0.9818	25.46	10.19	I	
A 14	0.9818	1.02	2.04	I	
A 15	0.3735	40.16	24.10	I	In between of PS 2 (EMod) and PS 8 (EMod).
A 16	0.4665	36.44	40.73	I	Ass. w PS 2 (EMod).
A 17	0.9621	4.16	5.20	III-IV	
A 18	0.5972	36.84	28.47	I	Part of and ass. w PS 2 (EMod).
A 19	0.5612	26.72	7.13	I	
A 20	0.5117	19.54	5.86	I	
A 21	1.325	13.58	2.26	I	
A 22	0.5378	5.58	1.86	I	
A 23	1.014	8.88	3.94	I	
A 24	0.448	13.39	35.72	I	
A 25	0.6492	24.65	-	IV	
A 26	1.546	7.12	3.23	I	
A 27	1.382	27.50	16.64	I	
A 28	0.5364	41.04	24.23	I	
A 29	0.2558	58.64	27.37	I	
A 30	0.534	11.23	-	II	
A 31	0.4945	4.04	6.46	III	
A 32	0.5697	5.27	5.27	I-II	
A 33	1.472	9.51	4.76	I	
A 34	0.1887	31.80	10.60	IV	
A 35	0.6493	1.54	23.10	III	
A 36	1.63	8.59	1.84	III-IV	
A 37	1.249	11.21	24.82	I	Ass. w PS 4 (MPal-UPal, also some Mes, Neo and BA).
A 38	0.2096	14.31	-	I	Ass. w PS 4 (MPal-UPal, also some Mes, Neo and BA).
A 39	0.9677	81.64	6.20	I	Ass. w PS 4 (MPal-UPal, also some Mes, Neo and BA).
A 40	0.6574	7.61	3.04	I	
A 41	1.441	-	2.08	I	
A 42	1.36	18.38	31.62	I	Ass. w PS 12 (EBA-LBA, also some Neo and EIA).
A 43	1.203	1.66	8.31	I	
A 44	0.3673	13.61	5.45	I	
A 45	0.2822	10.63	240.96	I	Part of and ass. w PS 7 (LR).
A 46	0.3913	-	58.78	I	Ass. w PS 7 (LR).
A 47	0.4345	2.30	-	IV	
A 48	0.3422	5.84	64.29	I	R/LR? Ca. 100 m northwest of PS 7 (LR).
A 49	0.7519	9.31	87.78	I	R/LR? Ca. 100 m northwest of PS 7 (LR). Next to A 49.
A 50	0.6248	-	-	I	
A 51	2.697	0.37	1.11	I-IV	Part of and ass. w PS 3 (Mes).
A 52	0.4932	-	-	I	
A 53	1.735	3.42	1.15	I	
A 54	0.6739	-	-	I	
A 55	0.3184	-	65.95	III	Ca. 200 m northeast of PS 8 (EMod).

No. tract	Area in ha.	Density lithics	Density pott+tiles	Vis.	Comments
A 56	0.4659	-	21.46	III	Ca. 200 m northeast of PS 8 (EMod).
A 57	1.389	-	15.84	III	Ca. 200 m northeast of PS 8 (EMod).
A 58	0.7565	-	-	I-IV	
A 59	0.9148	-	-	I	
A 60	1.79	-	4.47	III-IV	
A 61	0.9766	7.17	3.07	I	
A 62	0.5432	77.32 -	-	I	Ass. w PS 3. Included also 2 whitish-grey flint nodules, not collected.
A 63	1.029		-	IV	
A 64	0.5564	-	21.57	IV	
A 65	0.1783	5.6	11.22	I	
A 66	0.2635	-	15.18	I	
A 67	0.5733	1.74	12.21	I	
A 68	0.6406	9.37	106.15	I	Part of PS 9 (EMod).
A 69	0.3916	-	2.55	I	
A 70	0.6135	-	1.63	III-IV	
A 71	0.5742	3.48	50.51	IV	Ca. 200 west of PS 10.
A 72	1.017	3.93	67.85	IV	Ca. 100 m to the west of and ass. w (?) PS 14 (LR).
A 73	0.3613	5.54	35.98	IV	Ca. 100 m to the west of and ass. w (?) PS 14 (LR).
A 74	0.8093	4.94	1.24	I-III	Ass. w PS 13 (EHl).
A 75	0.9078	1.10	4.41	III	Ass. w PS 13 (EHl).
A 76	1.68	12.50	1.19	I	
A 77	0.248	-	4.03	I	
A 78	1.473	1.36	49.56	II	
A 79	0.3564	-	-	I	
A 80	0.7346	-	9.53	II	
A 81	0.8208	-	115.74	II	Part of and ass. w PS 10 (LR).
A 82	2.273	1.76	3.52	IV	
A 83	2.306	12.58	5.64	III-IV	
A 84	1.21	13.22	147.11	II	Part of and ass. w PS 10 (LR).
A 85	1.205	6.64	9.13	II	Ass. w PS 10 (LR).
A 86	1.724	1.16	5.22	III-IV	
A 87	1.319	3.03	5.35	III	
A 88	0.5616	-	-	I	
A 89	0.4102	-	-	I	
A 90	0.5807	-	12.05	III	
A 91	0.5452	-	1.83	I	
A 92	0.607	-	60.96	I	Just to the south of Rachouli, finds probably originate from the village itself (mostly tile fragments).
A 93	0.4056	-	2.47	I	
A 94	0.3591	-	2.78	I	
A 95	0.5707	1.75	-	II	
A 96	1.62	3.09	5.56	II-III	
A 97	2.282	7.89	3.51	II	
A 97r		10.52	11.39	I	
A 98	1.777	5.06	5.06	II-III	
A 99	1.483	5.39	2.70	II	
A 100	0.6383	4.70	4.70	II	
A 101	1.288	12.42	-	I	
A 102	0.4351	4.6	-	I	
A 103	1.805	7.76	0.55	II	
A 104	1.191	8.40	21.83	III	Part of and ass. w PS 11 (EHl?).
A 105	0.3635	13.75	142.43	I	Ass. w PS 5-6 (LA-ER).
A 106	0.3651	-	-	I	
A 107	0.4711	-	-	I	
A 108	1.27	15.06	-	II-III	
A 109	1.929	22.81	0.52	I	
A 110	0.6887	17.46	1.45	III	
A 111	0.6302	15.87	1.59	III	
A 112	1.91	8.90	1.05	I-II	
A 113	3.102	16.44	-	I	
A 114	0.1341	-	-	II	
A 115	0.4633	-	4.32	II	
A 116	0.2956	6.77	-	I	
A 117	1.085	0.92	0.92	III	
A 118	1.812	-	-	IV	
A 119	1.27	0.79	2.36	III-IV	

No. tract	Area in ha.	Density lithics	Density pott+tiles	Vis.	Comments
A 120	0.6328	4.74	48.99	I	Part of and ass. w PS 14 (LR).
A 121	0.4745	35.83	10.54	II-III	Ass. w PS 5-6 (LA-ER).
A 122	0.9413	5.31	-	III-IV	
A 123	0.6268				Sheet missing. Ass. w PS 14 (LR).
A 124	0.9657				Sheet missing. Part of and ass. w PS 14 (LR).
A 125	1.364				Sheet missing
A 126	0.3706				Sheet missing
A 127	1.397	0.72	1.43	I	Ass. w PS 13 (EHl?).
B 1	2.78	2.16	4.32	I	
B 2	1.263	2.38	2.38	I	
B 3	2.047	1.47	2.44	I	
B 4	2.354	3.40	0.85	I	
B 5	1.243	0.80	-	I	
B 6	2.096	3.34	1.43	I	
B 7	1.953	1.54	0.51	I	
B 8	0.4725	-	-	I	
B 9	1.631	-	-	I	
B 10	0.707	-	267.32	I	Part of PS 27 (LR).
B 11	0.9183	-	13.07	I	
B 12	2.099	0.48	-	II	
B 13	1.866	5.90	3.22	I	
B 14	1.015	2.96	52.22	III	Part of PS 16 (LR).
B 15	0.5516	47.14	94.27	III	Ass. w PS 16 (LR). Also scatter of flints, marked as possible site on tract form, but never treated as site.
B 16	2.289	1.31	3.93	IV	
B 17	0.9813	1.02	4.08	I	
B 18	0.83	2.41	31.32	I	Ass. w PS 27 (LR).
B 19	1.75	2.29	23.43	I	Ass. w E 10 (Med).
B 20	2.691	4.09	1.11	I	
B 21	1.261	5.55	2.38	I	
B 22	1.28	41.40	439.84	II	Part of PS 17 (BA-EIA, some Neo and LC-EHl).
B 23	1.763	34.60	199.09	II	Part of PS 17 (BA-EIA, some Neo and LC-EHl).
B 24	0.6855	58.35	128.37	III	Ass. w PS 17 (BA-EIA, some LC-EHl) and PS 20 (Neo-MBA, some EIA, LC-EHl).
B 25	0.9606	4.16	-	I	
B 26	1.808	47.01	0.55	I-II	Part of PS 18 (Neo to BA, some EIA, LC-Hl). Sample tagged as PS 18.
B 27	0.5483	5.47	218.86	II	Part of PS 19 (R?).
B 28	0.4207	23.76	218.68	III	Ass. w PS 17 (BA-EIA, some Neo and LC-EHl), PS 20 (Neo-MBA, some EIA, LC-EHl) and PS 19 (R?).
B 29	1.011	83.09	15.83	III	Part of PS 20 (Neo-MBA, some EIA, LC-EHl).
B 30	2.251	54.20	3.55	I	
B 31	1.584	29.04	1.26	I	
B 32	1.271	86.55	3.93	I	
B 33	2.129	31.94	1.41	I	
B 34	2.741	27.36	0.73	III	
B 35	1.409	42.58	1.42	I	
B 36	2.212	25.31	4.07	I	
B 37	0.9585	92.85	2.09	I	Part of PS 21 (Neo-MBA).
B 38	1.471	25.15	2.04	III	
B 39	1.88	25.53	-	III	
B 40	1.476	25.07	0.68	I	
B 41	2.85	14.04	0.70	I	
B 42	2.985	7.71	20.77	II	
B 43	3.537	24.03	27.14	I-II	
B 44	0.3358	166.77	128.05	IV	Ass. w PS 20 (Neo-MBA, some EIA, LC-EHl).
B 45	0.4504	-	-	II	
B 46	0.7498	2.67	37.34	III	Ass. w PS 17 (BA-EIA, some Neo and LC-EHl).
B 47	1.262	15.06	3.96	IV	
B 48	1.199	80.90	0.83	II	Ass. w PS 18 (Neo-BA, some EIA, LC-EHl).
B 49	4.657	0.43	33.50	IV	Ass. w PS 25 (EHl, LHl, ER. Also some prehist., EIA, MR, LR).

No. tract	Area in ha.	Density lithics	Density pott+tiles	Vis.	Comments
B 50	4.638	-	24.80	IV	Ass. w PS 25 (EHl, LHl, ER. Also some prehist., EIA, MR, LR). Also ass. w and part of PS 26 (EMod/Mod).
B 51	1.071	-	0.93	IV	
B 52	0.8332	4.80	2.40	III-IV	
B 53	2.952	18.98	6.78	III-IV	
B 54	0.3475	43.17	339.57	III	Part of PS 27 (LR).
B 55	0.9197	16.31	205.50	III-IV	Part of PS 27 (LR).
B 56	2.544	4.72	25.55	IV	Ass. w PS 27 (LR).
B 57	0.1856	48.49	107.76	III	Part of PS 27 (LR).
B 58	0.4786	14.62	33.43	IV	Ass. w PS 27 (LR).
B 59	0.555	124.32	-	II	
B 60	1.276	108.93	26.65	I	Part of PS 28 (Neo-BA). Never finally allowed by farmer to walk as a site.
B 61	2.377	-	-	I	
B 62	0.633	-	-	I	
B 63	0.866	1.15	-	IV	
C 1	2.217	69.01	50.52	I	Part of and ass. w PS 48 (LC-EHl).
C 1r		8.57	92.92	II-III	
C 2	1.207	4.14	69.59	I	Part of and ass. w. PS 30 (LC-EHl).
C 3	1.035	7.13	43.48	I	Ass. w PS 30 and PS 48 (both LC-EHl).
C 4	0.6512	15.36	52.21	I	Ass. w. PS 48 (LC-EHl).
C 5	0.7463	44.22	25.46	II	
C 6	0.72	-	1.39	I	
C 7	1.293	11.60	54.91	II	Part of and ass. w. PS 29 (LC-EHl, also some LA).
C 8	0.9231	105.08	75.83	II	Part of and ass w. PS 29 (LC-EHl, also some LA).
C 9	0.9204	9.78	66.28	II	Ass. w. PS 29 (LC-EHl, also some LA).
C 10	1.421	-	0.70	I-II	
C 11	0.7595	-	1.32	I	
C 12	1.27	11.02	4.72	II	
C 13	0.4519	11.06	-	III	
C 14	0.361	80.33	66.48	II	
C 15	0.8871	6.76	19.16	II	Ass. w. PS 49 (LC-EHl).
C 16	1.101	4.54	10.90	II	
C 17	1.294	68.00	3.09	II	Ass. w E 11, EHl heroon at Marmara!
C 18	0.7742	34.87	-	II	Ass. w E 11, EHl heroon at Marmara!
C 19	1.957	16.86	-	II	
C 20	2.753	13.44	0.36	II	
C 21	2.842	0.70	26.39	II	Part of and ass. w PS 31 (C, also some EIA, A and Hl) and PS 36 (EIA-Hl).
C 22	3.578	8.94	0.56	II	
C 23	1.631	7.36	-	II	
C 24	1.204	39.87	55.65	II	Ass. w PS 35 (LC-EHl, also some LHl and R) and PS 36 (EIA-Hl). Includes dump from Ephorate excavation at PS 36.
C 25	1.984	20.16	73.08	I	Ass. w PS 46
C 26	0.7882	25.37	58.36	III	Ass. w PS 35 (LC-Ehl, also some LHl and R) and PS 36 (EIA-Hl).
C 27	1.604			I	No finds were counted
C 28	1.87	35.83	41.71	I	Ass. w E 24 (unclear date).
C 28r		17.65	16.58	II	Ass. w E 24 (unclear date).
C 29	0.7263	9.64	68.84	I	Ass. w E 24 (unclear date).
C 30	1.056	10.42	12.31	I	Ass. w E 24 (unclear date).
C 31	0.917	14.42	295.53	I	Part of PS 32 (MR-LR, also some Hl, ER).
C 32	0.8807	13.63	30.65	III	Ass. w PS 32 (MR-LR, also some Hl, ER).
C 33	2.51	34.66	43.82	II	Part of and ass. w PS 33 (R/LR?).
C 34	1.366	5.12	45.39	II	Ass. w PS 32 (MR-LR, also some Hl, ER),
C 35	1.176	3.40	105.44	II	PS 39 (LR) and E 23 (LR?).
C 36	2.043	4.89	9.79	II	Part of and ass. w PS 44 (LC-EHl).
C 37	1.664	0.60	22.24	I	Ass. w PS 31 (C, also some EIA, A and Hl) and E 9 (LHl-ER).
C 37r		-	61.30	nr	Ass. w PS 31 (C, also some EIA, A and Hl) and E 9 (LHl-ER).
C 38	0.3465	11.54	883.12	III-IV	Ass. w E 9 (LHl-ER).
C 39	0.6482	1.54	240.67	III-IV	Part of and ass. w PS 36 (EIA-Hl).
C 40	0.609	4.93	149.43	III	
C 41	1.185	93.67	32.07	III	
C 42	0.3879	7.73	-	III	

No. tract	Area in ha.	Density lithics	Density pott+tiles	Vis.	Comments
C 43	1.369	2.92	51.86	III-IV	Ass. w PS 32 (MR-LR, also some Hl, ER).
C 44	1.05	38.10	23.81	II-III	
D 1	1.349	174.20	94.14	II	Ass. w PS 37 (LC-EHl).
D 2	1.064	47.93	49.18	II	Part of and ass. w PS 37 (LC-EHl)-
D 3	0.924	17.30	30.28	II	
D 4	0.663	15.08	19.61	II	
D 5	2.52	17.85	91.67	II	Part of and ass. w PS 38 (LR, also some Hl, ER).
D 6	1.518	11.20	94.86	II	Part of and ass. w PS 39 (LR).
D 7	1.629	47.27	391.04	II	Part of PS 46 (LC-Hl, also some BA, LBA, EIA).
D 8	1.772	24.27	34.99	II	Ass. w PS 46 (LC-EHl, also some BA, LBA, EIA).
D 9	1.247	32.88	52.93	II	Ass. w PS 37 (LC-EHl).
D 10	1.568	13.39	28.06	II	
D 11	2.526	9.11	26.52	II	Part of and ass. w PS 40 (R?).
D 12	1.527	7.20	294.04	II	Part of and ass. w PS 41 (MR-LR, also Hl, ER).
D 13	3.247	19.09	199.88	III	Part of and ass. w PS 41 (MR-LR, also Hl, ER).
D 14	2.357	4.67	34.36	I	Ass. w PS 41 (MR-LR, also Hl, ER).
D 15	1.541	5.19	56.46	II	Ass. w PS 37 (LC-EHl) and PS 40 (R?).
D 16	2.197	2.73	117.43	III-IV	Ass. w PS 40 (R?). Could be part of site, no clear borders though.
D 16r		0.46	45.51	II	
D 17	1.355	-	3.69	II	
D 18	2.454	1.63	19.56	II	
D 19	3.32	1.51	20.78	II	
D 20	0.2775	-	3.60	I	
D 21	1.595	1.88	11.91	II	
D 22	2.527	6.33	15.43	II	Part of PS 43 (Mes/ENeo, also some MPal).
D 23	1.778	10.69	18.00	I	
D 24	0.8679	48.39	19.59	II	
D 25	1.68	27.38	158.33	II	Part of and ass. w PS 46 (LC-EHl, also some BA, LBA, EIA).
D 26	1.75	42.85	227.98	II	Part of PS 35 (LC-EHl, also some LHl and R).
D 27	0.9095	38.48	336.44	II-III	Part of PS 44 (LC-EHl).
D 28	1.314	38.05	37.29	II	Part of and ass. w PS 43 (Mes/ENeo, also some MPal).
D 29	0.5572	35.89	17.95	II	
D 30	2.328	20.62	9.88	II	
D 31	1.123	-	8.01	II	
D 32	1.99	1.00	15.08	II	
D 33	1.969	47.74	3.05	II	Part of PS 45 (Neo, also some UPal).
D 34	0.7767	99.14	3.86	II	Part of PS 45 (Neo, also some UPal).
D 35	0.708	96.05	9.89	II	Part of PS 45 (Neo, also some UPal).
D 36	1.652	4.84	16.34	II	Part of PS 45 (Neo, also some UPal).
D 37	0.9759	-	-	II	Part of PS 45 (Neo, also some UPal).
D 38	2.4	48.75	4.17	II	Part of PS 45 (Neo, also some UPal).
D 39	0.4732	65.51	6.34	II	Part of PS 45 (Neo, also some UPal).
D 40	0.316	60.12	-	II	Part of PS 45 (Neo, also some UPal).
D 41	2.831	31.08	7.42	II	Part of PS 45 (Neo, also some UPal).
D 42	1.167	27.42	4.28	II	Part of PS 45 (Neo, also some UPal).
D 43	1.517	3.30	11.21	II	
D 44	1.323	10.58	4.54	III	
D 45	0.8807	2.27	-	I	
D 46	0.3714	16.15	-	II	
D 47	0.7592	-	1.32	I	
D 48	0.4579	-	-	I	
D 49	0.535	-	3.74	III-IV	
D 50	0.6578	10.64	7.60	II-III	
D 51	3.863	2.59	-	II	
D 52	0.8063	-	-	I	
D 53	0.7025	1.42	-	I	
D 54	0.8158	12.26	1.23	I	
D 55	1.975	0.51	5.57	II	
D 56	1.082	12.01	21.26	I	
D 57	0.6981	-	-	I	
D 58	0.6682	2.99	34.42	I	

No. tract	Area in ha.	Density lithics	Density pott+tiles	Vis.	Comments
D 59	1.223	0.82	17.17	I	
D 60	1.015	-	8.87	I	
D 61	1.266	116.90	9.48	II	Part of PS 45 (Neo, also some UPal).
D 62	3.428	2.63	11.67	I	
D 63	0.8994	6.67	36.69	I	
D 64	0.7156	11.18	90.83	I	Part of and ass. w PS 47 (EMod or Mod).
D 65	1.312	1.52	0.76	I	
D 66	1.57	1.27	-	I	
D 67	1.383	-	-	I	
D 68	0.6074	4.94	1.65	I	
D 69	0.7741	20.67	-	I	
D 70	1.523	1.31	280.37	II	Part of and ass. w PS 10 (LR).
D 71	0.316	-	-	I	
D 72	2.212	0.45	15.37	I	
D 73	1.034	15.47	4.84	II	
D 74	0.5646	285.16	5.31	II	Ass. w PS 17 (BA-EIA, also some Neo and LC-EHl) and PS 20 (Neo-MBA, also some EIA, LC-EHl).
D 75	0.6612	-	240.47	II-III	Part of and ass. w PS 49 (LC-EHl).
D 76	0.6522	16.87	96.60	I	Ass. w PS 49 (LC-EHl).
D 77	1.977	1.01	102.18	II	Ass. w E 9 (LHl-ER).
D 78	1.261	-	348.93	II	Part of PS 46 (LC-EHl, also some BA, LBA, EIA).
D 78r		-	149.09	II	
D 79	0.7685	-	191.28	I	Part of and ass. w PS 44 (LC-EHl).
D 80	3.519	72.18	3.13	III	Part of PS 43 (Mes/ENeo, also some MPal).
D 81	6.245	5.12	0.65	III	
D 82	0.9956	4.02	-	III	
E 1	1.118	49.19	36.67	I	
E 2	0.388	10.31	5.15	III	

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