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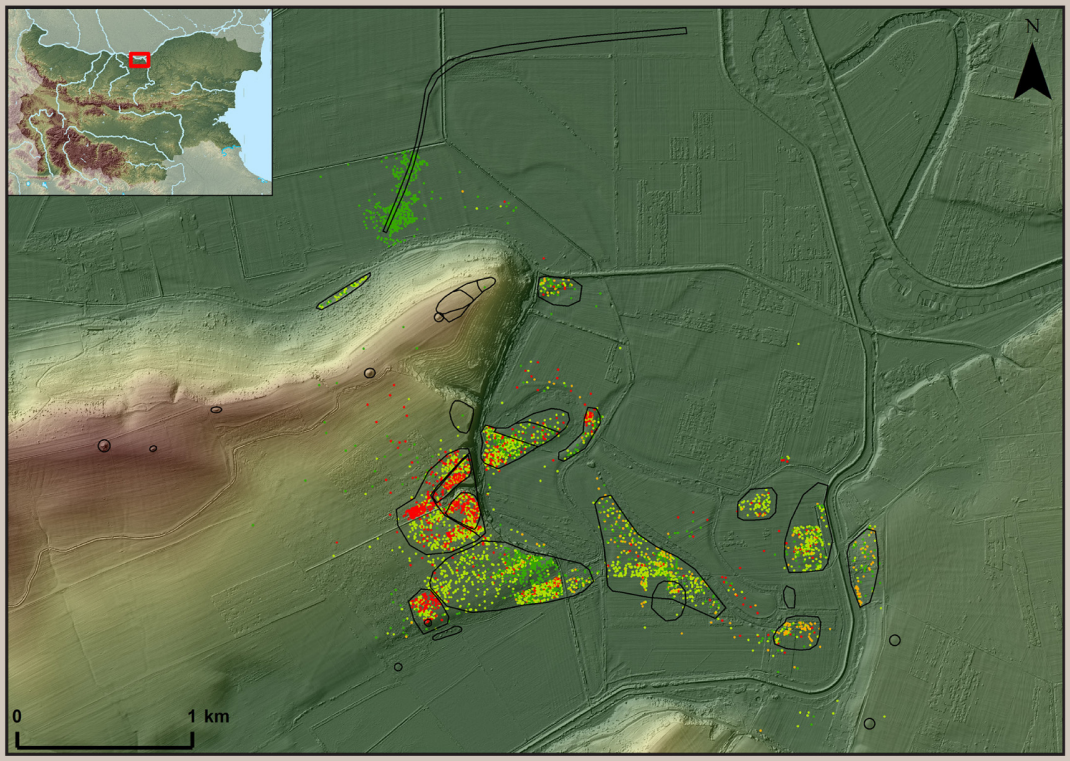


БЪЛГАРСКА АКАДЕМИЯ НА НАУКИТЕ
НАЦИОНАЛЕН АРХЕОЛОГИЧЕСКИ
ИНСТИТУТ С МУЗЕЙ

Lyudmil Vagalinski, Sven Conrad, Lyuba Traykova,
Nadezhda Kecheva, Raiko Krauß

NOVGRAD – TASH BAIR I

ARCHAEOLOGICAL INVESTIGATIONS AT THE SOUTHERNMOST POINT OF THE DANUBE



София • 2023

NOVGRAD – TASH BAIR I

ARCHAEOLOGICAL INVESTIGATIONS AT THE SOUTHERNMOST POINT OF THE DANUBE

НОВГРАД – ТАШ БАИР I

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ARCHAEOLOGICAL EXCAVATIONS AND RESEARCH – 48(2)

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Nadezhda Kecheva, Raiko Krauß**

with contributions by

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Henning Zoellner, Maria Gurova, Nadezhda Karastoyanova, Nikolaas Noorda,
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Novgrad – Tash Bair I

Archaeological investigations at the southernmost point of the Danube

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Надежда Кечева, Райко Краус**

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CONTENTS / СЪДЪРЖАНИЕ

VOLUME 48(1) / КНИГА XLVIII(1)

Affiliations of the authors in alphabetical order / Афилиации на авторите по азбучен ред ix

List of figures / Списък на фигурите xiii

List of tables / Списък на таблиците xxvi

List of plates / Списък на таблата xxviii

1. Preface 1
Sven Conrad, Raiko Krauß, Lyudmil Vagalinski
Увод 3
Свен Конрад, Райко Краус, Людмил Вагалински

2. History of research and aims of the project 5
Sven Conrad, Raiko Krauß
История на проучванията и цели на проекта (Резюме) 13
Свен Конрад, Райко Краус

3. Environmental conditions in the study area 15
Andreas López del Olmo, Raiko Krauß, Sven Conrad
Състояние на околната среда в района на изследване (Резюме) 27
Андреас Лопес дел Олмо, Райко Краус, Свен Конрад

4. Palaeo-river course reconstruction in the floodplain of the Yantra River, North-Central Bulgaria 29
Andreas López del Olmo, Gert Verstraeten, Nils Brothaerts
Реконструкция на палеоречното течение в заливната низина на р. Янтра, Централна Северна България (Резюме) 66
Андреас Лопес дел Олмо, Херт Верстраетен, Нилс Бротхаертс

5. Methodology of archaeological research / Методи при археологическите проучвания 69

5.1. The measurement system 69
Nadezhda Kecheva, Sven Conrad
Системи за измерване и документиране (Резюме) 73
Надежда Кечева, Свен Конрад

5.2. Field survey methods 73
Nadezhda Kecheva
Методи при теренните издирвания (Резюме) 89
Надежда Кечева

5.3. Archaeological excavation methods / Методи при археологическите разкопки 90

5.3.1. Archaeological excavation methods 90
Lyudmil Vagalinski, Lyuba Traykova
Методи при археологическите разкопки (Резюме) 92
Людмил Вагалински, Люба Трайкова

5.3.2. Archaeological excavation methods for the trenches 1.2, 3.1 and 5.1 93
Sven Conrad
Методи при археологическите разкопки на сондажи 1.2, 3.1 и 5.1 (Резюме) 94
Свен Конрад

5.4. Find recording / Документиране на находки 95
5.4.1. Recording of pottery finds, silex and animal bones 95
Sven Conrad
Документиране на керамични находки, кремъци и животински кости (Резюме) 95
Свен Конрад
5.4.2. Small find recording 96
Lyuba Traykova
Документиране на малки находки (Резюме) 96
Люба Трайкова
5.5. Sampling 96
Sven Conrad
Взимане на проби (Резюме) 98
Свен Конрад
6. The geophysical prospections. Methods and results / Геофизични проучвания. Методи и резултати 99
6.1. Geophysical prospections at sites 1 and 3–5 99
Burkart Ullrich, Nikolaas Noorda, Henning Zoellner
Геофизични проучвания на обекти 1 и 3 – 5 (Резюме) 108
Буркарт Улрих, Николаас Ноорда, Хеннинг Цьолнер
6.2. Geomagnetic survey at site 2 109
Petar Zidarov
Геомагнитни проучвания на обект 2 (Резюме) 116
Петър Зидаров
6.3. Two ERT profiles through the ditches on site 3 116
Gert Verstraeten
Два ERT профила през рововете на обект 3 (Резюме) 118
Херт Верстраетен
7. The intensive field surveys at the Tash Bair and in its surroundings 119
Nadezhda Kecheva, Lyudmil Vagalinski, Lyuba Traykova, Silva Sabkova
Интензивни теренни издирвания в района на Таш баир (Резюме) 139
Надежда Кечева, Людмил Вагалински, Люба Трайкова, Силва Събкова
8. Archaeological excavations / Археологически разкопки 141
8.1. The Late Neolithic ditches at site 1 (trench 1.2) 141
Raiko Krauß, Sven Conrad
Късноенеолитни ровове на обект 1 (сондаж 1.2) (Резюме) 148
Райко Краус, Свен Конрад
8.2. Bronze Age / Бронзова епоха 148
8.2.1. The inner ditch of the enclosure in trench 3.6 148
Lyudmil Vagalinski, Lyuba Traykova, Nadezhda Kecheva
Вътрешен ров на оградена площ в сондаж 3.6 (Резюме) 156
Людмил Вагалински, Люба Трайкова, Надежда Кечева
8.2.2. The structure in trenches 3.2–5 159
Lyudmil Vagalinski, Lyuba Traykova
Структура в сондажи 3.2 – 5 (Резюме) 164
Людмил Вагалински, Люба Трайкова

8.2.3. The pit in trench 3.1 165
Sven Conrad, Raiko Krauß
Яма в сондаж 3.1 (Резюме) 170
Свен Конрад, Райко Краус
8.2.4. Bronze Age. Conclusion 171
Lyudmil Vagalinski, Lyuba Traykova, Nadezhda Kecheva
Бронзова епоха. Заключение (Резюме) 172
Людмил Вагалински, Люба Трайкова, Надежда Кечева
8.3. Late Iron Age / Късна желязна епоха 172
8.3.1. The Late Iron Age ditch in trench 1.1 173
Lyudmil Vagalinski, Lyuba Traykova, Nadezhda Kecheva
Ров от късната желязна епоха в сондаж 1.1 (Резюме) 183
Людмил Вагалински, Люба Трайкова, Надежда Кечева
8.3.2. The Early Roman pits 5.1.2 and 5.1.6 185
Sven Conrad
Ранноримски ями 5.1.2 и 5.1.6 (Резюме) 190
Свен Конрад
8.3.3. The grave in pit 5.1.5 191
Lyudmil Vagalinski, Lyuba Traykova, Nadezhda Kecheva
Гроб в яма 5.1.5 (Резюме) 201
Людмил Вагалински, Люба Трайкова, Надежда Кечева
8.3.4. Late Iron Age. Conclusion 203
Lyudmil Vagalinski, Lyuba Traykova, Nadezhda Kecheva
Късна желязна епоха. Заключение (Резюме) 204
Людмил Вагалински, Люба Трайкова, Надежда Кечева
8.4. The Early Medieval fortifications in trenches 1.1 and 1.2 205
Lyudmil Vagalinski, Lyuba Traykova, Nadezhda Kecheva
Ранносредновековни фортификации в сондажи 1.1 и 1.2 (Резюме) 221
Людмил Вагалински, Люба Трайкова, Надежда Кечева
9. Pottery and small finds / Керамични и малки находки 225
9.1. The pottery finds (with catalogue) / Керамични находки (с каталог) 225
9.1.1. Prehistoric pottery 225
Raiko Krauß
Керамика от праисторията (Резюме) 238
Райко Краус
9.1.2. Late Iron Age to Medieval pottery 242
Sven Conrad
Керамика от късната желязна епоха до Средновековието (Резюме) 261
Свен Конрад
9.1.3. Pottery statistics from the excavations of different features 262
Sven Conrad, Raiko Krauß
Статистика на керамични находки от разкопките на различни структури (Резюме) 283
Свен Конрад, Райко Краус
9.2. Small finds (with catalogue) / Малки находки (с каталог) 382

9.2.1. Small finds from prehistory 382
Raiko Krauß
Малки находки от праисторията (Резюме) 387
Райко Краус
9.2.2. Small finds from Antiquity and Early Middle Ages 398
Lyuba Traykova
Малки находки от Античността и Ранното средновековие (Резюме) 407
Люба Трайкова

VOLUME 48(2) / КНИГА XLVIII(2)

Affiliations of the authors in alphabetical order / Афилиации на авторите по азбучен ред ... xxxix
List of figures / Списък на фигурите xliii
List of tables / Списък на таблиците xlix
10. Interdisciplinary research / Интердисциплинарни проучвания 431
10.1. A bronze knife from site 3 431
Raiko Krauß, Ernst Pernicka
Бронзов нож от обект 3 (Резюме) 434
Райко Краус, Ернст Перницка
10.2. Chipped-stone assemblages 435
Maria Gurova
Кремъчни ансамбли (Резюме) 465
Мария Гюрова
10.3. Archaeozoological analysis of the animal remains 466
Nadezhda Karastoyanova
Археозоологичен анализ на животински останки (Резюме) 478
Надежда Карастоянова
10.4. Human remains from a pit at site 5 479
Victoria Russeva
Човешки костни останки от яма на обект 5 (Резюме) 481
Виктория Русева
11. Conclusions / Заключение 483
11.1. Novgrad I project 483
Lyudmil Vagalinski
Проект Новград I 483
Людмил Вагалински
11.2. The mouth of the Yantra with the Tash Bair ridge – an important crystallisation and crossing point in the history of settlement on the eastern Balkan peninsula 484
Sven Conrad, Raiko Krauß
Устието на р. Янтра при Таш баир – значим селищен център през вековете и преходен пункт на Източните Балкани 488
Свен Конрад, Райко Краус
12. Catalogue of the archaeological sites 493
Nadezhda Kecheva, Lyudmil Vagalinski, Sven Conrad, Lyuba Traykova, Silva Sabkova
Каталог на археологическите обекти (Резюме) 658
Надежда Кечева, Людмил Вагалински, Свен Конрад, Люба Трайкова, Силва Събкова
13. References / Използвана литература 661

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LIST OF FIGURES

10. INTERDISCIPLINARY RESEARCH

10.1. A bronze knife from site 3
Raiko Krauß, Ernst Pernicka

Fig. 1. Bronze knife from feature 3.2.1 at Tash Bair (photos by R. Krauß)

Fig. 2. Knives from the Bulgarian Middle and Late Bronze Age. 1–2 Ada Tepe, 3 Tash Bair, 4 Ovcha Mogila, 5 Emen cave, 6 Dabene (1–2, 4–6 – Alexandrov et al. 2018b, 514, 510, 534, 472, 464; 3 – photo by R. Krauß)

Fig. 3. Lead isotope ratios of the knife from Tash Bair compared with copper ores from Bulgaria (Pernicka et al. 1997, Stos-Gale et al. 1998, Amov 1999) and Turkey (Seeliger et al. 1985, Wagner et al. 1985, Wagner et al. 1986, Yener et al. 1991) (figure by E. Pernicka)

Fig. 4. Stratigraphic position of the bronze knife and the two radiocarbon samples within feature 3.2.1. Orthophoto obtained from a SfM model (by M. Offermann) with additions (figure by S. Conrad)

10.2. Chipped-stone assemblages
Maria Gurova

Fig. 1. Single platform blade cores: 1 & 2 – for blades and bladelets (site 1); 3 – for blades (site 2) (photos M. Gurova)

Fig. 2. Massive artefacts from site 2 (1) and site 4 (2); patinated artefacts from site 4 (photos M. Gurova)

Fig. 3. Raw material aspect of blades and tools on blades from site 1 (1 & 2); 3 – arrowhead on flake (photos M. Gurova)

Fig. 4. Endscrapers from site 1 (photos M. Gurova)

Fig. 5. Tools from site 1 (2 & 3) and site 2 (1); core from site 2 (4) (drawings M. Gurova)

Fig. 6. Artefacts from site 1: core (10), blades (8, 13) and tools (1–7, 9, 11–12, 14) (drawings M. Gurova)

Fig. 7. Artefacts from site 1: core (11) and tools (1–10, 12–13) (drawings M. Gurova)

Fig. 8. Artefacts from site 1: core (9), blades (1–2, 12) and tools (3–8, 10–11) (drawings M. Gurova)

Fig. 9. Artefacts from excavations: 1 & 2 – Trench 1.2 (photos M. Gurova)

Fig. 10. Artefacts from excavations: 1 – feature 1.2.5 (Trench 1.2); 2 – feature 1.1.6 (Trench 1.1-E) (photos M. Gurova)

Fig. 11. Artefacts from excavations: Trench 1.1-E (photos M. Gurova)

Fig. 12. Artefacts from excavations: Trench 1.1-W (photos M. Gurova)

Fig. 13. Artefacts from excavations: 1–4 – Trench 1.1-E (feature 1.1.6); 5–15 – Trench 1.1-W. The arrows show microphotos on fig. 15 (drawings M. Gurova)

Fig. 14. Artefacts from excavations: 1–5 – Trench 1.2; 6–10 – Trench 1.1-E. The arrows show microphotos on fig. 16 (drawings M. Gurova)

Fig. 15. Microphotographs of use-wear traces (×100) on artefacts 5–7, 9–10 and 15 from fig. 13: a & b – sawing bone; c–f – cereal polish; g & h – scraping fresh hide (microphotographs M. Gurova)

Fig. 16. Microphotographs of use-wear traces (x 100) on artefacts 3, 5 and 10 from fig. 14: variations of plant (c) and cereal polish (a–b, d–f) (microphotographs M. Gurova)

10.3. Archaeozoological analysis of the animal remains
Nadezhda Karastoyanova

Fig. 1. Percentage of animal remains found at the site across different periods (N. Karastoyanova)

Fig. 2. Ratios for wild vs domestic species across different periods at Tash Bair (N. Karastoyanova)

Fig. 3. Animal remains found in Late Neolithic ditches at site one presented as elements of the skeleton (N. Karastoyanova, skeletal overlay frames: after Helmer 1987)

Fig. 4. Animal remains found in the Early Medieval ditches presented as elements of the skeleton (N. Karastoyanova, skeletal overlay frames: after Helmer 1987)

Fig. 5. Animal remains found in the layers of the shifted rampart presented as elements of the skeleton (N. Karastoyanova, skeletal overlay frames: after Helmer 1987)

Fig. 6. Number of identified species (NISP) in the shifted rampart and Medieval ditch (N. Karastoyanova)

Fig. 7. Number of identified species across the periods on the sites at the Tash Bair (N. Karastoyanova)

Fig. 8. Caprine molars and flat bone fragments from large ruminant with traces of acid corrosion (feature 3.1.1) (photo by N. Karastoyanova)

Fig. 9. Pig distal tibia with horizontal cut marks on the dorsal side of the epiphyses (trench 1.1 E; colluvium level 27.25–27.35 m) (photo by N. Karastoyanova)

Fig. 10. Scapho cuboid (right) of a cattle with horizontal cut marks on the dorsal side (1.1.11 FD036) (photo by N. Karastoyanova)

10.4. Human remains from a pit at site 5

Victoria Russeva

Fig. 1. 1. *In situ* position of skeletal remains. 2. Position of the upper limb's bones and ribs on the anterior shafts, detail; skull – left mandible angle and left zygomatic with marginal tubercle. 3. Position of long bones of the right leg, pointing to flexed position of the limb, detail (photo by V. Russeva)

Fig. 2. Dentition (photo by V. Russeva)

Fig. 3. Dental formula: III – deciduous tooth; 1 – permanent tooth; 3 – thooth, the alveolar socket destructed post mortem; fr – part of the alveolar process is not present in the material (figure by V. Russeva)

12. CATALOGUE OF THE ARCHAEOLOGICAL SITES

Nadezhda Kecheva, Lyudmil Vagalinski, Sven Conrad, Lyuba Traykova, Silva Sabkova

Fig. 1. The area covered during field surveys in 2018 and 2019, recorded archaeological site scatters (in black) and recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots; a road – as a green dot. The quantities of pottery fragments counted on the surface per polygon are visualised by graduated colours with quantitative descriptive statistics in GIS. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

Fig. 2. The area covered during the 2018 and 2019 field surveys, recorded archaeological site scatters (in black) and recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots; a road – as a green dot. The quantities of pottery fragments counted on the surface per small polygon are visualised by graduated colours with quantitative descriptive statistics in GIS. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

Fig. 3. Photo from S-SW of part of the area covered with visible sites marked in red (photo by S. Conrad, figure by N. Kecheva)

Fig. 4. Panoramic photo from site 3 looking to the Yantra River lowlands of the area covered with visible sites marked in red (figure by N. Kecheva)

Fig. 5. Site 1. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 6. Site 1. The area covered and marked by polygons with visualised numbers and background maps with hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 7. Site 1. The area covered and marked by small polygons and total pick up. The quantities of pottery fragments counted on the surface per small polygon are visualised by graduated colours with quantitative descriptive statistics in GIS. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 8. Site 1. View from the east, March 2018 (photo by N. Kecheva)

Fig. 9. Site 1. View from the northwest, March 2018 (photo by N. Kecheva)

Fig. 10. Site 1. Part of the collected diagnostic pottery fragments, March – April 2018 (figure by N. Kecheva)

Fig. 11. Site 1. Georeferenced aerial image, taken 1944–1945 (figure by N. Kecheva)

Fig.12. Site 1. Georeferenced aerial image, taken during the 1970s (figure by N. Kecheva)

Fig. 13. Site 1. Orthophoto, 2006 (figure by N. Kecheva)

Fig. 14. Site 1. Analytical hillshade derived from airborne laser scanning data (figure by N. Kecheva)

Fig. 15. Site 2. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 and 2019 (figure by N. Kecheva)

Fig. 16. Site 2. The area covered marked by polygons with visualised numbers and background maps with hillshade derived from airborne laser scanning data and geophysical data from 2018 and 2019 (figure by N. Kecheva)

Fig. 17. Site 2. Part of the collected diagnostic pottery fragments, March – April 2018 (figure by N. Kecheva)

Fig. 18. Site 2. View from the southeast, March 2018 (photo by L. Vagalinski)

Fig. 19. Site 3. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 20. Site 3. The area covered marked by polygons with visualised numbers. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 21. Site 3. Part of the collected diagnostic pottery fragments, March 2018 (photo by S. Conrad)

Fig. 22. Site 3. View from south, March 2018 (photo by L. Vagalinski)

Fig. 23. Site 3. Location of the coring (green dot) and coring profile (figure by N. Kecheva and S. Conrad)

Fig. 24. Sites 4 and 14. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 25. Sites 4 and 14. The area covered marked by polygons with visualised numbers. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 26. Site 4. Part of the collected diagnostic pottery fragments, March 2018 (figure by N. Kecheva)

Fig. 27. Site 4. View from the southeast, March 2018 (photo by N. Kecheva)

Fig. 28. Site 4. Location of the corings (green dots) and the corresponding coring profiles (figure by N. Kecheva and S. Conrad)

Fig. 29. Site 5. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 30. Site 5. The area covered marked by polygons with visualised numbers. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 31. Site 5. Part of the collected diagnostic pottery fragments, March 2018 (figure by N. Kecheva)

Fig. 32. Site 5. View from the southwest, March 2018 (photo by J. Sprißler)

Fig. 33. Sites 6, 7, 8, 9 and 11. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 34. Site 6. View from north, March 2019 (photo by L. Vagalinski)

Fig. 35. Site 7. View from east, March 2019 (photo by L. Vagalinski)

Fig. 36. Site 8. View from west, March 2019 (photo by L. Vagalinski)

Fig. 37. Site 9. View from north, March 2019 (photo by L. Vagalinski)

Fig. 38. Site 11. View from south, March 2019 (photo by L. Vagalinski)

Fig. 39. Sites 10 and 12. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 40. Sites 10 and 12. The area covered marked by polygons with visualised numbers and background maps with hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 41. Site 10. View from south, March 2019 (photo by L. Vagalinski)

Fig. 42. Site 12. View from east, March 2019 (photo by L. Vagalinski)

Fig. 43. Site 12. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)

Fig. 44. Site 13. Recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

Fig. 45. Site 13. View from east, March 2019 (photo by L. Vagalinski)

Fig. 46. Site 14. View from south, March 2018 (photo by N. Kecheva)

Fig. 47. Site 15. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background map use hillshade derived from airborne laser scanning data (figure by N. Kecheva)

Fig. 48. Site 15. View from the northeast, March 2019 (photo by L. Vagalinski)

Fig. 49. Sites 16, 27 and 28. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

Fig. 50. Site 16. View from south, March 2019 (photo by L. Vagalinski)

Fig. 51. Site 17. The area covered by concentrations of quantities of handmade and wheel made pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

Fig. 52. Site 17. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)

Fig. 53. Site 17. View from east, March 2019 (photo by N. Kecheva)

Fig. 54. Site 17. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)

Fig. 55. Site 18. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

Fig. 56. Site 18. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)

Fig. 57. Site 18. View from south, March 2019 (photo by N. Kecheva)

Fig. 58. Site 18. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)

Fig. 59. Sites 19 and 38. The area covered by concentrations of quantities of handmade and wheel made pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; geomorphological coring – in black triangles. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

Fig. 60. Sites 19 and 38. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)

Fig. 61. Site 19. View from west, March 2019 (photo by L. Vagalinski)
Fig. 62. Site 19. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)
Fig. 63. Site 19. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)
Fig. 64. Site 19. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)
Fig. 65. Sites 20 and 36. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 66. Sites 20 and 36. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 67. Site 20. View from north, March 2019 (photo by L. Vagalinski)
Fig. 68. Site 20. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)
Fig. 69. Site 20. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)
Fig. 70. Sites 21, 22, 24 and 36. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 71. Sites 21, 22, 24 and 36. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 72. Site 21. View from north, March 2019 (photo by L. Vagalinski)
Fig. 73. Site 21. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)
Fig. 74. Site 22. View from south, March 2019 (photo by L. Vagalinski)
Fig. 75. Site 22. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)
Fig. 76. Site 23. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – a road – as a green dot. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 77. Site 23. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 78. Site 23. View from the southwest, April 2019 (photo by L. Vagalinski)
Fig. 79. Site 23. View from east, April 2019 (photo by N. Kecheva)
Fig. 80. Site 24. View from the northeast, April 2019 (photo by N. Kecheva)
Fig. 81. Site 24. Part of the collected diagnostic pottery fragments, April 2019 (photo by S. Conrad)
Fig. 82. Site 24. Part of the collected diagnostic pottery fragments, April 2019 (photo by S. Conrad)
Fig. 83. Sites 25 and 26. Recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 84. Sites 25 and 26. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 85. Site 25. View from north, April 2019 (photo by L. Vagalinski)
Fig. 86. Site 26. View from north, April 2019 (photo L. Vagalinski)
Fig. 87. Site 26. Collected pottery fragments, April 2019 (photo by S. Conrad)
Fig. 88. Site 27. View from north, April 2019 (photo L. Vagalinski)
Fig. 89. Site 27. Some of the looter trenches, view from the northeast, April 2019 (photo L. Vagalinski)
Fig. 90. Site 28. View from south, April 2019 (photo L. Vagalinski)
Fig. 91. Site 28. Concrete pools and a cage connected with hydration processes in the southwestern part of the mound, April 2019 (photo L. Vagalinski)
Fig. 92. Sites 29, 30, 31 and 32. Recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and soviet headquarters topographic maps created during the 1980s in scale 1:50 000 (figure by N. Kecheva)
Fig. 93. Site 29. View from east, April 2019 (photo L. Vagalinski)

Fig. 94. Site 29. Collected pottery fragments, April 2019 (photo by S. Conrad)
Fig. 95. Site 30. View from east, April 2019 (photo L. Vagalinski)
Fig. 96. Site 31. View from west, April 2019 (photo L. Vagalinski)
Fig. 97. Site 31. Collected pottery fragment, April 2019 (photo by S. Conrad)
Fig. 98. Site 32. View from south, April 2019 (photo L. Vagalinski)
Fig. 99. Sites 33, 34 and 35. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 100. Sites 33, 34 and 35. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 101. Site 33. View from the southeast, April 2019 (photo by L. Vagalinski)
Fig. 102. Site 34. View from the northeast, April 2019 (photo by N. Kecheva)
Fig. 103. Site 34. Part of the collected diagnostic pottery fragments, April 2019 (photo by S. Conrad)
Fig. 104. Site 35. View from the southwest, April 2019 (photo by L. Vagalinski)
Fig. 105. Site 35. Collected pottery fragments, April 2019 (photo by S. Conrad)
Fig. 106. Site 36. Part of the collected diagnostic pottery fragments, April 2019 (photo by S. Conrad)
Fig. 107. Site 37. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 108. Site 37. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)
Fig. 109. Site 37. View from the northeast, April 2019 (photo by L. Vagalinski)
Fig. 110. Site 37. Part of the collected diagnostic pottery fragments, April 2019 (photo by S. Conrad)

LIST OF TABLES

10. INTERDISCIPLINARY RESEARCH

10.1. A bronze knife from site 3

Raiko Krauß, Ernst Pernicka

Table 1. Major and trace element concentrations according to energy-dispersive XRF. Copper is the matrix element. All concentrations are given in mass percent

Table 2. Lead isotope ratios according to MC-ICP-MS analysis

10.2. Chipped-stone assemblages

Maria Gurova

Table 1. General structure of studied assemblages

Table 2. General structure of the assemblage coming from the survey

Table 3. Site 1 by polygons' assemblages

Table 4. Tool type frequency of the assemblages from site 1

Table 5. General structure of the assemblage coming from the excavations

Table 6. General structure of the assemblage coming from Trench 1.1-E

Table 7. General structure of the assemblage coming from Trench 1.1-W

Table 8. General structure of the assemblage coming from Trench 1.2

Table 9. Tool type frequency of the assemblages from the trenches

Table 10. Functions and worked materials identified by use-wear analysis in relation to the used artefacts

10.3. Archaeozoological analysis of the animal remains

Nadezhda Karastoyanova

Table 1. The animal remains distribution by the number of identified species (NISP) and a minimum number of individuals (MNI) at Tash Bair across different periods

Table 2. Measurements of bones across different periods in Tash Bair (von den Driesch 1976) – Mt (metatarsal bone); Mc (metacarpal bone); Ph 1 A (proximal phalange anterior); Ph 1 P (proximal phalange posterior); Ph 2 P (medial phalange posterior); Ph 3 (distal phalange)

10.4. Human remains from a pit at site 5

Victoria Russeva

Table 1. Long bones of limbs. Available measurements in mm

12. CATALOGUE OF THE ARCHAEOLOGICAL SITES

Nadezhda Kecheva, Lyudmil Vagalinski, Sven Conrad, Lyuba Traykova, Silva Sabkova

Table 1. Table showing attributes of sites and polygons: counted artefacts on the field (columns 2–8) and post-processed collected diagnostic pottery fragments (columns 9–24) per a site and per a polygon (cf. chapter 5.2, chapter 7, chapter 9.1)

10. INTERDISCIPLINARY RESEARCH

10.1. A BRONZE KNIFE FROM SITE 3

Raiko Krauß, Ernst Pernicka

A small bronze knife derives from feature 3.2.1 inside the circular double enclosure (fig. 1; SF 53). The object has a straight back that continues into a short, blunt tang that is slightly thickened at the end. Already in the area of the blade, the back bends very slightly towards the tang. The blade is curved on the cutting side and tapers towards the tip. The knife is wedge-shaped in cross-section. Tang and blade merge smoothly. Including the handle, the knife is 6.9 cm long and the blade has a maximum width of 0.9 cm. At the back the piece is 0.3 cm thick. On recovery, the blade was bent approximately at a right angle and broke into two parts. The surface of the knife is covered with a greenish patina.



Fig. 1. Bronze knife from feature 3.2.1 at Tash Bair (photos by R. Krauß)

Typologically, the piece matches a number of other knives from the Middle and Late Bronze Age in Bulgaria with the common feature of the short, massive tang (fig. 2). The best parallels of our find are two knives from Ada Tepe (fig. 2.1–2). The back and edge of the piece from Ovcha Mogila are more curved. Only the back of the knife from the Emen cave is completely preserved so that the restored blade provides only an imprecise impression of its original shape (fig. 2.5). The tang is slightly notched at the end of the smaller knife from Ada Tepe (fig. 2.1) and the piece from the hoard of Ovcha Mogila (fig. 2.4). One wonders how these knives were hafted, since the very short and also slightly thickened tang can hardly be firmly anchored in a handle. In addition to the blade of a knife from Dabene, two cuffs made of gold sheet have been preserved (fig. 2.6), which suggest that the possibly existing handles could also have been secured with sheet metal rollers or wire. But it is also possible that these knives were not hilted at all, because the tangs themselves are easy to be used as handles. The bronze knives of the Balkans have not yet been systematically compiled and classified. Only the razors were presented (Weber 1996), from which the knives can be clearly distinguished due to their shape. E. Chernykh only distinguished curved shapes with a flanged back (H-16) from those with a straight back (H-18) (Черных 1978, 234–236). Within the Hohlbein system, the Bulgarian tanged knives are close to the Stillfried type (Hohlbein 2016, 349–364).

In order to classify our piece in terms of cultural history, it was initially important to determine the metal composition of the knife. For this purpose, the object was first examined by Evrotest-Kontrol AD in Sofia where it was found to consist of tin bronze. In the restoration laboratory of the NAIM–BAS, Petya Penkova then lifted a small chip with a scalpel, which was given to the Curt-Engelhorn-Centre of Archaeometry in Mannheim for further investigations. The trace elements were then determined by EDXRF (Lutz, Pernicka 1996). The tin content of 10.6% in the alloy could be confirmed (table 1).



Fig. 2. Knives from the Bulgarian Middle and Late Bronze Age. 1–2 Ada Tepe, 3 Tash Bair, 4 Ovcha Mogila, 5 Emen cave, 6 Dabene (1–2, 4–6 – Alexandrov et al. 2018b, 514, 510, 534, 472, 464; 3 – photo by R. Krauß)

Table 1. Major and trace element concentrations according to energy-dispersive XRF. Copper is the matrix element. All concentrations are given in mass percent

Lab No.	Fe	Co	Ni	Zn	As	Se	Ag	Sn	Sb	Te	Pb	Bi
MA-200006	0.10	0.03	0.62	<0.1	0.34	<0,01	0,042	10.6	0.276	<0.005	0.30	0.008

To investigate the possible origin of the copper lead isotope ratios were determined with multi-collector ICP mass spectrometry. For methodological details see Nørgaard et al. (2019). It turned out that the lead isotope ratios in the piece have no equivalents in Bulgaria or the Aegean (fig. 3). This suggests that the copper derives from other regions, the most likely one being the eastern Alpine region, where copper ores of similar chemical composition and with similar lead isotope ratios were mined in the central European Bronze Age (Pernicka et al. 2016). This observation is remarkable in view of the rich copper deposits in the Balkans, but by no means unusual for the Late Bronze Age of this region. While in the Chalcolithic up to the Early Bronze Age copper was still largely supplied from regional sources, in the second half of the 2nd millennium BC an integration of the Balkans into the large networks of the circum-Mediterranean exchange of copper can be recognised (Athanassov et al. 2020). The significant

amount of tin in the knife and the isotope ratios of the lead are in themselves a clear indication of the knife dating to the late Bronze Age (table 2). An even better match is provided by Late Bronze Age metal objects from the western and central Balkans (Gavranović et al. 2022). Based on comprehensive chemical and lead isotope analysis the authors conclude that the geochemical characteristics of the metal objects closely match with ore deposits in the southern Alps (northern Italy). The knive of Tash Bair corresponds geochemically particularly well with objects dated to the early stages of the Urnfield period BA D–Ha A1 (14th–12th century BC) and BA Ha A2–Ha B1 (11th–10th century BC), thus corroborating the above conclusion.

Table 2. Lead isotope ratios according to MC-ICP-MS analysis

Lab No.	$^{208}Pb/^{206}Pb$	$^{207}Pb/^{206}Pb$	$^{206}Pb/^{204}Pb$	$^{207}Pb/^{204}Pb$	$^{208}Pb/^{204}Pb$
MA-200006	2.1015	0.85581	18.303	15.664	38.463

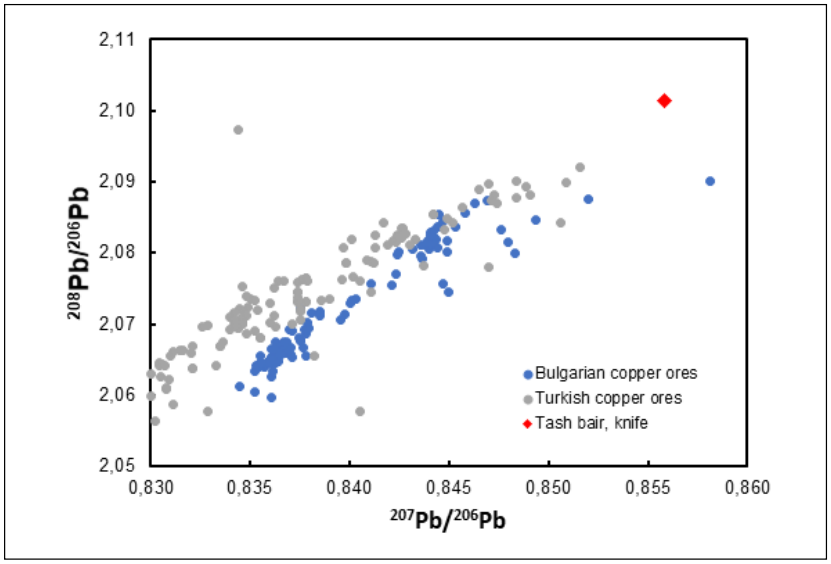


Fig. 3. Lead isotope ratios of the knife from Tash Bair compared with copper ores from Bulgaria (Pernicka et al. 1997, Stos-Gale et al. 1998, Amov 1999) and Turkey (Seeliger et al. 1985, Wagner et al. 1985, Wagner et al. 1986, Yener et al. 1991) (figure by E. Pernicka)

The knife was found in a layer with mixed inventory of the Middle and Late Bronze Ages (fig. 4). Two samples were taken from the corresponding layer for radiocarbon dating. Sample TB 5 (Poz-115804: 3100 ± 30 BP) from an animal bone that cannot be taxonomically determined corresponds with its calibrated date range of 1450–1290 calBC roughly to the archaeological expectation for the Late Bronze Age. The second sample (charcoal) TB 4 (Poz-115331: 2990 ± 30) is even a little younger with 1350–1110 calBC.

All these observations suggest a chronological position of the bronze knife to the transitional period between the 14th and 13th century BC. The double circular enclosure built at the beginning of

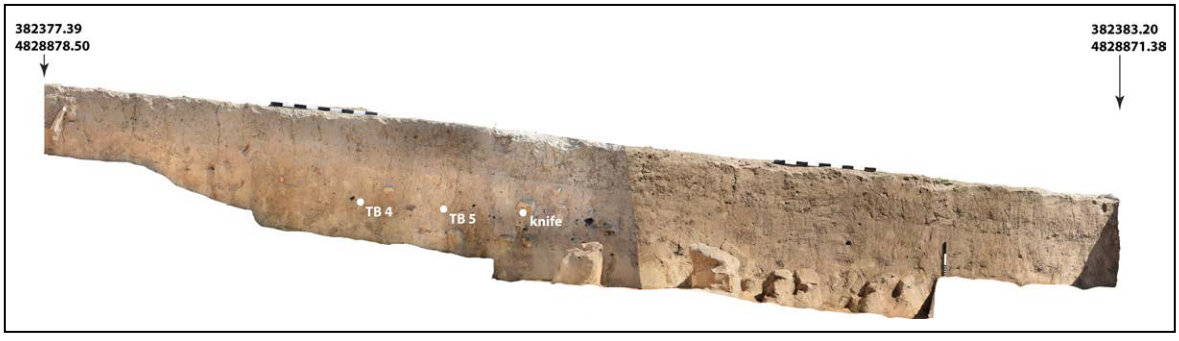


Fig. 4. Stratigraphic position of the bronze knife and the two radiocarbon samples within feature 3.2.1. Orthophoto obtained from a SfM model (by M. Offermann) with additions (figure by S. Conrad)

the 2nd millennium BC was possibly still in use at this time. At least the ditches should still have been clearly visible in the landscape. Feature 3.1 also provides an indication of settlement activities in the ring enclosure, the ^{14}C data also points to use during the end of the 2nd millennium BC by the Zimnicea-Plovdiv-Cherkovna group in the Eastern Balkans. Only a few metal finds are known from the eponymous graveyard at Zimnicea, two bronze Lockenringe and a small bronze wire (Alexandrescu 1973, fig. 1). The settlement system of the Late Bronze Age in the entire area on the lower reaches of the Danube has been relatively poorly researched, and there are no metal finds which can be reliably identified as coming from the known sites. What remains are the metal hoards, two of which, Emen and Ovcha Mogila, also included knives. A few years ago, arguments had been put forward for dating the Ovcha Mogila hoard in the horizon of Br C2/LH IIIa (Krauß 2005). The Late Bronze Age materials from the Tash Bair should date somewhat later. In regard to the development of knives, the type with a more curved back and convex cutting edge from Ovcha Mogila should be earlier than the type with a straight back and only very slightly curved cutting edge from Tash Bair. Such a development also corresponds to that in central Europe; where the types with a curved back occur at the beginning followed by pieces with a straight back (Říhovský 1972; Jiráň 2002; Hohlbein 2016).

БРОНЗОВ НОЖ ОТ ОБЕКТ 3

Райко Краус, Ернст Перницка

(Резюме)

Малък бронзов нож с дължина 6,9 см, ширина 0,9 см и дебелина на гърба от максимум 0,3 см произхожда от контекст 3.2.1. Типологично предметът може да се сравни с някои ножове от средната и късната бронзова епоха от България. EDXRF анализ, проведен в Центъра по археометрия „Курт-Енгелхорн“ в Манхайм, определя съдържание на калай в предмета от 10,6%. За да се определи произходът на медната руда, изотопите на оловото в ножа също бяха определени с помощта на ICP масспектрометрия. Резултатът показва, че медта произхожда от източници в Източните Алпи.

Контекстът на находката е смесен пласт, който може да бъде датиран в края на XIV и XIII в. пр. Хр. чрез радиовъглеродни дати. Кръглият ров от бронзовата епоха, изграден в началото на II хил. пр. Хр., трябва да е бил поне частично отворен и се използва по това време.

10.2. CHIPPED-STONE ASSEMBLAGES

Maria Gurova

Introduction

The chipped-stone assemblages from the Tash Bair investigation, submitted to me for study, includes 1426 artefacts. The lithic finds mainly came from two different contexts: 1) unstratified material from the 2018–2019 survey, carried out with a strict protocol and methodology of GIS AKB system applied to the field prospections; 2) 'stratified' (in a quite relative sense) artefacts from the 2019 excavation of three Trenches, where various features attributed to different chrono-cultural contexts have been distinguished by the excavators.

The applied analytical procedure comprises techno-typological and functional analysis (the latter is restricted to the excavated assemblages), and subsequent interpretation. The assemblages are presented consecutively starting with those from the survey, followed by the collections coming from the excavations. The analytical results and general observations on the assemblages follow their description and provide a comparative perspective between different assemblages from the distinct survey and excavations features. Some general notes on comparing the two main contexts (survey and excavations) are made as well.

The general structure of the whole studied collection is presented in table 1. The striking disproportion between both assemblages is obvious. However there are parallel trends in the ratio of different artefact categories: the debitage is pronouncedly prevailing, the blades in both cases are approximately seven times smaller in number compared with fragments plus flakes; the typological tools represent 13% of the whole assemble in the case of excavated material, and 8.4% in the survey assemblage (i.e. they are not negligible within the bulk of artefacts).

Table 1. General structure of studied assemblages

Context	Tools	Blades	Flakes	Fragments & chips	Cores	Varia	Total
Survey	99	136	315	594	13	14	**1171**
Excavations	33	19	93	92	7	11	**255**
Total	**132**	**155**	**408**	**686**	**20**	**25**	**1426**

Raw materials and procurement strategy

My notes on the visually/macroscopically distinguishable raw materials are unavoidably influenced by the results of prospections made in 2012 in NE Bulgaria (Razgrad and Ruse districts) focusing on the identification of raw material outcrops and archaeological sites (eventually related to the outcrops) (Гюрова et al. 2013a; 2013b). Our raw material research in 2012 was followed by micropetrographic and chemical analysis by LA-ICP-MS, and subsequently published. This offered a basis for comparative analysis with similar studies at a broader scale (Andreeva et al. 2014). One more relevant study (following the same analytical procedure) was published, based on a survey in the central and western parts of north Bulgaria (Gurova et al. 2016). The paper relating to raw material provenance study in Shumen district has been recently published as well (Gurova et al. 2022). In the context of accumulated knowledge and experience, the raw materials of Tash Bair assemblages show a noticeable diversity (figs. 1–4, 9–12). It is nonsense to provide macroscopic descriptions of the flint variety, however no specific archaeometric analyses were carried out for certain identification of artefacts' raw materials and their provenance. What is observed and should be generally affirmed is the presence of: i) Ludogorie flint (with Lower Cretaceous age and numerous secondary placer deposits) in its variety of Ravno and Kriva Reka types, the flint identified in the quarry of Tetovo is attested as well; ii) low quality grey-blackish flint in primary position in the limestones of Kovachevska formation; iii) Balkan flint (with Upper Cretaceous age and

numerous outcrops in Nikopol and Pleven districts) in its common yellow-brownish colour and white spots, but also in white-spotted beige-greyish colour.

There is no obvious preference in the raw materials used for different artefact categories. The debitage is very abundant in quantity and various flint raw materials are attested. The tools are more informative in this regard and once again – a variety of flint was used for their manufacture (figs. 4; 10.2; 12.1). Among the tools, neither items of law quality blackish flint of Kovachevska formation, nor silicified limestone (no 'finished' flint) are present. However, both of these materials are largely attested within the debitage. This kind of preferential use of higher quality flints for tools fashioning is natural and logical, particularly in the cases of local and easily accessible high-quality flint sources. The numerous assemblages of the multilayer site of Gortalovo is a good example; with tools made of Balkan flints (from the local Upper Cretaceous Mezdra Siliceous-Carbonate formation) and debitage which shows prevalence of silicified limestone (Чохаджиев et al. 2020).

The cores are directly related to the knapping activity and in this regard, they indicate chosen raw materials involved into the 'chaîne opératoire'. Although there are few cores in the assemblages, they are significant as they represent technological patterns of the industry, and the raw materials which were acquired and brought on the site for further exploitation. Small blade cores of Balkan flint (or of visually very close to it Shumen I type) are registered, indicating Late Neolithic chrono-cultural context (fig. 1.1–2). On the other hand, bigger and better maintained blade core of Ravno type of flint is most likely belonging to the Chalcolithic and Post-Chacolithic techno-complex (fig. 1.3). More about the main trends in raw material late prehistoric networks in the territory of present-day Bulgaria can be found in a couple of publications (Andreeva et al. 2014; Gatsov, Nedelcheva 2009; Gurova 2011; Gurova, Nachev 2008; Gurova et al. 2016).

Only a small assemblage from site 4 (survey in 2018) was affected by heavy patina of the artefacts (fig. 2.3). Almost all artefacts are made of coarse-grained raw materials with low knappable properties.

Despite the lack of specific geological investigations of the flint variety on site, there is undoubtedly reason to presume an active local, regional and long-distance (more than 100 km) flint exchange network, taking place during the life-span of the site. This effective flint distribution system was active in north Bulgaria from the very Early Neolithic (Gurova 2018a; Gurova, Bonsall 2014a).

Assemblages from the field survey (seasons 2018–2019)

As aforementioned, the assemblage of the systematic field survey is quantitatively much more representative (ratio 1171:255) than the assemblage coming from the excavated trenches. Moreover, there are some unique but highly diagnostic artefacts (tools) which provide much more about the chrono-cultural context than the hundreds of amorphous debitage pieces (as shown in table 4).

There are methodological constraints in the serious consideration and interpretation of prospection finds due to them being out of context. However, in the case of Tash Bair the surveys are conducted professionally with precise pick-up of finds and detailed recording of spatial distribution. The numerous distinct polygons with different concentration and intensity of finds allow the subsequent distinction of sites, which deserve systematic archaeological investigation via excavations.

It should be stressed here that several precedent infrastructure projects led to a large-scale archaeological surveys and excavations: Nabuco, South stream and North gaz pipeline routes, several highway routes etc. As a result, hundreds of sites were identified and many of them were excavated. In the process of accumulating and interpreting the prospection materials, the study of flint artefacts is essential as they are the best preserved (most resistant to the impact of natural factors). I gained noticeable experience in studying survey flint assemblages and the results show unequivocally that their consideration and presentation alongside the other features of the material culture is of great significance (Гюрова 2012, 2013, 2016)

Turning to Tash Bair, it is clear that the portion of site 1 assemblages within the whole amount of survey flint artefacts is 93.5% (table 2). This is the reason the assemblage is presented bellow in more

detail, following the distinction of polygons. The other sites are mentioned only in the cases where there is/are significant find(s) among them.

Only techno-typological analysis has been made and the summarized results are presented below. There are several pieces with visually detectable signs of utilisation (mainly cereal polish on sickle inserts). When such traces are obvious, and difficult to be mistaken, there are briefly mentioned and fixed on the drawings. No microscopic use-wear analysis was conducted due to survey flint artefacts being subjected to many surface/aerial and taphonomic impacts which affect the micro use-wear traces and decrease the reliability of the functional identification of the artefacts.

The techno-typological description is based on the following classification/ differentiation:

– typological tools;

– debitage which consists of:

a) blades (fragments included);

b) flakes (only entire pieces);

c) fragments – which are distinguished to flake fragment [(pieces without butts and proximal parts but with morphological parameters (shape and thickness) suggesting fragmented flakes] and undetermined fragments including chips (pieces smaller than 1 cm) and chunks – bigger fragments. In many studies this category of fragments is named debris;

– cores;

– varia (includes pieces beyond above mentioned groups).

Table 2. General structure of the assemblage coming from the survey

Context/ site	Tools	Blades	Flakes	Fragments & chips	Cores	Varia	Total
1	87	129	287	570	8	14	**1095**
2	3			1	1		**5**
4		2	15	10	1		**28**
5		1		3	1		**5**
12	1			1			**2**
18	1	1					**2**
19	2			1			**3**
20		2	1	1			**4**
21	2	1	2	1	1		**7**
24			4	1			**5**
34			1				**1**
Offsite polygons	3		5	5	1		**14**
Total	**99**	**136**	**315**	**594**	**13**	**14**	**1171**

1. Site 1 (figs. 1.1–2; 3; 4; 5.2–3; 6–8)

The structure of the assemblages from site 1 is presented in table 3, the tool frequency – in table 4. Most of the finds (94.4%) belong to five distinct polygons and only 62 pieces came from several small polygons which are treated together.

1.1. Polygon 7 (fig. 7)

1.1.1. Techno-typological description

– Typological tools (n=25): 10 endscrapers on flakes; 3 endscrapers on blades; 5 retouched blades (3 with unilateral and 2 with bilateral retouch); 1 backed piece; 1 splintered piece and 5 undetermined fragments of tools. The endscrapers on flakes prevail, their lengths are between 2 and 3.4 cm (fig. 7.5, 7–10, 12–13). Two of the tools are formed on cortical flakes (fig. 7.9, 12). It is worth noting that four

Table 3. Site 1 by polygons' assemblages

Context/ Polygons	Tools	Blades	Flakes	Fragments & chips	Cores	Varia	Total
7	25	44	91	154	4	4	**322**
8	20	26	78	148	2	3	**277**
187	19	11	30	94		3	**157**
188	13	24	47	77	1	1	**163**
189	4	15	24	67	1	3	**114**
Other polygons	6	9	17	30			**62**
Total	**87**	**129**	**287**	**570**	**8**	**14**	**1095**

of these are double endscrapers (fig. 7.7–9, 13) of which one (the latest on fig. 7) is more truncated than simply a front-fashioned tool, but in the context of the series of endscrapers on flake this tool is treated in this typological group. Some endscrapers on blades have an oblique front (fig. 7.1), and others have a convex front, both in some cases fashioned by a lamelar retouch (fig. 7.4). Among the retouched blades, there is one with an interesting dorsal surface which has three negative ridges and four-sides – traits indicating evolved blade removal technique, which could be related with Chalcolithic specialised blade production (fig. 7.6). There is a splintered tool on blade – unipolar and bifacial (fig. 7.3) and an interesting and diagnostic tool – backed piece fashioned of janus (kombewa) flake with step anvil retouch (abrupt croisée, FR) (fig. 7.2). The unretouched edge possesses a shiny parallel polish which is typical for the sickle blades. This type of sickle is common in the BA with frequent, but already reminiscent use in the IA (see for ex. Чохаджиев et al. 2020, fig. 5);

– Blades (n=44) as follows: 31 mesial, 9 proximal and 3 distal fragments, and 1 intact blade. Among the butts of proximal fragments there are 8 single blow/flat butts and 1 linear/ punctiform. The ratio between the trapezoidal and triangular sections is 24:20. Average dimensions are: length = 1.3 + 4 cm; width 1.4 + 1.1 cm; and thickness = 0.3 + 0.4 cm. The single intact blade is in fact a bladelet with dimensions 2.1 × 0.6 × 0.3 cm. In general, most numerous are the short blade fragments (up to 3 cm in length);

– Flakes (n=91), with strong prevalence of pieces between 1.5 and 4 cm, 3 items between 4 and 6 cm and 3 small flakes (< 1.5 cm). The butts are mainly single blow (n=51), indicating flat striking platform of the cores from which the flakes are removed. Rarely natural and broken butts are presented. There are 6 cortical/ primary flakes, related with initial stage of the core maintenance and exploitation and one of them is totally covered with cortex. In general, the flakes are amorphous in shape;

– Fragments (n=154), of which the majority (n=89) are flake fragments, the rest (n= 65) are undetermined fragments (between 1.5 and 4 cm);

– The cores are very few (n=4), there are 2 single platform cores – 1 for blade and flakes and 1 – for bladelets. The latter is in a final stage of exploitation, but with a well-maintained striking platform and core angle (figs. 1.1; 7.11). Two core fragments with partially preserved removal surfaces are attested;

– Varia (n=4) consists of 2 massive flakes and 2 massive fragments with sporadic negatives of initial exploitation/ raw material testing.

1.2. Polygon 8 (fig. 8)

1.2.1. Techno-typological description

– Typological tools (n=20): 9 endscrapers on flakes;1 endscraper on blades; 5 retouched blades (3 with unilateral and 2 with bilateral retouch); 1 retouched flake; 1 denticulate, 1 arrowhead, 1 combined tool and 1 tool fragment. The endscrapers on flakes prevail and have small dimensions; one is semi-circular (fig. 8.4), one is a double endscraper (fig. 8.5), and one is on a cortical flake (fig. 8.3). The single endscraper on blade is on a large blade, its raw material is Ravno type of flint which may suggest that this tool belongs to the Chalcolithic technological tradition (fig. 8.7). Among the retouched blades, there is

one with bilateral ventral and discontinuous retouch on a relatively big blade (as blank) (fig. 8.8). The blade is regular, made of visually recognized Balkan flint and most likely belongs to the Early Neolithic or post-Late Neolithic industries. Another interesting retouched blade represents a core rejuvenation blade with marginal ventral retouch. The retouched edge possesses narrow and parallel shiny polish, resembling the cereal polish of BA and post-BA sickles (fig. 8.10). One blade has slightly denticulate retouch and therefore has been classified separately from the other retouched blades. There is a combined tool – burin on the fractured proximal part of an endscraper on flake (fig. 8.6). The most interesting and diagnostic tool is a small and delicate bifacial arrowhead with entirely covering retouch and with a deep concave base and fracture of one of the proximal ends (fig. 8.11). Close parallels of this arrowhead could be found in RBE assemblages (Гюрова 2001, and related comments and references in the following part 2. General observations).

– Blades (n=26) as follows: 23 mesial, 1 proximal (almost entire blade) and 2 distal fragments (fig. 8.1–2, 12). The butt of the single proximal fragment is single blow. The ratio between the trapezoidal and triangular sections is 18:8. Average dimensions are: length = 0.9 + 1.5 cm; width 0.8 + 1.5 cm; and thickness = 0.3 + 0.4 cm. The small dimensions of the blades are noticeable and suggest plausible Late Neolithic attribution. On the other hand, there is a mesial fragment (with pseudo retouch on the right edge) which based on the raw material, proportions and profile, could indicate a Chalcolithic technology of blade production (fig. 8.12). Two of the mesial fragments possess visually recognizable and slightly diagonal cereal polish on one working edge. These blades are most likely sickle inserts (fig. 8.2);

– Flakes (n=78), with strong prevalence of pieces between 1.5 and 4 cm, 8 items between 4 and 6 cm and 1 small flake (< 1.5 cm). The butts are mainly single blow (n=49), followed by linear, broken and natural butts. There are 6 cortical flakes. In general, the flakes are amorphous in shape;

– Fragments (n=148), majority of which (n=95) are flake fragments, the rest (n= 77) are undetermined fragments (between 1.5 and 4 cm);

– The cores are very scarce (n=2), both are single platform cores – 1 for flakes and 1 – micro core for bladelets. The latter is with flat striking platform and two adjacent removal surfaces. There is cortex on the opposite side of the large removal surface (figs. 1.2; 8.9);

– Varia (n=3) consists in 3 flint concretions (2 are tabular) with sporadic negatives of initial exploitation/ raw material testing.

1.3. Polygon 187

1.3.1. Techno-typological description

– Typological tools (n=19) of which: 7 endscrapers on flakes; 1 endscraper on blade; 6 retouched blades (1 with unilateral and 5 – with bilateral retouch); 2 perforators; 1 retouched flake, 1 splintered piece and 1 tool fragment. The endscrapers on flakes vary in length between 1.4 and 2.7 cm (fig. 6.2–3, 5). There is the smallest endsrcaper on flake (fig. 6.5) within the entire flint assemblage from Tash Bair – and it fits perfectly as a micro endscraper, which are hallmark of the Late Neolithic industry. The splintered piece is bifacial and bipolar, on a blade-like flake. The presence of two perforators is noticeable – both are on blade with irregular bilateral retouch without ventral distal negatives that could indicate rotative use as borer (fig. 6.4);

– Blades (n=11) as follows: 7 mesial, 2 proximal and 1 distal fragments, and 1 intact blade. The latest is an over passed piece with the biggest dimensions within all blades in the assemblages of Tash Bair (5.8 × 1.4 × 0.5 cm). The butts of the proximal fragments are single blow. The ratio between the trapezoidal and triangular sections is 7:4. Average dimensions are: length = 1.1 + 4.7 cm; width 1.3 + 0.3 cm; and thickness = 0.4 + 0.2 cm. Three mesial fragments possess visually recognizable diagonal cereal polish indicating the blades were used as sickle inserts with one working edge;

– Flakes (n=30), of which the pieces between 1.5 and 4 cm prevails; there are however 6 items between 4 and 6 cm. The butts are mainly broken (means undetermined) (n=15), followed by single blow, linear and natural butts. There are 6 cortical flakes. In general, the flakes are amorphous in shape;

– Fragments (n=94), of which less than the half (n=39) are flake fragments, the rest (n= 55) are undetermined fragments among which 5 chips;

– Varia (n=3) consists of 1 flint concretion with traces of initial exploitation (raw material testing); 1 round hammerstone/pestle and 1 cortical concretion with local use as hammerstone.

1.4. Polygon 188

1.4.1. Techno-typological description

– Typological tools (n=13) of which: 3 endscrapers on flakes; 2 retouched blades (1 with unilateral and 1 – with bilateral retouch); 1 truncated blade, 1 perforator; 1 retouched flake and 5 tool fragments. The endscrapers on flakes are very diverse in morpho-metrical parameters and retouching, one is very close to oblique truncations (fig. 6.6–7, 11). The truncated blade is fashioned on a massive blade, preserved at a short length (fig. 6.9). The most interesting tool represents a second series trimming blade with additional bilateral retouch on the proximal and distal parts. On the right edge the retouch is very steep to perpendicular (fig. 6.12);

– Blades (n=24) as follows: 15 mesial, 6 proximal and 3 distal fragments. All butts of the proximal fragments are single blow and indicate punch removal technique. The ratio between the trapezoidal and triangular sections is 19:5. Average dimensions are: length = 1 + 1.5 cm; width 0.8 + 1.5 cm; and thickness = 0.3 + 0.3 cm. One mesial fragment exhibits visually recognizable diagonal cereal polish indicating its use as sickle inserts with one working edge (fig. 6.8);

– Flakes (n=47), of which the pieces between 1.5 and 4 cm prevails there are however 2 items between 4 and 6 cm and 3 – smaller than 1.5 cm. The butts are mainly single blow (n=27), followed by linear, broken and natural. There are 9 cortical flakes. In general, the flakes are amorphous in shape;

– Fragments (n=77), of which less than the half (n=37) are flake fragments, the rest (n= 40) are undetermined fragments in the range of 2 to 4 cm;

– There is one single platform core for blade/bladelets, in an advanced stage of exploitation and two successively used adjacent flaking surfaces (fig. 6.10);

– Varia (n=1) consists in 1 round flint concretion used as hammerstone/pestle.

1.5. Polygon 189

1.5.1. Techno-typological description

– Typological tools (n=4) of which: 1 endscraper on flake; 1 retouched blade (with ventral unilateral retouch on the left edge); 1 splintered piece (unipolar bifacial) and 1 tool fragment. The endscraper is the most representative tool, fashioned on a massive primary flake, the front is almost straight with scalar retouch negatives (fig. 6.14);

– Blades (n=15) of which 11 mesial and 4 proximal fragments. All butts of the proximal fragments are single blow and indicate punch removal technique. The ratio between the trapezoidal and triangular sections is 9:6. Average dimensions are: length = 1.5 + 1.6 cm; width = 1.4 + 0.6 cm; and thickness = 0.3 + 0.5 cm. Two mesial fragments exhibit visually recognizable diagonal cereal polish indicating its use as sickle inserts with one working edge. One of them has sporadic utilisation scars on the ventral side (fig. 6.13);

– Flakes (n=24), all pieces between 1.5 and 4 cm in length. The single blow butts significantly prevail (n=18), followed by linear, natural and broken. There are only 2 cortical flakes. In general, the flakes are amorphous in shape;

– Fragments (n=67), approximately half of which (n=36) are flake fragments, the rest (n= 31) are undetermined fragments in the range of 2 to 4 cm;

– There is 1 single platform core for flakes made on massive flake where the ventral surface is used as a striking platform in the core reduction process;

– Varia (n=3) consists in 2 flint concretions with traces of initial exploitation (raw material testing) and 1 flat concretion with relict negatives of preceding removals and local use as hammerstone.

1.6. Other polygons (tables 3 and 4)

The small assemblage from other polygons (1–6; 181–185) does not deserve particular attention. However, to summary: all blades are fragmented – 7 mesial and 2 proximal fragments (with single blow

butts) with lengths between 1.5 and 2.6 cm. The tool repertoire is represented by 2 endscrapers on flakes (fig. 5.3), 2 blades with marginal unilateral retouch (in one case it is on the ventral side), 1 perforator on retouched blade (fig. 5.2) and 1 splintered piece (bifacial unipolar).

1.7. Other sites (table 2)

From the other sites (data included in table 2), site 2 contained the largest tool in the whole assemblage – a blade with irregular ventral retouch on the right edge. The preserved length of the blade is 8.7 cm but considering its width and thickness (4.3 × 1.5 cm) it is likely that the blade was originally approximately 15 cm (figs. 2.1; 5.1). Its morpho-metrical traits resemble the massive blade production of the BA, as seen in published studies (Сиракова 2006, Златева-Узунова 2005; Sirakova, Zlateva-Uzunova 2009, Gurova, 2020).

The second point of interest from site 2 is the single platform blade core with a conical shape, striking platform with signs of rejuvenation, cortex on a lateral side and two adjacent removal surfaces with blade negatives. There are traces of subsequent flake removals, marking the end of the core exploitation (fig. 5.4). The core is made of the highest type of Ludogorie raw material – Ravno type of flint. It does not represent the typical prismatic Chalcolithic cores for blade and big blade specialized production, however it is very likely it belongs to the Chalcolithic and Post-Chalcolithic (?) techno-complex (fig. 1.3). Parallels with some BA cores from the site of Osama (Pleven district) should not be omitted (Сиракова 2006).

2. General observations

The assemblages presented above came from various contexts (Bronze Age, Iron Age, Antiquity, Medieval Age) which were identified on the basis of pottery and other diagnostic finds. The flint assemblages are not among the priority factors/instruments for defining the chrono-cultural pattern of unstratified finds. My observations on the artefacts (grouped in polygon and site assemblages) are based on: i) the general structure of the assemblage(s); ii) evidence of features attributed to some particular technological and/or typological system/ complex; iii) series or even single items with certain diagnostic indication/ value.

The proportion of the artefact groups in the frame of the whole survey assemblage, as well as within the separately above presented polygon assemblages, do not allow the defining and describing of any structured 'chaîne opératoire'. The cores are not representative either as quantity or as characteristic of the applied core reduction system. What is certain is that no evidence of bipolar knapping is attested, either on cores themselves, or on the dorsal patterns of the removed blanks. None of the cores could be related with direct by-products of removal – even the best-preserved small core for blade/bladelets. The primary flakes (incl. fragments of them) are too scarce to be considered as evidence of *in situ* core fashioning (mise en forme, FR) and subsequently maintaining by rejuvenation.

The striking prevalence of the flakes and fragments (debris) allows assuming that industry based on flake production has been functioning in all distinct contexts where the flints took place and where they came from. The flake butts and the presence of hammerstones indicate direct percussion for flake removal.

As for the blades – in spite of the low number of preserved butts, they suggest that indirect percussion (punch technique) was applied. Morpho-metrical parameters of the blades suggest direct percussion as well, yet there is no single sign of pressure blade debitage. The blades reveal one of the main subsistence activities in the past – agriculture. There are 8 fragmented blades with unambiguous cereal polish, indicating use as sickle inserts in Karanovo type of sickle – a common practice during the whole Neolithic and Chalcolithic (Gurova 2018b). The blades themselves most likely belong to the Late Neolithic rather than to the Chalcolithic context, the latter characterized by a significantly more standardized and specialised blade production. On the other hand – 2 sickle blades from later periods are attested: the backed piece from polygon 7 (fig. 7.2) and a retouched blade from polygon 8 (fig. 8.10). Although indications of harvesting are not very frequent, they reveal a continuous agricultural practice as part of the subsistence activity of the prehistoric inhabitants.

Another aspect of food production is hidden in the so-called hammerstones which are commonly assumed to be involved in the knapping process. The hammerstones in the studies assemblage represent round flint concretions with different zones of use on their surfaces. The use for percussions is out of doubt, but there are evident traces of different, additional use. These traces at a macro level consist of smoothing, grain rounding, and levelling of the topography. Based on some detailed studies on the functional determination of the macro tools and without particular microscopic analyses of the specimens of Tash Bair, I would suggest some of the hammerstones are reused as pestles (grinders, broyons) involved in household activities such as food production (cereal grinding) mineral crushing or even polishing (Hamon 2014; Vučković, 2019). In a previous study a similar compatibility between hammerstones and endscrapers on flakes was attested within much smaller assemblages with a Late Neolithic contextual background (Гюрова 2012).

Table 4. Tool type frequency of the assemblages from site 1

Tools	**Pol. 7**	**Pol. 8**	**Pol. 187**	**Pol. 188**	**Pol. 189**	**Other Pol.**	**Total**
Endscraper on flake	10	9	7	3	1	2	**32**
Endscraper on blade	3	1	1				**5**
Retouched blade	5	5	6	2	1	2	**21**
Truncated blade				1			**1**
Perforator			2	1		1	**4**
Backed piece	1						**1**
Retouched flake		1	1	1			**3**
Denticulate		1					**1**
Splintered piece	1		1		1	1	**4**
Arrowhead		1					**1**
Combined tool		1					**1**
Tool fragment	5	1	1	5	1		**13**
Total	**25**	**20**	**19**	**13**	**4**	**5**	**87**

And finally – some observations and notes based on the diagnostic features in the typological repertoire. Besides the conservative character, the flint industry and derived products, have trends and traits with diagnostic value – something I have focused on for decades (Гюрова 2005). It became clear that hundreds of debitage pieces of the studied assemblage (more than 90%) are deprived of diagnostic characteristics (tables 1–3). On the other hand, there are tool categories or even single tools which could be contextually related and interpreted with significant degree of reliability (table 4).

The most numerous tools in the entire assemblage are the endscrapers on flakes (sometimes ovoid or circular) – for site 1 they represent 36.8% of all tools. In general, the endscrapers on flakes are very frequent in the Late Neolithic and represent its diagnostic feature. Some of them have small dimensions and could be interpreted as a product of the common microlithization of the chipped-stone industries during the Late Neolithic (together with the geometric micrioliths for ex.). In the specialised literature there are numerous well-argued publications on the Late Neolithic industry of the sites as Oussoe I (Скакун 1994; Gatsov 1990), Harmanli (Gurova 2010) and of the 'pit-field' structures/sites as Sarnevo for ex. (Гюрова 2017).

More intriguing are the isolated finds with higher diagnostic value. In the studied assemblage there are several artefacts which could belong to later periods. As aforementioned, some Bronze Age characteristics could be detected in a massive retouched blade from site 2, the blade core from the same

site, as well as the backed sickle blade from polygon 7 of site 1. The latter is even attested as sickle type in the Iron Age, as confirmed by current studies by the author.

The most important among the diagnostic artefacts is undoubtedly the fragmented arrowhead from polygon 8 of site 1 (figs. 3.3; 8.11). The bifacial retouched arrowheads are known from the Chalcolithic and their description and classification is made by K. Boyadzhiev (Бояджиев 2014). Under this typologization, this arrowhead represents the type VII – with convex lateral edges and concave base. However, the most common type of the Chalcolithic arrowheads is the one with a straight base (Бояджиев 2014, figs. 34 & 35). The arrowhead with concave base became more common and frequent in a later transitional period as documented in Hotnitsa-Vodopada (Sirakov, Tsonev 1995) and other sites (Сираков, Танева 2014). Similar arrowheads with certain EBA context are published from the Upper Thracian Plain (Златева-Узунова 2002, fig. 1.1; 2005, fig. 12.1, 14.14,16–17). The closest parallel with the arrowhead from Tash Bair are seemingly the items from Michalic (EBA II–III) (Гюрова 2001, Pl. 1.1, Pl. II.12). Unstratified arrowhead with similar shape and base (not obligatory identical as surface retouching) came from the survey near Balchik with other accompanying material from EBA II–III (Иванов et al. 2019, fig. 3) and the exaction of cemetery near Dupnitsa (Михайлов, Гюрова 2015). For me the EBA could be considered as *terminus post quem* for the concrete arrowhead.

Assemblages from the excavations in 2019

As mentioned above the flint artefacts from the excavations came from three Trenches with different features identified (in some cases consequently) by the excavators. The Trenches (1.1-E, 1.1-W and 1.2) are dug in the frame of the multilayer extended site 1, identified during the survey campaign and geomagnetic in 2018. The flint artefacts are presented accordingly with this distinction. The features are belonging to different chrono-cultural contexts, thus offering an opportunity for comparative trajectories.

The description of flint items follows the system of the already presented assemblage from the survey. The only novelty here is the use-wear analysis made of 60 pieces: 30 typological tools and 30 blanks with potentially promising working parts/edges which consist of 18 blades and 12 flakes. I think there is no need to argue why this better stratified assemblage was chosen, as it is more promising than the one from the survey for a proper microscopic functional analysis. The micro observation was conducted with the stereoscopic microscope MBS 10 (×100) and Keyence VHX-100 digital microscope (with magnification range from ×25 to ×150). The latter was used for the microphotographs, taken at ×100.

It should be stressed that the rounded flint concretions used as hammerstones and pestles are not included in the number of samples subjected to proper use-wear analysis. Their function is determined on the basis of naked eye observation and eventually under small magnification (up to ×20).

The general structure of the assemblage is presented in table 5. The three components of the whole assemblage are sufficiently comparable in number of artefacts, there is an acceptable number of typological tools in total, but unfortunately this number is negligible in the case of Trench 1.2, where features of the Late Neolithic are documented.

1. Trench 1.1-E (figs. 10.2; 11; 13.1–4; 14.6–10)

This Trench reveals 3 features (ditches) belonging to the Late Iron Age and Early Medieval Age. In the feature 1.1.6 Late Neolithic and Late Iron Age finds are attested. Features 1.1.7–8 are parts of

Table 5. General structure of the assemblage coming from the excavations

Context	Tools	Blades	Flakes	Fragments & chips	Cores	Varia	Total
Trench 1.1-E	17	3	22	45	3	5	**95**
Trench 1.1-W	12	6	27	15	2	3	**65**
Trench 1.2	4	10	44	32	2	3	**95**
Total	**33**	**19**	**93**	**92**	7	**11**	**255**

Table 6. General structure of the assemblage coming from Trench 1.1-E

Context	Tools	Blades	Flakes	Fragments & chips	Cores	Varia	Total
Trench 1.1-E	11	2	18	37	2	4	**74**
Feature 1.1.6	5		2	3	1	1	**12**
Features 1.1.7–8	1	1	2	5			**9**
Total	**17**	**3**	**22**	**45**	**3**	**4**	**95**

the Early Medieval ditch with mixed materials. As seen in the table there are artefacts (the majority of the collection) with no precise locations apart from indication 1.1-E, which means the pieces cannot be clearly located.

Table 6 shows the structure of the assemblage from this trench. The small number of blades is noticeable.

1.1. Trench 1.1-E assemblage (figs. 11; 14.6–10)

1.1.1. Techno-typological description

– Typological tools (n=11) of which: 5 endscrapers on flakes with length between 2.2 and 3.4 cm (fig. 14.7–9), one of the tools is semi-circular, on cortical flake (fig. 13.7); 3 retouched flakes – 2 cortical, all smaller than 3 cm and with irregular retouch on the edges; 3 splintered pieces, the biggest of which is bifacial and bipolar with partial dorsal cortex (fig. 14.6);

– Blades (n=2): 1 proximal and 1 mesial fragment with triangular sections (fig. 14.10). Average dimensions are: length = 2.5 + 0.2 cm; width 1.4 + 0.2 cm; and thickness = 0.4 cm;

– Flakes (n=18), with prevalence of pieces between 1.5 and 4 cm, and 4 items between 4 and 6 cm. The butts are mainly single blow, indicating flat striking platform of the cores of which the flakes are removed. There are 4 cortical/ primary flakes, related with initial stage of the core maintenance and exploitation;

– Fragments (n=37), of which 25 are flake fragments (2 of them are smaller of 1.5 cm). Eleven items are undetermined fragments or chunks (till 4 cm length);

– The cores are scarce (n=2), both for flakes, one is single platform core with max length of the removal surface – 3.6 cm, the second is exhausted and single platform core with 2 opposite removal surfaces;

– Varia (n=4) consists of 3 flint concretions with sporadic removals for raw material testing or very initial and abandoned exploitation and one fragmented flint concretion with traces of use as hammerstone and pestle.

1.1.2. Functional determination

There is only one artefact with detected traces of use – this is the proximal fragment of blades used as sickle insert with diagonal cereal polish (figs. 14.10; 16.d–f).

1.2. Feature 1.1.6 assemblage (figs. 10.2; 13.1–4)

1.2.1. Techno-typological description

– Typological tools (n=5), all of them are endscrapers on flakes (2 are blade-like flakes) (fig. 13.1–4). The fronts are oblique or symmetrically concave with semi abrupt retouch. The preserved butts of the flakes are single blow and indicate direct percussion;

– Flakes (n=2), one is cortical with natural butt and length exceeding 4 cm;

– Fragments (n=3) of which 2 are flake fragments and 1 is undetermined (chunk);

– There is one single platform flake core in advanced stage of reduction (fig. 10.2 – at the left);

– Varia consists in 1 fragmented flint concretion with heat/thermal impact.

1.2.2. Functional determination

There are no artefacts with detectable traces of use.

1.3. Features 1.1.7–8 assemblage

1.3.1. Techno-typological description

– The single tool represents an endscraper on cortical flake;

– There is one mesial fragment of blade (2.7 cm in length) with triangular section;

– Flakes (n=2), they are with flat butts and length not exceeding 4 cm;

– Fragments (n=5) of which 1 flake fragment and 4 undetermined chunks.

1.3.2. Functional determination

There are no artefacts with detectable traces of use.

2. Trench 1.1-W (figs. 12; 13.5–15)

This Trench reveals 6 features consisting in Late Iron Age and Early Medieval ditches, two pits with undefined chronology, and a feature with Late Neolithic material from medieval ramparts. The flint artefacts came from context 1.1-W without additional precision (the majority of the finds). Very few pieces belong to clearer context/feature: 2 artefacts from 1.1.11 and 5 – from 1.1.13–15 (presented together in table 7).

Table 7 shows the structure of the assemblage from this Trench with striking disproportion of materials coming from defined features and common Trench context (1.1-W).

Table 7. General structure of the assemblage coming from Trench 1.1-W

Context	Tools	Blades	Flakes	Fragments & chips	Cores	Varia	Total
Trench 1.1-W	12	6	22	15	1	2	**58**
Features 1.1.11–15			5		1	1	7
Total	**12**	**6**	**27**	**15**	**2**	**3**	**65**

2.1. Trench 1.1-W assemblage (figs. 12; 13.5–15)

2.1.1. Techno-typological description

– Typological tools (n=12) of which: 8 endscrapers – 5 on flakes (figs. 13.5, 10. 13–14), 2 on blades (figs. 13.11, 15 and 1 double endscraper on blade (blade-like flake); 2 retouched blades of which 1 with bilateral retouch and another – with unilateral retouch (fig. 13.8); 1 retouched flake – with slightly denticulated retouch on the transversal edge and 1 splintered piece (unipolar bifacial);

– Blades (n=6), represented by 1 proximal and 6 mesial fragments (fig. 13.6–7, 9). There are 5 trapezoidal vs 1 triangular section; average dimensions are: length = 2 + 0.8 cm; width 1.5 + 0.5 cm; and thickness = 0.3 + 0.4 cm;

– Flakes (n=22), with prevalence of pieces between 1.5 and 4 cm (n=16), followed by 4 items between 4 and 6 cm and 2 flake small flakes (up to 1.5 cm). The butts are mainly single blow, indicating flat striking platform of the cores of which the flakes are removed and 3 items with linear butts. There are 2 cortical flakes, related with initial stage of the core maintenance and exploitation;

– Fragments (n=15), of which 10 are flake fragments and 5 undetermined fragments or chunks (till 4 cm length);

– There is 1 exhausted single platform core for flakes with max. preserved length of the removal surface – 2.6 cm;

– Varia (n=2) consists in 2 flint concretions (fig. 12.3), 1 is complete and used as hammerstone and pestle, the second is fragmented with local zones of utilization as pestle.

2.1.2. Functional determination

There are 6 artefacts with traces of use – 3 blades and 3 endscrapers. Two mesial fragments of blades are used as sickle inserts: with one working edge (figs. 13.9; 15.e–f) and with two working edges (figs. 13.9; 15.c–d). The third used blade was serving for sawing bone with the left lateral edge (figs. 13.6; 15.b). The used tools consist in 3 enscrapers: 2 are used in hide processing – for scraping fresh hide with their fronts (figs. 13. 5 and 10; 15.g and h). The last endsraper shows lateral use for sawing medium hard material (bone).

2.2. Features 1.1.11–15

2.2.1. Techno-typological description

– There are 2 artefacts from the feature 1.1.11 – a burin spall and one fragmented flint hammerstone;

– There are 5 artefacts from feature 1.1.13–15: 4 flakes (1 cortical) with flat butts and length between 1.5 and 4 cm, and a fragment of blade core with 4.3 cm length of the preserved negatives of removed blanks.

2.2.2. Functional determination

There are no artefacts with detectable traces of use.

3. Trench 1.2 (figs. 9; 10.1; 14.1–5)

There are 4 features in this Trench: 1.2.5 represents a Medieval ditch with mixed material; features 1.2.4, 1.2.6 and 1.2.8 are identified as part of the Late Neolithic ditch. They comprise only debitage items with low diagnostic value and are presented together in table 6, and the descriptions can be found below. Similar to other trenches, there are artefacts only specifying that they came from Trench 1.2, without any additional precisions made (in this case 26% of all finds).

The general structure of the assemblage from this trench is presented in table 8 and it is worth noting that the small number of the typological tools all came from the feature with mixed material.

Table 8. General structure of the assemblage coming from Trench 1.2

Context	Tools	Blades	Flakes	Fragments & chips	Cores	Varia	Total
Trench 1.2		3	13	8		1	**25**
Feature 1.2.5	4	2	23	14	2	2	**47**
Features 1.2.4–8		5	8	10			**23**
Total	**4**	**10**	**44**	**32**	**2**	**3**	**95**

3.1. Trench 1.2 (fig. 9)

3.1.1. Techno-typological description

– Blades (n=3), mesial fragments with 2 triangular and 1 trapezoidal section, the average dimensions are: length = 1.5 + 1.3 cm; width 1.7 + 0.2 cm; and thickness = 0.3 + 0.4 cm;

– Flakes (n=13), with the prevalence of pieces between 1.5 and 4 cm (n=8), followed by 4 items between 4 and 6 cm and 1 flake exceeding 6 cm in length. There are 3 cortical pieces, the butts are flat (n=9), broken (n=3) and natural (n=1);

– Fragments (n=8), of which 5 flake fragments and 3 undetermined (chunks); all fragments are between 1.5 and 4 cm, 1 piece is cortical;

– Varia (n=1) consists of a fragment of flint concretion of Ravno type without evidence of initial exploitation.

3.1.2. Functional determination

One mesial fragment of blade is used in plant processing by unilateral cutting of Si rich plants (figs. 14.3; 16.c).

3.2. Feature 1.2.5 (fig. 10.1)

3.2.1. Techno-typological description

– Typological tools (n=4) consisting of: 3 endscrapers on blades and 1 fragment of undetermined tool (small part of a retouch edge preserved). Two endscrapers are fashioned on unretouched blades (fig. 14.1) while the third is quite interesting, with a straight front and bilateral retouch which in the proximal part is bifacial and gives a narrow shape to the tool (fig. 14.2). This mode of fashioning could suggest accommodation for hafting, but there are no use-wear traces on the front of the tool;

– Blades (n=2), mesial fragments with triangular and respectively trapezoidal section and very close dimensions: length = 1.5 cm and 1.7 cm, width = 1.6 cm and thickness = 0.5 cm;

– Flakes (n=23), with prevalence of pieces between 1.5 and 4 cm (n=18), followed by 3 items between 4 and 6 cm and 2 flake exceeding 6 cm in length. There are 4 cortical pieces and another 4 – with dihedral butts; the rest of butts are single blow and 3 broken;

– Fragments (n=14), of which 6 flake fragments and 8 undetermined (chunks); all fragments are between 1.5 and 4 cm, 1 piece is cortical;

– Cores (n=2), both are fragmented and for flakes. One of them is of Balkan Flint, in a final stage of reduction thus the removal negatives are from 1 to 1.5 cm. The second is preserved only with part of the removal/ flaking surface;

– Varia (n=2) consists of 2 flint concretions (hammerstones) – 1 is cylindrical with heavy carbonate deposit on all surfaces, the second is fragmented.

3.2.2. Functional determination

There is one piece with traces of utilisation – a mesial fragment of blade, used as sickle insert with one working edge (left one) (figs. 14.5; 16.a–b).

3.3. Features 1.2.4–8

3.3.1. Techno-typological description

– Blades (n=5), 1 proximal and 4 mesial fragments. Trapezoidal sections are 3 vs 2 triangular. The average dimensions are: length = 1.8 + 2.1 cm; width 1.3 + 1.1 cm; and thickness = 0.3 + 0.2 cm;

– Flakes (n=8), with prevalence of pieces between 1.5 and 4 cm (n=7), and a massive cortical flake exceeding 6 cm in length. The butts are flat (=6) and broken (=2);

– Fragments (n=10), of which 5 flake fragments and 5 undetermined (chunks); all fragments are between 1.5 and 4 cm with no cortical piece.

3.3.2. Functional determination

There are no artefacts with traces of use.

4. General observations

The assemblage presented above is obviously a heterogeneous complex – from portions of different assemblages coming from different chrono-cultural contexts. The data from tables 5, 9 and 10 allow the drawing of some observations, but did not offer the opportunity to conduct a reliable comparative analysis from a diachronic or synchronic perspective.

If the assemblage belongs to a stratified site/ household context, then the scarcity of well-maintained core, indicating active and efficient exploitation and the scarcity of the prismatic blades (with trapezoidal section), would suggest a flake-based industry where the blades are rather by-products of general flake technology. In the case of a heterogeneous assemblage of multilayer extended sites with different chrono-cultural contexts, the statistical data could be interpreted relevantly in such trajectory. No debitage croup reveal reliable series of artefacts with particular technological or metrical parameters which could allow distinction of diagnostic features.

There is no evidence of 'chaîne opératoire' sensu stricto. The presence of hammerstones, available cores and the abundance of flakes only suggest that these elements of a core reduction system had been used in unknown context which could not be reconstructed. The variety of raw materials indicate selective, but not discriminatory use of various flints in the process of expedient/ opportunistic production.

Taking into consideration the typological tool repertoire (table 9), the striking prevalence of the endscrapers on flakes have to be highlighted and commented on. With very few exceptions the endscrapers are on small to medium flakes (between 2 and 3.5 cm), some are semicircular or fan-shaped. As aforementioned, these features are characteristic of the Late Neolithic flint industry. The curious fact here is that the majority of these diagnostic tools came from Trenches 1.1-E and 1.1-W, where the main features belong to Iron and Medieval Ages. On the other hand, it is known that the flint production in the medieval context should be interpreted not as belonging to the proper craft specialisation and life-style of the Middle Ages. The flint artefacts were rather used as 'spolia' coming from preceding cultural strata.

Table 9. Tool type frequency of the assemblages from the trenches

Tools	Trench 1.1-E	Trench 1.1-W	Trench 1.2	Total
Endscraper on flake	11	5		**16**
Endscraper on blade		3	3	**6**
Retouched flake	3	1		**4**
Retouched blade		2		**2**
Splintered piece	3	1		**4**
Tool fragment			1	**1**
Total	**17**	**12**	**4**	**33**

Table 10. Functions and worked materials identified by use-wear analysis in relation to the used artefacts

Tools	Trench 1.1-E	Trench 1.1-W	Trench 1.2	Total
Sickle inserts	1 / blade	2 / blades	1/ blade	**4**
Cutting plant			1 / blade	**1**
Scraping hide		2 / endscrapers		**2**
Cutting bone		2 / endscraper and blade		**2**
Total	**1**	**6**	**2**	**9**

As for the scarcity of artefacts with micro-wear traces of use – it is easily explicable with the fact that there is no evidence of inhabitation and household patterns. It is a plausible hypothesis that most of the artefacts were just rejected/ discarded in the ditches. The aforementioned notes about the poli-functionality of the hammerstones from the survey assemblage, are also valid for the 3 specimens from Trench 1.1 (table 10).

Concluding remarks

Most of the concluding observations and remarks on the studied assemblages are presented above at the end of the descriptive parts of the paper.

In such large assemblage with eclectic combination of elements with different chrono-cultural significance, it is not easy to find a balance in presenting the artefacts. Because of this, I chose to provide a synopsis on each techno-typological group following the distinct features.

The assemblage from the survey is much more numerous and not surprisingly the most relevant observations about the general structure, techno-typological features and diagnostic finds were formulated on the basis of this, and particularly – on the basis of site 1.

Non-stratified collections often offer a rich repertoire of finds, however – not many relevant and reliable interpretations could be issued. Therefore, it is better to be moderate with definitive statements and be more specific when arguing observations and considerations.

Further investigations in the regions with more secure stratigraphic flint collections could significantly enrich the scope of lithic study, bringing a solid foundation for comparative synchronic and diachronic analysis.



Fig. 1. Single platform blade cores: 1 & 2 – for blades and bladelets (site 1); 3 – for blades (site 2) (photos M. Gurova)



Fig. 2. Massive artefacts from site 2 (1) and site 4 (2); patinated artefacts from site 4 (photos M. Gurova)



Fig. 3. Raw material aspect of blades and tools on blades from site 1 (1 & 2); 3 – arrowhead on flake (photos M. Gurova)

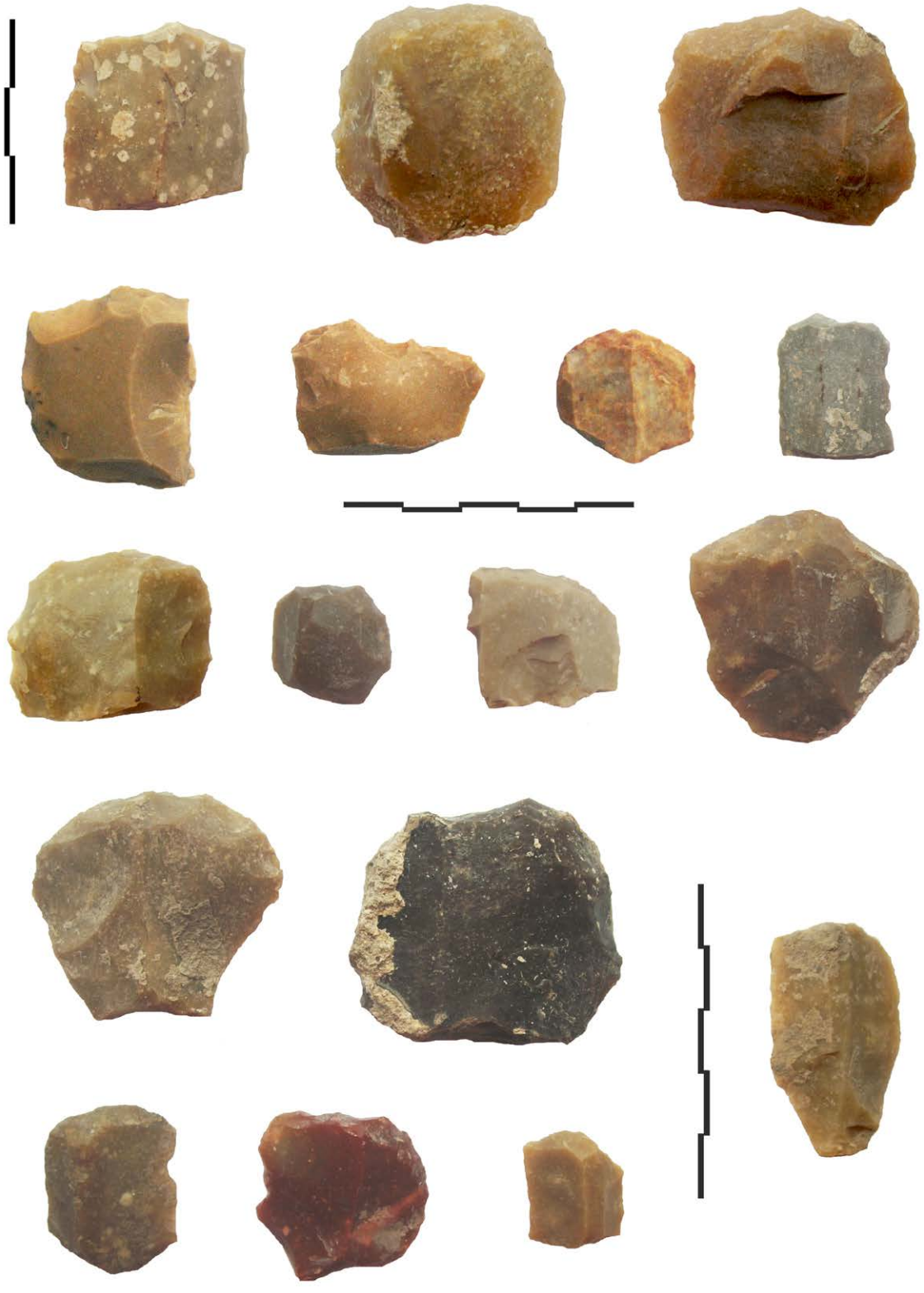


Fig. 4. Endscrapers from site 1 (photos M. Gurova)

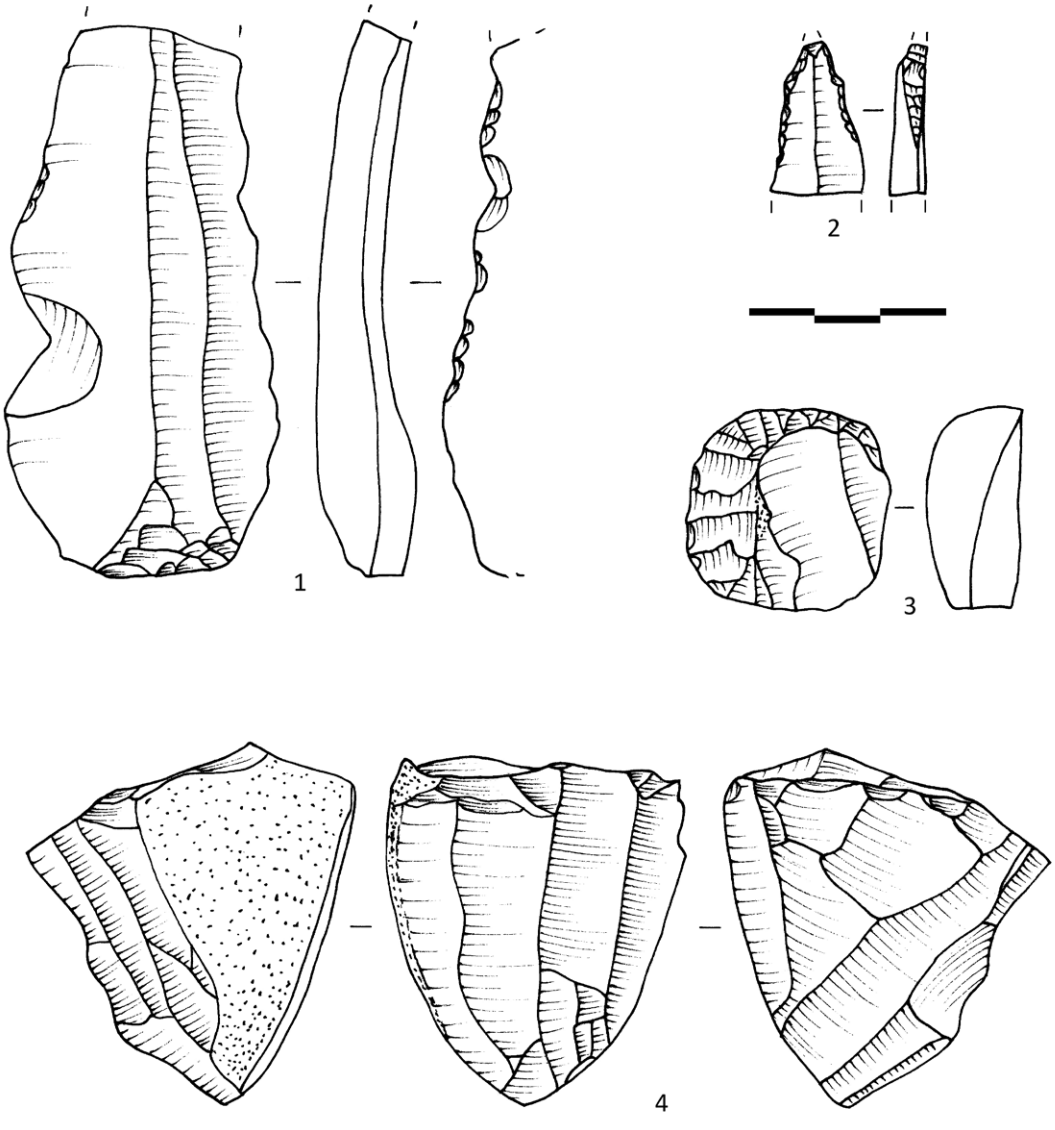


Fig. 5. Tools from site 1 (2 & 3) and site 2 (1); core from site 2 (4) (drawings M. Gurova)

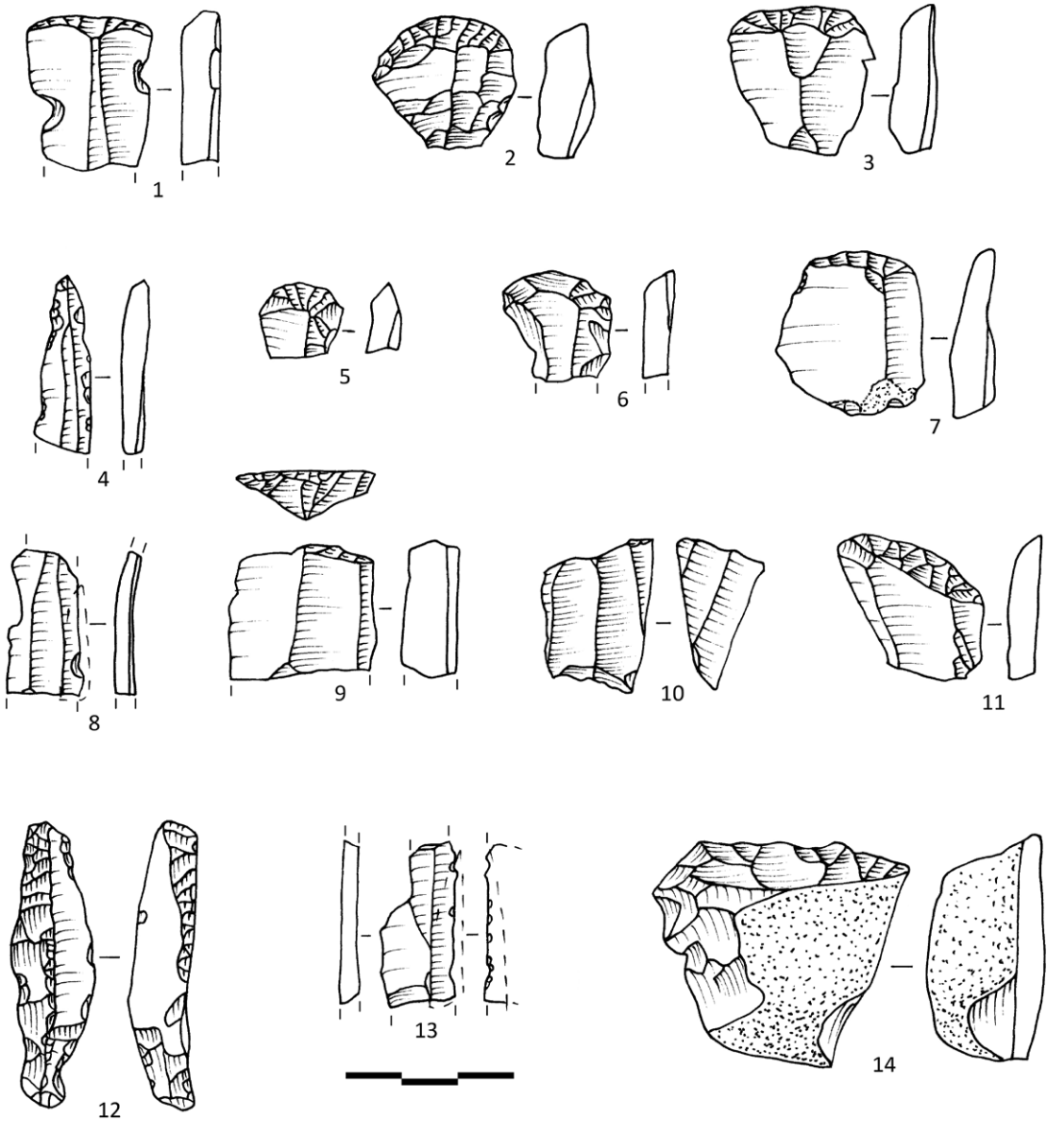


Fig. 6. Artefacts from site 1: core (10), blades (8, 13) and tools (1–7, 9, 11–12, 14) (drawings M. Gurova)

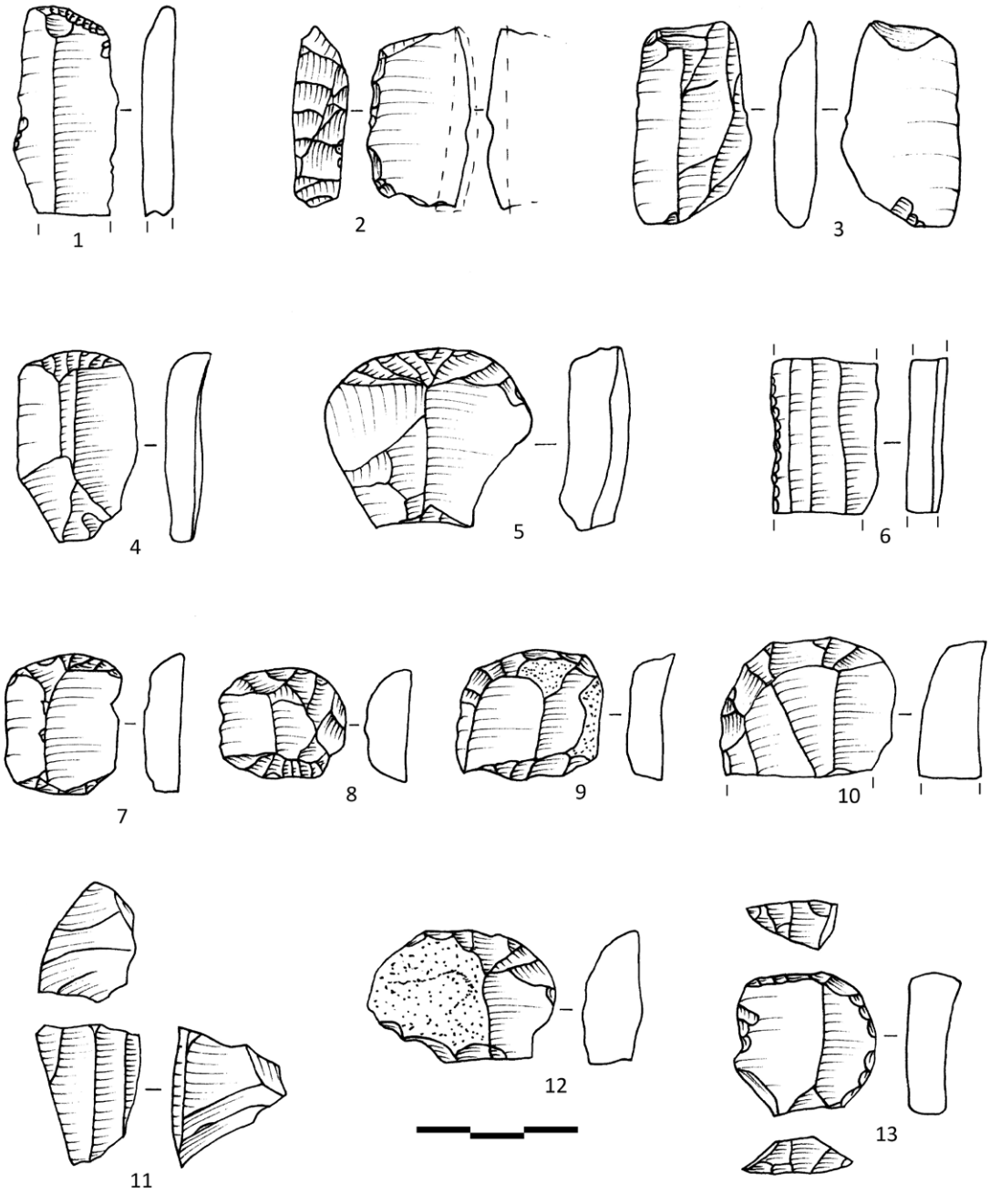


Fig. 7. Artefacts from site 1: core (11) and tools (1–10, 12–13) (drawings M. Gurova)

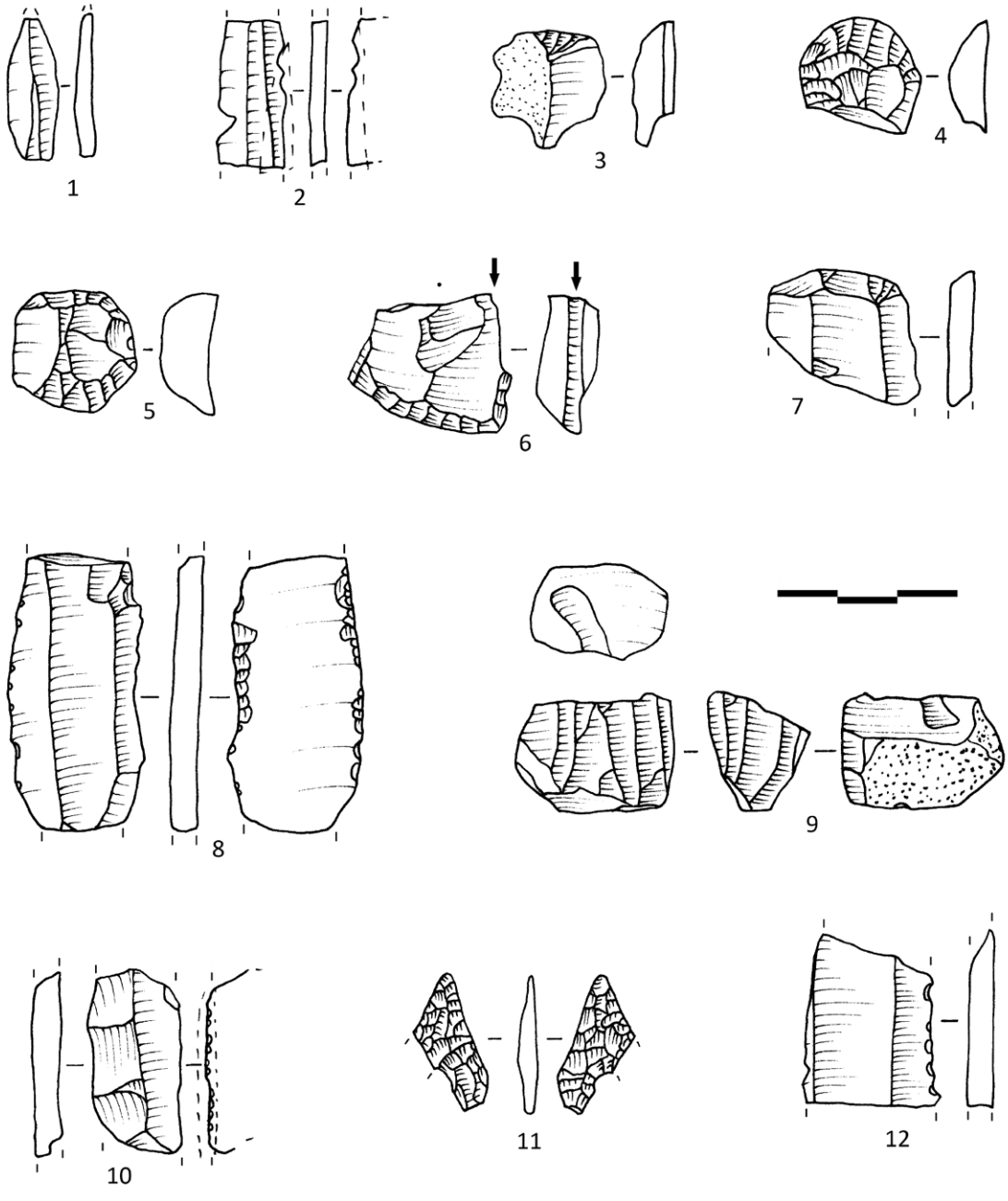


Fig. 8. Artefacts from site 1: core (9), blades (1–2, 12) and tools (3–8, 10–11) (drawings M. Gurova)



Fig. 9. Artefacts from excavations: 1 & 2 – Trench 1.2 (photos M. Gurova)



Fig. 10. Artefacts from excavations: 1 – feature 1.2.5 (Trench 1.2); 2 – feature 1.1.6 (Trench 1.1-E) (photos M. Gurova)

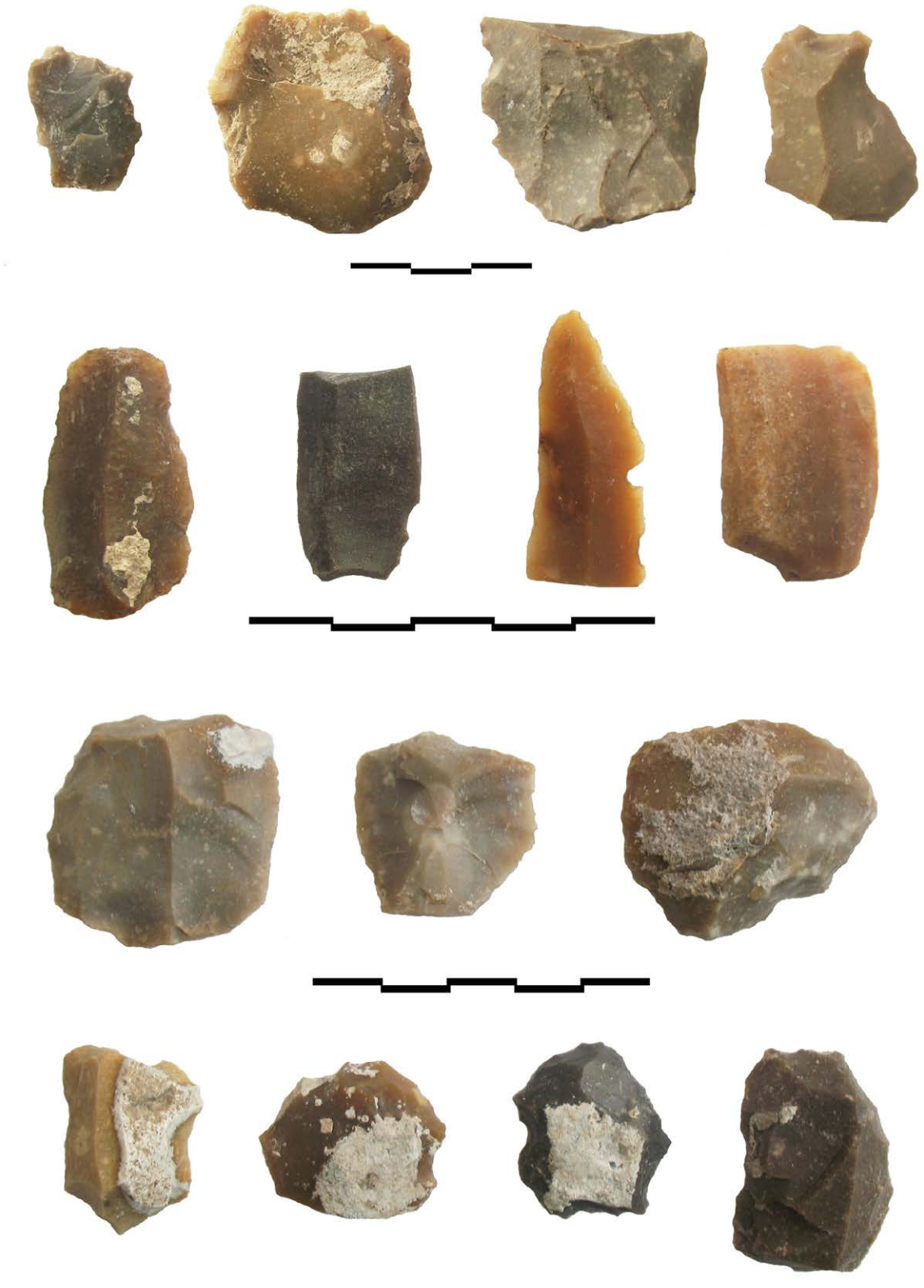


Fig. 11. Artefacts from excavations: Trench 1.1-E (photos M. Gurova)



Fig. 12. Artefacts from excavations: Trench 1.1-W (photos M. Gurova)

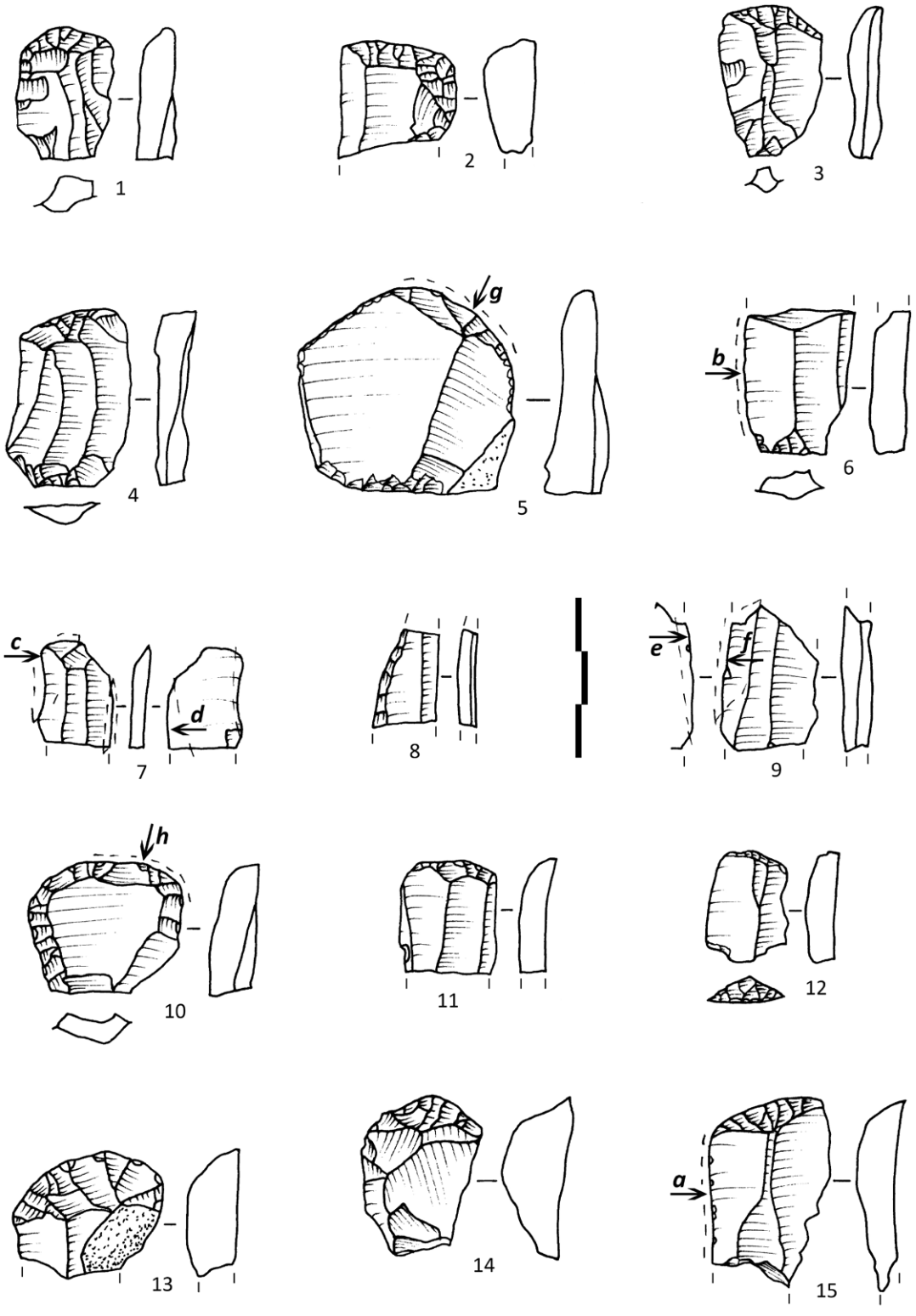


Fig. 13. Artefacts from excavations: 1–4 – Trench 1.1-E (feature 1.1.6); 5–15 – Trench 1.1-W. The arrows show microphotos on fig. 15 (drawings M. Gurova)

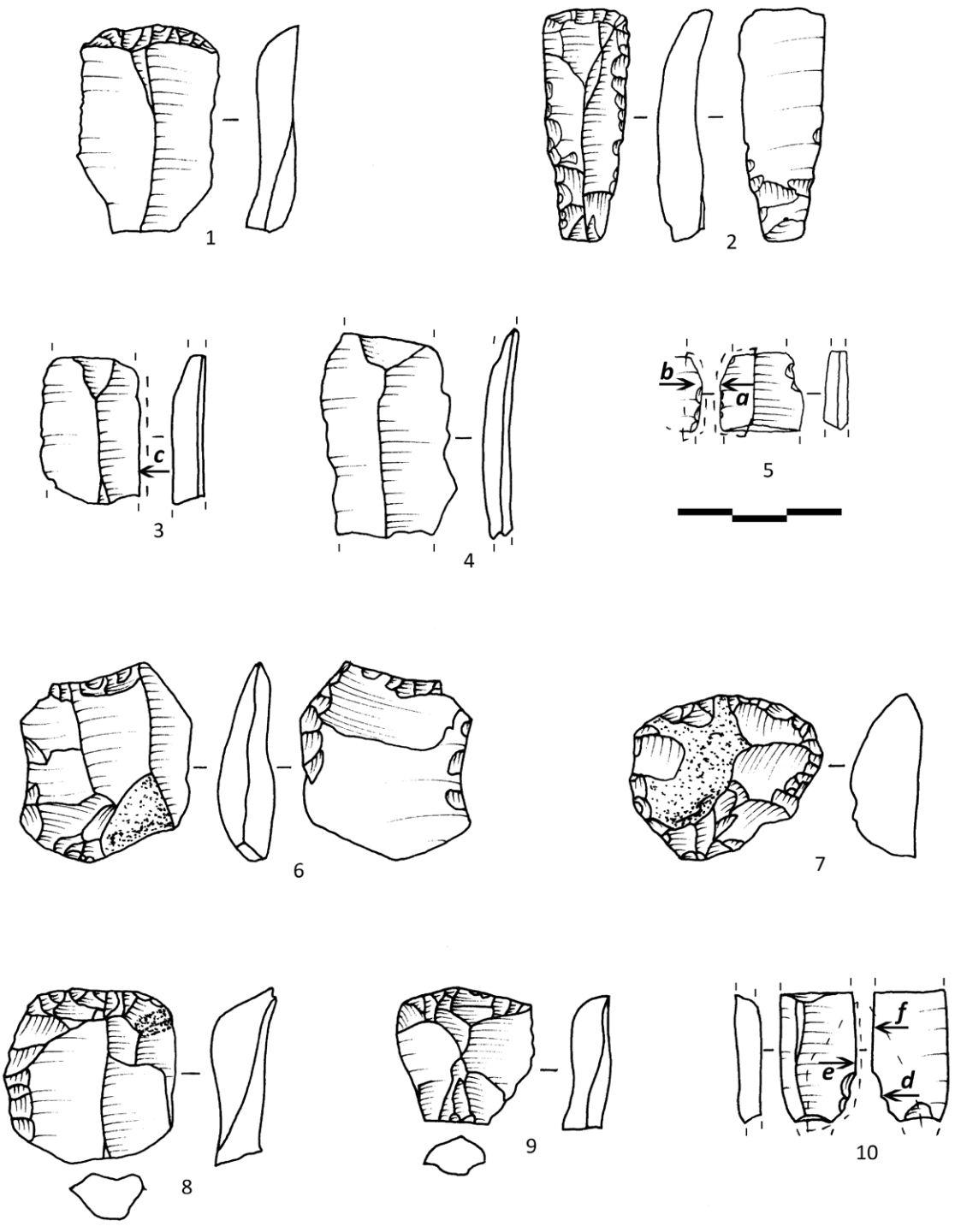


Fig. 14. Artefacts from excavations: 1–5 – Trench 1.2; 6–10 – Trench 1.1-E. The arrows show microphotos on fig. 16 (drawings M. Gurova)

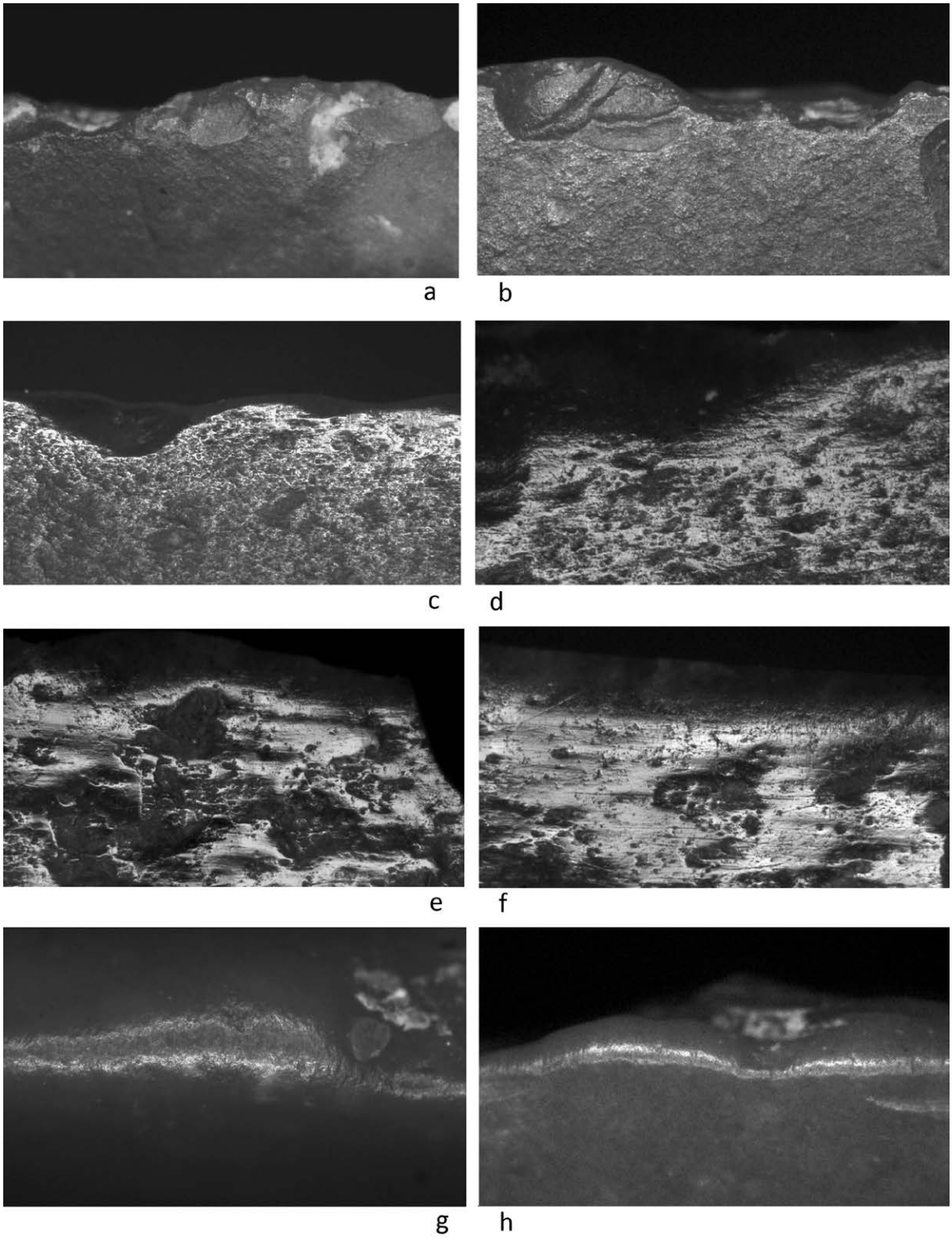


Fig. 15. Microphotographs of use-wear traces (×100) on artefacts 5–7, 9–10 and 15 from fig. 13: a & b – sawing bone; c–f – cereal polish; g & h – scraping fresh hide (microphotographs M. Gurova)

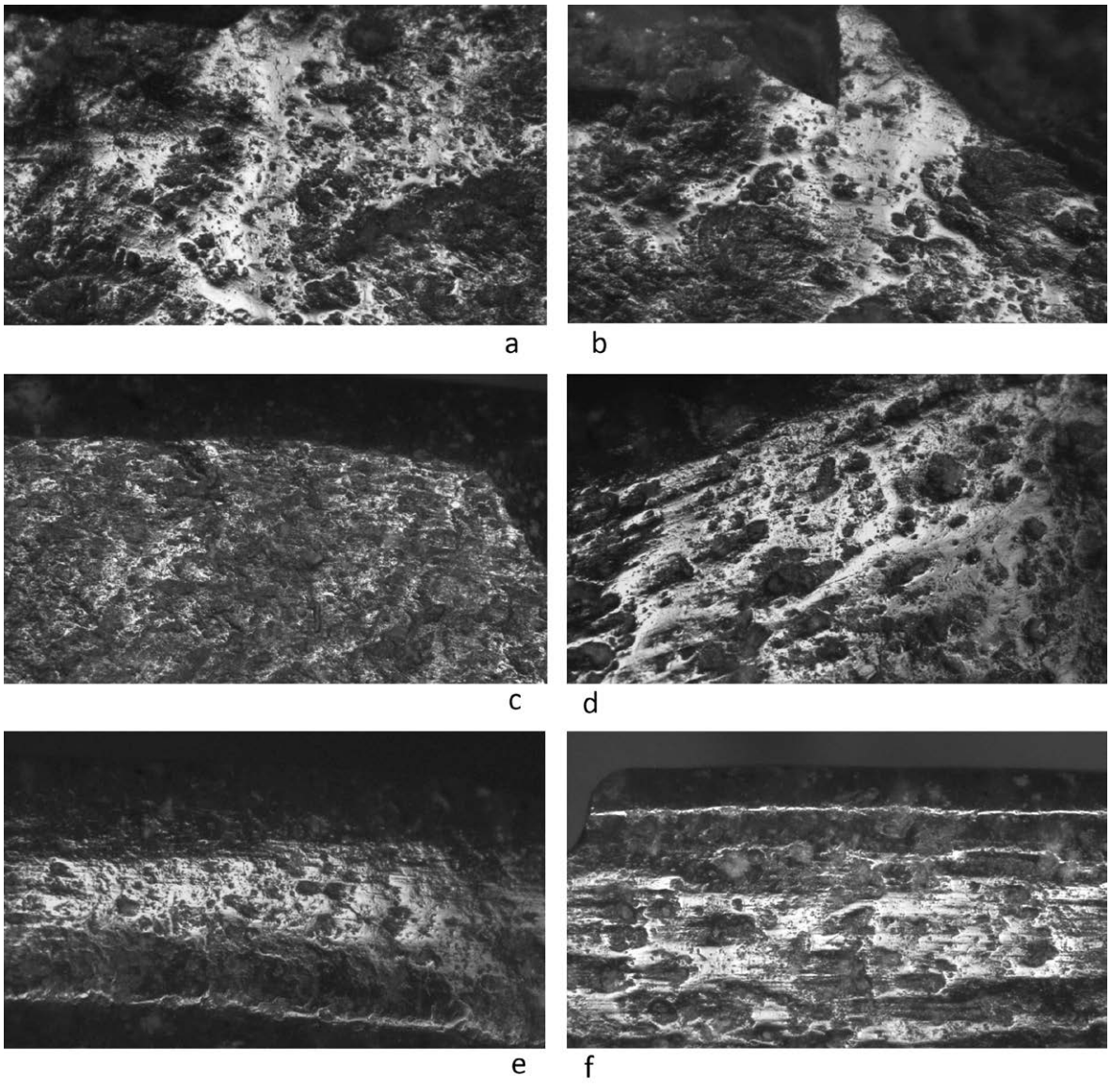


Fig. 16. Microphotographs of use-wear traces (x 100) on artefacts 3, 5 and 10 from fig. 14: variations of plant (c) and cereal polish (a–b, d–f) (microphotographs M. Gurova)

КРЕМЪЧНИ АНСАМБЛИ

Мария Гюрова

(Резюме)

Кремъчните ансамбли от археологическите проучвания в м. Таш баир произхождат от два различни контекста: а) теренни издирвания, извършени през 2018 – 2019 г. с приложение на ГИС и АКБ методика и б) археологически разкопки на територията на обект 1, осъществени в три сондажа през 2019 г. При разкопките са идентифицирани и обособени редица структури, отнесени към различни културно-хронологически периоди (ровове от късния неолит, късната желязна епоха и Ранното средновековие и други структури с неопределена хронология).

Кремъчните артефакти, подложени на технико-типологическо описание и селективен трасологически анализ, наброяват 1426 екземпляра. Тяхната обща структура е представена в Table 1, от която става ясна количествената диспропорция между ансамблите от двата контекста, както и неравнопоставеността между отделните категории изделия в рамките на всеки контекст. Ядрата са в незначително количество, отломъците, фрагментите и отпадъците са 76,7% от всички артефакти. От друга страна типологическите оръдия са 13% от целия ансамбъл, придобит при разкопките и само 8,4% от ансамбъла, произхождащ от теренните издирвания. Пластините са в обратна пропорция – представрявят 8,4% от ансамбъла от тереннтите проучвания и 13% от артефактите, открити при разкопките. Ансамбълът като цяло представя фрагменти от различни производствени вериги с прилагане на директен удар за отделяне на отломъците и част от пластините, както и индиректен удар с посредник – за основната част от пластините.

Артефактите са представени по контексти, аналитичните данни и наблюденията на автора са изложени в компаративна перспектива както между двата основни контекста, така и между идентифицираните обекти (и полигони) при издирването и сондажите с обособените им структури – при разкопките. Изложението е съпътствано от 10 таблици и 16 табла с илюстрации, онагледяващи и улесняващи осмислянето на разглежданите кремъчни ансамбли.

Представените сред артефактите суровини са разнообразни. Макроскопски разграничими са лудогорски флинт (Равно, Крива река и Тетово варианти), балкански флинт, по-нискокачествен флинт от Ковачевската свита в Русенско, както и силицифициран варовик с неуточнен произход.

От гледна точка на диагностичност на находките най-добре обособена е групата на стъргалките върху отломъци. Представени са полукръгли, ветрилообразни и микростъргалки на малки до средни по размер (< 3,5 см) отломъци. Тези оръдия са характерни са къснонеолитните индустрии по нашите земи. Те са добре представени сред кремъчните артефакти от обект 1 (идентифициран при издирванията), както и от сондажи 1.1-E и 1.1-W, където преобладават материали от желязната епоха и Средновековието, но къснонеолитният кремъчен инвентар е добре застъпен и очевидно преупотребен. Най-диагностичният артефакт в цялата колекция безспорно е фрагментираната кремъчна стрела от полигон 8 на обект 1. Макар и нестратифицирана, тази стрела намира преки паралели сред подобни изделия от ранната бронзова епоха, която съответно може да се интерпретира като *terminus post quem* за появата на този тип стрели.

Бъдещите проучвания в м. Таш баир със сигурност ще допринесат за изясняване на сложната стратиграфска ситуация на място с разновременно обитаване, специфично функциониране и широк спектър на остатъчни културни фациеси.

10.3. ARCHAEOZOOLOGICAL ANALYSIS OF THE ANIMAL REMAINS

Nadezhda Karastoyanova

1. Introduction

The animal remains from the excavations on different sites at Tash Bair are from various periods: Late Neolithic (NISP[1] 31), Middle Bronze Age (NISP 4); Late Bronze Age (NISP 14), Late Iron Age (NISP 68), Roman Imperial period (NISP2) and Early Middle Ages (NISP 130). We also included the material from colluvial layers in our Investigation (mixed material) (NISP 46) (fig. 1). Due to the acidic conditions in the ground, no fish bones were preserved (except for one vertebra from the Late Bronze Age pit). In any case, fish bones can be expected in sites near rivers. Some remains are fragmented, weathered, and have destroyed surfaces. Most of the remains are from domestic animals; the highest numbers of pieces were found in the Late Iron age and Early Middle Age features.

This research gives information about the fauna of the region across different periods and the exploitation of animal resources. The analysis includes the ratio between domestic and wild animals, traces on the bones, and the ratio between the species found on the site. The small number of animal remains and mixed material (from different periods) in some features do not allow profound conclusions and statistical analysis.

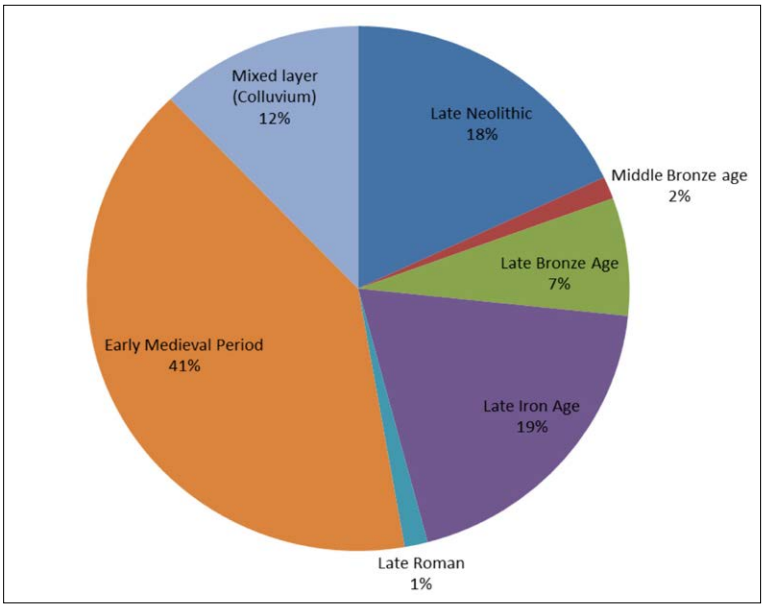


Fig. 1. Percentage of animal remains found at the site across different periods (N. Karastoyanova)

2. Archaeozoological methodology

The faunal remains from the site include 543 remains, of which 302 were identified at the species level and belong mostly to mammals and a small number of clams and tortoises. The unidentified bones include small shaft fragments from long and flat bones from large- (cattle, red deer or horse) or medium-sized (caprines, roe deer) herbivores. The tortoises are not included in the analysis because their underground hibernation makes the dating of their remains uncertain (table 1).

Anatomical and taxonomic determinations are carried out at the Laboratory of Archaeozoology / National Museum of Natural History – Bulgarian Academy of Sciences.

The works of R. Barone (1976) and E. Schmid (1972) provided the primary reference. The distinction between sheep and goat is based on the post-cranial skeletal characteristics following the criteria established by J. Boessneck et al. (1964) and developed by J. Clutton-Brock et al. (1990), W. Prummel and H. J. Frisch (1986). The publications of S. Payne (1985) and P. Halstead et al. (2002) provided further references for the identification of dental remains.

1 Number of identified specimens

The age at death is estimated by dental eruption following the work of E. Schmid (1972), and for dental attrition – the works of A. Grant (1982) for cattle, and S. Payne (1973). The measurements are taken according to the recommendations of A. von den Driesch (1976) (table 2). The stages of transformation of the burnt bones are determined according to R. Nicholson (1993, 414, table 1).

The withers height of the cattle was determined by the method of V. Tsalkin (Цалкин 1960) and by the complex method of V. Vasilev, K. Atanasov, and P. Tsonev (Василев et al. 1979), developed by V. Vasilev (Василев 1985).

The schematics of the animal remains in figures 3, 4 and 5 are after Helmer (1987). Their skeleton overlay frames are available on the ArchéoZoo site. Informations et ressources en archéozoologie (www.archeozoo.org) in the ArchéoZoothèque section [30/08/2022].

3. Description of the faunal remains

The taxonomic list comprises twelve species, seven of which are domestic: cattle (Bos taurus L., 1758), sheep (Ovis aries L.), goat (Capra hircus L.), domestic pig (Sus domesticus L.), horse (Equus caballus L.), dog (Canis familiaris L.) and cat (Felis catus L.), and six wild: red deer (Cervus elaphus L.), roe deer (Capreolus capreolus L.), hare (Lepus europeus L.), clam (Unio ind.), tortoise (Testudines ind.) and fish (only one small fragment of an unidentifiable vertebra).

According to the number of faunal remains across all periods, the domestic cattle is the most numerous (51.23%), followed by caprines (14.04%) and pigs (12.28%). The other domestic taxa are represented by much lower percentages – horse (1.40%), dog (1.75%), and cat (0.70%). Of the wild species, the most numerous are the clams (14.04%), followed by the red deer (2.46%) and roe deer (1.40%). Only a few remains belong to hare and tortoise. Most caprine remains are not identified to species (sheep or goat) because of the high fragmentation of the bone remains. The remains that are not identified at a species level are marked as "sheep/goat" in the figures. Domestic animals dominate over wild animals (85% of all taxa) for all the assemblages from Tash Bair (fig. 2).

The animal remains of the Late Neolithic ditches

There are 92 faunal remains from the Late Neolithic ditches 1.2.4 / 1.2.7/8 at site 1. The remains are very fragmented. There are no cut marks or carnivore traces on the surface of the bones. Only one fragment of bone from a large ruminant has traces of heat treatment at a low temperature (about 300°C). Two of the unidentifiable bones have traces of acidic erosion.

Thirty-one of the remains are identifiable at the species level. Seventeen remains are from cattle, and one unidentifiable fragment likely belongs to the bones of the same animal (or another from the

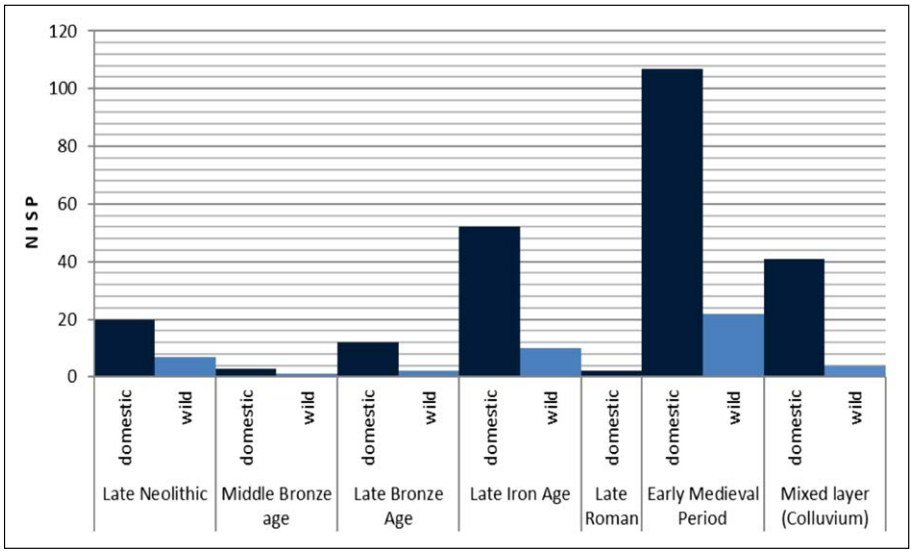


Fig. 2. Ratios for wild vs domestic species across different periods at Tash Bair (N. Karastoyanova)

same species). As shown in figure 3, the fragments of bones in the outer ditch (feature 1.2.4) are primarily from wild and domestic large ruminants, whereas those in the inner ditch (feature 1.2.7/8) belong to a different domestic animal species. There are no completely preserved bones, only small fragments. Some of the remains have traces of intentional fragmentation, but in most cases, the fragmentation is caused by natural factors (like earth pressure, ploughing etc.). From the small unidentifiable fragments (44 pieces) of long bones belonging to medium-sized ruminants (sheep/goat or roe deer), it can be suggested that the medium-sized ruminants like sheep and goats were more than a single individual.

Outer ditch (1.2.4) – 57 bone fragments, 13 identified at the species level. These bones belong to cattle (minimum number of two individuals) and red deer. The lower jaw from the cattle is from an adult animal, but the teeth are very fragmented, making it difficult to determine its exact age. The long bones are from the hind limb of a young animal – about one year old. There are only three bone fragments of red deer – 1st phalanx, carpal bone and a small part of the lower jaw. No traces of butchering and burning were found.

Inner ditch (1.2.7/8) – 35 bone fragments, 18 identified at the species level. The animal remains belong only to domestic animals. Cattle long bones – mostly hind limbs, two vertebrae (cervical and thoracic) and part of a pelvic bone. There are also remains from the lower jaw of a pig. This individual's eruption of the 4th premolar indicates that it was a juvenile (about 6–7 months). A fragment of atlas from a sheep and a dog ulna are found, too (fig. 3).

Animal remains of the Middle Bronze Age (ditch in trench 3.6 / bottom layer)

Only seven animal remains were found in the bottom layers of the inner ditch at site 3. Four of them were identified. These are very fragmented parts of long bones from cattle and domestic pig. The pig remains belong to the lower hind leg of the animal (metapodial and phalanges) from one young individual (about 6 months). There are parts of metatarsal fragments that could have come from more

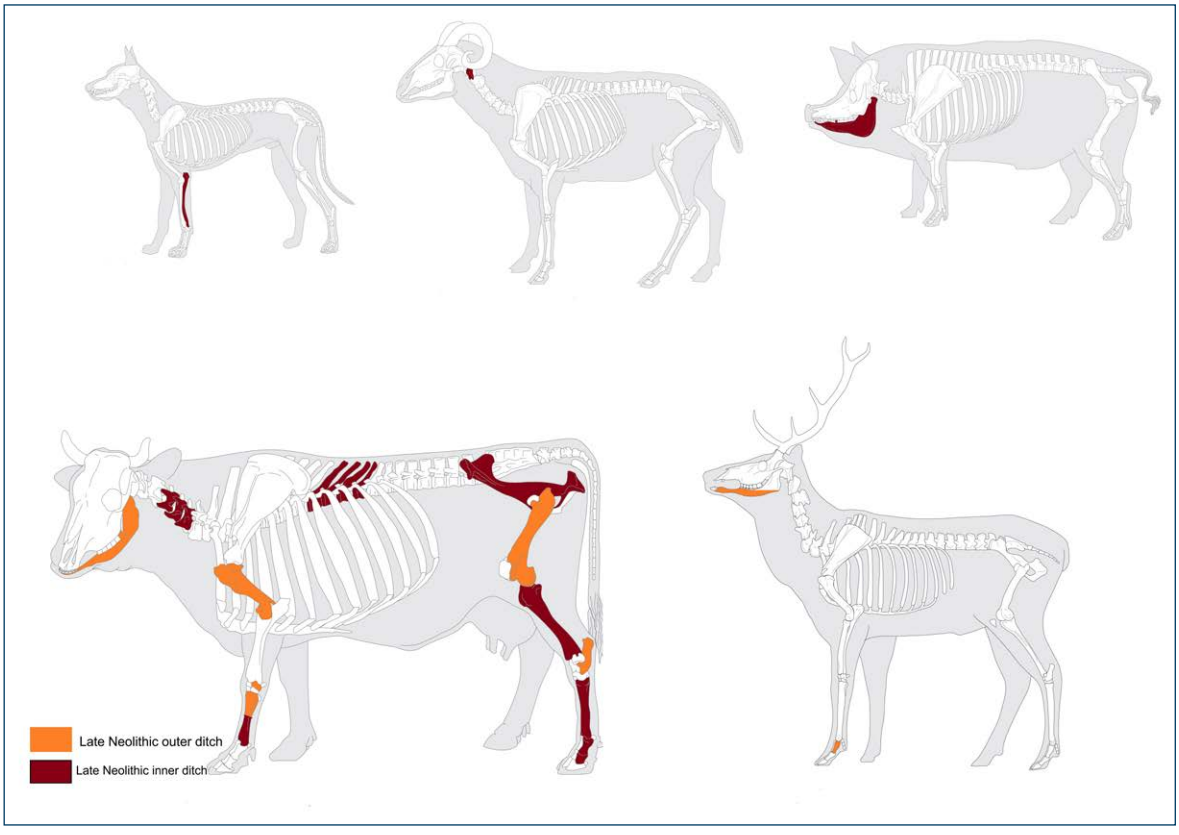


Fig. 3. Animal remains found in Late Neolithic ditches at site one presented as elements of the skeleton (N. Karastoyanova, skeletal overlay frames: after Helmer 1987)

than one metatarsal bone from cattle as well. There are no traces of skinning or butchering on the bones. Only one rib fragment was exposed to very high temperatures (over 500°C).

Animal remains of the Late Bronze Age (features 3.1.1/2, 3.2.1)

36 animal remains from the Late Bronze Age features at site 3 were found. All remains are very fragmented. Only 14 remains from this assemblage could be identified at the species level; they belong to cattle, horse, sheep, goat, and red deer. Other fragments are parts of long and flat bones from large and medium ruminants (more likely parts of cattle and sheep/goat bones). All bones have traces of chemical weathering (acidic environment), and their surface is damaged (fig. 8).

Most cattle remains are from feature 3.1.1 – fragmented molar teeth from the upper jaw of two individuals – juvenile (about one year old) and adult (over three years old). There are three parts of phalanges, the shaft of the femur and ribs. Parts of the lower jaw, teeth and tarsal bones of young animals are identified as sheep/goat due to the high degree of bone fragmentation. The horse is presented by fragmented incisive teeth from the feature and parts of a metatarsal bone (from layer A, 3.1). The list is rounded by a tiny fragment of metapodium from red deer.

From feature 3.1.2 (i.e. large animal dens which affected pit 3.1.1), there are primarily unidentifiable bone pieces from medium-size ruminants (sheep/goat/roe deer) and one fragment of an upper molar from an adult caprine. One fragment of vertebra from a small-size animal (probably a rodent) was found in the flotation samples.

Feature 3.2.1 is presented only by few unidentified fragments from long bones of large ruminants (cattle/horse/red deer size).

Animal remains of the Late Iron Age (5th c. BC – beginning of 1st c. AD) (ditch 1.1.6 /1.1.15; ditch 3.6 / middle filling)

A total of 99 Late Iron Age animal remains were collected, of which 63 were identified. There are very few fragments of large (cattle/red deer/horse) mammals and some from cattle, only from features 3.6 (middle filling of the inner ditch at site 3) and 1.1.15 (part of the Late Iron Age ditch at site 1). Most of the faunal remains come from feature 1.1.6 (part of the Late Iron Age ditch at site 1). Like in the other periods, most bones are from domestic animals – cattle, sheep, goat, and pig. There is only one 3rd phalanx (the hoof) from a horse and a heel bone (calcaneus) from roe deer. The surface of some bones is destroyed due to exposure to an acidic environment. Most of the bones (about 30%) are burnt at low temperatures, and only two have cut marks. Traces of cut-marks on the cattle phalanges show that the animals were butchered close by, and the inedible parts were thrown into the ditch. All animal species are presented mainly through parts of the limbs or the skull.

It should be taken into account that some of the bones in the ditch fill may be residual from older periods due to the mixed filling of the Late Iron Age layers.

Animal remains from the Early Roman Imperial period. Around the middle of 1st c. AD (5.1.5 pit with the grave)

There are only six identified remains in the filling of the pit above the grave in an unusual rite – fragments from the canine tooth and pelvic bone from domestic pig, cattle talus, complete 1st phalange, incisive teeth of a roe deer and distal part of the tibia from red deer. The talus has traces of carnivore gnawing. There are no other traces on the other bones. The remains are from adult individuals.

Animal remains of the Late Roman period (5th c. AD) (3.6 / upper filling)

There are only a few remains of domestic pig in the upper filling of the inner ditch of site three, dated to the Late Roman period. One very fragmented lower jaw (in 8 pieces) and part of the pelvic bone. All bones have a surface destroyed by an acidic environment, obliterating traces.

Animal remains of the Early Medieval period (8th – the beginning of 11th c. AD) (fortification at site 1)

The most numerous animal remains are from this period – 203 bone fragments, 126 of which are identifiable. The remains are from domestic – cattle, sheep, goat, pig, horse, dog, cat, and wild animals – red deer, roe deer, hare, and clams. The percentage ratio from domestic to wild animals is 85.96% to 14.04%. The predominant remains are cattle, pigs, and caprines. Only single remains from a dog, hare, and red deer were found. Most of the remains have traces of burning and butchering (fig. 9). Only five of the remains have traces of carnivore gnawing.

Four species of domestic animals and one fragment of roe deer antler were identified from the shifted rampart. The Medieval ditch has greater species diversity, including some remains from dog and wild animals.

There is a high probability of contamination of the Medieval deposits by residual earlier remains.

Early Medieval ditches features (1.1.7 / 1.1.13, 1.1.8 /1.1.14, 1.2.5)

A total of 46 identifiable animal remains were found in the ditch. Most of the bones are from cattle. There are remains from sheep, goat, domestic pig, red deer, hare, dog, and clams. Most bone fragments have butchery cut marks and traces indicating that they were burnt at a low temperature (300°C). Individuals of all age groups are presented in the material (almost equal percentages). The remains are mostly parts of limbs and skulls. There is only one upper molar in a horse (fig. 4).

A shifted rampart of the Early Medieval fortification at site 1 (features 1.1.1, 1.1.2, 1.1.4, 1.1.11, pl. 3–4)

A total of 80 identifiable remains were found in the shifted rampart. The bones are from domestic animals – cattle, sheep/goat, domestic pig, horse, and roe deer. Five shells from clams were found. All bones have traces of heat treatment at a low temperature (under 300°C) (fig. 10). The fragments represent parts of the skull and the lower part of the limbs (figs. 5 and 6).

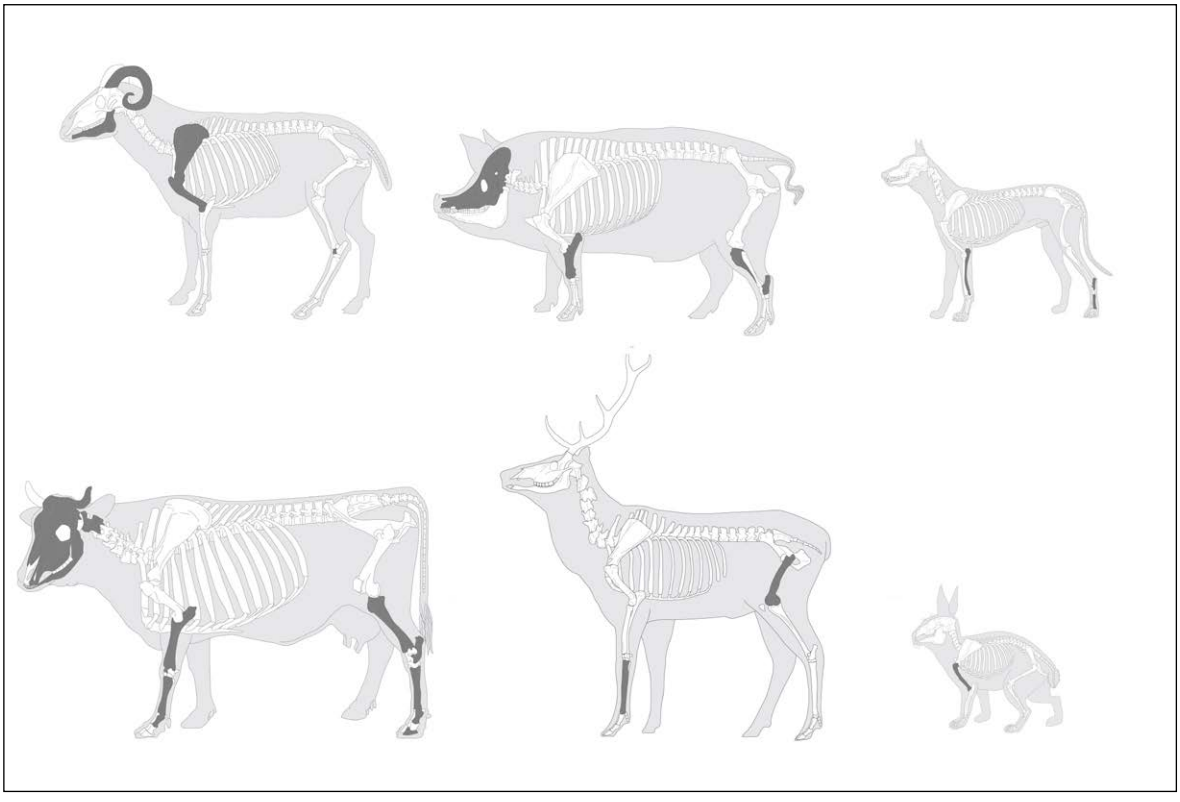


Fig. 4. Animal remains found in the Early Medieval ditches presented as elements of the skeleton (N. Karastoyanova, skeletal overlay frames: after Helmer 1987)

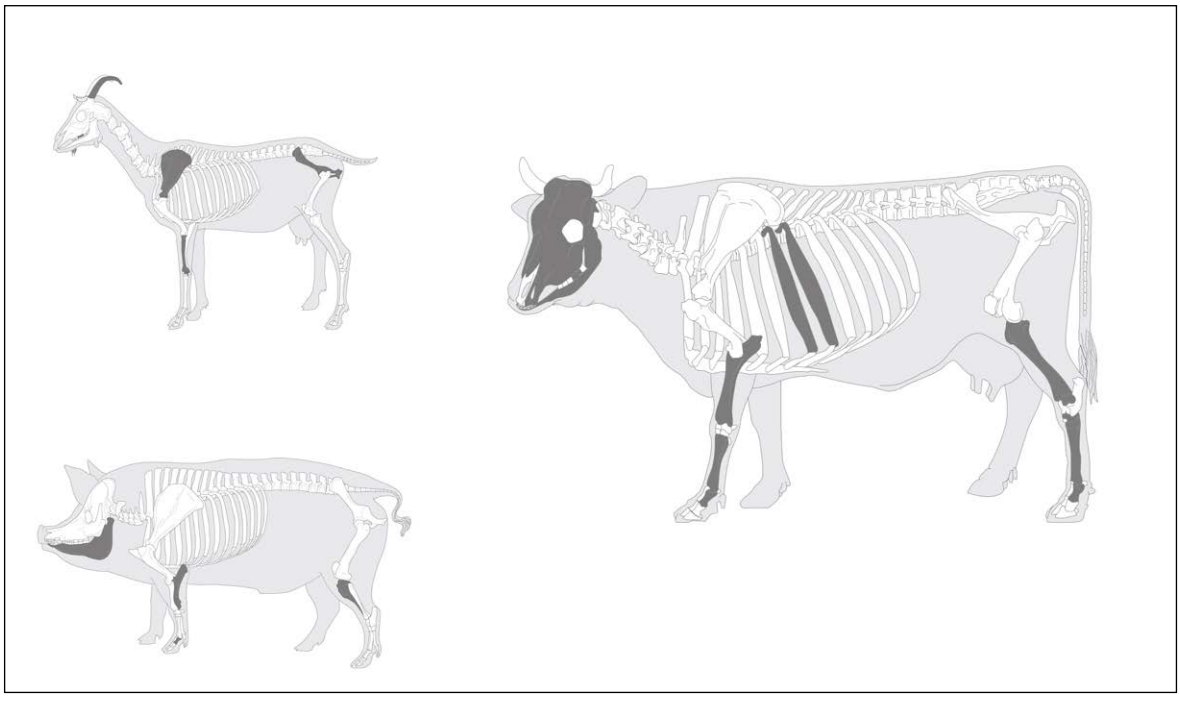


Fig. 5. Animal remains found in the layers of the shifted rampart presented as elements of the skeleton (N. Karastoyanova, skeletal overlay frames: after Helmer 1987)

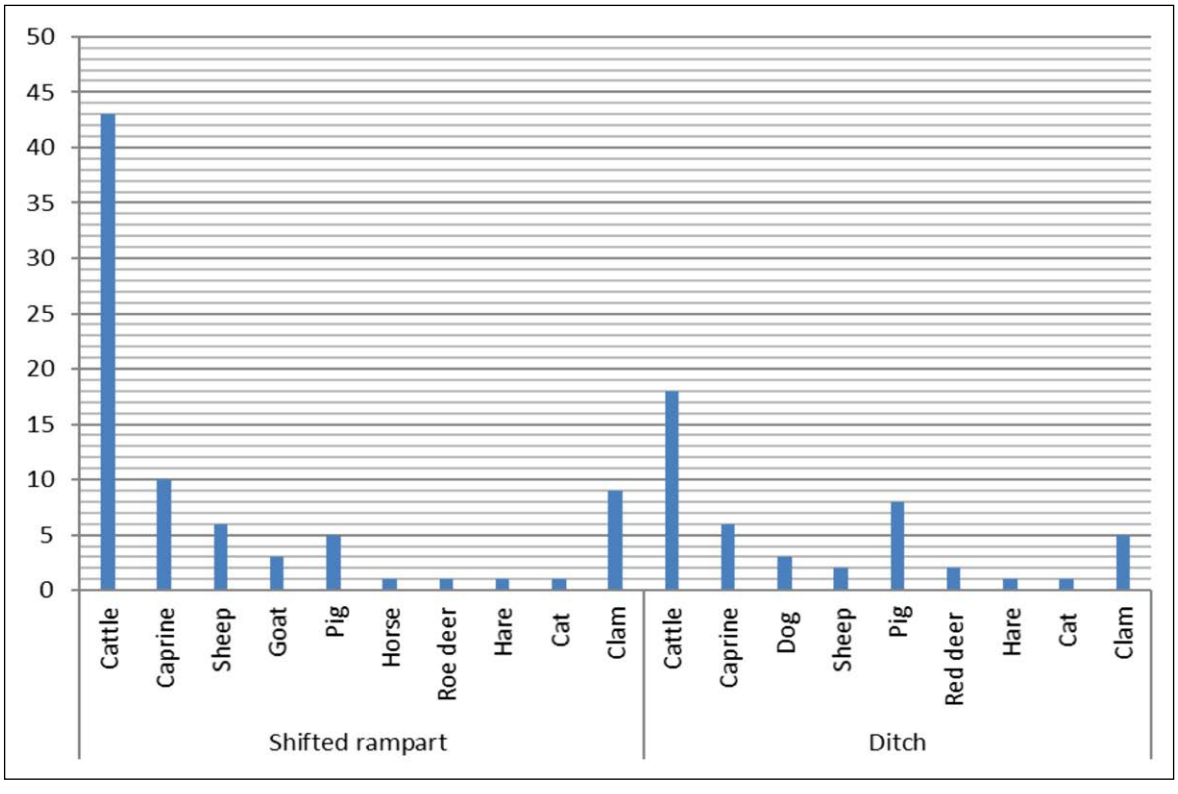


Fig. 6. Number of identified species (NISP) in the shifted rampart and Medieval ditch (N. Karastoyanova)

4. Discussion and conclusions

The faunal remains from the excavations on different sites at the Tash Bair are very fragmented, and some bear traces of chemical weathering, which destroyed their surfaces (fig. 8). The remains from the deeper deposits are better preserved, possibly indicating the current date of this influence. The most enormous material is from the Medieval ditches and shifted rampart (NISP 126) and the Late Iron

Age ditches (NISP 63). A greater diversity of animal remains can be recognized for these contexts, even considering that their backfills are mixed up with older finds.

Domestic animals predominate across all periods. The cattle are the best-represented species, followed by caprines and pigs. The dog remains to appear only in the Late Neolithic, Middle Ages and in mixed colluvial deposits (probably likewise dating to the Middle Ages). Wild animals are represented by red deer, roe deer, hare, fish and clams. There are few remains of red deer in the Late Neolithic, Late Bronze Age, Late Iron Age, and Early Middle Ages. Only one small part of a fish vertebra from a Late Bronze Age pit exists. The remains from all periods seem to comprise food residues thrown in the ditches, either after the meat was consumed or even after the butchering (hoofs, parts of the skull, horns, etc.). The fauna of the site is typical of each period.

The *Late Neolithic* remains are very few for thorough analysis and statistics but are representative of the period. Compared to other sites from North Bulgaria of this period like Tell Samovodene (Станев 2008), Koprivec (Manhart 1997), Ovcharovo-Gorata (Nobis 1986), Durankulak (Manhart 1998), it can be seen that the percentage of the domestic animal is much higher than of the wild animals. The main pattern in the number of identified species remains cattle, sheep, goats, domestic pigs and dog, with the percentage of dogs always being the lowest and cattle the most abundant (fig. 7). Of the wild animals in this region, the red deer is the most hunted animal. As seen in figure 3, only remains from domestic animals were found in the inner ditch. Most of the material is from cattle and a few fragments of bone from the other species, whereas in the outer ditch, there were remains from large wild and domestic ruminants – cattle and red deer. The parts of the bodies deposited in the ditches are mostly parts of

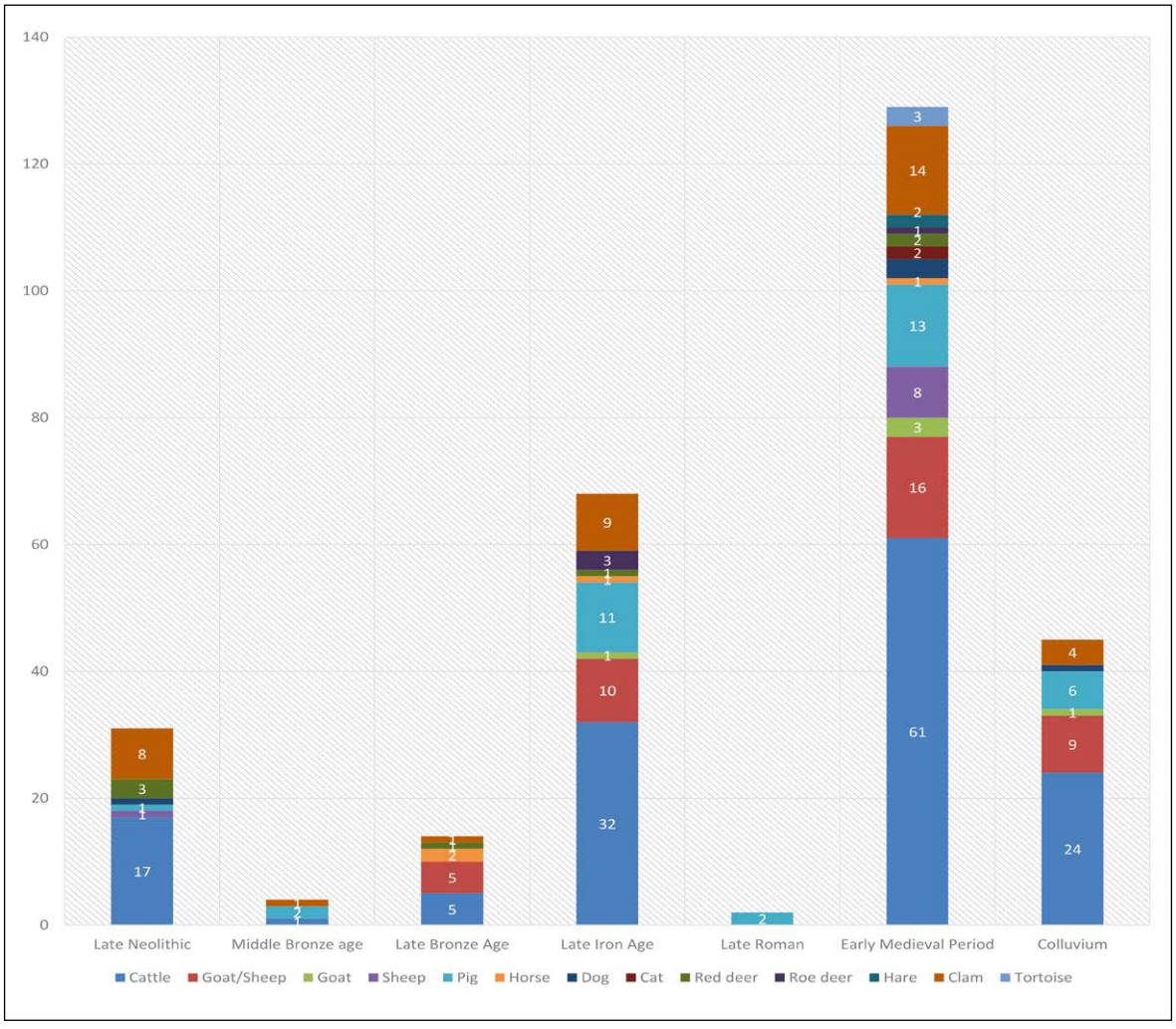


Fig. 7. Number of identified species across the periods on the sites at the Tash Bair (N. Karastoyanova)

the legs and lower jaws. The dorsal part is presented only in a few fragments of vertebras and ribs (only from the cattle).

The Neolithic economy in Northern Bulgaria is generally based on cattle husbandry from the very beginning through to the Chalcolithic (Василев 1978, 1985; Рибаров, Боев 1997; Manhart 1998; Nobis, Ninov 2002; Benecke, Ninov 2002; Станев 2008). Therefore the exclusive representation of this species in the Late Neolithic assemblage may not be a pure coincidence. In Tell Samovodene (Станев 2008), Koprivec (Manhart 1997), Ovcharovo-Gorata (Nobis 1986), and Durankulak (Manhart 1998), the ratio between wild and domestic animals show that husbandry plays the most crucial role. However, hunting is also represented by mostly red deer (and other game animals), which are hunted the most. A similar situation is seen in the sites from the other side of the Danube, part of Boyan and Gumelnitsa culture like Lăceni-Măgura (Andreescu et al. 2002), Bogata (Comşa 1959), Hârşova-tell (Desse-Berset, Radu 1996) etc. There are some suggestions for breeding dogs for utilitarian purposes in the Neolithic and Chalcolithic – guarding homes, herds, helping at hunting. However, they may also be used for consumption, being a source of meat and fur (Василев 1985, Bălăşescu, Radu 2004).

From *Middle Bronze Age*, the material is represented only by a few fragments from cattle and pig. In Bulgaria, this period is still not very well studied. However, the sites with layers from this period are relatively numerous, especially in Southern Bulgaria (cf. the contributions by L. Vagalinski et al., chapter 8.2.1).

From *Late Bronze Age*, there were more remains from domestic – cattle, horse and caprines. Wild animals are represented by red deer, fish and clamshell. Most of the material comes from pit 3.1.1/2; the filling of the depression or gully 3.2.1 mostly had small fragments of unidentified bone. The domestic horse remains first appeared in archaeological sites from the Bronze Age in Bulgaria like Koprivlen (Нинов 2009) (distr. Blagoevgrad), Yunatsite (Ninov 2011) (distr. Pazardzhik), Orlovo (distr. Haskovo), Vladinya (unpublished processed data data by N. Karastoyanova) (distr. Lovech). According to some remains found in the Bronze Age settlement Baley (distr. Vidin), the horses were used not only for work but also for food (unpublished proccessed data by N. Spassov and N. Iliev).

The presence of cattle and pigs in the Middle and Late Bronze Age assemblages corroborates the thesis of B. Athanassov (2011) that regardless of the thin settlement layers characteristic of the period, the respective economies were based on rather sedentary husbandries and were not mobile pastoralists as it has been often stated in the past. The appearance of the (domestic) horse during the Late Bronze Age is in good accord with data from Durankulak (Manhart 1998) and elsewhere (Koprivlen – Нинов 2009), indicating its growing importance not only as a beast of burden but also for military purposes (Crouwel 1981). They are evidence that horses were also used for food in Baley (unpublished proccessed data by N. Spassov and N. Iliev) and Tash Bair, where the only found metapodial is crushed for marrow extraction. The eating of the horse meat was a widespread custom in the Bronze Age settlements (Bökönyi 1974, 248).

Most of the remains of the *Late Iron Age* are from the ditch at site 1. The remains represent almost all parts of the animals including the horn cores (from goats) and hoofs (horse, cattle). Most of the remains have traces of butchering and cooking, meaning that the remains were thrown in the ditch after the butchering and consuming of the meat. No dog bones were also often found in Iron Age sites. The animal husbandry of the Late Iron Age is relatively poorly known due to the limited number of excavated settlements. Yet, the figures from Tash Bair are roughly comparable to the preliminary data from settlement contexts of the fortified Getic capital Helis near Sboryanovo (Ninov 2010). Both sites have the same ratio of domestic animals. Horses and dog are well presented in the material of Sboryanovo, Zimnicea (Haimovici 1971) but not on the sites at the Tash Bair, wherein the features of the Iron Ages, no dog remains were found, and there was only a single horse hoof. In Zimnicea, two types of horses were identified for different purposes – "ordinary horses" and "elite horses" found in the Getae graves (Haimovici 1972). Studies of several Thracian tombs indicated that the height at the shoulder and habitus of Thracian horses varied between small and medium growth. (Нинов 1997; Spassov et al. 2018).

Animal remains from the Early Roman Imperial period are only from an unusual grave of a child. The bones found in the grave deposit have traces of carnivore gnawing and cooking (burnt at low temperature) which suggest that they are mostly food residues from a ritual offering on the grave However, there is no clear evidence of the connection between these remains with the grave.

The *Late Roman period* (5th c.) is represented only by a few pig remains. Bone finds from domesticated pigs form the numerically most prominent group among the finds from period B/C (2nd half of the 4th to 1st half of the 5th century) in Iatrus-Krivina castle (Benecke 2007, 384–390, tab. 1) and Nicopolis ad Istrum (Beech 2007). However, the number of bones from the Late Roman period found in the upper filling of ditch 3.6 is too small to be able to draw further conclusions.

The Early Medieval assemblage from Tash Bair is the most numerous of all phases (NISP 126). There are some differences between the Iatrus-Krivina site (Bartosiewicz et al. 1995) and Durankulak (Василев 1989), where the ratio of the domestic animals is almost the same. However, there are more remains from horses and some from domestic ass, which are not presented on this site. Only one fragment of a molar tooth from a horse was found in the medieval layers. No bird and fish remains were found in large amounts in Dichin, Krivina, Dunrankulak, Popina etc. Two pelvic bones from domestic cats were found in Medieval ditches at the Tash Bair. The presence of remains from a domestic cat is typical for medieval sites like Iatrus-Krivina, Popina (Иванов 1965), Dichin (Johnstone et al. 2019), and Nicolopis ad Istrum (Beech 2007). They were probably popular pets and would also have played an essential role in controlling mice and small rodents. Their presence has been noted on many sites during the Roman Imperial period, and the Romans are known to have helped spread the species throughout Europe. Cats became frequent in Central and Eastern Europe in the Middle Ages, although in the 14th–15th century, they were distributed chiefly in religious houses and towns (Bökönyi 1974). The bone material from the domestic animals suggests that people at Tash Bair depend mostly on cattle husbandry, unlike the sites like Dichin (Johnstone et al. 2019), Preslav (Иванов 1959), Dichin and Nicopolis ad Istrum where the caprines and pigs predominate.

There is only one metacarpal bone from which it is possible to calculate the withers height of the animal – 117.44 cm. That size is relatively small compared with the Byzantine period in Nicopolis ad Istrum (Beech 2007), where the withers height is up to 123 cm. This breed size is classified as a "cross-breed" between the brahyceros (small-sized local breed) and primigenious type (big-sized auroch type breed) (Илиев 1994). The withers height of an individual calculated from the only preserved metacarpal



Fig. 8. Caprine molars and flat bone fragments from large ruminant with traces of acid corrosion (feature 3.1.1) (photo by N. Karastoyanova)



Fig. 9. Pig distal tibia with horizontal cut marks on the dorsal side of the epiphyses (trench 1.1 E; colluvium level 27.25–27.35 m) (photo by N. Karastoyanova)



Fig. 10. Scapho cuboid (right) of a cattle with horizontal cut marks on the dorsal side (1.1.11 FD036) (photo by N. Karastoyanova)

bone shows that the individual is pretty small compared with the cattle biometry from Nicopolis ad Istrum (Beech 2007). In this site, from the Early RomanPeriod until Early Byzantine, the withers height is between 108.7–134.40 cm. Most of the remains at the Tash Bair have traces of butchering (cut and chop marks), burning and fragmentation (figs. 9 and 10). All bones are very fragmented and mixed, suggesting that after the meat consummation, they were thrown, unlike the necropolis site Novi Pazar (Станчев, Иванов 1958), where whole limbs were preserved and laid next to the skeleton like grave goods (food for the deceased). In this case, fully preserved bones were found in anatomical order.

Table 1. The animal remains distribution by the number of identified species (NISP) and a minimum number of individuals (MNI) at Tash Bair across different periods

	Late Neolithic			Middle Bronze Age			Late Bronze Age			Late Iron Age			Early Roman period			Late Roman period	Early Middle Ages			Colluvium		
	NISP	MNI	NISP%	NISP	MNI	NISP%	NISP	MNI	NISP%	NISP	MNI	NISP%	NISP	MNI	NISP%	NISP	NISP	MNI	NISP%	NISP	MNI	NISP%
Domestic			**74.07%**			**75%**			**85.71%**			**83.87%**			**50%**				**82.95%**			**91.11%**
Cattle	17	2	18.48%	1	1	14%	5	1	14%	31	3	31.31%	1	1	16,67%		61	4	30.05%	24	3	
Horse							2	1	6%	1	1	1.59%					1	1	0.88%			
Sheep/ Goat	1		1.09%				5		14%	11		15.88%					27		17.55%	10		22.22%
Pig	1	1	1%	2	1	29%				9	3	17.46%	2	1	33,33%	2	13	2	11.40%	6	1	13.33%
Dog	1	1															3	1	2.63%	1	1	2.22%
Cat																	2	1	0.88%			
Wild			**25.93%**			**25%**			**14.29%**			**16.13%**			**50%**				**17.05%**			**8.89%**
Red deer	3	1					1	1	2.78%	1	1	1.01%	1	1	16,67%		2	1	0.99%			
Roe deer										1	1	4.76%	2	1			1	1	0.88%			
Hare																	2	1	0.88%			
Fish							1	1														
Clam	8		8.70%	1	1	14%	1	1	2.78%	9		9.09%			33,33%		14		10.53%	4		8.89%
Total NISP	**31**			**4**			**15**			**63**			**6**				**126**			**45**		
Large mammal	17			3			9			26			3				51			11		
Medium mammal	44						12			10			7				26			6		
Total	**92**			7			**36**			**99**			**16**			**2**	**203**			**62**		

Table 2. Measurements of bones across different periods in Tash Bair (von den Driesch 1976) – Mt (metatarsal bone); Mc (metacarpal bone); Ph 1 A (proximal phalange anterior); Ph 1 P (proximal phalange posterior); Ph 2 P (medial phalange posterior); Ph 3 (distal phalange)

Bos taurus	**Period**	**GL**	**Bp**	**SD**	**Bd**		
Tibia	Late Neolithic			40.06	69.16		
Tibia	Late Iron Age			33.96	52.48		
Tibia	Early Medieval period	343	83.13	36.29	53.03		
Tibia	Early Medieval period				55.09		
Mc	Late Iron Age				60.22		
Mc	Early Medieval period	191.91	53.55	29.52	57.4		
Mc	Early Medieval period				63.1		
Mc	Colluvium				63.29		
Mt	Middle Bronze Age				56.72		
Mt	Late Neolithic				55.43		
Mt	Early Medieval period				62.22		
Ph 1 A	Late Iron Age	62.86	33.17	29	31.77		
Ph 1 A	Late Iron Age	54.05	27.65	25.8	26.18		
Ph 1 P	Late Iron Age	63.85	26.39	23.81	26.81		
Ph 2 P	Late Neolithic	42.78	29.06	23.43	21.67		
Ph 2 P	Late Iron Age	29.86	23.5	19.39	19.4		
Capra hircus		**Small diam.**	**Large diam.**	**Circumf.**	**Length**		
Horncore	Early Medieval period	23.37	34.86	85.09	172		
Ovis aries				**SD**	**Bd**		
Tibia	Middle Ages			13.5	23.23		
Tibia				13.04	22.44		
Sus dom.					**Bd**		
Tibia	Colluvium				31.75		
Equus caballus		**GL**	**Bp**	**If**	**Bf**	**Id**	**HP**
Mt	Late Bronze Age		49.61	30.97			
Ph 3	Late Iron Age	78.96	75.47	49.99	29.46	55.26	41.65
Capreolus c.		**GL**	**Bp**	**SD**	**Bd**		
Ph 1 A	Early Roman period	23.66	11.2	7.85	8.72		

For the Early Middle Ages, the noticeably high number of cattle bones found, on the one hand, could be traced back to relocated Neolithic or Bronze Age pieces, but on the other hand, corresponds to the dominance of cattle in the Early Medieval finds at the Iatrus-Krivina fort (Benecke 2007, 384–388 tab. 1).

The age at death of the animals is not representative because there are only a few remains from every period in which the age can be determined, and they are distributed across all age classes.

The remains from the *colluvium* are mixed but is nevertheless included in the statistics. The limited number of remains and their fragmentation rate warrant detailed statistical analysis.

АРХЕОЗООЛОГИЧЕН АНАЛИЗ НА ЖИВОТИНСКИ ОСТАНКИ

Надежда Карастоянова

(Резюме)

Животинските останки при разкопките на обектите в м. Таш баир принадлежат към различни периоди: късен неолит, средна бронзова епоха, късна бронзова епоха, късна желязна епоха, Късна античност и Ранно средновековие.

Целта на този анализ е да даде информация за фауната и животновъдството в региона през различните периоди. Анализът включва процентно съотношение между диви и домашни животни на обекта, следи по костите и количествено / процентно съотношение между видовете животни, открити на обекта. Малкият брой животински останки и смесването на пластове от различни периоди в някои от структурите не позволява по-обстоен статистически анализ.

Животинските останки от обекта са 543, от които 302 са идентифицирани на видово ниво и принадлежат предимно на бозайници и малък брой миди и костенурки. Неидентифицираните кости включват малки фрагменти от дълги и плоски кости от едри (говеда, благороден елен или кон) или средни (кози, сърни) тревопасни животни. Костенурките не са включени в анализа, тъй като подземната им хибернация прави датирането на останките им несигурно.

Според броя на фаунистични останки през всички периоди най-много са домашните говеда (51,23%), следвани от козите (14,04%) и свинете (12,28%). Останалите домашни таксони са представени с много по-нисък процент – кон (1,40%), куче (1,75%) и котка (0,70%). От дивите видове най-много са мидите (14,04%), следвани от благородния елен (2,46%) и сърната (1,40%). Само няколко останки принадлежат на заек и костенурка. Животинските останки от обекта принадлежат към различни периоди и са много фрагментирани. Някои имат разрушена повърхност вследствие на киселинна почва или различни химикали. Материалът от по-долните пластове е по-добре запазен. Най-голямо количество останки са от средновековните ровове и тези от късната желязна епоха. Количественото разпределение по видове в различните периоди може да се види на фигура 7 (fig. 7).

Домашните животни преобладават във всички периоди. Най-многоброен е материалът от средновековните ровове, вала (126) и рововете от късната желязна епоха (63). В тези контексти има и по-голямо разнообразие от животински видове, дори като се има предвид, че е възможно смесване с по-стари пластове. Най-голям процент е говедото, следван от дребните преживни и свинята. Останките от куче се срещат само в къснонеолитните и средновековните пластове. Открити са единични фрагменти от рога и кости на благороден елен в пластовете от късния неолит, късната бронзова епоха, късната желязна епоха и Ранното средновековие. Също и няколко фрагмента от прешлени на риби от една яма, датирана в късната бронзова епоха. Материалът от всички периоди има вид на хранителни останки, някои от тях хвърлени вероятно в рововете, след като месото е отделено и консумирано. Фауната на обекта е характерната фауна за всеки период.

10.4. HUMAN REMAINS FROM A PIT AT SITE 5

Victoria Russeva

Human remains are unearthed in a pit on site 5, Tash Bair (cf. the contributions by L. Vagalinski et al., chapter 8.3.3 in this volume; Вагалински et al. 2019).

Field situation. Skeletal remains *in situ* present a relatively complete human skeleton, bones being highly fragmented with missing fragments (fig. 1). Observed state of preservation is to be explained with natural processes of destruction and taphonomic changes. Bones presented correct anatomical position with no parts in disarticulation, which allows reconstruction of the body position at the time of depose. Skull is relatively completely preserved. It is lying on its right side. After position of rib fragments, vertebrae, in high decomposed state of preservation, and preserved ilia reconstructions, the body laid on its frontal side to the bottom of the pit. Upper limbs should have been flexed in the elbows with their anterior shafts again to the bottom of the pit (fig. 1.1). Left hand bones – carpals, metacarpals and some of preserved phalanges allow reconstruction of the left-hand position with extended fingers and palmar side to the pit's floor. The bones of the right hand are not present, possibly due to natural destruction, but it could be supposed that it was in a similar position. Based on the observed position of the bones of the lower limbs; the right one was flexed at the knee and hip joint and pressed under the body to the bottom of the pit on its right side (fig. 1.3, arrow), while the left one was in extension with its anterior (frontal) side to the pit's floor.



Fig. 1. 1. *In situ* position of skeletal remains. 2. Position of the upper limb's bones and ribs on the anterior shafts, detail; skull – left mandible angle and left zygomatic with marginal tubercle. 3. Position of long bones of the right leg, pointing to flexed position of the limb, detail (photo by V. Russeva)

Bone examination. Cleaned bones comprise of a fragmented skull vault with fragments from frontal, both parietals, occipital squama and fragments from both temporal bones. Fragments from the upper and lower jaw are also present, as well as completely preserved dentition. A fragment from the left zygomatic bone is also present. The dentition presents a stage of replacement of deciduous with permanent teeth (figs. 2, 3). From the methods applied (Зубов 1968, Ubelaker 1989) the teeth development stage corresponds to the age of about seven years. Only length measurements were possible for the long bones on field *in situ* (table 1). Their reconstruction in laboratory conditions was not possible. The measurements obtained from the applied methods (Maresh 1970) correspond to a significantly lower age, than the one ascertained from dental development, of about four to four and a half year. The young age of the



Fig. 2. Dentition (photo by V. Russeva)

7	*3 4 5 7*
6 V IV III 2 1	*1 fr III IV V 6*
6 V IV III 2 1	1 *fr* III IV V 6

Fig. 3. Dental formula: III – deciduous tooth; 1 – permanent tooth; *3* – thooth, the alveolar socket destructed post mortem; *fr* – part of the alveolar process is not present in the material (figure by V. Russeva)

individual makes the identification of sex difficult, but the marginal tubercle of the found zygomatic and form of the mandible angle place a suspicion that the infant could have been of male sex.

The poor preservation of the bones does not allow a detailed analysis of individual features and health condition. From the pattern of the lambdoid suture of the skull it could be supposed that there were numerous big suture bones present, which are not found in the material due to natural destruction. The only identified pathological change on the examined bones is the presence of cribra orbitalia on the orbital roof. The condition is active during death of the individual, but its stage of development can be determined as mild.

Table 1. Long bones of limbs. Available measurements in mm

Bone	**Side**	**Length**
Humerus	left	162
Ulna	right	137.3
Ulna	left	≥134.5
Femur	right	225

Conclusions. The observed position of the skeleton in the pit resembles some studied complexes from the Iron Age. It is close to complexes, which contain a skeleton with improper position and specific features, which differentiate them from defined burial complexes. Some of these complexes contain skeletons which allow a reconstruction of the actions which took place at these locations as a homicide at the place of deposition. In some of them a position of the victim could be reconstructed as

squatted or placed on their knees on the pit floor. For example, like those excavated in Thracian Valley in Gledachevo, pit 9, Kumsala site, and pit 40, Dvora site, and in Malko Tranovo, pit 33 Kozluka site (Тонкова, Димитров 2005, Тонкова 2010, Tonkova 2010) and in North Bulgaria in Makak, pit N 185/5 (Тонкова et al. 2013) and Pamukchii, skeleton 2, structure 1 – a pit, which contains human remains from two individuals in anatomical position (Димитров, Живков 2021). In a complex from Kapitan Andreevo, Kyuchuk Chair, pit 284 (Илиев 2019) the victim could have squatted on the edge of the pit and after being killed, could have been thrown into the pit. From all these complexes the one from pit 40, Gledachevo, Dvora (Tonkova 2010, 518, fig. 6) resembles nearly equally the position of skeleton one, studied in the site from Tash Bair. In both cases, it could be supposed that the position of the individual on their knees is evidence of a homicide. A possibility, that the act of homicide was performed while the victim was standing and after the kill the body fell on the pit floor and the knee of the right leg flexed under it is also possible. Hands remain in a protective position, trying to soften the impact with the pit floor. The equal position of skeletal remains in both complexes also supposes a similar position of the one who performed the action: standing behind the victim, whose body freely fell on its front side after the mortal hit, and similar technique of the action.

Porous changes on the orbital roof are often found in skeletal populations, the most affected group being infants. Such a distribution can be a result of earlier death of those with deteriorated health status, or the overcoming of the condition during adulthood. The defect can be explained by anemic conditions with differing etiologies (Stuart-Macadam 1989, Aufderheide, Rodriguez-Martin, 1998, Walker et al. 2009). Mild forms of the defect are explained with possible helminthiasis (Marcsik 1974) and iron dietary insufficiency (Holland, O'Brien 1997). The deteriorated health status of the studied individual explains the shorter dimensions of the long bones in comparison to the age determined from dental development. These features are often identified in child skeletal remains which have been studied from paleo-populations, and the child from Tash Bair does not deviate much from the mean tendency.

ЧОВЕШКИ КОСТНИ ОСТАНКИ ОТ ЯМА НА ОБЕКТ 5

Виктория Русева

(Резюме)

Проучените човешки костни останки произхождат от яма на обект 5, м. Таш баир, (вж. Л. Вагалински и др., глава 8.3.3).

Скелетните останки са относително цялостно представени, в анатомично правилна позиция, представяща позицията на тялото при депонирането му. Малобройните липсващи фрагменти се обясняват с естествена деструкция. Относително цялостно представеният череп лежи на дясната си страна. Позицията на костите на гръдния кош прави възможна реконструкцията на положението на тялото в областта с лицевата му страна към дъното на ямата. Горните крайници са били във флексия (свити) в лакътните стави с предна страна към дъното на ямата, съхранените кости на дясна длан показват положението ѝ с палмарна страна отново към дъното на ямата, подобно положение трябва да се предположи и за лявата длан. Според позицията на костите на долните крайници десният е бил свит в тазобедрената и колянната става и е оставал притиснат под тялото на дясната си страна към дъното на ямата, докато левият е бил изпънат на предната си страна към дъното на ямата.

Възрастта при настъпване на смъртта се определя по развитие на съзъбие на 7 години по използваните методи. Измерените дължини на дългите кости на крайниците при разкриване на скелетните останки показват близки стойности до средните, характерни за по-ниска възраст от четири-четири и половина години по използваните стандартизирани таблици. Младата възраст

на индивида затруднява определянето на пола по антропологични белези, но някои от тях (ъгъл на долната челюст и зигоматични кости) насочват към определяне на мъжки пол.

Комплексът показва близки характеристики с други проучени комплекси от желязната епоха от Южна (Гледачево, Малко Тръново, Капитан Андреево) и Северна България (Макак, Памукчии), показващи особености в позата на скелета и други характеристики, отличаващи ги от комплекси, резултат от редовен погребален обред. Някои от тези комплекси показват особености, предполагащи хомицид на мястото на депониране на човешките останки.

11. CONCLUSIONS

11.1. NOVGRAD I PROJECT

Lyudmil Vagalinski

AHuman presence in the Early Neolithic; fortified sites during the Bronze Age, the Late Iron Age, and the Early Middle Ages; a settlement from the Early Iron Age; a child's grave from the time around the turn of the century; natural changes in the flow of the Yantra River determined the location of the Late Roman castel of Iatrus; an earth fortification from the First Bulgarian State (681–1018)... These are only part of the scientific results of a small Bulgarian-German team that worked in the field for only five months within two years. How is such a research efficiency achieved? The answer is that the project:

– was well selected for studying a micro-region: the southernmost point of the Danube with a convenient road connection to the territories in the south; upgrading available scientific information about the area from previous Bulgarian-German archaeological expeditions, in which members of this team participated;

– emphasised the interdisciplinary focus of the project;

– was reasonably planned with consistent fieldwork, focusing on intense, field surveys with GIS application and geophysical studies at the expense of limited and highly focused excavations.

In practice, a project about the transition between the 1st millennium BC and the 1st millennium AD created a convincing scientific scheme for the interactions of man-nature and man-man from the 6th millennium BC to this days, in a specific area in the Balkans. The data published in this volume are an excellent basis for clarifying and enriching the history of the Lower Danube – an enforceable purpose of the next stage of the project, which is already being implemented under a new contract between the National Archaeological Institute with Museum (Bulgarian Academy of Sciences) and the Tübingen University.

ПРОЕКТ НОВГРАД I

Людмил Вагалински

Човешко присъствие през ранния неолит; укрепени обекти от бронзовата епоха, късножелезния период и Ранното средновековие; селище от ранножелезния период; детско погребение около новата ера; природни изменения на руслото на река Янтра, определили местоположението на късноримския кастел „Ятрус"; землено укрепление от Първата Българска държава (681 – 1018)... Това са само някои от научните резултати на малкия българо-немски екип, който работи на терен само пет месеца в рамките на две години. Как е постигната такава ефективност? Отговорът се съдържа в следните предпоставки:

– добре подбран за изучаване микрорайон – най-южната точка на Дунав с удобна пътна връзка към териториите на юг; надграждане на налична научна информация за района от предходни българо-немски археологически експедиции, в които са участвали членове на настоящия колектив;

– наблягане на интердисциплинарния характер на проекта;

– разумно планирана работа на терен с акцент върху интензивни издирвания с приложение на ГИС и геофизични изследвания за сметка на ограничени по обхват, но силно фокусирани разкопки.

На практика един проект за прехода между I хил. пр. Хр. и I хил. сл. Хр. създаде убедителна научна схема за взаимоотношенията човек – природа и човек – човек за времето от VI хил. пр. Хр. до наши дни в специфичен район на Балканите. Данните в настоящия том са отлична основа за изясняване и обогатяване на историята на Долен Дунав – основна цел на следващия етап от проекта, който вече се изпълнява в рамките на нов договор между Националния археологически институт с музей (Българска академия на науките) и Университета в Тюбинген.

11.2. THE MOUTH OF THE YANTRA WITH THE TASH BAIR RIDGE – AN IMPORTANT CRYSTALLISATION AND CROSSING POINT IN THE HISTORY OF SETTLEMENT ON THE EASTERN BALKAN PENINSULA.

Sven Conrad, Raiko Krauß

This volume presents the first results of the interdisciplinary research carried out between 2018 and 2020 at the Tash Bair ridge and in the surrounding lowlands at the mouth of the Yantra River. Although the investigations are still in progress, a provisional interim conclusion can be presented at this point to classify the results. At the same time, it serves to test the hypothesis put forward; that the concentration of important sites at Tash Bair and its surroundings was largely due to the special geographical location at the river mouth on the southernmost section of the Danube and at an important crossing point of road connections and communication lines.

Located on the southernmost section of the Danube, the micro-region around the Yantra mouth forms a unique and impressive geographical ensemble: surrounded on three sides by loess-covered mountain ranges, the Yantra flows from the north-east out of a rocky karst valley into the mouth plain, and shortly thereafter it bends sharply northwards to its mouth. As the research of the working group of the KU Leuven has shown, this current situation only arose as a result of a relatively recent development. The ever-changing system of meanders that covered much of the lowland originally extended to the western edge of the lowland below the Tash Bair. With the resulting direct river access, its elongated southern slope offered the best conditions for the establishment of various settlements at different times. Whereby, both the rivers as a transport route with the possibility of reloading into smaller boats traveling up the Yantra, as well as the aquatic resources were likely to have been important. However, the latter are hardly reflected in the finds so far, since the bone preservation at the sites examined is relatively poor. In addition, site 1 provided connections to the land routes along the Danube, Yantra and Studena Reka.

Geomagnetic mapping reveals a variety of different anomalies at site 1, situated in the lowest part of the slope. Even for the larger linear structures associated with individual sites such as fortifications, only a small portion has been explored to date. The scatterings of finds ascertained during the surveys are in some cases very extensive. Compared to other sites on the Yantra estuary and beyond, the research conducted so far suggests that this site has a key role in the settlement history of the region.

As the results of the surveys and excavations show, an extensive settlement developed here as early as the Late Neolithic. It was surrounded by a ditch that was at least partially designed as a double enclosure. The finds sometimes show different cultural influences from Vădastra, Bulgarian Late Neolithic, Hamangia and Boian, without a chronological internal classification being possible so far. A possible earlier settlement, e.g. during the Early Neolithic, at the mouth of the Yantra can only be ascertained from a settlement layer in the southern part of the estuary plain, which is covered by a 3.5 m thick alluvial layer (site 19). The layer was recorded during the coring works for the geomorphological investigations. A radiocarbon sample on a charcoal dates it to around 6000 BC.

Subsequent settlement from the Chalcolithic through the Early, Middle and Late Bronze Age to the Early Iron Age can currently only be ascertained on site 1 through surface finds and ancillary finds during the excavations. The Chalcolithic to Bronze Age finds are relatively small in number and probably indicate relatively small settlements. Inseparably linked to the Middle Bronze Age settlement on

site 1, is a complex on site 3 consisting of two concentric circular ditch sections, which is located on the middle slope of the Tash Bair ridge dominating the mouth plain. The geomorphological investigations could not unequivocally prove the extent of a demolition at the edge of the terrace, which would allow a reconstruction of an original circular ditch system with an outer diameter of at least 180 m. If this reconstruction of the circular enclosure is correct (presumably used for rituals), then this was not only one of the largest complexes of this type on the eastern Balkan peninsula, but also the only structure of this type in northern Bulgaria to date. Connecting lines could also be established to similar enclosures in southern Bulgaria and beyond. Comparable structures on the Romanian side of the Lower Danube are of uncertain date. An oval ditch measuring approx. 160 × 130 m near the Chalcolithic tell of Pietrele is dated by the excavators to the transition from the Middle to Late Bronze Age (Hansen et al. 2017, 99, figs. 126–130). During the Late Bronze Age there was also a settlement in the enclosed interior of the site that we partially examined. It used the inner ditch as a fortification. The northeast-facing spur of the Tash Bair ridge was protected by a section fortification at around the same time, as indicated by more recent excavations conducted in 2021 (Иванов et al. (in press). With the Late Bronze Age settlement at the old mill of Novgrad, a settlement developed for the first time on the eastern terrace side of the estuary plain (site 21/24).

In the Early Iron Age there was again an extensive settlement on site 1. Characteristic finds of pottery decorated with rolling wheels and stamps suggest a settlement of the Basarabi culture, which dates back to around 800 and 650 BC. This culture mainly spread north of the Danube. As with the Late Neolithic Vădastra culture, these finds show how the mouth area favoured the penetration of specific cultural elements, and presumably also their carriers, which were predominantly distributed north of the Danube. The large settlement on site 1 at the Tash Bair functioned as a sort of 'bridgehead settlement' for further spread inland. Nevertheless, the spread of the Basarabi phenomenon remains closely linked to the course of the Danube and does not extend to southern Bulgaria.

In prehistory, the Danube, which is about 1 km wide in the area of the Yantra mouth, always represented a serious natural obstacle, but it was never impassable, also because it was divided by numerous islands and smaller side arms. The section of the stream that stretched furthest to the south was apparently an important cross-regional crossing point, which was favoured on the north bank at Zimnicea-Svishtov by a high terrace lying directly on the main channel. Via the settlement at the Tash Bair, there was a connection to the route along the Yantra from and to the passes over the Balkan Mountains.

At the same time, the Danube represented an important transport route connecting with the Black Sea (evidenced by the emergence of fortifications and large settlements on its banks such as Zimnicea, Svishtov, Tash Bair, Scaidava/Batin and Ruse) in the Late Iron Age gains in importance. Amphora imports from the Aegean are evidence of exchange with the Mediterranean world. The development of the central hilltop settlements at Svishtov and Byala (Conrad 2006, 312–315, figs. 3–5) seems to have been accompanied by a certain loss of importance for the settlement sites at the Tash Bair and at the mouth of the Yantra. However, excavations on site 1 verified a Late Iron Age ditch structure measuring at least 230 × 110 m, whose right-angled corner in its south-west points to a Mediterranean influence. Due to the erosion processes at the edge of the terrace, only a part of the complex is properly preserved. The Late Iron Age finds spread well beyond the area delimited by the ditch, so that there may well have been an unfortified settlement as well. The function of this complex remains unknown for the time being; presumably it ruled and secured the Yantra mouth and the access upstream. As in the Late Bronze Age, the inner ditch of the former enclosure on site 3 was also used during the Early and Late Iron Age, without concrete statements being possible so far about its specific function.

It is worth noting that there was settlement in the southern part of the river lowlands from the Early Iron Age to the Early Middle Ages, which is evident from the numerous surface finds on the embankments of the meanders (sites 5; 17–22). The reason for the hitherto missing evidence of settlement traces between the 6000 BC dated covered site (site 19), and the Early Iron Age, may lie in the massive alluvial upwelling in the southern part of the lowland, which slowed down with the significant elevation

of the terrain from the Early Iron Age and probably then largely came to a standstill. In addition, the geomorphological investigations showed an avulsion of the Yantra meanders near the Tash Bair from the main course at about the transition from the Late Iron Age to the Roman period. The increase in agricultural activity and the simultaneous decline in forest cover most likely increased the amount of eroded soil material transported by the river with simultaneously lower water flow rates, which led to a gradual closure of the river channel in the central area of the lowland. This cut off the meanders from the water supply of the Yantra, which was at best partially maintained by the inflow of the Studena Reka. As a result, these meanders were at least temporarily water-bearing, which made them interesting for the use of food resources for a certain time.

The loss of direct access to the Yantra, and thus to the Danube, had far-reaching consequences for the settlement at Tash Bair, which were initially only indirectly apparent in Roman times. But from that time, the right bank of the Yantra lowlands became increasingly important due to the river bed shifting to the east.

After the geomagnetic mapping and field surveys, from 2nd to the 4th century AD various buildings were distributed at larger, irregular distances from one to another over the south slope of Tash Bair (sites 1; 2; 3 south). Their interpretation is currently open. They could be farm buildings, i.e. parts of a larger villa complex, or individual villa complexes. A burial of a child in a pit on the lowland site 5 which deviates from the norm is probably connected with native Thracian settlers in the transition period from the Late Iron Age to the beginning of the Roman occupation.

With the establishment of the Roman province of Moesia around 15 AD and the organisation of the Limes, the Danube became an official (state) border for the first time. Roman finds north of the Danube (Conrad 2006, 318) show that this section of the limes, like other areas, were not impermeable. Notable, is the lack of a permanent limes fort at the mouth of the Yantra during the Imperial period of the 1st to 3rd century, which is contrary to the practice otherwise practiced by the Romans when securing the large river mouths along the Lower Danube (Ivanov 1997, 591). The exact reasons for the decision to set up the legionary camp east of today's town of Svishtov directly on the banks of the Danube cannot be determined. This section may have been classified as particularly endangered, but the increasing silting up of the Yantra meanders at Tash Bair and the unsafe access to the Danube as a result may also have played a role. Only under Constantine the Great around 320 AD, a permanent limes fort was built with the Iatrus fort near today's village of Krivina. Significantly, this fortification of the high terrace was built on the eastern side of the Yantra lowland. Since the river was probably already flowing here at that time, there was direct access from the fort. Together with a nearby civilian settlement, the fort existed with interruptions until the turn of the 6th and 7th century.

In the rural region along the Lower Yantra as well as on the Tash Bair, Late Roman settlement came to an almost complete standstill around the turn of the 4th and 5th century after the Second Gothic War and in the wake of the Hun invasions. The only exceptions, so far, are the finds from the inner circular ditch of site 3, which belong to the first half of the 5th century and possibly indicate a further phase of use, and the remains of houses from the 6th century at the site near the Novgrad old mill (site 21/24) observed during dike construction in the first half of the 20th century (Стефанов 1974, 292–293, figs. 37–38).

The rapid revival of settlement life during the period of the Early Middle Ages, which essentially coincides with the time of the First Bulgarian Kingdom, is all the more remarkable. A large settlement existed again on site 1. In addition, an earthen rampart was erected, which could have been a temporary military camp. However, if one looks at the settlement at the mouth of the Yantra as a whole, a shift in the focus to the eastern side of the lowlands with large settlements, for example near the old mill in Novgrad and around the former fort Iatrus can already be seen at this time. Nevertheless, it is surprising that the settlement area at Tash Bair was apparently quickly and completely abandoned after the end of the First Bulgarian Kingdom in 1018 and was not subsequently settled again.

The consolidation in the course of the founding of the Second Bulgarian Kingdom at the end of the 12th century led to a reorganisation and reorientation of the settlement, which was subsequently

concentrated in relatively few villages that were located at a greater distance from each other. A fortification was built at that time on a loess spur east of the present-day village of Novgrad, at the point where the Yantra flows out of the karst valley into the plain (Стефанов 1956, 11; Дремсизова-Нелчинова, Иванов 1983, 52, No. 120, fig. 43). In Byzantine sources its name is given as Neokastro, from which the later name Novgrad is derived (Wendel 1986, 31; Пернишка 2012, 59–61). The naming as 'new castle' is probably primarily associated with the rebuilding of the fortification and the associated settlement after the abandonment of the sites at Tash Bair. Wendel had associated the name of the settlement with the shift of the settlement focus from the former castrum Iatrus fort to Novgrad, but at least a settlement continued to exist there from the 11th to the 14th century, albeit with reduced intensity (Wendel 1986, 200).

Although the research within the project is currently still in progress, and the conclusions presented here are still partly of a preliminary nature, it can already be stated that the work carried out to date has led to a deeper understanding of the settlement processes on the Lower Yantra and the special role of the settlement complex at the Tash Bair. From the Late Neolithic to the Early Middle Ages, perhaps with the exception of the period from the Chalcolithic to the Early Bronze Age, the Tash Bair ridge was perceived as an important landmark on the southernmost section of the Danube course in terms of strategic settlement geography. The geographical conditions already described above acted as important factors in favour of settlement. For the time being, important questions remain unanswered, such as: the continuity and discontinuity between and within individual periods; a possible settlement before the Late Neolithic; the character and chronology of the Bronze Age and Iron Age settlements on site 1; and the function and character of the possible Roman and Late Roman buildings on site 1–3.

The main reasons for the general abandonment of the settlement sites and the fortifications at the Tash Bair and in the lowlands are likely to be the shift of the main course of the Yantra to the northeast due to the progressive silting up of the meanders and the associated loss of direct access to the Yantra and the Danube. This in turn may have led to a shift in the main traffic routes. The settlement area at Tash Bair thus shared the fate of other ancient and medieval settlements located at river mouths at the Black Sea and in the Mediterranean, such as Histria, Miletus or Ephesos. The silting up of their ports as well as of the meanders at the Tash Bair are to be understood as relatively small-scale ecological crises, which were caused by increasing sedimentation after deforestation and intensified agriculture in the hinterland (Hughes 2014, 75–83). Although they had a significant impact on the sites and its respective surroundings, they could still be compensated by relocating or abandoning the settlements on a regional scale at that time.

УСТИЕТО НА Р. ЯНТРА ПРИ ТАШ БАИР – ЗНАЧИМ СЕЛИЩЕН ЦЕНТЪР ПРЕЗ ВЕКОВЕТЕ И ПРЕХОДЕН ПУНКТ НА ИЗТОЧНИТЕ БАЛКАНИ

Свен Конрад, Райко Краус

Този том представя първите резултати от интердисциплинарните изследвания, проведени между 2018 и 2020 г. на билото на Таш баир и в околните низини при устието на р. Янтра. Въпреки че проучванията все още са в ход, на този етап може да се представи временно междинно заключение за резултатите. Същевременно то служи за проверка на изказаната хипотеза, че концентрацията на важни селища по Таш баир и околностите му до голяма степен се дължи на особеното географско положение при устието на реката в най-южния участък на Дунав и на важен пункт за пресичане на пътни връзки и комуникационни линии.

Разположен в най-южния участък на Дунав, микрорегионът около устието на р. Янтра образува уникален и впечатляващ географски ансамбъл: заобиколена от три страни от покрити с льос възвишения, р. Янтра извира от североизток от скалиста карстова долина в равнината на устието и малко след това завива рязко на север към устието си. Както показаха изследванията на работната група от Географския институт на Католическия университет в Льовен, Белгия, това сегашно положение е възникнало едва в резултат на сравнително скорошно развитие. Постоянно променящата се система от меандри, която е обхващала голяма част от низината, първоначално се е простирала до западния край на низината под Таш баир. С произтичащия от това пряк достъп до реката нейният продълговат южен склон е предлагал най-добрите условия за създаване на селища в различни времена. При това вероятно са били важни както речните долини като транспортен път с възможност за претоварване в по-малки лодки, пътуващи нагоре по Янтра, така и водните ресурси. Последните обаче почти не са отразени в досегашните находки, тъй като запазеността на костите в изследваните обекти е сравнително слаба. Освен това обект 1 е осигурявал връзки със сухоземните маршрути по реките Дунав, Янтра и Студена река.

Геомагнитното картиране разкрива множество различни аномалии на обект 1, разположен в най-ниската част на склона. Дори и от по-големите линейни структури, свързани с отделни обекти, като например укрепления, досега е проучена само малка част. Разпръснатите находки, установени по време на теренните издирвания, в някои случаи са много обширни. В сравнение с други обекти по устието на р. Янтра и извън нея проведените досега проучвания показват, че този обект има ключова роля в историята на заселването на региона.

Както показват резултатите от издирванията и разкопките, тук се е развило обширно селище още през късния неолит. То е било заобиколено от ров, който поне отчасти е бил проектиран като двоен ров. Находките понякога показват различни културни влияния от културните групи Въдастра, Българския късен неолит, Хаманджия и Боян, без засега да е възможна хронологична вътрешна класификация. Евентуално по-ранно селище, напр. през ранния неолит, при устието на р. Янтра може да се установи само от селищен пласт в южната част на равнината в подножието на Таш баир, който е покрит с алувиален пласт с дебелина 3,5 м (обект 19). Слоят е регистриран по време на сондажите за геоморфологичните проучвания. Една радиовъглеродна дата посочва времето около 6000 г. пр. Хр.

Последващото заселване от халколита, както и през ранната, средната и късната бронзова епоха до ранната желязна епоха понастоящем може да бъде установено само на обект 1 чрез повърхностни находки и допълнителни наблюдения по време на разкопките. Находките от халколита до бронзовата епоха са сравнително малко на брой и вероятно принадлежат към сравнително по-малки селища. Свързан със заселването от средната бронзова епоха на обект 1 е комплексът/обект 3, състоящ се от две концентрични кръгли части от ровове, които са разположени на средния склон на рида Таш баир, доминиращ над равнината. Геоморфоложките проучвания не можаха да докажат по категоричен начин степента на разрушаване на ръба на терасата, което би позволило реконструкция на първоначалната система от кръгли ровове

с външен диаметър поне 180 м. Ако тази реконструкция на кръглото заграждение е вярна (вероятно използвано за ритуали), то това е не само един от най-големите комплекси от този тип на Източните Балкани, но и единствената досега структура от този тип в Северна България. Биха могли да се установят и свързващи линии с подобни заграждения в Южна България и извън нея. Съпоставимите структури от румънската страна на долното течение на Дунав са с неясна датировка. Овален ров с размери приблизително 160 × 130 м близо до халколитната селищна могила Пиетреле (Мунтения, Румъния) е датиран от проучвателите в прехода от средната към късната бронзова епоха (Hansen et al. 2017, 99, figs. 126 – 130). През късната бронзова епоха е имало и селище в оградената вътрешност на обекта, което частично проучихме. То е използвало вътрешния ров като укрепление. Приблизително по същото време с участъково укрепление е бил защитен и североизточният откос на билото на Таш баир, както сочат по-новите разкопки, проведени през 2021 г. (Иванов et al. (in press). Със селището от късната бронзова епоха при старата мелница на Новград за първи път се развива селище на източната терасовидна страна на равнината (обект 21/24).

През ранната желязна епоха отново има обширно селище на обект 1. Характерни керамични фрагменти, украсена с назъбена щампа и печати, подсказват за селище от културата Басараб, която се датира около 800 и 650 г. пр. Хр. Тази култура се е разпространявала главно на север от Дунав. Както и при къснонеолитната култура Въдастра, тези находки показват как районът на устието е благоприятствал проникването на специфични културни елементи, а вероятно и на техните носители, които са се разпространявали предимно на север от Дунав. Голямото селище на обект 1 при Таш баир е функционирало като предмостие за по-нататъшно разпространение навътре в страната. Въпреки това разпространението на културната група Басараб остава тясно свързано с течението на Дунав и не се разпростира в Южна България.

В праисторията Дунав, който е широк около 1 км в района на устието на р. Янтра, винаги е представлявал сериозно природно препятствие, но никога не е бил непроходим, включително и защото е бил разделен от множество острови и по-малки странични ръкави. Участъкът от течението, който се простира най-далеч на юг, очевидно е бил важен пункт за пресичане на региона, което е било благоприятствано на северния бряг при Зимнича – Свищов от висока тераса, лежаща директно на главния ръкав. Чрез селището при Таш баир е имало връзка с пътя по р. Янтра от и към проходите през Стара планина.

Същевременно Дунав представлявала важен транспортен път, свързващ се с Черно море (за това свидетелства появата на укрепления и големи селища по бреговете му като Зимнича, Свищов, Таш баир, Скайдава/Батин и Русе) и през късната желязна епоха придобива все по-голямо значение. Вносът на амфори от Егейско море е доказателство за обмен със средиземноморския свят. Развитието на централните селища на хълмовете при Свищов и Бяла (Conrad 2006, 312–315, figs. 3–5) изглежда е съпроводено с известна загуба на значение за селищните обекти при Таш баир и при устието на р. Янтра. Въпреки това при разкопките на обект 1 се потвърди наличието на вкопана структура от късната желязна епоха с размери най-малко 230 × 110 м, чийто прав ъгъл в югозападната му част говори за средиземноморско влияние. Поради ерозионните процеси по ръба на терасата само част от комплекса е добре запазена. Находките от късната желязна епоха се разпростират далеч извън зоната, очертана от рова, така че е възможно да е имало и неукрепено селище. Функцията на този комплекс засега остава неизвестна; вероятно той е управлявал и охранявал устието на р. Янтра и достъпа нагоре по течението. Както и през късната бронзова епоха, вътрешният ров на бившето заграждение на обект 3 е използван и през ранната и късната желязна епоха, без засега да са възможни конкретни твърдения за конкретната му функция.

Заслужава да се отбележи, че в южната част на речната низина е имало селище от ранната желязна епоха до Ранното средновековие, което личи от многобройните повърхностни находки по насипите на меандрите (обекти 5; 17 – 22). Причината за липсващите досега данни за следи

от селища между покрития обект, датиран от 6000 г. пр. Хр. (обект 19), и ранната желязна епоха може да се крие в масивното алувиално надигане в южната част на низината, което се забавя със значителното издигане на терена от ранната желязна епоха и вероятно след това до голяма степен е спряло. Освен това геоморфоложките изследвания показват откъсване на меандрите на р. Янтра край Таш баир от основното течение приблизително на прехода от късната желязна епоха към римския период. Увеличаването на селскостопанската дейност и едновременното намаляване на горските масиви най-вероятно е увеличило количеството на ерозиралия почвен материал, пренасян от реката, при едновременно намаляване дебита на водата, което е довело до постепенното затваряне на речното корито в централната част на низината. Това е отрязало меандрите от водоснабдяването на р. Янтра, което в най-добрия случай е било частично поддържано от притока на Студена река. В резултат на това тези меандри са били поне временно водоносни, което ги е направило интересни за използване при добиване на хранителни ресурси за определен период от време.

Загубата на пряк достъп до р. Янтра, а оттам и до Дунав, е имала значителни последици за селищата по Таш баир, които първоначално са били само косвено видими по римско време. Но от този момент нататък десният бряг на низината на р. Янтра става все по-важен поради изместването на речното корито на изток.

Според геомагнитното картиране и теренните проучвания от II до IV в. по южния склон на Таш баир на по-големи, неравномерни разстояния една от друга са разпределени различни сгради (обекти 1; 2; 3 южно). Тяхната интерпретация засега е неясна. Те биха могли да бъдат стопански сгради, т.е. части от по-голям вилен комплекс или отделни вилни комплекси. Едно отклоняващо се от нормата погребение на дете в яма на обект 5 в равнината вероятно се свързва с местни тракийски преселници в преходния период от късната желязна епоха до началото на римската окупация.

Със създаването на римската провинция Мизия около 15 г. сл. Хр. и организирането на лимеса Дунав за първи път става официална (държавна) граница. Римските находки на север от Дунав (Conrad 2006, 318) показват, че този участък от лимеса, както и други райони, не е бил непропусклив. Забележителна е липсата на постоянна лимесова крепост при устието на р. Янтра през императорско време от I до III в., което се различава от римската практика за обезопасяването на устията на големите реки по долното течение на Дунав (Ivanov 1997, 591). Точните причини за решението да се разположи легионерски лагер източно от днешния град Свищов, директно на брега на Дунав, не могат да бъдат установени. Възможно е този участък да е бил класифициран като особено застрашен, но роля може да е изиграло и все по-нарастващото затлачване на меандрите на р. Янтра при Таш баир и опасният достъп до Дунав в резултат на това. Едва по времето на Константин Велики около 320 г. е изградена трайна гранична защита с крепостта „Ятрус“ край днешното с. Кривина. Забележително е, че това укрепление на високата тераса е построено от източната страна на низината на р. Янтра. Тъй като по това време тук вероятно вече е текла река, от крепостта е имало пряк достъп до нея. Заедно с близкото цивилно селище крепостта е съществувала с прекъсвания до края на VI и VII в.

В селския район по долното течение на р. Янтра, както и на Таш баир, късноримското селище почти напълно спряло около края на IV и V в. след Втората готска война и след хунските нашествия. Единствените изключения засега са находките от вътрешния кръгъл ров на обект 3, които се отнасят към първата половина на V в. и вероятно показват още една фаза на използване, и останките от къщи от VI в. в местността край старата мелница в Новград (обект 21/24), наблюдавани при изграждането на дига през първата половина на XX в. (Стефанов 1974, 292 – 293, figs. 37 – 38).

Още по-забележително е бързото възраждане на селищния живот през периода на Ранното средновековие, който по същество съвпада с времето на Първото българско царство. Голямо селище е съществувало отново на обект 1. Освен това е бил издигнат и земен вал, който може да

е бил временен военен лагер. Ако обаче се разгледа селището при устието на р. Янтра като цяло, още по това време се забелязва изместване на акцента към източната страна на низината с големи селища, например край старата мелница в Новград и около бившата крепост „Ятрус“. Въпреки това е изненадващо, че селищният район при Таш баир очевидно е бил бързо и напълно изоставен след края на Първото българско царство през 1018 г. и впоследствие не е бил заселен отново.

Консолидацията в хода на създаването на Второто българско царство в края на XII в. води до реорганизация и преориентация на селището, което впоследствие се концентрира в сравнително малко на брой села, разположени на по-голямо разстояние едно от друго. По това време е изградено укрепление на льосов откос източно от днешното село Новград, на мястото, където р. Янтра се влива от карстовата долина в равнината (Стефанов 1956, 11; Дремсизова-Нелчинова, Иванов 1983, 52, No. 120, fig. 43). Във византийските източници името му е дадено като Неокастро, от което произлиза по-късното име Новград (Wendel 1986, 31; Пернишка 2012, 59 – 61). Названието „нова крепост“ вероятно е свързано най-вече с възстановяването на укреплението и свързаното с него селище след изоставянето на обектите в Таш баир. Вендел е свързал името на селището с преместването на селищния фокус от бившата крепост „Ятрус“ към Новград, но селището там е продължавало да съществува от XI до XIV в., макар и с намалена интензивност (Wendel 1986, 200).

Въпреки че изследванията в рамките на проекта понастоящем все още са в ход и представените тук заключения имат отчасти предварителен характер, вече може да се каже, че извършената до момента работа е довела до по-задълбочено разбиране на селищните процеси по долното течение на р. Янтра и особената роля на селищния комплекс при Таш баир. От късния неолит до Ранното средновековие, може би с изключение на периода от халколита до ранната бронзова епоха, хребетът Таш баир е бил възприеман като важен ориентир в най-южния участък от течението на Дунав от гледна точка на стратегическата селищна география. Описаните по-горе географски условия са действали като важни фактори в полза на заселването. Засега остават без отговор важни въпроси като: приемствеността и прекъснатостта между отделните периоди и тяхното подразделение; възможното заселване в периодите преди късния неолит; характерът и хронологията на селищата от бронзовата и желязната епоха на обект 1; функцията и характерът на възможните римски и късноримски сгради на обекти 1 – 3.

Основните причини за общото изоставяне на селищата и укрепленията на Таш баир и в подножието му вероятно са изместването на основното течение на р. Янтра на североизток поради постепенното затлачване на меандрите и свързаната с това загуба на пряк достъп до р. Янтра и Дунав. Това от своя страна може да е довело до промяна на основните транспортни маршрути. По този начин селищният район при Таш баир споделя съдбата на други антични и средновековни селища, разположени при устията на реките в Черно море и в Средиземноморието като Истрия, Милет или Ефес. Затлачването на техните пристанища, както и на меандрите при Таш баир трябва да се разбира като сравнително дребномащабни екологични кризи, които са причинени от нарастващата седиментация след обезлесяването и интензифицираното земеделие във вътрешността на страната (Hughes 2014, 75 – 83). Въпреки че са имали значително въздействие върху селищата и техните околности, те все пак са могли да бъдат компенсирани чрез преместване или изоставяне на селищата в регионален мащаб по това време.

12. CATALOGUE OF THE ARCHAEOLOGICAL SITES

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INTRODUCTION

The catalogue is structured and based on defined archaeological sites. The suitable and accepted definition of "an archaeological site" for the Tash Bair project and compatible with the Archaeological Map of Bulgaria concept is *a topographic place in space where people in different chronological periods have been doing different types of permanent and/or periodical activities.*

Sites were recorded in two ways:

1. Visible sites – visible by the naked eye above or below the surface, i.e. burial mounds, ramparts, ditches, etc.; site scatters were defined by the extent of the visible remains of the sites;
2. Invisible sites – invisible by the naked eye, based on quantitative analysis in GIS of concentrations of recorded artefacts on the surface, i.e. quantities of pottery fragments, pieces of daub, tiles and bricks, etc.; site scatters were defined by the extent of higher concentrations per polygons/units of recorded artefacts on the surface.

A table containing data for counted on the field and post-processed collected diagnostic pottery fragments per sites and polygons is included after the catalogue of the archaeological sites.

STRUCTURE OF THE CATALOGUE

Attributes list description of each catalogue field. If a field is not applicable for a certain site, it is removed from the catalogue table of the site.

Field	Explanation
Site ID	*ID of the site; started at 1 at the beginning of the project*
Region	*Largest in area Bulgarian administrative unit in which the site area falls within*
Municipality	*Medium in area Bulgarian administrative unit in which the site area falls within*
Village	*Smallest in area Bulgarian administrative unit in which the site area falls within*
Distance and azimuth	*Distance (in kilometres) and azimuth (in degrees calculated with 0 as north and measuring angle clockwise and using cardinal/intercardinal direction) from the centre of the village of the smaller administrative unit to the site centre*
Locality	*Different locality names of the site area in different sources – BG cadastre[1], topographic maps with different scales, publications, information from local people, etc. The locality names are transliterated in English*
Location	*Geomorphological location of the site*
Baltic height (m)	*Height above sea level in the Baltic vertical coordinate system (in metres) of the site area*
Slope	*Slope (in degrees) and rising cardinal/intercardinal directions*
Aspect	*Cardinal/intercardinal direction that the slope of the site area faces*
Legacy site actions	*The different actions conducted on the site area in different years before 2018*

1 Available at https://kais.cadastre.bg/bg/Map

Field	Explanation
Site actions	*The different actions conducted on the site area in 2018 and 2019*
Counted artefacts (field surveys)	*Counted artefacts in the polygons within the site area during field surveys in 2018 and 2019 and based on different types of finds exported from a GIS attribute table:* • *Pottery fragments (integer);* • *Handmade pottery fragments (integer);* • *Wheelmade pottery fragments (integer);* • *Pieces of daub (integer);* • *Pieces of tiles and bricks (integer);* • *Stones (integer);* • *Flints (integer);* • *Cat. No. Finds – catalogue numbers of small finds.*
Collected diagnostic pottery fragments (field surveys)	*Collected pottery fragments in the polygons within the site area during field surveys in 2018 and 2019 (integer)*
Description (field surveys)	***Description based on different recorded chronological periods on the site area during the field survey in 2018 and/or 2019:*** • ***N** – consisting of a number (site ID) and a letter (same letters for same chronologies) divided by a dot, i.e. 1.a, 1.b, etc.;* • ***Chronology** – different chronological periods present on the site;* • ***Type** – defined type of the site;* • ***Diagnostic finds** – type and number of diagnostic finds;* • ***Facilities** – presence or absence of different types of facilities;* • ***Diameter (m)** – only for burial mounds, their diameter (in metres);* • ***Height (m)** – only for burial mounds, their height (in metres);* • ***Notes** – additional description;* • ***Cat. Nos. Diagnostic finds** – catalogue numbers of diagnostic finds.*
Other traces	*Other traces on the site area: small amounts of pottery fragments from other chronological periods, results of visual analysis of aerial/satellite imagery or hillshades of LiDAR DTMs*
Description (geophysical surveys)	*Types of geophysical surveys conducted in different years with results within site area*
Scatters in the site	*When two or more scatters are defined within one site area (if applicable):* • ***Scatter No** – consisting of one number (site ID) and another number (a consecutive number) divided by an underscore, i.e. 1_1, 1_2, etc.;* • ***Notes** – explanation of recording different scatters;* • ***Area (ha)** – different scatter areas (in hectares).*

Field	Explanation
Description (excavations)	***Description based on different recorded chronological periods on the site area during excavations in 2018 and/or 2019 (if applicable)*:** • ***N*** *– consisting of a number (site ID) and a letter (same letters for same chronologies) divided by a dot, i.e. 1.a, 1.b, etc.;* • ***Chronology*** *– different chronological periods present on the site;* • ***Type*** *– defined type of the site;* • ***Diagnostic finds*** *– type and number of diagnostic finds;* • ***Facilities*** *– presence or absence of different types of facilities;* • ***Notes*** *– additional description;* • ***Cat. Nos. Diagnostic finds*** *– catalogue numbers of diagnostic finds.*
Polygons	*Polygons in field surveys in 2018 and 2019 on the site area:* • ***Amount of polygons*** *– the total amount of polygons;* • ***Nos.*** *– numbers of polygons.*
Small polygons	*Small polygons in field surveys in 2018 and 2019 on the site area:* • ***Amount of small polygons*** *– the total amount of small polygons;* • ***Notes*** *– additional description.*
Area (ha)	*Site area (in hectares)*
Geomorphological corings	*Site whose area which coincides with the locations of geomorphological corings (cf. the contributions by A. López del Olmo et al., chapter 4)*
AIS AKB	*Site IDs and authors of the registration cards in the archaeological information system "Archaeological Map of Bulgaria"*
Coordinates	*GPS coordinates of the site centre (the geometric centre or the place with the highest artefact concentration) in decimal degrees (N and E)*
Notes	*Longer descriptions of the site characteristics*
Publications	*Citations of published literature on the site characteristics*
Maps	*Different suitable maps of the site showing: location, polygon Nos, and the spatial distribution of counted pottery fragments*
Photos	*Different suitable photos of the site showing: field survey work situation; collected pottery fragments*

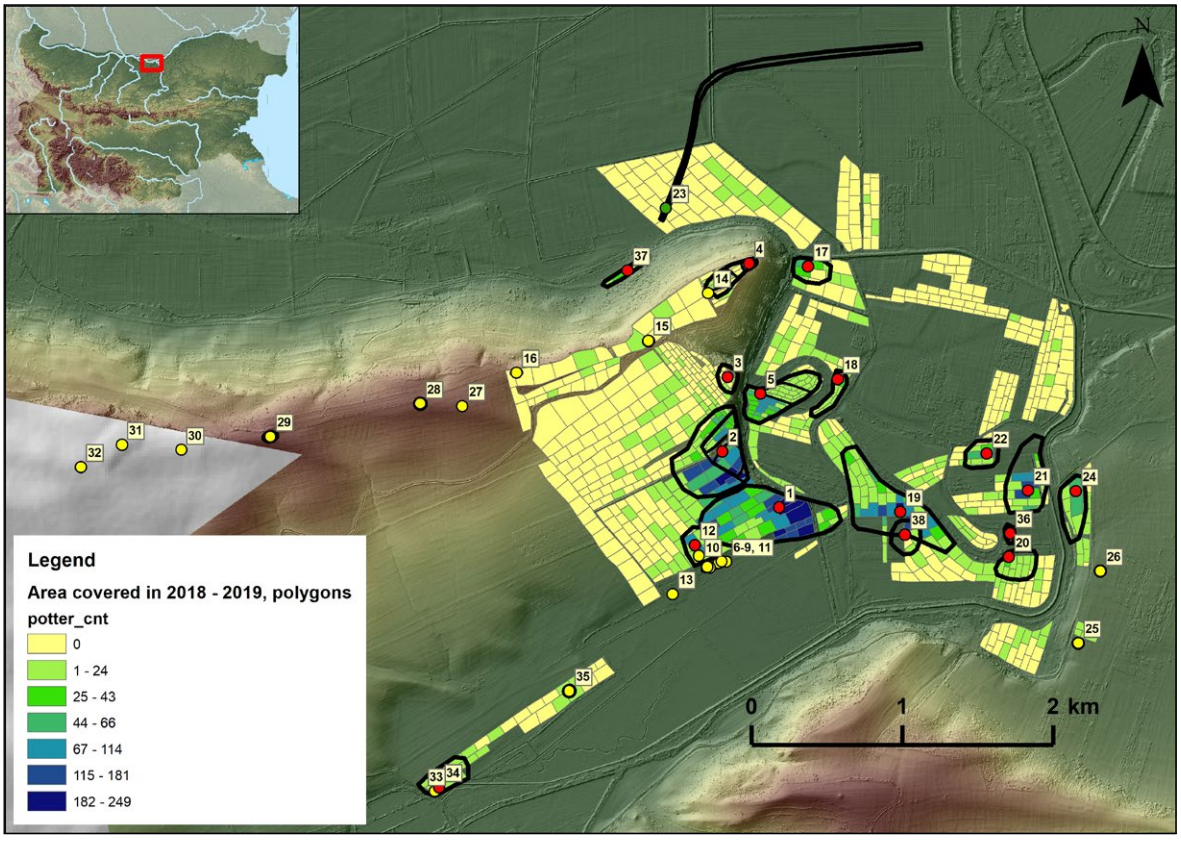


Fig. 1. The area covered during field surveys in 2018 and 2019, recorded archaeological site scatters (in black) and recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots; a road – as a green dot. The quantities of pottery fragments counted on the surface per polygon are visualised by graduated colours with quantitative descriptive statistics in GIS. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

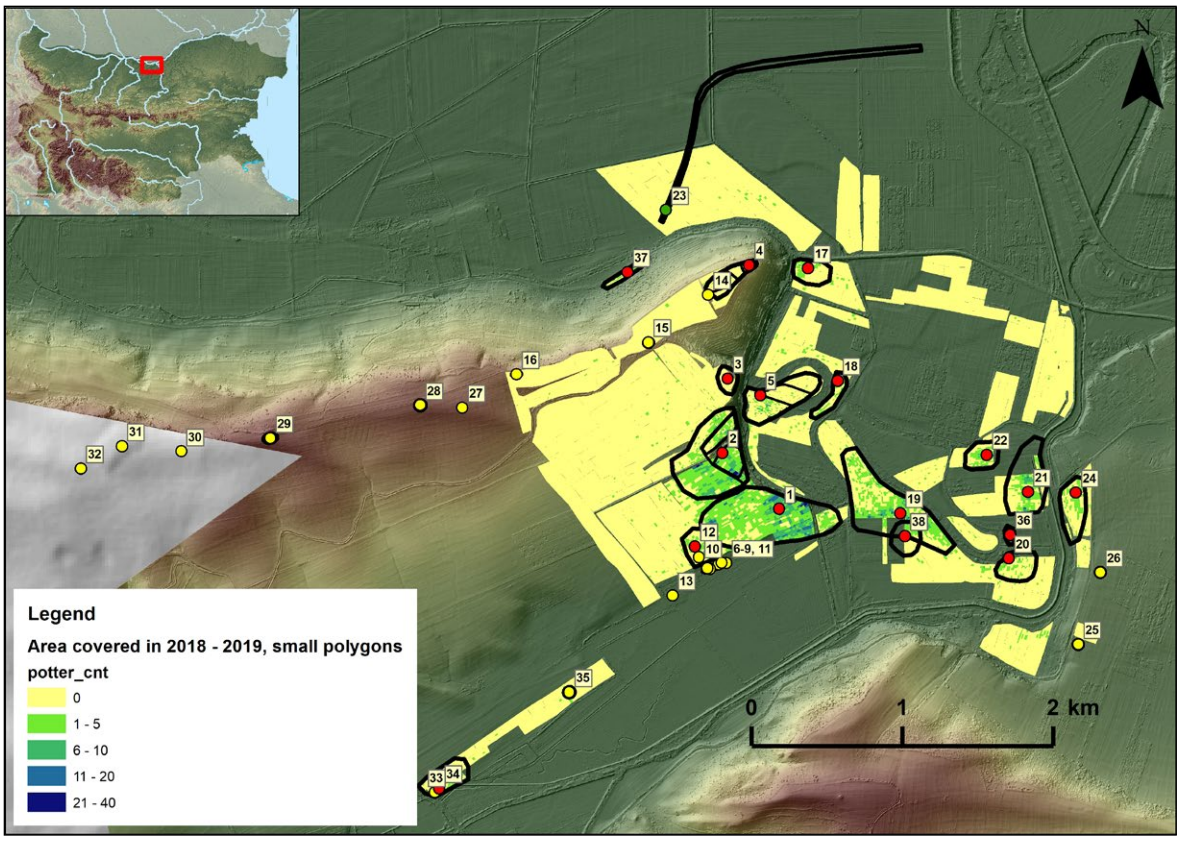


Fig. 2. The area covered during the 2018 and 2019 field surveys, recorded archaeological site scatters (in black) and recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots; a road – as a green dot. The quantities of pottery fragments counted on the surface per small polygon are visualised by graduated colours with quantitative descriptive statistics in GIS. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

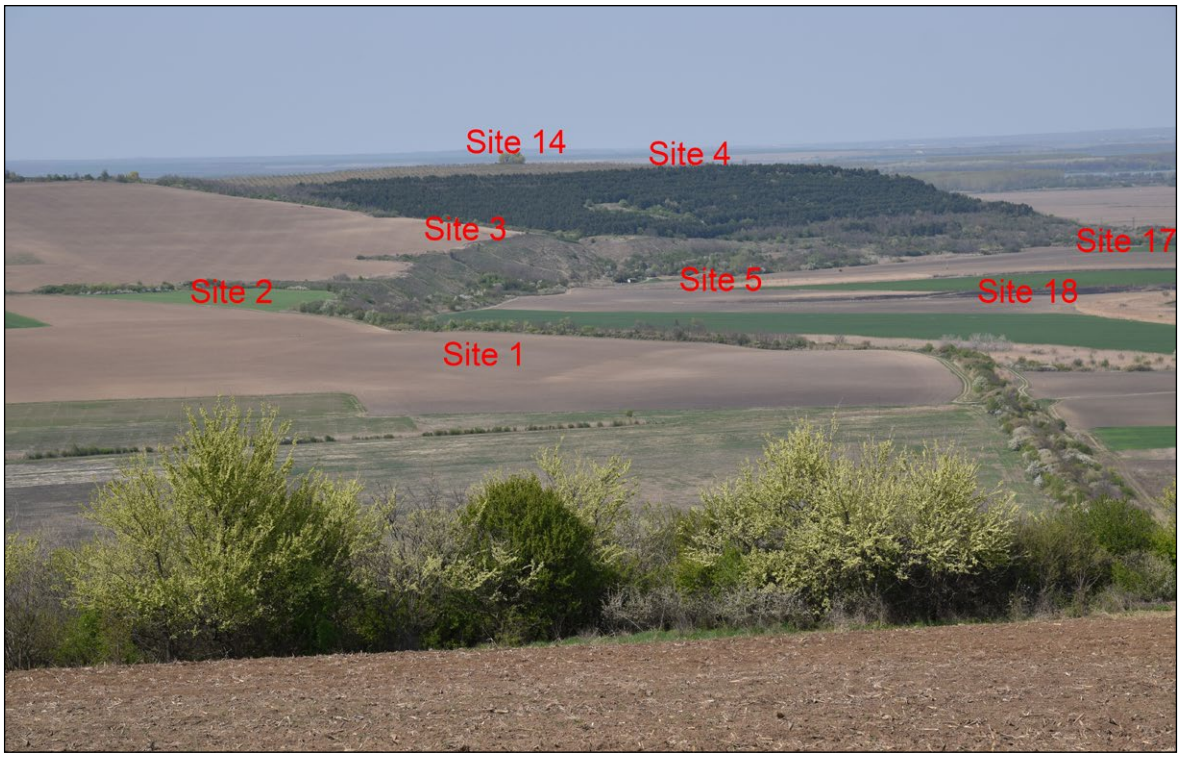


Fig. 3. Photo from S-SW of part of the area covered with visible sites marked in red (photo by S. Conrad, figure by N. Kecheva)



Fig. 4. Panoramic photo from site 3 looking to the Yantra River lowlands of the area covered with visible sites marked in red (figure by N. Kecheva)

SITE 1

Field	Data										
Site ID	1										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	3.3 km, azimuth 252 degrees W-SW from the centre of Novgrad										
Locality	***BG cadastre***			***Topographic map with scale 1:5000***			***Survey in 1997–2001***			***Local people***	
	• Brestovete, • Yarlov trap			• Chaush chair			• Erloolu			• Erloolu	
Location	The lower part of the south-facing slope of Tash Bair ridge										
Baltic height (m)	38 to 20										
Slope	1.37 degrees rising SE to NW										
Aspect	SE										
Legacy site actions	***ID from survey 1997–2001***			***Years of legacy site survey in the period 1997–2001***					***Years of legacy site geophysical survey in the period 1997–2001***		
	14 (14_1, 14_3 and part of 14_2)			1999, 2000, 2001					2000		
Site actions	***2018***						***2019***				
	• Intensive field survey, • Partial total pick up, • Geomagnetic survey, • Electrical resistivity						Partial excavations – 2 trenches: • 1.1 – 1.1-W and 1.1-E • 1.2				
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	3500	1411	2089	77	384	34	81	1	4	1	SF 01 to SF 34
Collected diagnostic pottery fragments (field surveys)	485										

Field	Data						
Description (field surveys)	*N*	*Chronology*	*Type*	*Diagnostic finds*	*Facilities*	*Notes*	*Cat. Nos. Diagnostic finds*
	1.a	Late Neolithic	Settlement	• Diagnostic handmade pottery fragments – 47	No facilities		P1/001–073
	1.b	Chalcolithic	Undefined function	• Diagnostic handmade pottery fragments – 5	No facilities	Collected from the total pick up survey	
	1.c	Bronze Age	Undefined function	• Diagnostic handmade pottery fragments – 2	No facilities		P1/074–086
	1.d	Early Iron Age	Settlement?	• Diagnostic handmade pottery fragments – 66	No facilities		P1/87–125
	1.e	Late Iron Age (5th–3rd c. BC)	Settlement		No facilities		P1/126–130 P1/133
				• Diagnostic pottery fragments – 36			P1/134 P1/137–139
	1.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Settlement		No facilities		P1/131–132 P1/135–136
	1.g	Roman period	Settlement	• Diagnostic pottery fragments – 135	No facilities		P1/140–157
	1.h	Late Antiquity	Settlement?	• Diagnostic pottery fragments – 29	No facilities		P1/158–162
	1.i	Early Middle Ages	Earthwork fortification	• Diagnostic pottery fragments – 147 • Traces on the surface of a rampart and a ditch	Rampart, ditch	4 ha area	P1/163–172
Other traces	Rampart and ditch visible on: • aerial and satellite imagery; • hillshades of LiDAR DTM						
Description (geophysical surveys)	***Geomagnetic survey in 2000***		***Geomagnetic survey in 2018***		***Electrical resistivity in 2018***		
	Traces of two ditches and an entrance on the E part of the fortification, area of the survey 0.5 ha		Traces of five ditches and other anomalies, area of the survey 11 ha		2D-Resistivity section on the outer ditch of the fort at a distance of 25 m		

Field	Data						
Description (excavations)	*N*	*Chronology*	*Type*	*Diagnostic finds*	*Facilities*	*Notes*	*Cat. Nos. Diagnostic finds*
	1.a	Late Neolithic	Settlement?	• Diagnostic handmade pottery fragments • Flints • Large pieces of burned daub • ^{14}C dates of three bones in trench 1.2	Ditch		P1/173–204 P1/206–207 P1/212–222 P1/232–241 P1/243–248
	1.b	Chalcolithic	Undefined function, probably scattered settlement finds	• Diagnostic handmade pottery fragments • ^{14}C date of a bone in trench 1.2	Ditch filling		P1/242
	1.c	Bronze Age	Undefined function, probably scattered settlement finds	• Diagnostic handmade pottery fragments	No facilities		P1/226 P1/251
	1.d	Early Iron Age	Settlement?	• Diagnostic handmade pottery fragments	No facilities		P1/227 P1/231
	1.e	Late Iron Age (5th–3rd c. BC)	Settlement, fort?	• Diagnostic pottery fragments	Ditch		P1/205 P1/208–209 P1/223
	1.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Undefined function	• Diagnostic pottery fragments	No facilities		
	1.g	Roman period	Settlement	• Diagnostic pottery fragments	No facilities		
	1.h	Late Antiquity	Undefined function	• Diagnostic pottery fragments	No facilities		
	1.i	Early Middle Ages	Earthwork fortification	• Diagnostic pottery fragments	Two ditches		P1/210–211 P1/224–225 P1/228–230 P1/249–250
Polygons	***Amount of polygons***		***Nos***				
	40 polygons		• From 1 to 24, • From 180 to 189, • From 388 to 393				
Small polygons	***Amount of small polygons***		***Notes***				
	980 small polygons		Maps				

Field	Data	
Area (ha)	26.3	
AIS AKB	***No***	***Author***
	10006581	Nadezhda Kecheva in a survey in 2018
Coordinates	N 43.595801, E 25.547067	
Notes	Site 1 is situated on the lower part of a ridge, on a gentle slope with SE exposition. The site was recorded during field surveys in the spring of 1999 (Вагалински et al. 2001a, 77). Part of the site (the earthwork fortification) was documented with aerial photography in the spring of 2000 (Вагалински et al. 2001b, 81). In the autumn of 2000, a geomagnetic survey was conducted on part of the site (Вагалински et al. 2001b, 81). A total pick up was executed in 2001 (Станчев 2002, 89). It was recorded as site 14 in the MS Access database of S. Conrad including in its area the scatters of site 1 and site 2 (Conrad 2006). It was also recorded as site 48 in the dissertation of R. Krauß who published part of the total pick up (Krauß 2006a, 171–175, 308). S. Stefanov, Ts. Dremsizova-Nelchinova and D. Ivanov mention a site of the Roman period and Late Antiquity in the same Erloolu locality, but it seems more plausible that they refer to site 2 where much more debris of those periods was recorded (Стефанов 1956, 46; Дремсизова-Нелчинова, Иванов 1983, 51–52). NE and E part of the site were partially destroyed by an artificial channel. Pipelines part of artificial underground linear water supplies from the middle of the 20th c. run in the centre of the site. In the spring of 2018, site 1 was part of large agricultural fields (Вагалински et al. 2019). They were freshly ploughed with surface visibility above 80%. During the intensive field surveys, a large quantity of artefacts were recorded: 3716 pottery fragments (1414 handmade; 2302 wheelmade); 77 pieces of daub; 424 pieces of tiles and bricks; 35 stones; 81 chipped-stone artefacts (flints); 1 millstone; 4 grinded stone tools; 1 loom weight. The amount of diagnostic pottery fragments collected was 498. The site included some visible structures: traces of earth rampart with square shape and azimuth of 14° NE enclosing an area of 4 ha (200 × 200 m) were clearly visible above the surface. The rampart approximate height was 2 m on the eastern part of the earthwork fortification. The northern part of the rampart was partially destroyed by an artificial channel. The outer ditch situated outside of the rampart was less visible. The geomagnetic survey in 2018 showed clear traces of larger linear anomalies (ditches?) with different directions and magnetic properties as well as other smaller anomalies. The conducted electrical resistivity in the spring of 2018 showed in the 2D-Resistivity section the approximate depth of remains of a shallow ditch in the eastern part of the square earthwork fortification. Total pick up of all artefacts was conducted in 123 small polygons with azimuth 65° NE through the inner part of the square earthwork fortification. Site borders were defined based on the concentration of artefact scatters. The border between site 1 and sites 2 and 12 was conditional since artefacts with different concentrations were found on the field. In 2019 two trenches were excavated – 1.1 (1.1-W and 1.1-E) and 1.2 (Вагалински et al. 2020a; Вагалински et al. 2020b). They were situated based on the anomalies visible on the geomagnetic survey. Traces of two Early Medieval ditches, one Late Iron Age ditch and one Late Neolithic ditch were documented. Apart from that, a large amount of Late Neolithic pottery fragments was excavated in the fillings of the younger ditches. SF 35 to SF 50 were recorded.	
Publications	Вагалински et al. 2001a, 77; Вагалински et al. 2001b, 81; Станчев 2002, 89; Conrad 2006; Krauß 2006a, 171–175; 308; Вагалински et al. 2019; Вагалински et al. 2020a; Вагалински et al. 2020b	
Maps	*Counted artefact concentration, polygons Nos., total pick up location, different background maps*	
Photos	*Field survey, pottery fragments*	

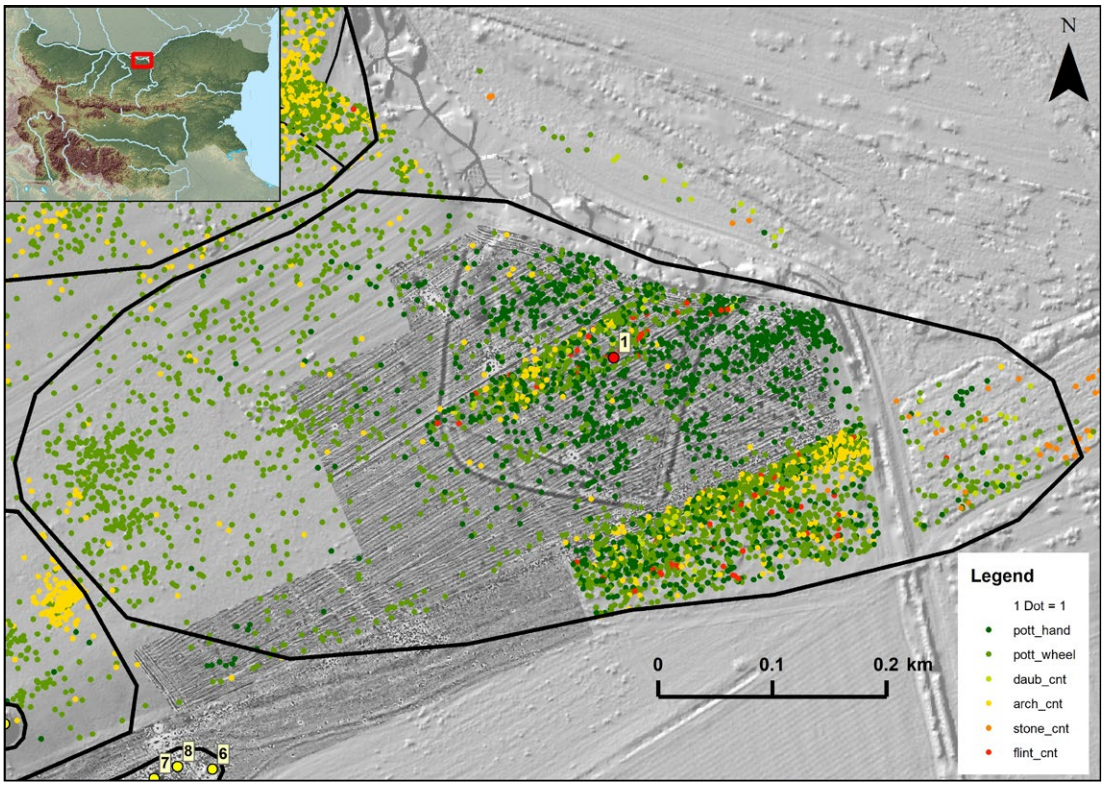


Fig. 5. Site 1. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

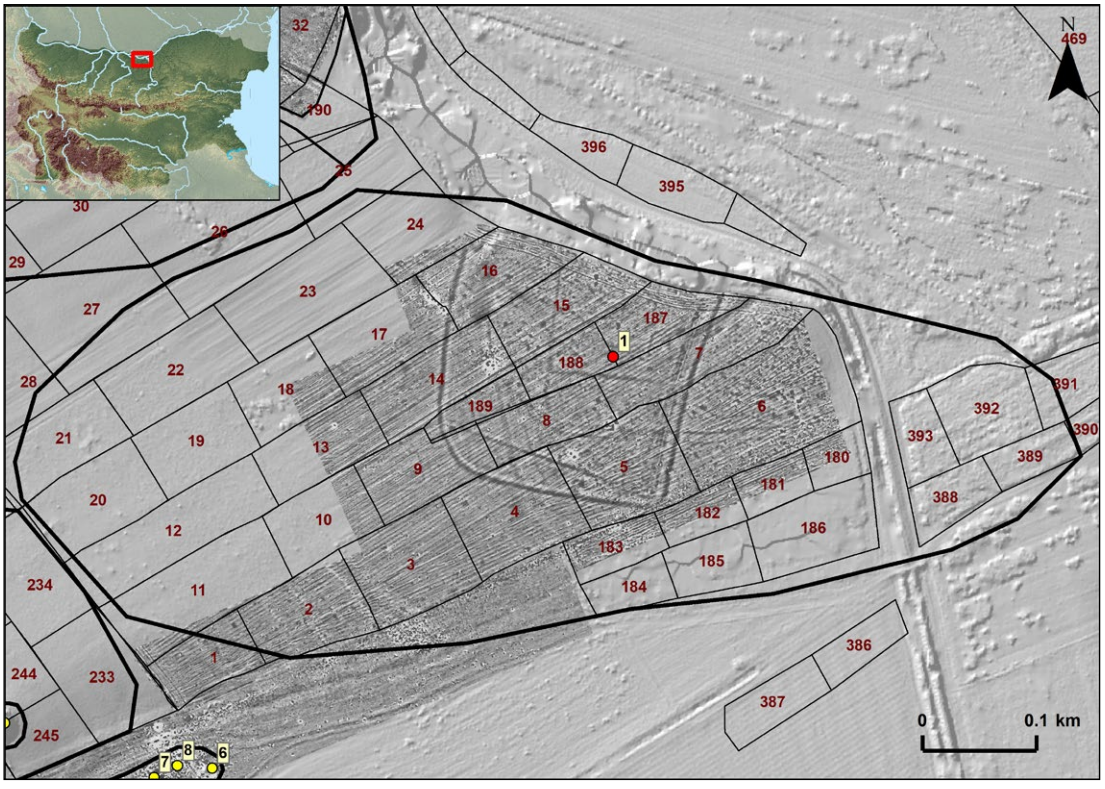


Fig. 6. Site 1. The area covered and marked by polygons with visualised numbers and background maps with hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

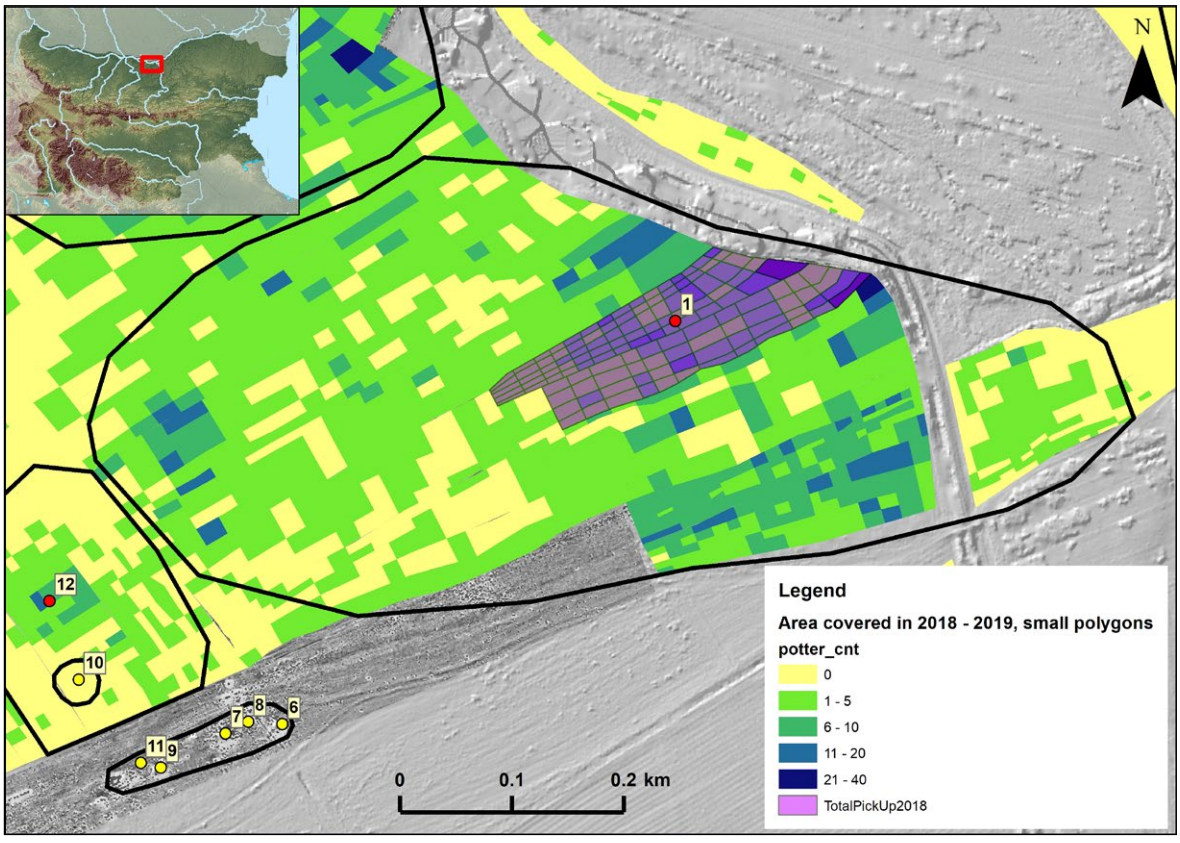


Fig. 7. Site 1. The area covered and marked by small polygons and total pick up. The quantities of pottery fragments counted on the surface per small polygon are visualised by graduated colours with quantitative descriptive statistics in GIS. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)



Fig. 8. Site 1. View from the east, March 2018 (photo by N. Kecheva)



Fig. 9. Site 1. View from the northwest, March 2018 (photo by N. Kecheva)



Fig. 10. Site 1. Part of the collected diagnostic pottery fragments, March – April 2018 (figure by N. Kecheva)



Fig. 11. Site 1. Georeferenced aerial image, taken 1944 – 1945 (figure by N. Kecheva)



Fig.12. Site 1. Georeferenced aerial image, taken during the 1970s (figure by N. Kecheva)

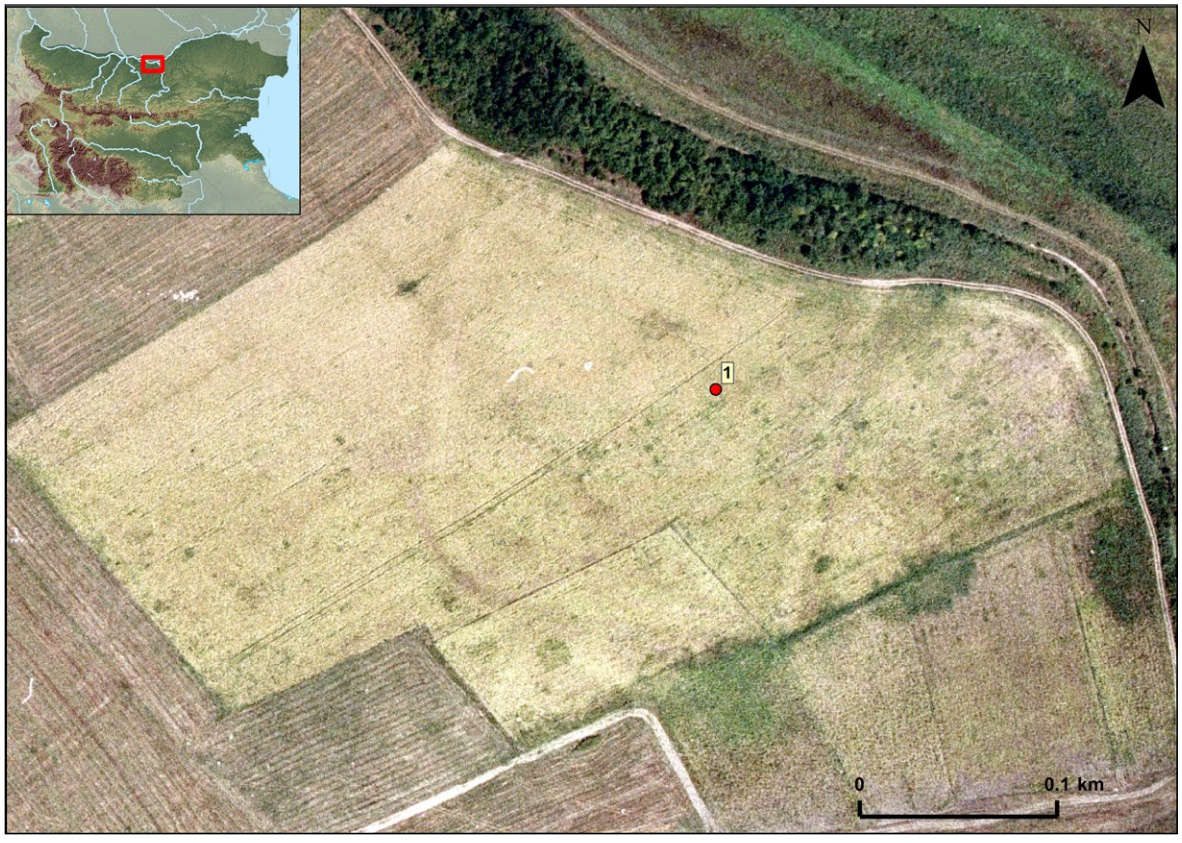


Fig. 13. Site 1. Orthophoto, 2006 (figure by N. Kecheva)



Fig. 14. Site 1. Analytical hillshade derived from airborne laser scanning data (figure by N. Kecheva)

SITE 2

Field	Data										
Site ID	2										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	3.6 km, azimuth 260 degrees W-SW from the centre of Novgrad										
Locality	***BG cadastre***						***Survey in 1997–2001***			***Local people***	
	• Brestovete						• Erloolu			• Erloolu	
Location	The middle part of the south-facing slope of Tash Bair ridge										
Baltic height (m)	60 to 38										
Slope	2.63 degrees rising SE to NW										
Aspect	SE										
Legacy site actions	***ID from survey 1997–2001***				***Years of legacy site survey in the period 1997–2001***				***Years of legacy site geophysical survey in the period 1997–2001***		
	14 (part of 14_2)				1999, 2000				2000		
Site actions	***2018***						***2019***				
	• Intensive field survey • Geomagnetic survey						• Geomagnetic survey				
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	2396	57	2339	4	2675	25	1	1	0	0	SF 51 to SF 52
Collected diagnostic pottery fragments (field surveys)	218										

Field	Data						
Description (field surveys)	*N*	*Chronology*	*Type*	*Diagnostic finds*	*Facilities*	*Notes*	*Cat. Nos. Diagnostic finds*
	2.g	Roman period	Settlement	• Diagnostic pottery fragments – 158	Dwellings		P2/002–019
	2.h	Late Antiquity	Settlement	• Diagnostic pottery fragments – 26	Dwellings?		P2/019–020
Other traces	Single artefacts of Late Neolithic (P2/001, polygon 31), Bronze Age, Early Iron Age, Late Iron Age, Middle Ages						
Description (geophysical surveys)	***Geomagnetic survey in 2000***		***Geomagnetic survey in 2018***		***Geomagnetic survey in 2019***		
	Traces of part of a rectangular building with a square tower? in its W part, and other large linear anomalies in the southern part; area of the survey 2 ha		Traces of ellipsoid and round anomalies; area of the survey 1.8 ha		Traces of a rectangular building with a square tower? In its W part, and other round and rectangular anomalies; area of the survey 2.5 ha		
Scatters in the site	***Scatter No***		***Notes***		***Area (ha)***		
	2_1		Fieldwalking in 2018 and geomagnetic survey in 2019		2.7		
	2_2		Fieldwalking in 2018 and geomagnetic survey in 2018		2.1		
	2_3		Fieldwalking in 2018 and 2019		12.4		
Polygons	***Amount of polygons***		***Nos***				
	48 polygons		• From 25 to 27, • From 29 to 42, • From 61 to 63, • From 107 to 113, • From 190 to 206, • From 210 to 211, • From 300 to 301				

Field	Data	
Small polygons	***Amount of small polygons***	***Notes***
	1072 small polygons	Maps
Area (ha)	19.7	
AIS AKB	***No***	***Author***
	10006582	Nadezhda Kecheva in a survey in 2018
	0820134	Dimitar Stanchev in 1993
Coordinates	N 43.599092, E 25.542313	
Notes	Site 2 is situated on a middle part of the southern slope of the Tash Bair (with SE aspect). It could be identified as the site in Erloolu locality with traces of dwellings and Roman and Late Antique artefacts (Стефанов 1956, 46; Дремсизова-Нелчинова, Иванов 1983, 51–52). In the autumn of 2000, a geomagnetic survey was conducted on part of the site (Вагалински et al. 2001b, 81). It was recorded as site 14 in the MS Access database of S. Conrad including the scatters of site 1 and site 2 (Conrad 2006). In the spring of 2018 site 2 was part of large agricultural fields (Вагалински et al. 2019). They were freshly ploughed in the S and NW part (surface visibility above 80%, area of 13 ha) and seeded with crops in the N part (surface visibility of between 20-40%, area of 5.8 ha). The eastern part of the site is divided into northern and southern by a sunken lane with traces of erosion while the western part was divided by an artificial channel. A large quantity of artefacts was recorded: 2396 pottery fragments (57 handmade; 2339 wheelmade); 4 pieces of daub; 2675 pieces of tiles and bricks; 25 stones, 1 flint, 1 millstone from the site. The amount of diagnostic pottery fragments collected was 218. Seven spots of high concentration of pieces of tiles and bricks mixed with stones showed the traces of probable dwellings. Pottery fragments were found in the whole site scatter. Site borders were defined based on the concentration of artefact scatters. The border between site 2 and site 1 was conditional since artefacts with different concentrations were found on the field. The surface data was confirmed by the geomagnetic survey. In scatter 2_1 a geomagnetic survey conducted in the spring of 2019 showed traces of few dwellings with rectangular shape, and a possible square tower (Вагалински et al. 2020b). This could be interpreted as a possible villa? In scatter 2_2 a geomagnetic survey conducted in the spring of 2018 showed traces of other anomalies, probably dwellings (Вагалински et al. 2019). The whole complex could be interpreted as a settlement. There could not be inferred to have a horizontal stratigraphy of the Roman and the Late Antiquity traces of inhabitation.	
Publications	Вагалински et al. 2001b, 81; Conrad 2006; Вагалински et al. 2019; Вагалински et al. 2020b; Стефанов 1956, 46; Дремсизова-Нелчинова, Иванов 1983, 51–52	
Maps	*Counted artefact concentration, polygons Nos.*	
Photos	*Pottery fragments, field survey*	

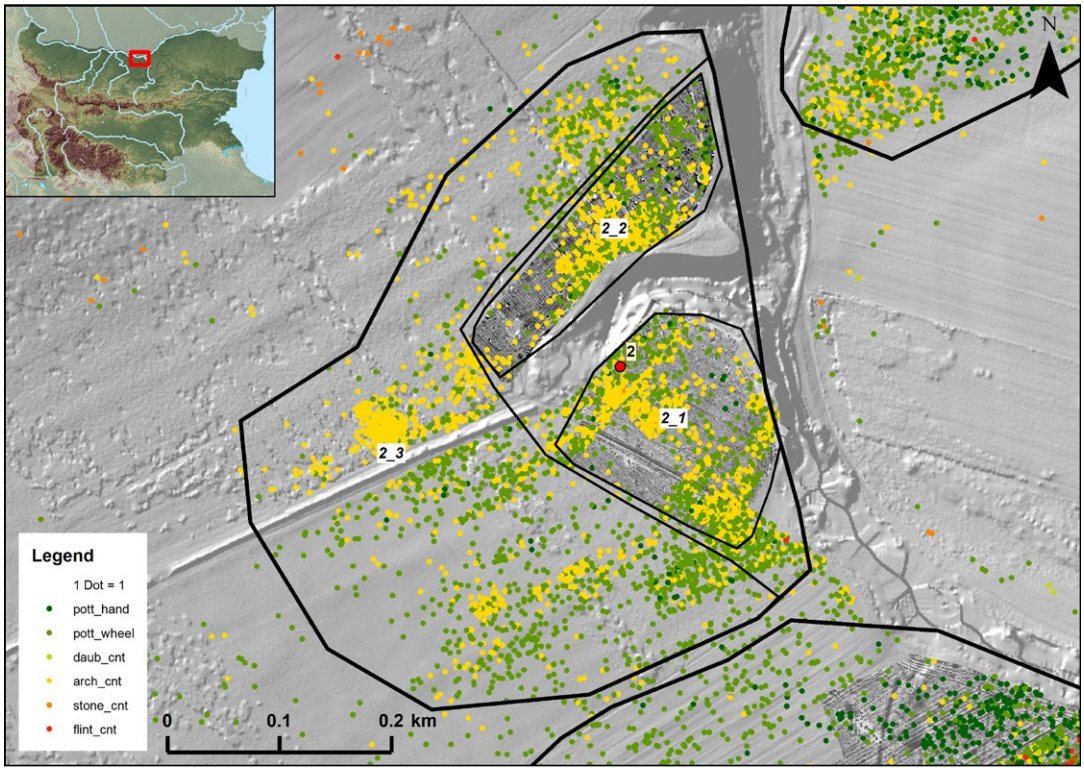


Fig. 15. Site 2. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 and 2019 (figure by N. Kecheva)



Fig. 16. Site 2. The area covered marked by polygons with visualised numbers and background maps with hillshade derived from airborne laser scanning data and geophysical data from 2018 and 2019 (figure by N. Kecheva)



Fig. 17. Site 2. Part of the collected diagnostic pottery fragments, March – April 2018 (figure by N. Kecheva)



Fig. 18. Site 2. View from the southeast, March 2018 (photo by L. Vagalinski)

SITE 3

Field	Data										
Site ID	3										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	3.5 km, azimuth 268 degrees W-SW from the centre of Novgrad										
Locality	***BG cadastre***						***Topographic map with scale 1:5000***				
	• Brestovete						• Laleto				
Location	The middle part of the south-facing slope of Tash Bair ridge										
Baltic height (m)	70 to 52										
Slope	7.18 degrees rising SE to NW										
Aspect	SE										
Legacy site actions	***ID from survey 1997–2001***										
	Not recorded										
Site actions	***2018***										
	• Intensive field survey • Geomagnetic survey • Electrical resistivity • One core sample • Partial excavations – 6 trenches – Nos. 3.1, 3.2, 3.3, 3.4, 3.5, 3.6										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	16	3	13	0	0	0	0	0	0	0	No
Collected diagnostic pottery fragments (field surveys)	3										

Field	Data						
Description (field surveys)	***N***	***Chronology***	***Type***	***Diagnostic finds***	***Facilities***	***Notes***	***Cat. Nos. Diagnostic finds***
	3.c	Bronze Age	Undefined function	• Diagnostic pottery fragments – 3	No facilities		
Other traces	Two concentric ditches visible on Historical Google Earth satellite imagery						
Description (geophysical surveys)	***Geomagnetic survey in 2018***			***Electrical resistivity in 2018***			
	Traces of two concentric ditches and other anomalies in the enclosed area; area of the survey 2.6 ha			ERT profile through the inner and outer ditch of the enclosure			
Description (excavations)	***N***	***Chronology***	***Type***	***Diagnostic finds***	***Facilities***	***Notes***	***Cat. Nos. Diagnostic finds***
	3.c	Bronze Age (Middle and Late Bronze Age)	Area enclosed by ditch(es)	• Diagnostic pottery fragments • ^{14}C dates of seven bones and one charcoal	• One ditch (MBA) • Two pits (one is LBA) • One dwelling (LBA)		P3/002–017 P3/022–047
	3.d	Early Iron Age	Undefined function	• Diagnostic handmade pottery fragments in the ditch filling	No facilities		
	3.e	Late Iron Age (5^{th}–3^{rd} c. BC)	Undefined function	• Diagnostic pottery fragments in the ditch filling	No facilities		P3/018
	3.f	Late Iron Age (2^{nd}/1^{st} c. BC – 1^{st} c. AD)	Undefined function		No facilities		
	3.h	Late Antiquity	Undefined function	• Diagnostic pottery fragments in the ditch filling	No facilities		P3/019–021
Polygons	***Amount of polygons***			***Nos***			
	13 polygons			• From 79 to 85, • From 90 to 95			
Area (ha)	1.8						

Field	Data	
AIS AKB	***No***	***Author***
	10006583	Nadezhda Kecheva in a survey in 2018
Coordinates	N 43.603529, E 25.542633	
Notes	Site 3 is situated on the upper middle part of the southern slope of the Tash Bair (with SE aspect). Its N and E part are bordering steep slopes. It was recorded by visual analysis of Google Satellite imagery from the 4th of March 2012 executed by S. Conrad. Parts of two concentric ditches with a distance of approximately 30 m are visible in this imagery. In the spring of 2018 site 3 was part of large agricultural fields (Вагалински et al. 2019). They all were seeded with crops with surface visibility between 20-40%. A very low concentration of pottery fragments was recorded on the surface – all of them were wheelmade and undiagnostic. Facilities part of artificial underground linear water supplies from the middle of the 20th c. run in the centre of the site. Near one such facility, three handmade pottery fragments were found dated in the Bronze Age. The geomagnetic survey in the spring of 2018 showed clear traces of parts of two concentric ditches with a distance of approximately 30 m. Their ends coincided with the steep slopes of the N and E part of the ridge. Other anomalies of different shape and intensity were visible in the enclosed area. In the summer of 2018, six trenches were excavated situated based on geomagnetic anomalies – one was perpendicular to the inner ditch (3.6) and five were in the enclosed area – one on a round anomaly (3.1 – a pit), and five on another larger anomaly (3.2, 3.3, 3.4, 3.5 – filled with dwelling remains) (Вагалински et al. 2019). According to the ^{14}C dates, all belong to the Middle (the ditch creation) and Late Bronze Age (the pit and the dwelling). SF 53 to SF 55 were recorded. The conducted electrical resistivity perpendicular to the two ditches in the autumn of 2018 showed the ditches at the expected places. The depth of the inner ditch was determined to be approximately 4-5 m, that of the outer ditch to approximately 3 m. During the excavation campaign in the autumn of 2018, a coring was carried out with an Edelman auger in the outer ditch of site 3. The depth of the ditch was determined to be 3.10 m here.	
Publications	Вагалински et al. 2019	
Maps	*Counted artefact concentration, polygons Nos., coring location and results*	
Photos	*Field survey, pottery fragments*	

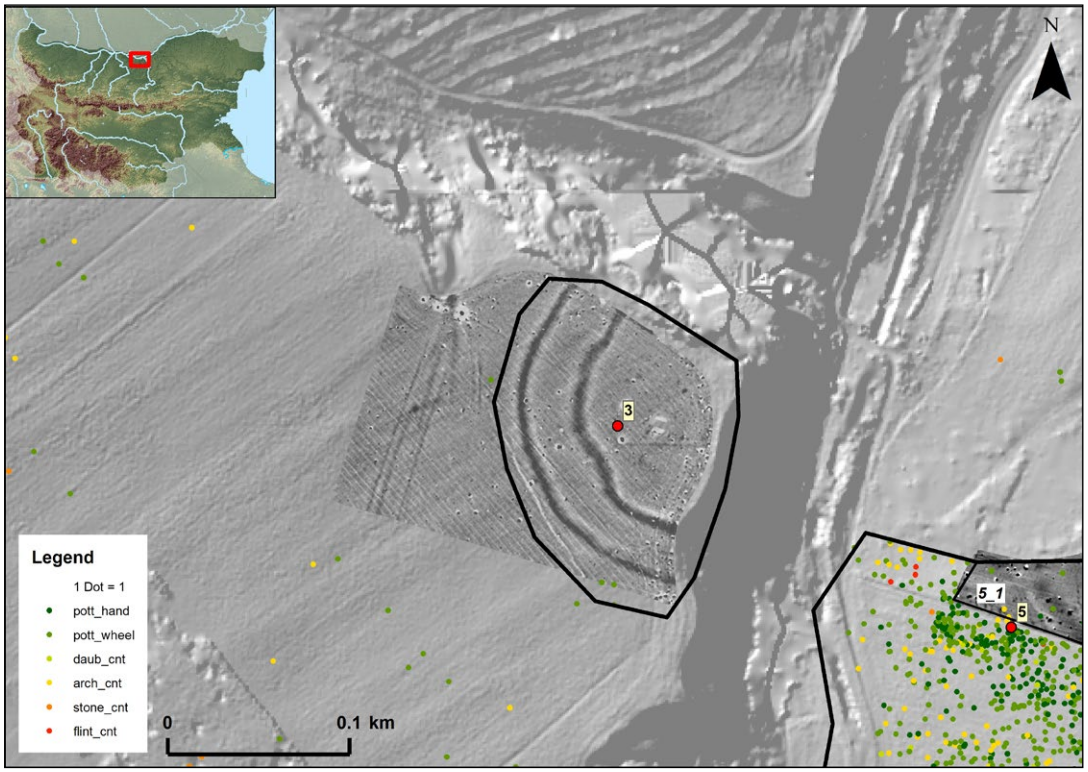


Fig. 19. Site 3. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

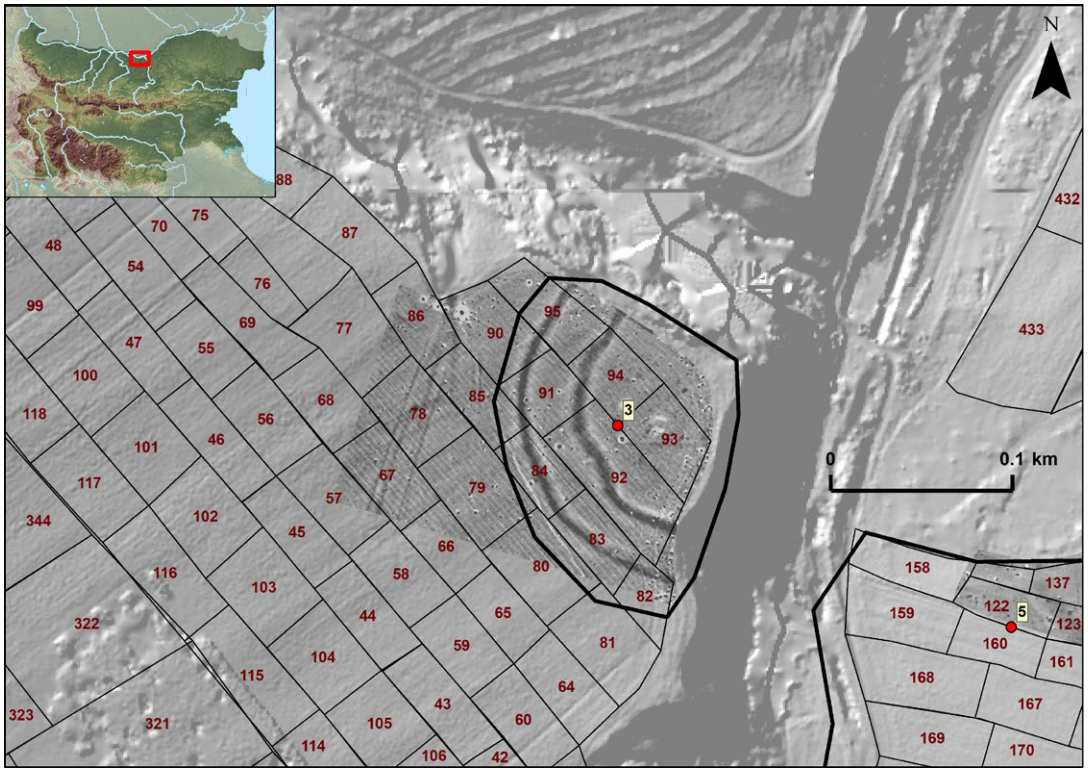


Fig. 20. Site 3. The area covered marked by polygons with visualised numbers. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)



Fig. 21. Site 3. Part of the collected diagnostic pottery fragments, March 2018 (photo by S. Conrad)



Fig. 22. Site 3. View from south, March 2018 (photo by L. Vagalinski)

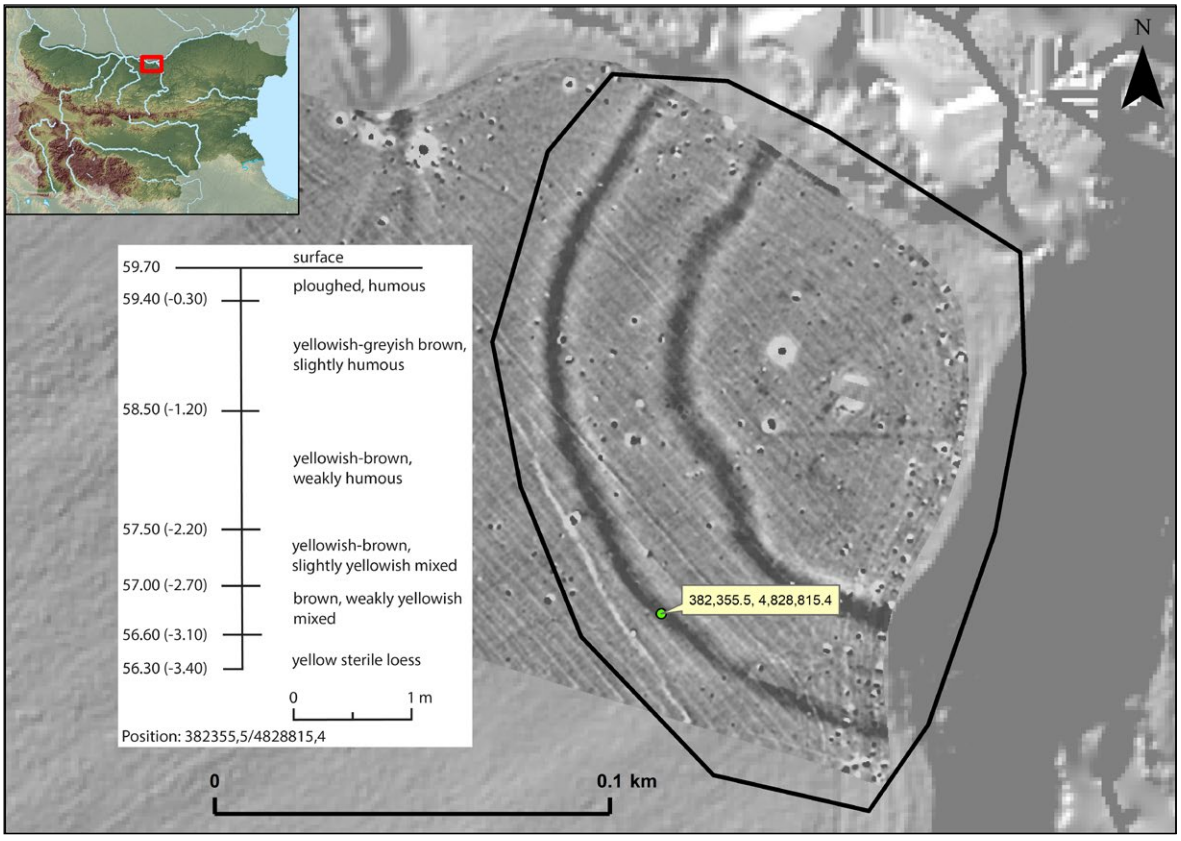


Fig. 23. Site 3. Location of the coring (green dot) and coring profile (figure by N. Kecheva and S. Conrad)

SITE 4

Field	Data										
Site ID	4										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	3.4 km, azimuth 279 degrees W-NW from the centre of Novgrad										
Locality	***BG cadastre***						***Topographic map with scale 1:5000***				
	• Tash Bair						• Tash Bair				
Location	The top part and promontory of Tash Bair ridge										
Baltic height (m)	112 to 86										
Slope	4 degrees rising E-NE to W-SW										
Aspect	E-NE										
Legacy site actions	***ID from survey 1997–2001***										
	Not recorded										
Site actions	***2018***										
	• Intensive field survey • Geomagnetic survey • Electrical resistivity • Two core samples										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	11	9	2	1	0	0	54	0	0	0	No
Collected diagnostic pottery fragments (field surveys)	10										

Field	Data						
Description (field surveys)	***N***	***Chronology***	***Type***	***Diagnostic finds***	***Facilities***	***Notes***	***Cat. Nos. Diagnostic finds***
	4.c	Bronze Age (or other prehistoric periods)	Undefined function	• Diagnostic pottery fragments – 2	No facilities		
	4.f	Late Iron Age ($2^{nd}/1^{st}$ c. BC – 1^{st} c. AD)	Undefined function	• Diagnostic pottery fragments – 6	No facilities	The only pottery fragments found in the ditch enclosed area	P4/001
Other traces	One ditch visible on Historical Google Earth satellite imagery						
Description (geophysical surveys)	***Geomagnetic survey in 2018***		***Electrical resistivity in 2018***				
	Traces of one ditch and two dwellings; area of the survey 4.9 ha		ERT profile through the ditch at the promontory				
Scatters in the site	***Scatter No***		***Notes***		***Area (ha)***		
	4_1		Fieldwalking in 2018, geomagnetic survey and electrical resistivity in 2018		0.55		
	4_2		Fieldwalking in 2018 and geomagnetic survey in 2018		1.73		
Polygons	***Amount of polygons***		***Nos***				
	19 polygons		• From 212 to 232				
small polygons	***Amount of small polygons***		***Notes***				
	341 small polygons		Maps				
Area (ha)	3.5						
AIS AKB	***No***			***Author***			
	10006584			Nadezhda Kecheva in a survey in 2018			
Coordinates	N 43.61034, E 25.544225						

Field	Data
Notes	Site 4 is situated on the top of a ridge with a slight E-NE aspect. Its N, E and S parts are bordering with steep slopes. Its E part was recorded by visual analysis of Historical Google Satellite imagery executed by S. Conrad. In some of the images, a part of a ditch is visible in the eastern part of the ridge. In the spring of 2018 site 4 was part of a large orchard (Вагалински et al. 2019). Between the trees, the surface visibility was between 20-40%. A very low concentration of pottery fragments was recorded on the surface, most of them undiagnostic – two of the handmade were dated probably to some prehistorical period or Bronze Age? and the others were dated to LIA and Ottoman period. Inside the enclosed area only LIA pottery fragments were recorded as well as a low concentration of stones on the surface close to the location of the ditch. Flints (tools and flakes) were found on the site area and probably indicate a prehistoric settlement or workplace. The highest concentration found was on the SW part of the site, but the overall observation was that they were scattered on the whole ridge. The geomagnetic survey in the spring of 2018 showed clear traces of one ditch in the eastern part of the ridge with a preserved length of 66 m. Its end coincided with the steep slopes of the N and S part of the ridge. Two other anomalies were visible in the enclosed area. According to the conducted ERT ty of the ditch in 2018, its depth was estimated at approximately 2.50 m. During the excavation campaign in the autumn of 2018, a coring was carried out with an Edelman auger in the ditch of site 4. The depth of the ditch was determined to be 2.90 m here. In the W-SW part of the site, two other polygonal anomalies with a circle anomaly in the centre were recorded by the geomagnetic survey. Their area was between 600 (the western) and 800 m^2 (the eastern). The distance between them was 100 m. The western anomaly was immediately next to a burial mound (site 14). The eastern anomaly was situated within a scattering of some small anomalies (graves?). At this moment, the interpretation of the polygonal anomalies is difficult; they could be highlighted graves within a small necropolis. In the summer of 2018 on the western anomaly, a trench was partially excavated, but it was not finished. During the excavation campaign in the autumn of 2018, a coring was carried out with an Edelman auger in the western anomaly of site 4. The depth of the ditch was determined to be 1.78 m from the surface here. The different character of the results of the geomagnetic survey on the ridge was the reason for the differentiation of two scatters of the site: scatter 4_1 (the ditch at the promontory and its enclosed area) and scatter 4_2 (the two polygonal anomalies and their surroundings).
Publications	Вагалински et al. 2019
Maps	*Sites 4 and 14 – counted artefact concentration, polygons Nos., coring locations and results*
Photos	*Field survey, pottery fragments*

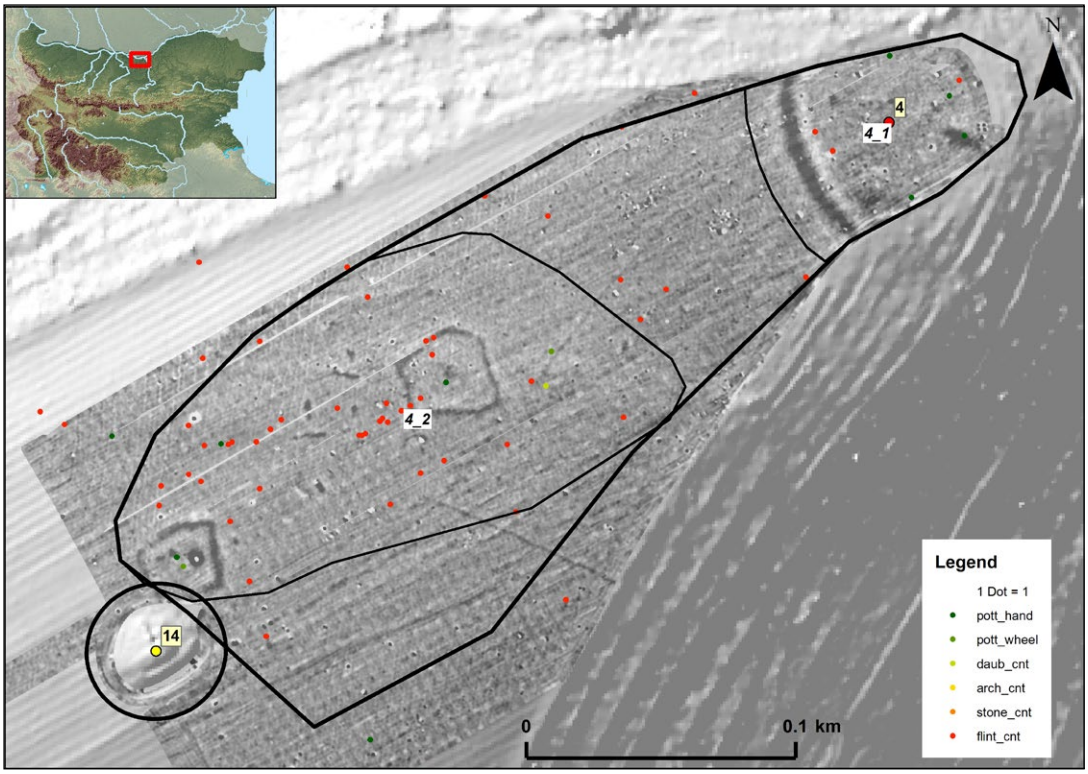


Fig. 24. Sites 4 and 14. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

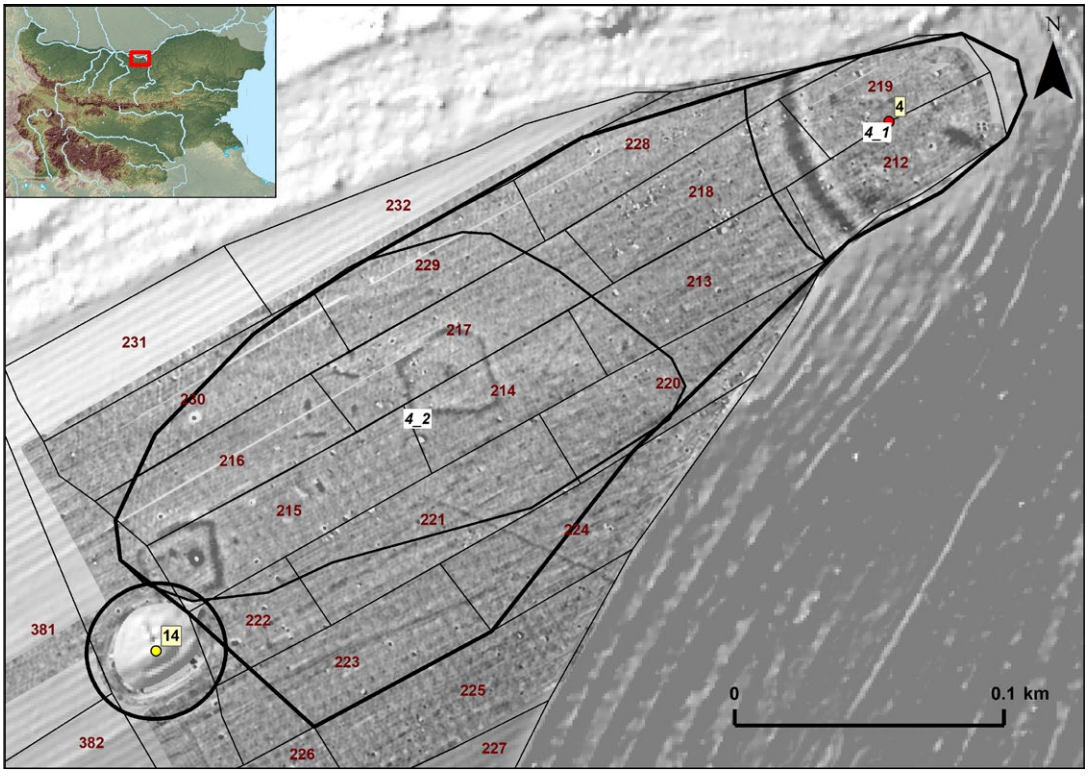


Fig. 25. Sites 4 and 14. The area covered marked by polygons with visualised numbers. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)



Fig. 26. Site 4. Part of the collected diagnostic pottery fragments, March 2018 (figure by N. Kecheva)



Fig. 27. Site 4. View from the southeast, March 2018 (photo by N. Kecheva)

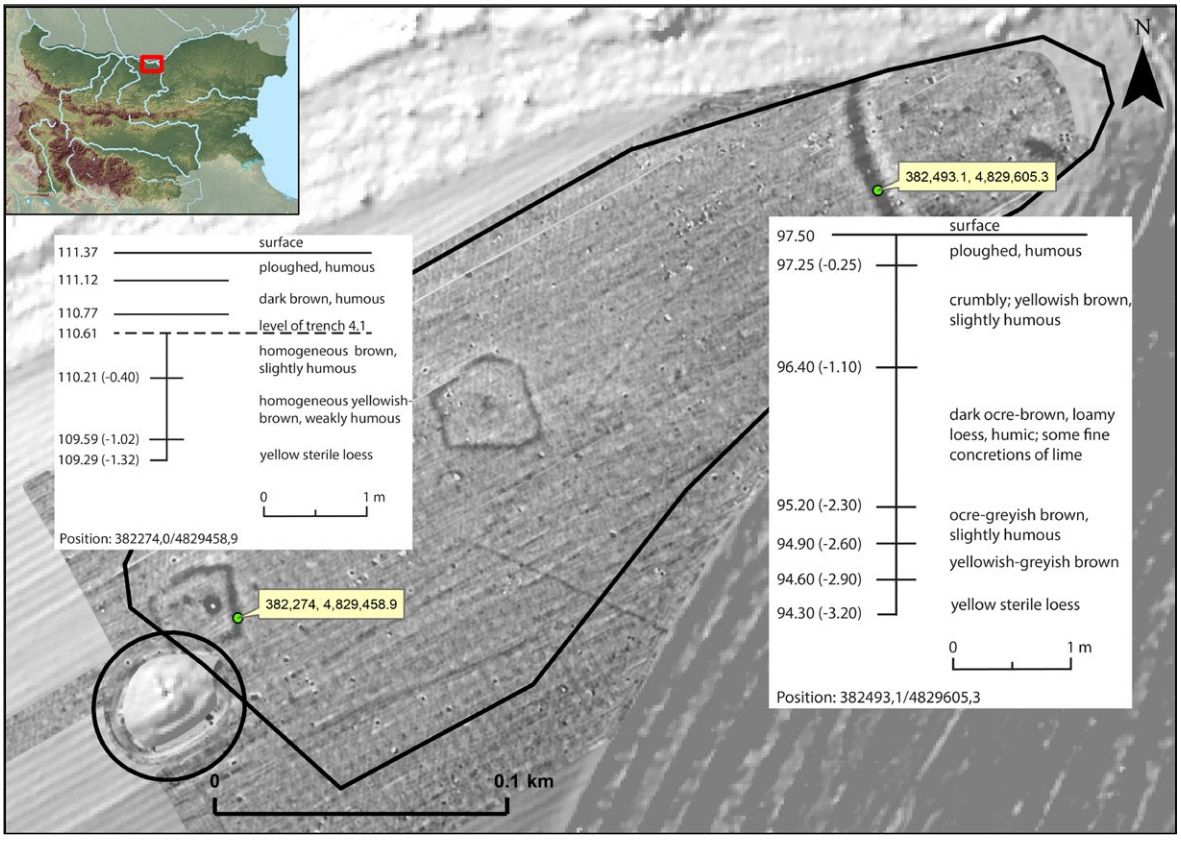


Fig. 28. Site 4. Location of the corings (green dots) and the corresponding coring profiles (figure by N. Kecheva and S. Conrad)

SITE 5

Field	Data										
Site ID	5										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	3.2 km, azimuth 265 degrees W-SW from the centre of Novgrad										
Locality	***BG cadastre***						***Topographic map with scale 1:5000***				
	• Blatoto						• Kriva bara				
Location	The lowlands										
Baltic height (m)	20										
Slope	Plain										
Aspect	Plain										
Legacy site actions	***ID from survey 1997–2001***				***Years of legacy site survey in the period 1997–2001***						
	15				1999, 2000						
Site actions	***2018***										
	• Intensive field survey • Geomagnetic survey • Partial excavations – 2 trenches – Nos. 5.1 and 5.2										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	1408	407	1001	32	299	11	8	1	0	0	SF 56 to SF 57
Collected diagnostic pottery fragments (field surveys)	171										

Field	Data						
Description (field surveys)	***N***	***Chronology***	***Type***	***Diagnostic finds***	***Facilities***	***Notes***	***Cat. Nos. Diagnostic finds***
	5.d	Early Iron Age	Undefined function	• Diagnostic pottery fragments – 3	No facilities		P5/001
	5.e	Late Iron Age (5th–3rd c. BC)	Undefined function	• Diagnostic pottery fragments – 78	No facilities		P5/002 P5/004–005
	5.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Undefined function				P5/003 P5/006
	5.g	Roman period	Settlement	• Diagnostic pottery fragments – 48			P5/007–009
	5.h	Late Antiquity	Settlement	• Diagnostic pottery fragments – 26			
Other traces	Single artefacts of BA-IA, Early and High Middle Ages, Ottoman period						
Description (geophysical surveys)	***Geomagnetic survey in 2018***						
	Traces of round anomalies (pits?); area of the survey 2.9 ha						
Description (excavations)	***N***	***Chronology***	***Type***	***Diagnostic finds***	***Facilities***	***Notes***	***Cat. Nos. Diagnostic finds***
	5.f	Late Iron Age (2nd/1st c. BC – 1st c. AD) – Early Roman period	Undefined function	• Diagnostic pottery fragments	3 pits, one of which was a burial pit		P5/010–026
Polygons	***Amount of polygons***		***Nos***				
	60 polygons		• From 122 to 179, • From 409 to 410				
Small polygons	***Amount of small polygons***		***Notes***				
	1357 small polygons		Maps				
Area (ha)	9.5						

Field	Data	
AIS AKB	*No*	*Author*
	10006585	Nadezhda Kecheva in a survey in 2018
Coordinates	N 43.602566, E 25.545341	
Notes	Site 5 is situated in the lowlands, encompassed by an old meander of the Yantra River. The old meander of the Yantra River divides site 5 and site 18. Site 5 could be identified as a recorded site in the expeditions between 1997 – 2001, described as site 15 in the MS Access database of S. Conrad (Вагалински et al. 2001a; Вагалински et al. 2001b; Conrad 2006). In the spring of 2018 site 5 was part of large agricultural fields (Вагалински et al. 2019). Its northern part was seeded with crops (surface visibility of between 20-40%, area of 2.2 ha), while its southern part was freshly ploughed (surface visibility of above 80%, area of 8.3 ha). A large quantity of artefacts was recorded especially in the southern part with excellent surface visibility: 1408 pottery fragments (407 handmade; 1001 wheelmade); 32 pieces of daub; 299 pieces of tiles and bricks; 11 stones, 8 flints, 1 piece of a millstone. The amount of diagnostic pottery fragments collected was 171. Site borders were defined based on concentration of artefact scatters. Pieces of tiles and brick were scattered all over the site area. In the spring of 2018, a geomagnetic survey was conducted on part of the northern area of the site. It showed traces of round anomalies (probably pits?). In the autumn of 2018, two adjacent trenches (5.1 and 5.2) were excavated (Вагалински et al. 2019). Three pits were documented – one contained a skeleton of a child and parts of pottery vessels, the other two – only artefacts. SF 58 and SF 59 were recorded.	
Publications	Вагалински et al. 2001a; Вагалински et al. 2001b; Conrad 2006; Вагалински et al. 2019	
Maps	*Counted artefact concentration, polygons Nos.*	
Photos	*Field survey, pottery fragments*	

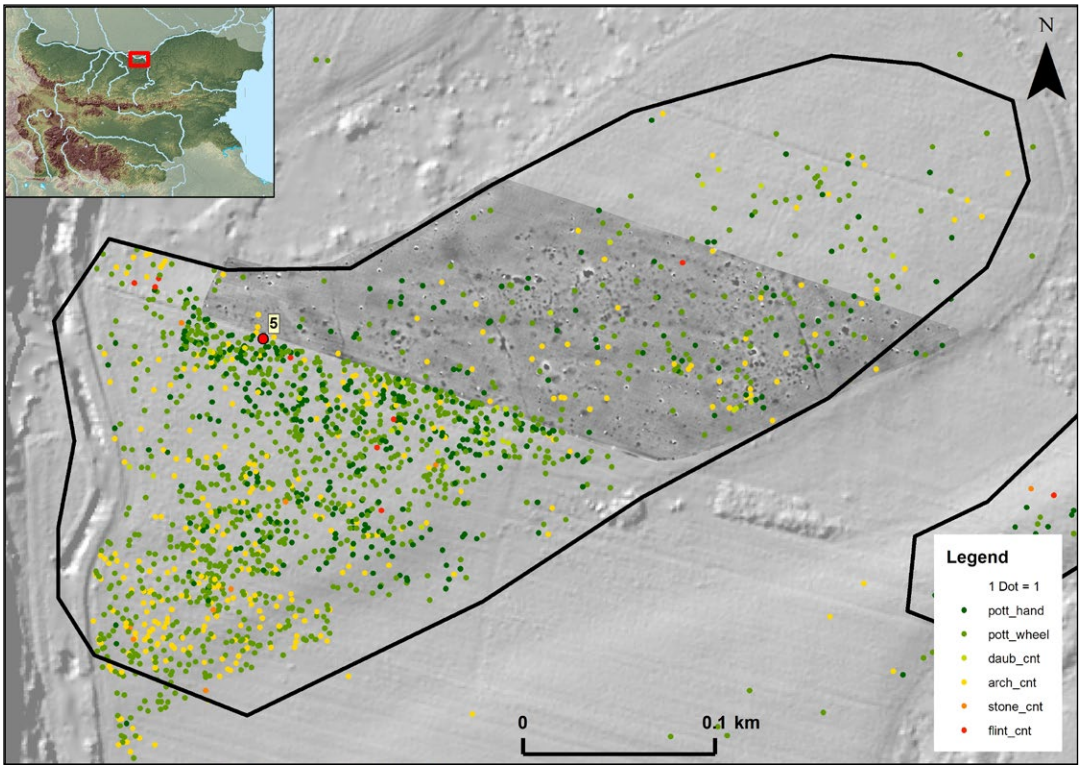


Fig. 29. Site 5. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

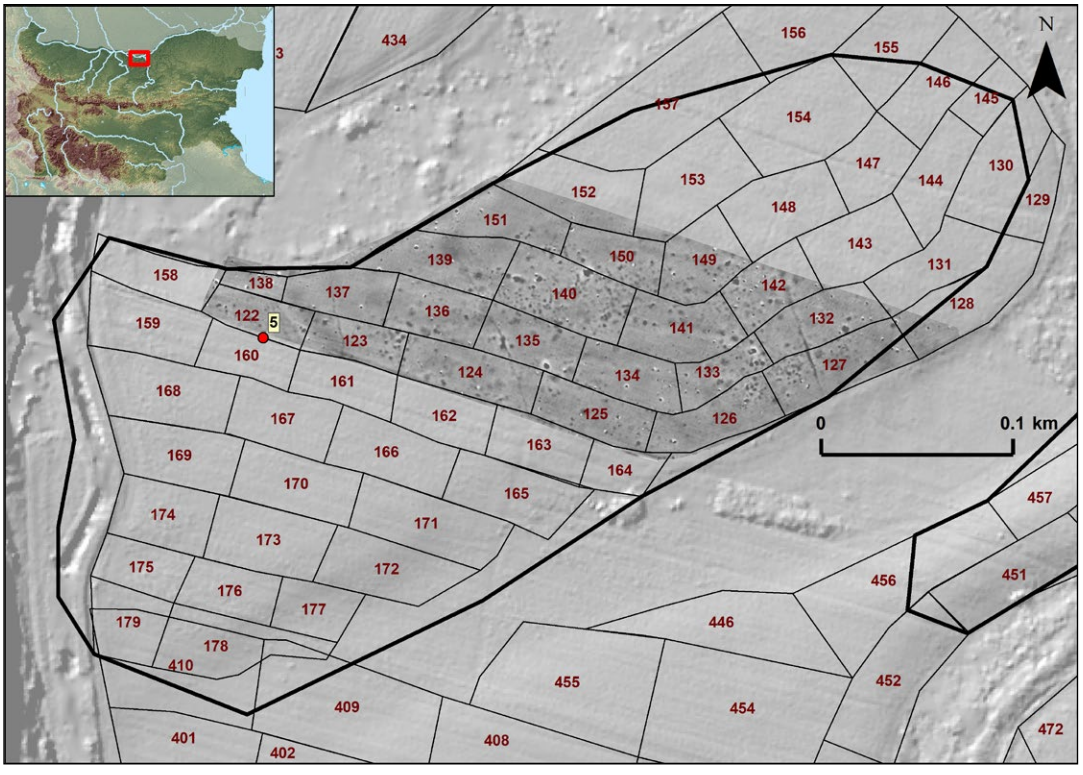


Fig. 30. Site 5. The area covered marked by polygons with visualised numbers. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)



Fig. 31. Site 5. Part of the collected diagnostic pottery fragments, March 2018 (figure by N. Kecheva)



Fig. 32. Site 5. View from the southwest, March 2018 (photo by J. Sprißler)

SITES 6, 7, 8, 9, 11

Field	Data	
Site ID	6, 7, 8, 9, 11	
Region	Ruse	
Municipality	Tsenovo	
Village	Novgrad	
Distance and azimuth	3.8 km, azimuth 248 degrees SW from the centre of Novgrad	
Locality	***BG cadastre***	***Topographic map with scale 1:5000***
	• Yarlov trap	• Chaush chair
Location	The lower part of a slope of a ridge, at the transition to the lowlands	
Baltic height (m)	20	
Slope	Plain	
aspect	Plain	
Legacy site actions	***ID from survey 1997–2001***	
	Not recorded	
Site actions	***2019***	
	• Intensive field survey	

Field	Data							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	6	Undefined	Burial mound	No finds	No facilities	11	1.20–1.30	Unploughed mound, covered with fern, traces of animal dens, in the SE part a concrete pipe
	7	Undefined	Burial mound	No finds	No facilities	12	1	Unploughed mound, covered with fern, in the N part a concrete stake (probably part of a vineyard)
	8	Undefined	Burial mound?	No finds	No facilities	12	0.30–0.50	Unploughed mound, covered with short grass, almost destroyed
	9	Undefined	Burial mound	No finds	No facilities	14	1	Unploughed mound, covered with grass, in the middle of the mound – machine trench
	11	Undefined	Burial mound?	No finds	No facilities	18x12	0.30–0.50	Unploughed mound, covered with short grass, almost destroyed
Other traces (geophysical surveys)	***Geomagnetic survey in 2018***							
	Traces of 5 to 6 burial mounds; area of the survey 3 ha							
Area (ha)	0.57							
AIS AKB	***No***			***Author***				
	10006988			Nadezhda Kecheva in a survey in 2019				
Coordinates	Mound 6: N 43.5925, E 25.542789 Mound 7: N 43.592418, E 25.542161 Mound 8: N 43.592516, E 25.542411 Mound 9: N 43.592134, E 25.541452 Mound 11: N 43.592169, E 25.541231							
Notes	Mound necropolis consisting of five burial mounds and site Nos. 10 and 13. Some of them are visible on hillshades of LiDAR DTM. The geomagnetic survey in 2018 showed up to 6 mounds. They are part of a larger mound necropolis on the lower part of the ridge with direction E-W. It is possible that the necropolis consisted of more mounds, but they were destroyed. (Вагалински et al. 2019; Вагалински et al. 2020b).							
Publications	Вагалински et al. 2019; Вагалински et al. 2020b							
Maps	*Mounds*							
Photos	*Field survey*							

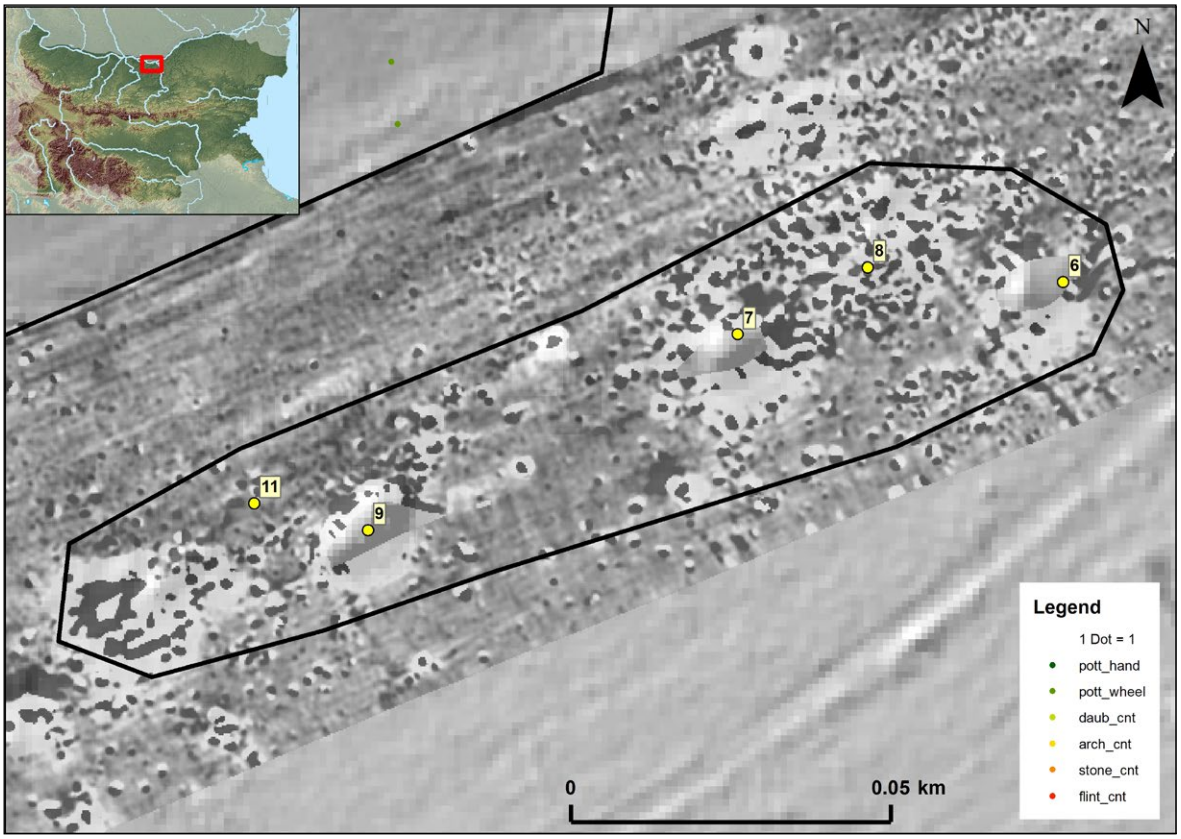


Fig. 33. Sites 6, 7, 8, 9 and 11. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)



Fig. 34. Site 6. View from north, March 2019 (photo by L. Vagalinski)



Fig. 35. Site 7. View from east, March 2019 (photo by L. Vagalinski)



Fig. 36. Site 8. View from west, March 2019 (photo by L. Vagalinski)



Fig. 37. Site 9. View from north, March 2019 (photo by L. Vagalinski)



Fig. 38. Site 11. View from south, March 2019 (photo by L. Vagalinski)

SITE 10

Field	Data							
Site ID	10							
Region	Ruse							
Municipality	Tsenovo							
Village	Novgrad							
Distance and azimuth	3.9 km, azimuth 250 degrees SW from the centre of Novgrad							
Locality	***BG cadastre***							
	• Brestovete							
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	Yes				Yes			
Location	The lower part of a slope of a ridge							
Baltic height (m)	32.3							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	27							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	10	Undefined	Burial mound	No finds	No facilities	40	4.5	Unploughed mound, only its E part was partially ploughed, covered with grass, traces of animal dens and looter trenches
Area (ha)	0.12							
AIS AKB	***No***			***Author***				
	10006987			Nadezhda Kecheva in a survey in 2019				

Field	Data
Coordinates	N 43.592829, E 25.540525
Notes	A burial mound, part of mound necropolis together with mounds IDs 6, 7, 8, 9, 11, 13. It was recorded as site 27 in the MS Access database of S. Conrad (Conrad 2006). They all are part of a larger mound necropolis on the lower part of the ridge with direction E-W (Вагалински et al. 2020b)
Publications	Conrad 2006; Вагалински et al. 2020b
Maps	*Sites 10 and 12 – counted artefact concentration, polygons Nos.*
Photos	*Field survey*

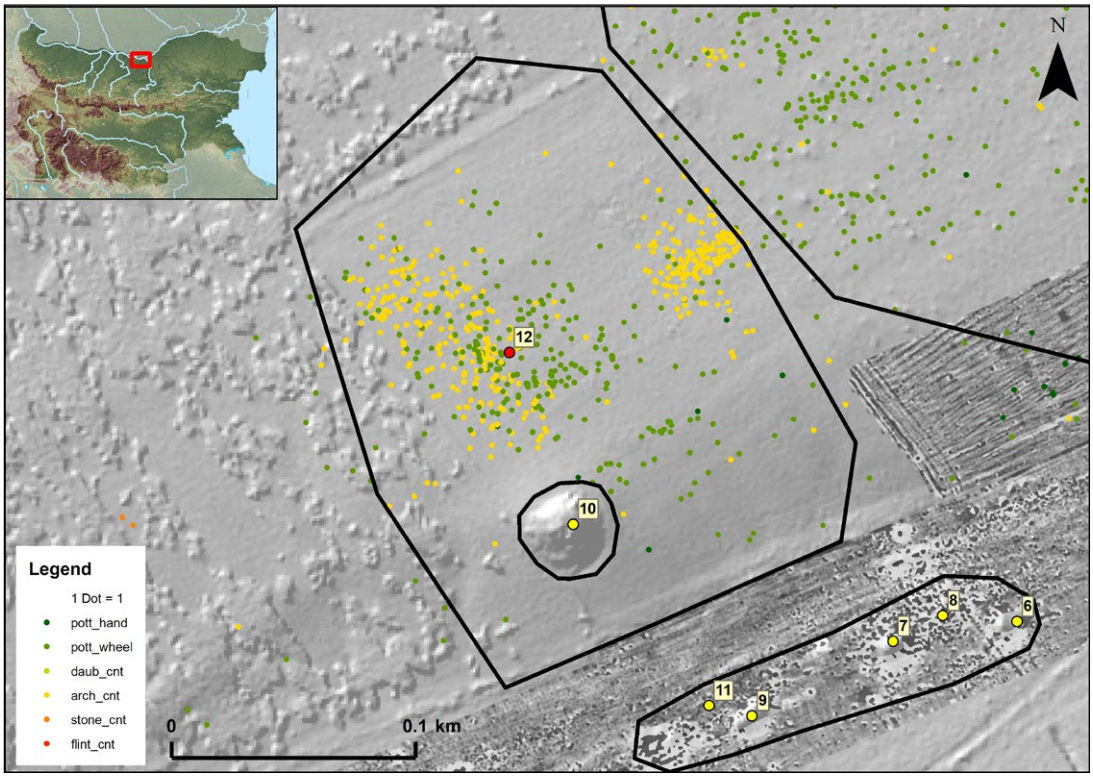


Fig. 39. Sites 10 and 12. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)

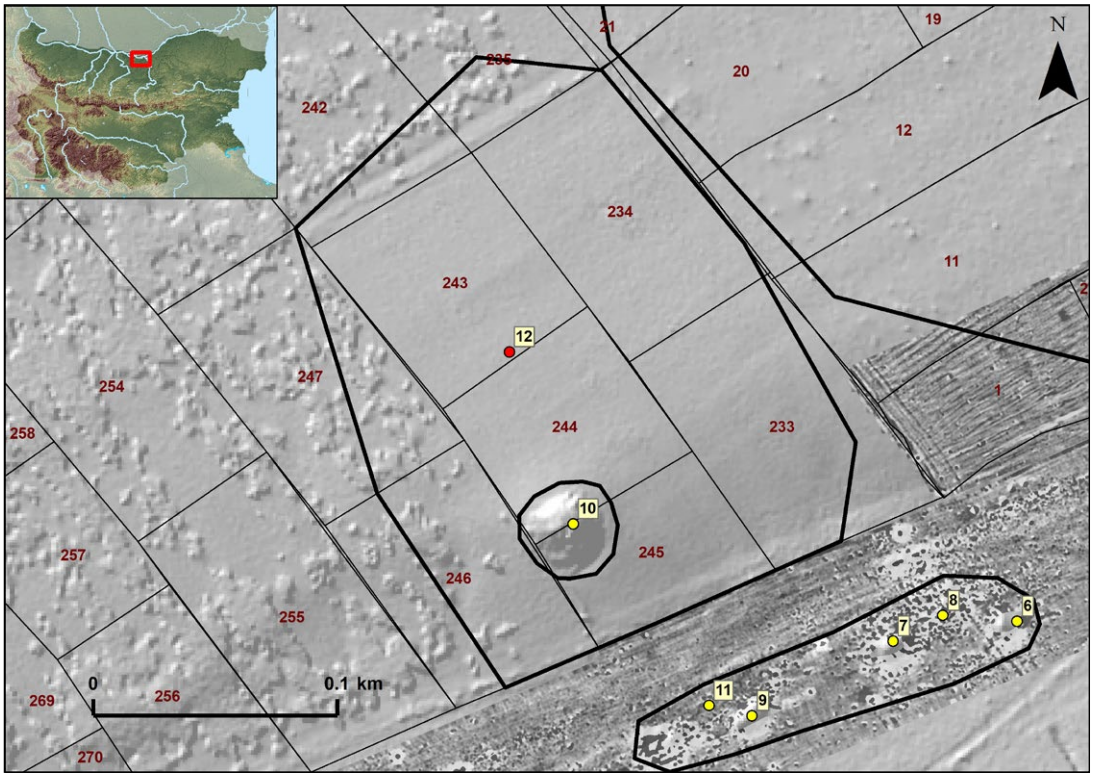


Fig. 40. Sites 10 and 12. The area covered marked by polygons with visualised numbers and background maps with hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)



Fig. 41. Site 10. View from south, March 2019 (photo by L. Vagalinski)

SITE 12

Field	Data										
Site ID	12										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	3.9 km, azimuth 251 degrees SW from the centre of Novgrad										
Locality	***BG cadastre***										
	• Brestovete										
Location	The lower part of a slope of a ridge										
Baltic height (m)	32 to 22										
Slope	2.46 degrees rising SE to NW										
Aspect	SE										
Legacy site actions	***ID from survey 1997–2001***										
	Western part of site 14 (14_3)										
Site actions	***2019***										
	• Intensive field survey										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	259	6	253	4	380	19	2	0	0	0	No
Collected diagnostic pottery fragments (field surveys)	104										
Description (field surveys)	***N***	***Chronology***	***Type***	***Diagnostic finds***	***Facilities***	***Notes***	***Cat. Nos. Diagnostic finds***				
	12.g	Roman period	Settlement	• Diagnostic pottery fragments – 63	Dwellings?		P12/001–009				
	12.h	Late Antiquity	Settlement	• Diagnostic pottery fragments – 20	Dwellings?		P12/010–011				
Other traces	Single artefacts of Early Iron Age, Late Iron Age, Early Middle Ages, Ottoman period										

Field	Data		
Polygons	***Amount of polygons***	***Nos***	
	8 polygons	• From 233 to 235, • From 243 to 247	
Small polygons	***Amount of small polygons***		***Notes***
	221 small polygons		Maps
Area (ha)	3.8		
AIS AKB	***No***		***Author***
	10006986		Nadezhda Kecheva in a survey in 2019
Coordinates	N 43.59346, E 25.540186		
Notes	Site 12 is situated on a lower slope of Tash Bair ridge, with a SE aspect. It was recorded as part of site 14 in the MS Access database of S. Conrad (Conrad 2006). In the spring of 2019 site 12 was part of large agricultural fields (Вагалински et al. 2020b). They were seeded with crops with surface visibility above 80%. Artefacts with the following quantities were recorded: 259 pottery fragments (6 handmade; 253 wheelmade); 4 pieces of daub; 380 pieces of tiles and bricks; 19 stones, 2 flints. The amount of diagnostic pottery fragments collected was 104. Roman and Late Antique pottery prevailed. Two spots of higher concentration of tiles and bricks were recorded, probably remains of dwellings. The border between site 12 and site 1 was conditional since artefacts with different concentrations were found on the field. Single artefacts dated in the EIA, LIA, Middle Ages and Ottoman period were also recorded.		
Publications	Conrad 2006; Вагалински et al. 2020b		
Maps	*See site 10 for maps*		
Photos	*Field survey, pottery fragments*		



Fig. 42. Site 12. View from east, March 2019 (photo by L. Vagalinski)



Fig. 43. Site 12. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)

SITE 13

Field	Data							
Site ID	13							
Region	Ruse							
Municipality	Tsenovo							
Village	Novgrad							
Distance and azimuth	4.2 km, azimuth 247 degrees SW from the centre of Novgrad							
Locality	***BG cadastre***		***Topographic map with scale 1:5000***					
	• Yarlov trap		• Chaush chair					
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	No				No			
Location	The lower part of a slope of a ridge, at the transition to the lowlands							
Baltic height (m)	21							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	Not recorded							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	13	Undefined	Burial mound	No finds	No facilities	40x60	1	Unploughed mound, covered with short grass, almost destroyed
Area (ha)	0.14							
AIS AKB	***No***			***Author***				
	10006989			Nadezhda Kecheva in a survey in 2019				
Coordinates	N 43.590498, E 25.538408							

Field	Data
Notes	A burial mound, part of mound necropolis with mounds IDs 6, 7, 8, 9, 11, 10. They all are part of a larger mound necropolis on the lower part of the ridge with direction E-W (Вагалински et al. 2020b).
Publications	Вагалински et al. 2020b
Maps	*Mound*
Photos	*Field survey*

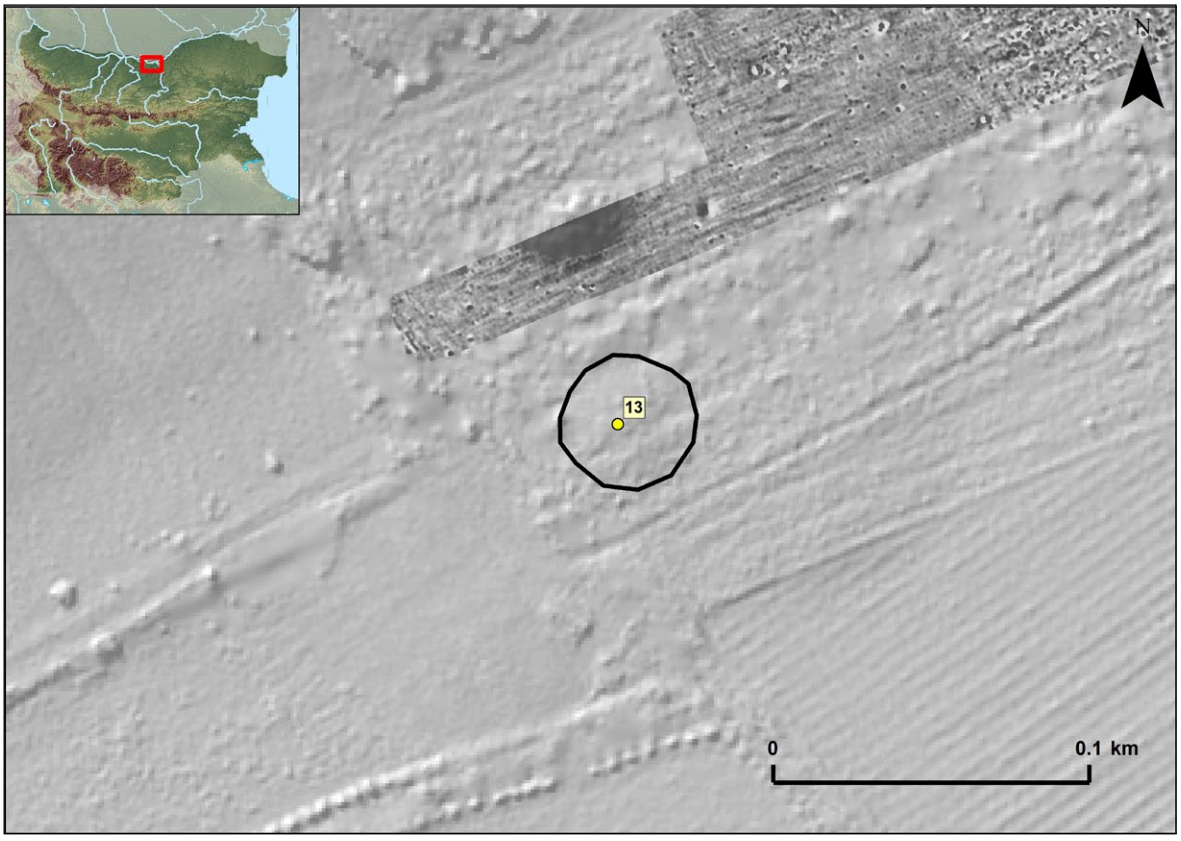


Fig. 44. Site 13. Recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and geophysical data from 2018 (figure by N. Kecheva)



Fig. 45. Site 13. View from east, March 2019 (photo by L. Vagalinski)

SITE 14

Field	Data							
Site ID	14							
Region	Ruse							
Municipality	Tsenovo							
Village	Novgrad							
Distance and azimuth	3.6 km, azimuth 275 degrees W from the centre of Novgrad							
Locality	***BG cadastre***	***Topographic map with scale 1:5000***						
	• Tash Bair	• Tash Bair						
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	Yes				Yes			
Location	The top of a ridge							
Baltic height (m)	114.14							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	29							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	14	Undefined	Burial mound	No finds	No facilities	30	3-3.5	Unploughed mound, covered with trees, low bushes and grass, partially destroyed by looter trenches. Its periphery was ploughed, there was a triangular sign from 1934 on the top
Area (ha)	0.2							

Field	Data	
AIS AKB	***No***	***Author***
	3300033	Plamen Draganchev in a survey of Peti Donevski and Plamen Draganchev in 1992
Coordinates	N 43.608528, E 25.540895	
Notes	A burial mound, part of mound necropolis on the ridge top with direction E-W (Вагалински et al. 2020b). It was recorded in older publications (Стефанов 1956, 24), and as site 29 in the MS Access database of S. Conrad (Conrad 2006).	
Publications	Стефанов 1956; Conrad 2006; Вагалински et al. 2020b	
Maps	*See site 4 for maps*	
Photos	*Field survey*	



Fig. 46. Site 14. View from south, March 2018 (photo by N. Kecheva)

SITE 15

Field	Data							
Site ID	15							
Region	Ruse							
Municipality	Tsenovo							
Village	Novgrad							
Distance and azimuth	4 km, azimuth 270 degrees W from the centre of Novgrad							
Locality	***BG cadastre***							
	• Tash Bair							
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	Yes				Yes			
Location	The top of a ridge							
Baltic height (m)	116.3							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	30							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	15	Roman period?	Burial mound	• Diagnostic wheelmade Roman pottery fragment – 1 • Flint – 1	No facilities	40	4.5	Unploughed mound, covered with grass, stones in the periphery, partially destroyed by looter machine trenches, its SW and SE peripheries were ploughed. There was a destroyed triangular sign found in the SW part of the mound, 1 wheelmade Roman pottery fragment and 1 flint were found

Field	Data	
Area (ha)	0.26	
AIS AKB	*No*	*Author*
	3300034	Plamen Draganchev in a survey of Peti Donevski and Plamen Draganchev in 1992
Coordinates	N 43.605625, E 25.536058	
Notes	A burial mound, part of mound necropolis on the ridge top with direction E-W (Вагалински et al. 2020b). It was recorded in older publications (Стефанов 1956, 24), and as site 30 in the MS Access database of S. Conrad (Conrad 2006).	
Publications	Стефанов 1956; Conrad 2006; Вагалински et al. 2020b	
Maps	*Mound*	
Photos	*Field survey*	

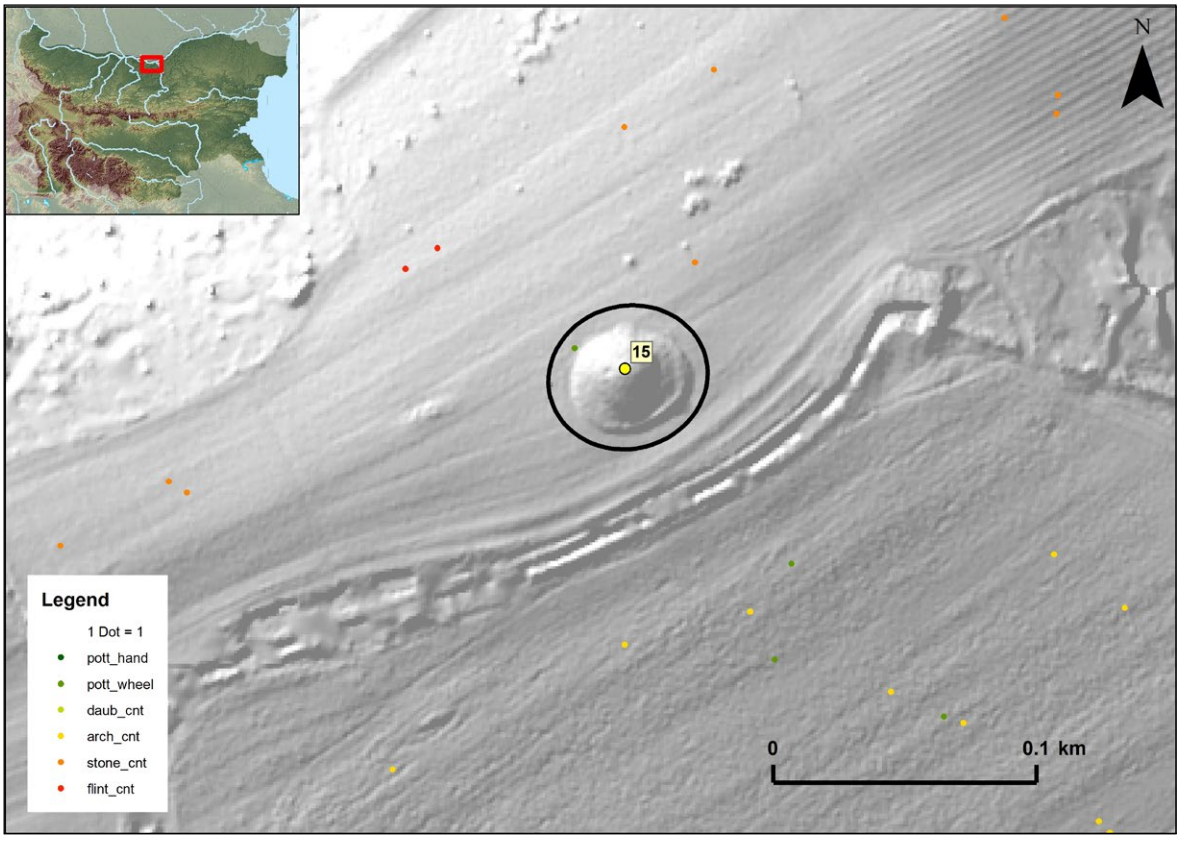


Fig. 47. Site 15. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background map use hillshade derived from airborne laser scanning data (figure by N. Kecheva)



Fig. 48. Site 15. View from the northeast, March 2019 (photo by L. Vagalinski)

SITE 16

Field	Data							
Site ID	16							
Region	Veliko Tarnovo							
Municipality	Svishtov							
Village	Vardim							
Distance and azimuth	4.5 km, azimuth 102 degrees SE from the centre of Vardim							
Locality	***BG cadastre***							
	• Tash Bair							
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	Yes				Yes			
Location	The top of a ridge							
Baltic height (m)	133.8							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	69							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	16	Undefined	Burial mound	No finds	No facilities	40	3	Unploughed mound, covered with grass, its N 1/3 of the mound was ploughed, the mound shape had an elliptical shape; there was a triangular sign on the top
Area (ha)	0.16							
AIS AKB	***No***			***Author***				
	3300035			Plamen Draganchev in a survey of Peti Donevski and Plamen Draganchev in 1992				

Field	Data
Coordinates	N 43.60357, E 25.525258
Notes	A burial mound, part of mound necropolis on the ridge top with direction E-W (Вагалински et al. 2020b). It was recorded in older publications (Стефанов 1956, 24), and as site 69 in the MS Access database of S. Conrad (Conrad 2006).
Publications	Стефанов 1956; Conrad 2006; Вагалински et al. 2020b
Maps	*Sites 16, 27 and 28*
Photos	*Field survey*

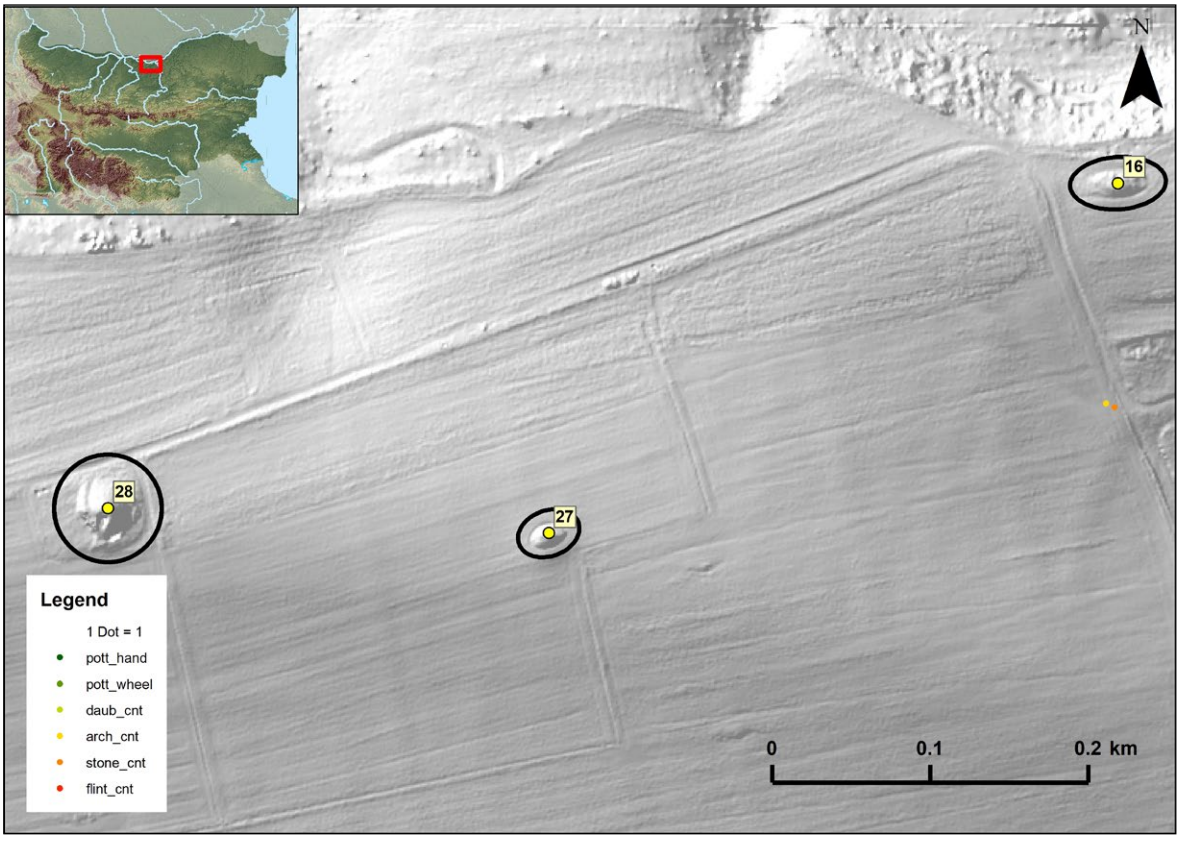


Fig. 49. Sites 16, 27 and 28. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)



Fig. 50. Site 16. View from south, March 2019 (photo by L. Vagalinski)

SITE 17

Field	Data										
Site ID	17										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	3 km, azimuth 280 degrees NW from the centre of Novgrad										
Locality	***BG cadastre***										
	• Blatoto										
Location	The lowlands										
Baltic height (m)	18										
Slope	Plain										
Aspect	Plain										
Legacy site actions	***ID from survey 1997–2001***				***Years of legacy site survey in the period 1997–2001***						
	13				1999, 2000						
Site actions	***2019***										
	• Intensive field survey										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	126	60	66	43	20	42	0	0	0	0	No
Collected diagnostic pottery fragments (field surveys)	75										

Field	Data						
Description (field surveys)	*N*	*Chronology*	*Type*	*Diagnostic finds*	*Facilities*	*Notes*	*Cat. Nos. Diagnostic finds*
	17.d	Early Iron Age	Undefined function	• Diagnostic handmade pottery fragments – 8	No facilities		P17/001–002
	17.e	Late Iron Age (5th–3rd c. BC)	Undefined function	• Diagnostic pottery fragments – 43	No facilities		
	17.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Undefined function		No facilities		
	17.g	Roman period	Undefined function	• Diagnostic pottery fragments – 10	No facilities		
	17.h	Late Antiquity	Undefined function	• Diagnostic pottery fragments – 4	No facilities		P17/003–004
	17.i	Early Middle Ages	Undefined function	• Diagnostic pottery fragments – 4	No facilities		
Other traces	Single artefacts of Bronze Age and Ottoman period						
Polygons	*Amount of polygons*		*Nos*				
	8 polygons		• From 411 to 413, • From 416 to 420				
Small polygons	*Amount of small polygons*				*Notes*		
	169 small polygons				Maps		
Area (ha)	3.4						
AIS AKB	*No*				*Author*		
	10006990				Nadezhda Kecheva in a survey in 2019		
Coordinates	N 43.610217, E 25.549076						

Field	Data
Notes	Site 17 is situated at the western edge of the Yantra lowlands, east of the promontory of Tash Bair ridge. It could be identified as a recorded site in the expeditions between 1997 – 2001, described as site 13 in the MS Access database of S. Conrad (Вагалински et al. 2001a; Вагалински et al. 2001b; Conrad 2006, Krauß 2006a, 308–309). In the spring of 2019 site 17 was part of large agricultural fields situated south of the asphalt road between Novgrad and Vardim (Вагалински et al. 2020b). The site was most likely partially destroyed by the road, however, in 2019 artefacts were not found north of the asphalt road. The fields were seeded with crops with surface visibility above 80%. Artefacts with the following quantities were recorded: 126 pottery fragments (60 handmade; 66 wheelmade); 43 pieces of daub; 20 pieces of tiles and bricks; 42 stones. The amount of diagnostic pottery fragments collected was 75. No traces of high concentration of pieces of daub or tiles and bricks were recorded. The site was interpreted as of undefined function of LIA, Roman period, EIA, LA, Early Middle Ages.
Publications	Вагалински et al. 2001a; Вагалински et al. 2001b; Conrad 2006; Krauß 2006a, 308–309; Вагалински et al. 2020b
Maps	*Counted artefact concentration, polygons Nos.*
Photos	*Field survey, pottery fragments*

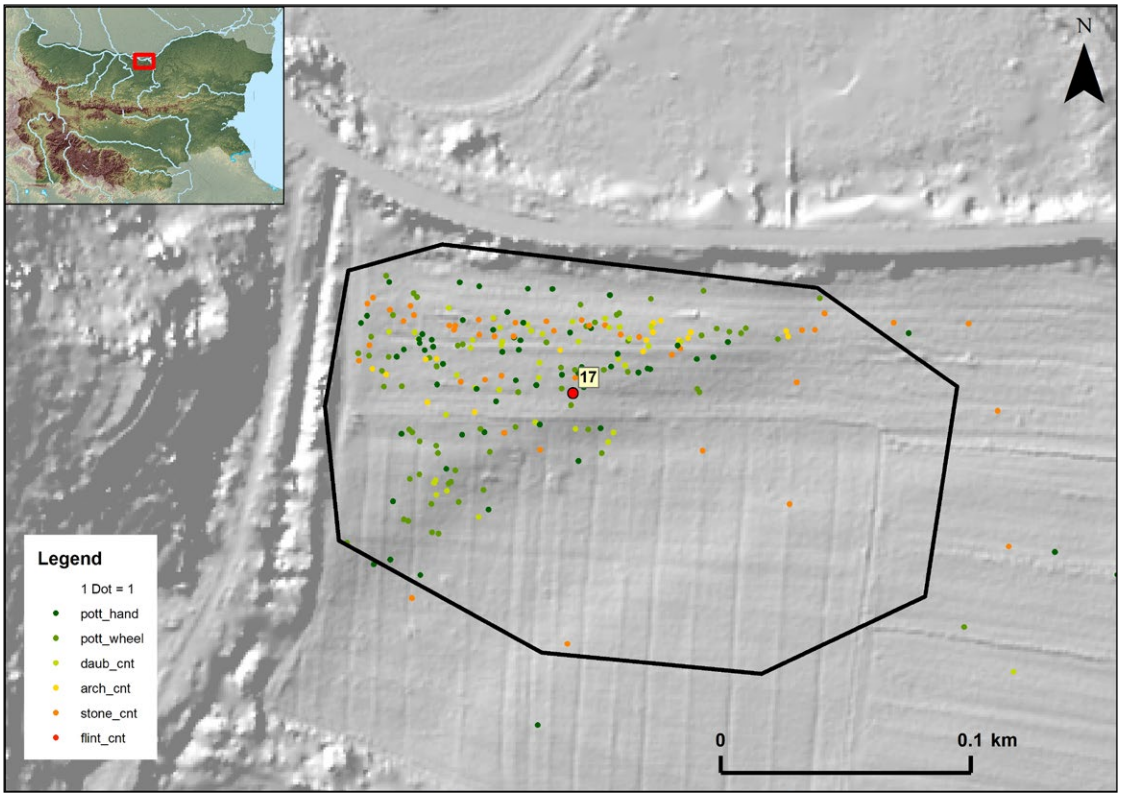


Fig. 51. Site 17. The area covered by concentrations of quantities of handmade and wheel made pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

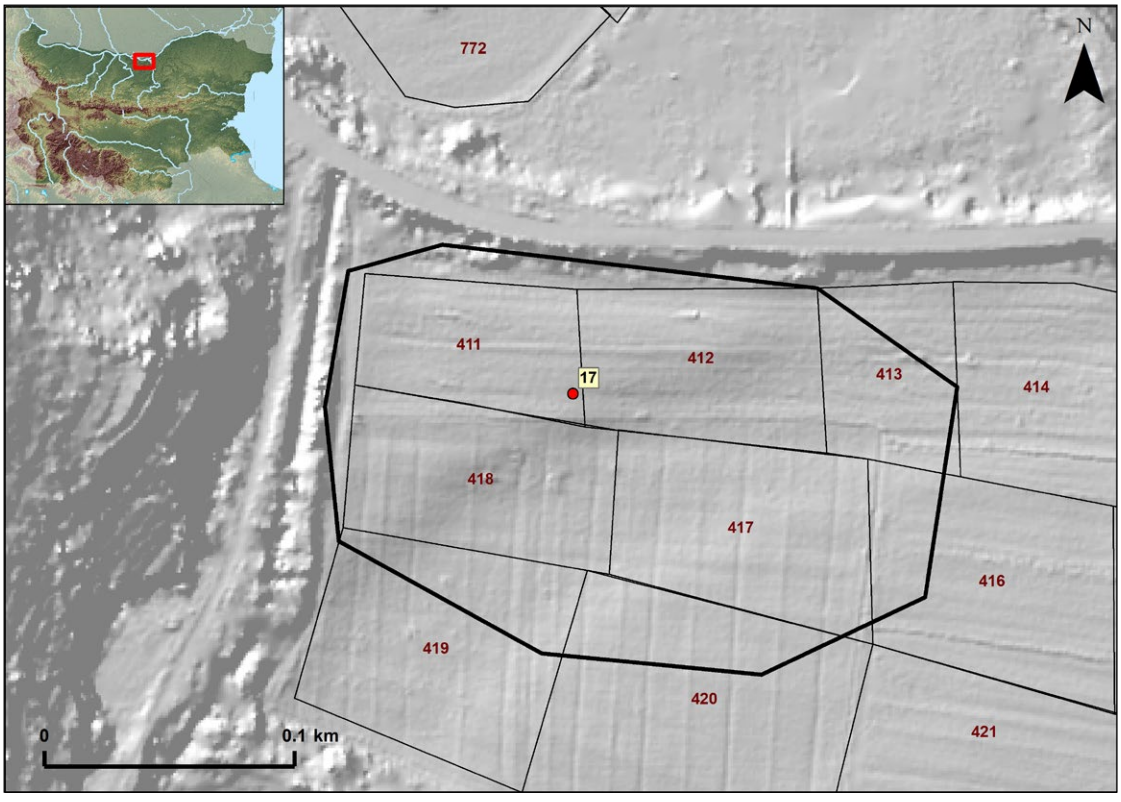


Fig. 52. Site 17. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)



Fig. 53. Site 17. View from east, March 2019 (photo by N. Kecheva)



Fig. 54. Site 17. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)

SITE 18

Field	Data										
Site ID	18										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	2.8 km, azimuth 265 degrees W from the centre of Novgrad										
Locality	***BG cadastre***		***Topographic map with scale 1:5000***								
	• Blatoto		• Kriva bara								
Location	The lowlands										
Baltic height (m)	18										
Slope	Plain										
Aspect	Plain										
Legacy site actions	***ID from survey 1997–2001***										
	Not recorded										
Site actions	***2019***										
	• Intensive field survey										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	294	71	223	17	316	20	4	2	0	0	SF 60 to SF 61
Collected diagnostic pottery fragments (field surveys)	145										

Field	Data						
Description (field surveys)	***N***	***Chronology***	***Type***	***Diagnostic finds***	***Facilities***	***Notes***	***Cat. Nos. Diagnostic finds***
	18.d	Early Iron Age	Undefined function	• Diagnostic handmade pottery fragments – 5	No facilities		
	18.e	Late Iron Age (5th–3rd c. BC)	Undefined function	• Diagnostic pottery fragments – 78	No facilities		P18/001 P18/003 P18/004 P18/006 P18/007
	18.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Undefined function		No facilities		P18/002 P18/005
	18.g	Roman period	Settlement	• Diagnostic pottery fragments – 47	Dwellings?		P18/008–018
	18.h	Late Antiquity	Undefined function	• Diagnostic pottery fragments – 4	No facilities		
Other traces	Single artefacts of Early Middle Ages, Ottoman period						
Polygons	***Amount of polygons***		***Nos***				
	12 polygons		• From 447 to 452, • From 456 to 461				
Small polygons	***Amount of small polygons***			***Notes***			
	264 small polygons			Maps			
Area (ha)	2.5						
AIS AKB	***No***			***Author***			
	10006991			Nadezhda Kecheva in a survey in 2019			
Coordinates	N 43.603521, E 25.551671						

Field	Data
Notes	Site 18 is situated in the lowlands, east of an old meander of Yantra River and east of site 5. The old meander of the Yantra River separates the areas of the two sites. In the spring of 2019 site 18 was part of large agricultural fields (Вагалински et al. 2020b). The fields were seeded with crops with surface visibility above 80%. Artefacts with the following quantities were recorded: 294 pottery fragments (71 handmade; 223 wheelmade); 17 pieces of daub; 316 pieces of tiles and bricks; 20 stones; 4 flints; 2 millstones. The amount of diagnostic pottery fragments collected was 145. In the NW area of the site, a spot with a high concentration of tiles and bricks was recorded and which is probably where one or two Roman or Late Roman dwellings existed. The site was interpreted as a settlement of the Roman period and sites of an undefined function of LIA, EIA, and LA.
Publications	Вагалински et al. 2020b
Maps	*Counted artefact concentration, polygons Nos.*
Photos	*Field survey, pottery fragments*

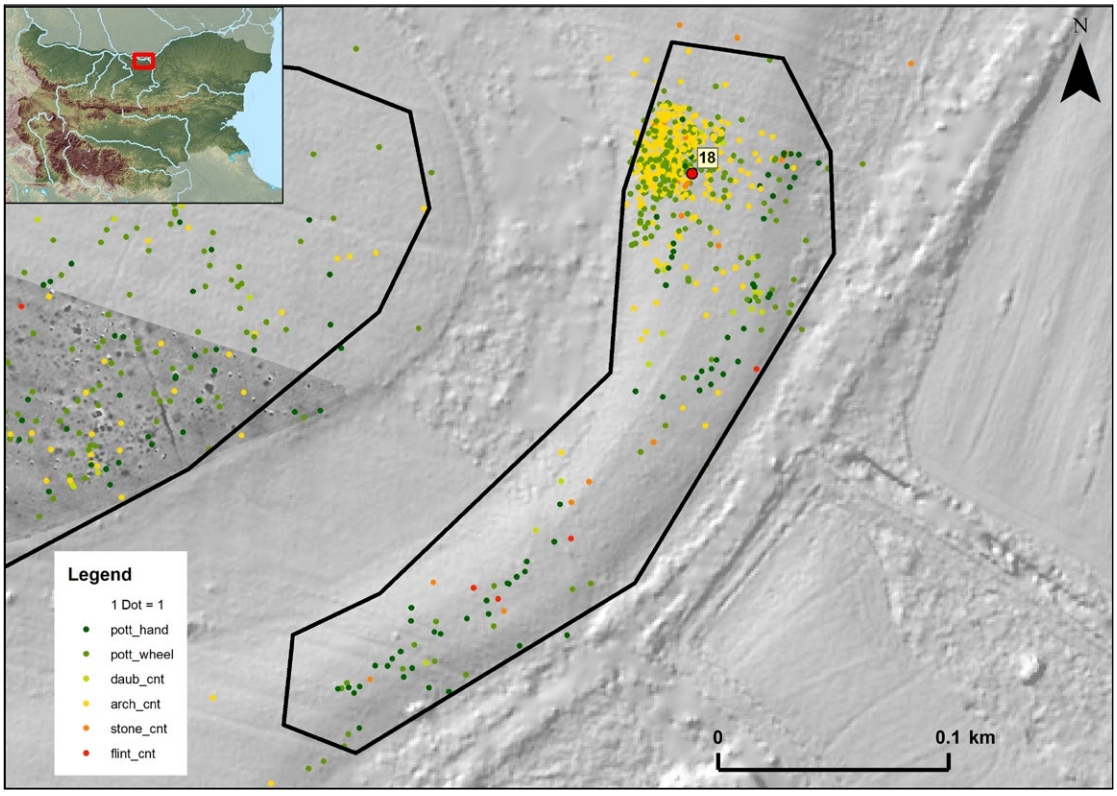


Fig. 55. Site 18. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

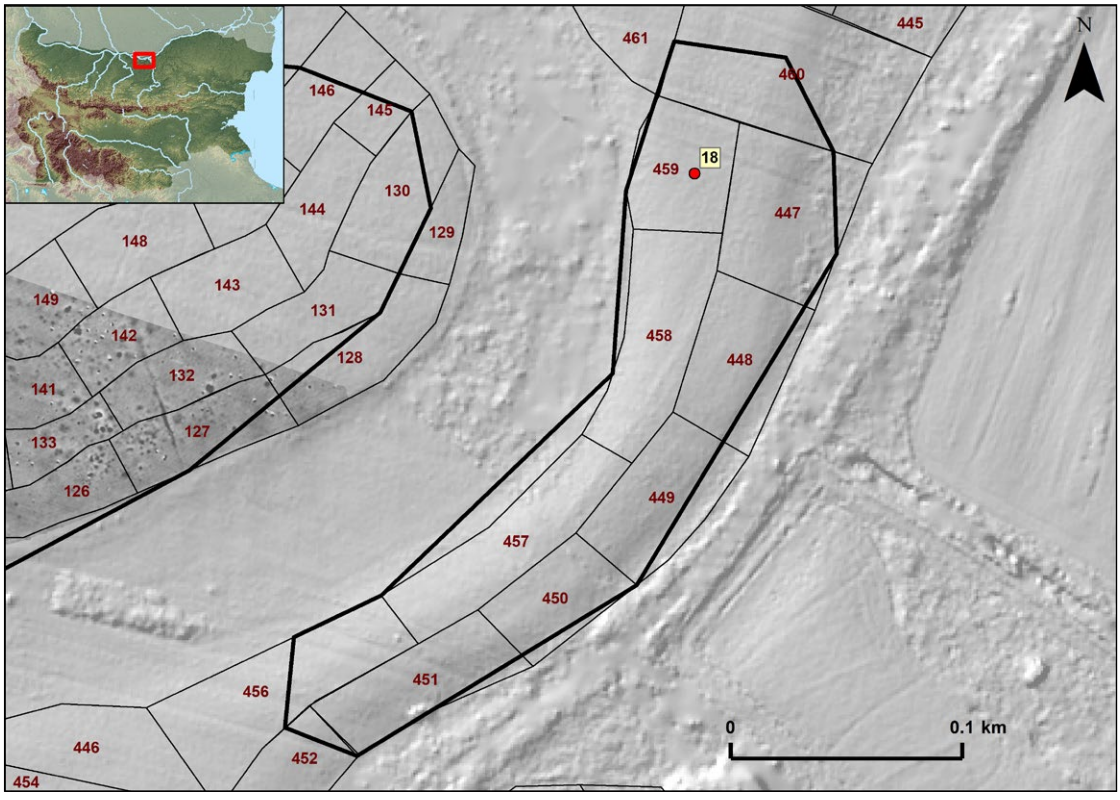


Fig. 56. Site 18. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)



Fig. 57. Site 18. View from south, March 2019 (photo by N. Kecheva)



Fig. 58. Site 18. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)

SITE 19

Field	Data										
Site ID	19										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	2.8 km, azimuth 249 degrees SW from the centre of Novgrad										
Locality	***BG cadastre***										
	• Punargelyu										
Location	The lowlands										
Baltic height (m)	20-21										
Slope	Plain										
Aspect	Plain										
Legacy site actions	***ID from survey 1997–2001***										
	Not recorded										
Site actions	***2019***										
	• Intensive field survey										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	1667	450	1217	336	76	62	3	1	1	0	SF 62 to SF 66
Collected diagnostic pottery fragments (field surveys)	649										

Field	Data						
Description (field surveys)	*N*	*Chronology*	*Type*	*Diagnostic finds*	*Facilities*	*Notes*	*Cat. Nos. Diagnostic finds*
	19.d	Early Iron Age	Undefined function	• Diagnostic handmade pottery fragments – 56	No facilities		P19/001–003
	19.e	Late Iron Age (5th–3rd c. BC)	Undefined function	• Diagnostic pottery fragments – 241	No facilities		P19/004–011
	19.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Undefined function		No facilities		
	19.g	Roman period	Undefined function	• Diagnostic pottery fragments – 75	No facilities		
	19.h	Late Antiquity	Undefined function	• Diagnostic pottery fragments – 27	No facilities		
	19.i	Early Middle Ages	Settlement	• Diagnostic pottery fragments – 239	No facilities		P19/012–014
Other traces	Single artefacts of High Middle Ages, Ottoman period						
Polygons	*Amount of polygons*		*Nos*				
	43 polygons		• From 466 to 469, • From 473 to 485, • From 489 to 506, • From 513 to 517, • 522, •From 529 to 530				
Small polygons	*Amount of small polygons*				*Notes*		
	1028 small polygons				Maps		
Area (ha)	21						
AIS AKB	*No*				*Author*		
	10006994				Nadezhda Kecheva in a survey in 2019		
Coordinates	N 43.595653, E 25.55702						

Field	Data
Notes	Site 19 is situated in the lowlands, encompassed by an old meander of the Yantra River. In the spring of 2019 site 19 was part of large agricultural fields (Вагалински et al. 2020b). The fields were seeded with crops with surface visibility above 80%. Only four polygons were part of an orchard, again with surface visibility above 80%. The SE part of the site area was not covered by fieldwalking since it was covered with higher crops and the surface visibility was less than 20%. A large quantity of artefacts was recorded: 1667 pottery fragments (450 handmade; 1217 wheelmade); 336 pieces of daub; 76 pieces of tiles and bricks; 62 stones, 3 flints, 1 millstone; 1 stone tool; 1 pottery cap; 1 coin. The amount of diagnostic pottery fragments collected was 649. One clear scatter in the middle of the site area with a higher concentration of pottery fragments could be defined. In the NW and the SE part of the site area, two other scatters with a smaller concentration of pottery artefacts were also identified. No traces of smaller spots with a high concentration of pieces of daub or tiles and bricks were recorded. Artefacts dated in the Early Middle Ages and LIA were the ones with the highest recording, followed by the Roman period, EIA, and LA. It was difficult to identify the presence/absence of horizontal stratigraphy in the different chronological periods.
Publications	Вагалински et al. 2020b
Maps	*Sites 19 and 38 – counted artefact concentration, polygons Nos.*
Photos	*Field survey, pottery fragments*

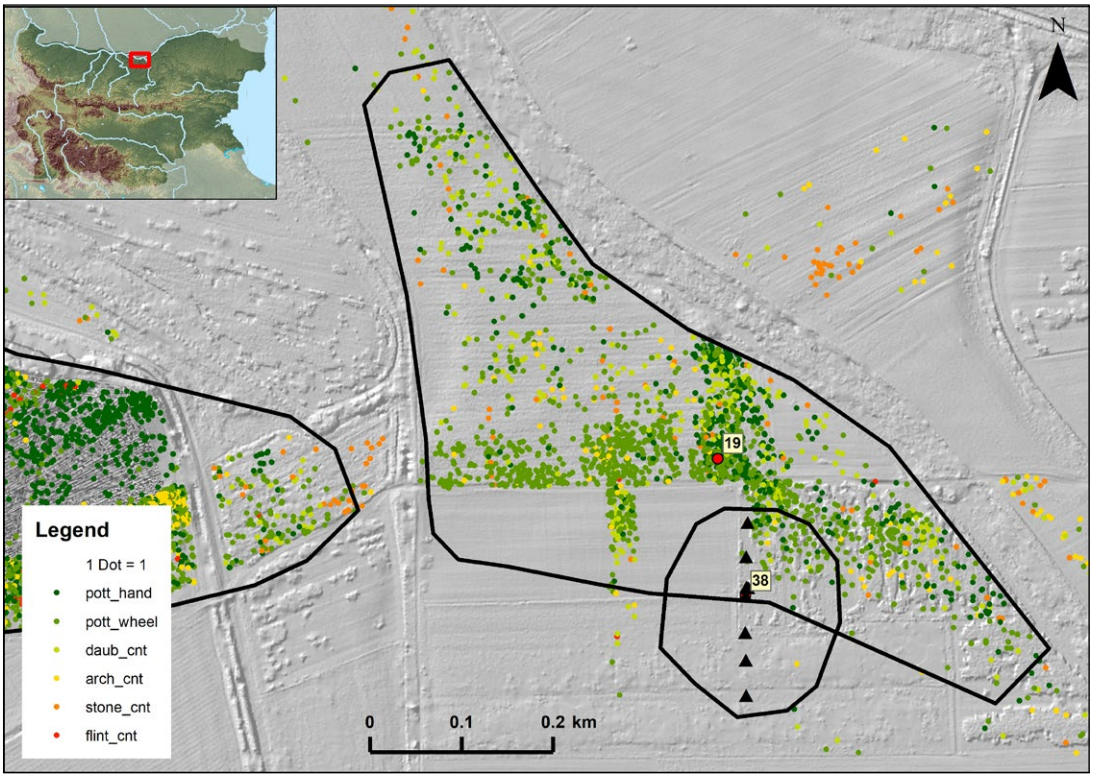


Fig. 59. Sites 19 and 38. The area covered by concentrations of quantities of handmade and wheel made pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; geomorphological coring – in black triangles. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

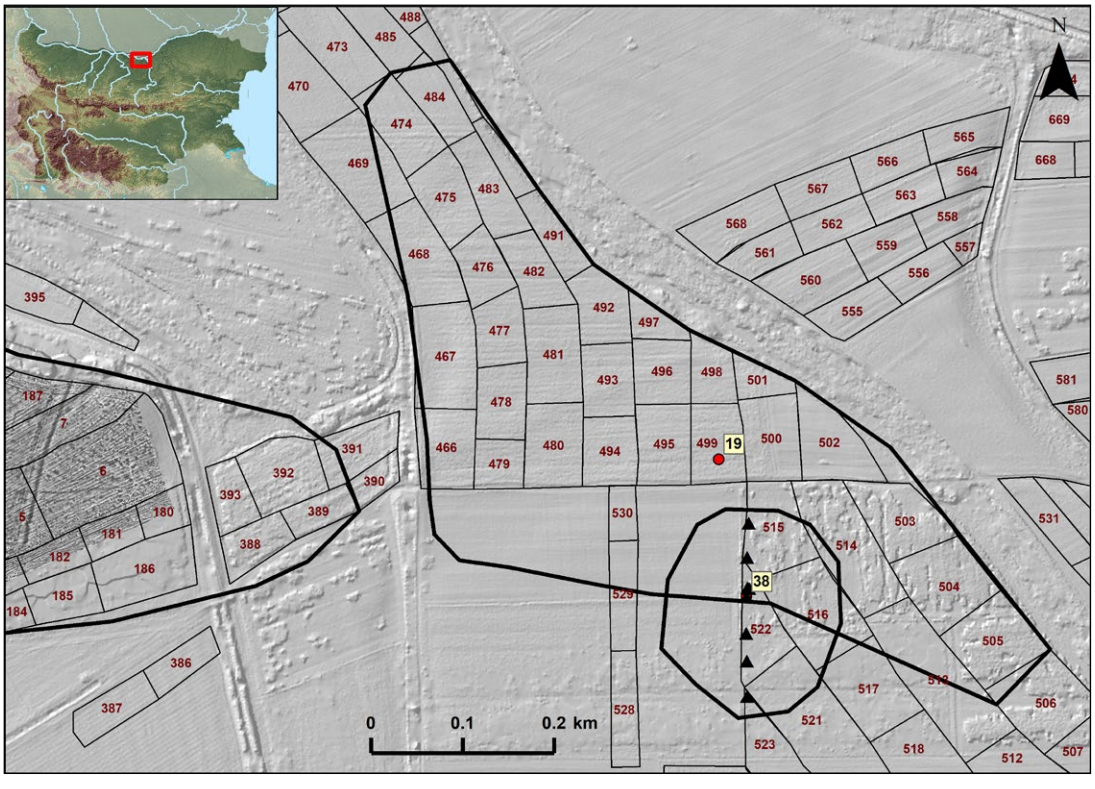


Fig. 60. Sites 19 and 38. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)



Fig. 61. Site 19. View from west, March 2019 (photo by L. Vagalinski)



Fig. 62. Site 19. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)



Fig. 63. Site 19. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)



Fig. 64. Site 19. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)

SITE 20

Field	Field										
Site ID	20										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	2.1 km, azimuth 229 degrees SW from the centre of Novgrad										
Locality	***BG cadastre***			***Topographic map with scale 1:5000***							
	• Punargelyu			• Eliyata							
Location	The lowlands										
Baltic height (m)	20–21										
Slope	Plain										
Aspect	Plain										
Legacy site actions	***ID from survey 1997–2001***										
	Not recorded										
Site actions	***2019***										
	• Intensive field survey										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	133	49	84	206	20	35	5	0	0	0	No
Collected diagnostic pottery fragments (field surveys)	94										

Field	Field						
Description (field surveys)	*N*	*Chronology*	*Type*	*Diagnostic finds*	*Facilities*	*Notes*	*Cat. Nos. Diagnostic finds*
	20.d	Early Iron Age	Settlement?	• Diagnostic handmade pottery fragments – 19	No facilities		
	20.e	Late Iron Age (5th–3rd c. BC)	Undefined function	• Diagnostic pottery fragments – 17	No facilities		
	20.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Undefined function		No facilities		
	20.g	Roman period	Undefined function	• Diagnostic pottery fragments – 11	No facilities		
	20.h	Late Antiquity	Undefined function	• Diagnostic pottery fragments – 3	No facilities		
	20.i	Early Middle Ages	Settlement	• Diagnostic pottery fragments – 39	No facilities		P20/001
Other traces	Single artefacts of High Middle Ages						
Polygons	*Amount of polygons*		*Nos*				
	15 polygons		• From 542 to 543, • From 546 to 549, • From 553 to 554, • From 597 to 599, • From 604 to 606				
Small polygons	*Amount of small polygons*			*Notes*			
	270 small polygons			Maps			
Area (ha)	4.2						
AIS AKB	*No*			*Author*			
	10006995			Nadezhda Kecheva in a survey in 2019			
Coordinates	N 43.593082, E 25.56601						

Field	Field
Notes	Site 20 is situated in the lowlands, to the east of an old meander of Yantra River, and in the 1930s it was on the left bank of the channel Studena Reka River. In the spring of 2019 site 20 was part of large agricultural fields (Вагалински et al. 2020b). The fields were seeded with crops with surface visibility above 80%. Artefacts with the following quantities were recorded: 133 pottery fragments (49 handmade; 84 wheelmade); 206 pieces of daub; 20 pieces of tiles and bricks; 35 stones; 5 flints. The amount of diagnostic pottery fragments collected was 94. In the site, four spots of high concentration of pieces of daub were recorded showing places of possible dwellings. At least one of the spots could be identified as traces of an EIA dwelling (in polygon 554). Artefacts dated in the Early Middle Ages, EIA and LIA were the ones with the highest distribution, followed by the Roman period and LA. It was difficult to identify the presence/absence of horizontal stratigraphy in artefact distribution during different chronological periods.
Publications	Вагалински et al. 2020b
Maps	*Sites 20 and 36 – counted artefact concentration, polygons Nos.*
Photos	*Field survey, pottery fragments*

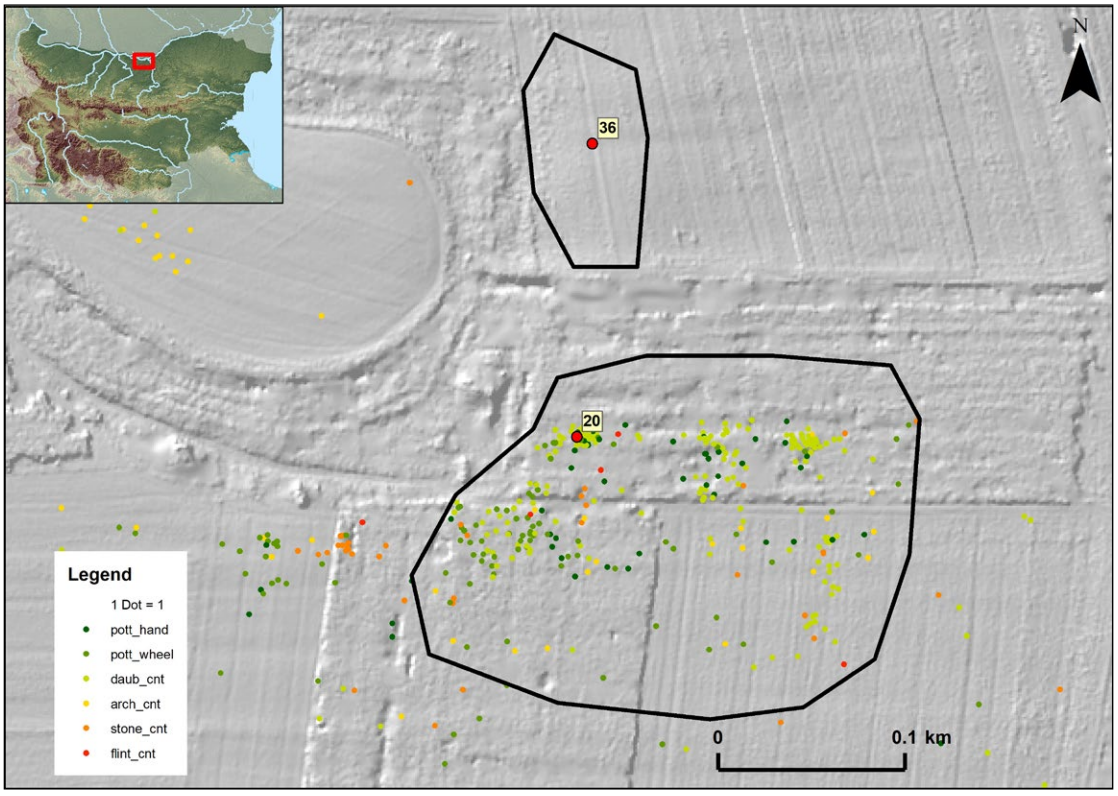


Fig. 65. Sites 20 and 36. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

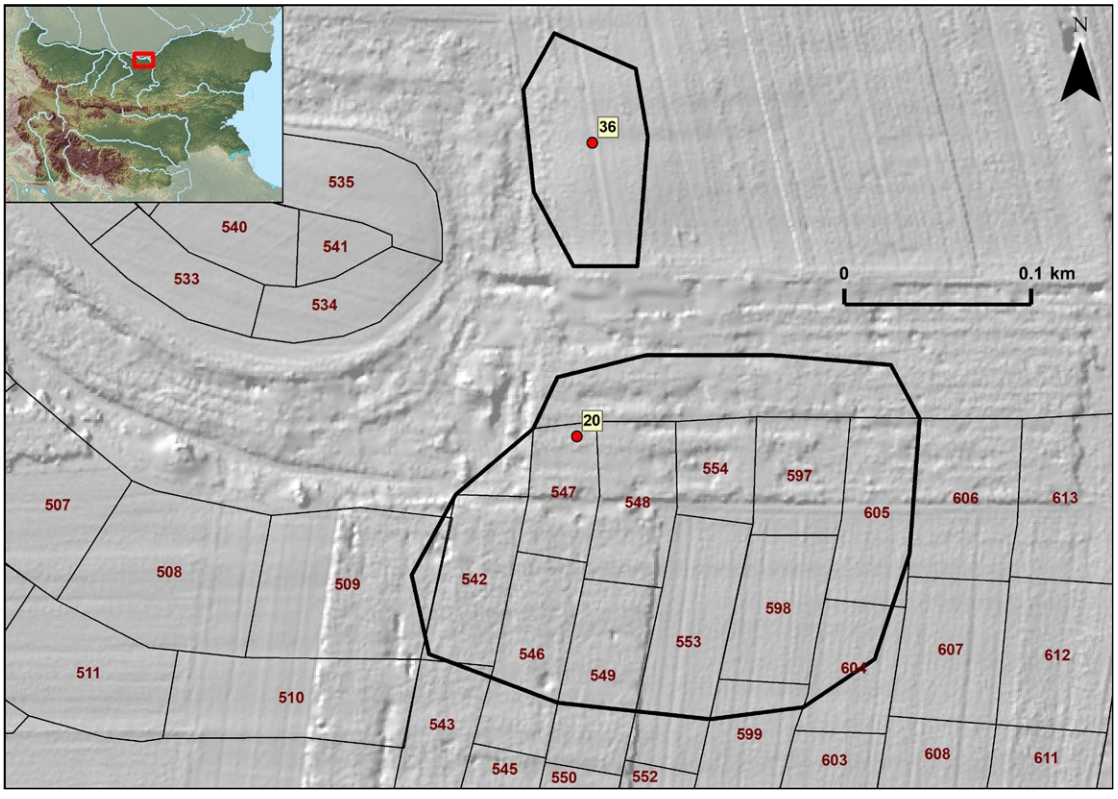


Fig. 66. Sites 20 and 36. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)



Fig. 67. Site 20. View from north, March 2019 (photo by L. Vagalinski)



Fig. 68. Site 20. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)



Fig. 69. Site 20. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)

SITE 21

Field	Data										
Site ID	21										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	1.8 km, azimuth 239 degrees SW from the centre of Novgrad										
Locality	***BG cadastre***			***Topographic map with scale 1:5000***							
	• Pri kolibite			• Eliyata							
Location	The lowlands										
Baltic height (m)	20–22										
Slope	Plain										
Aspect	Plain										
Legacy site actions	***ID from survey 1997–2001***										
	Not recorded										
Site actions	***2019***										
	• Intensive field survey										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	679	50	629	83	74	118	5	0	2	0	No
Collected diagnostic pottery fragments (field surveys)	316										

Field	Data						
Description (field surveys)	*N*	*Chronology*	*Type*	*Diagnostic finds*	*Facilities*	*Notes*	*Cat. Nos. Diagnostic finds*
	21.d	Early Iron Age	Undefined function	• Diagnostic handmade pottery fragments – 8	No facilities		P21/001
	21.e	Late Iron Age (5^{th}–3^{rd} c. BC)	Undefined function	• Diagnostic pottery fragments – 19	No facilities		
	21.f	Late Iron Age (2^{nd}/1^{st} c. BC – 1^{st} c. AD)	Undefined function		No facilities		
	21.g	Roman period	Undefined function	• Diagnostic pottery fragments – 33	No facilities		
	21.i	Early Middle Ages	Settlement	• Diagnostic pottery fragments – 248	No facilities		
Other traces	Single artefacts Late Antiquity						
Polygons	***Amount of polygons***		***Nos***				
	19 polygons		• From 572 to 577, • From 584 to 596				
Small polygons	***Amount of small polygons***		***Notes***				
	387 small polygons		Maps				
Area (ha)	10.1						
Geomorpholo-gical corings	***Amount of corings***		***Nos***		***Notes***		
	7 corings		• From T1C36 to T1C42		Cf. the contributions by A. López del Olmo et al., chapter 4		
AIS AKB	***No***				***Author***		
	10006996				Nadezhda Kecheva in a survey in 2019		
Coordinates	N 43.597066, E 25.567493						

Field	Data
Notes	Site 21 is situated in the lowlands, on the left bank of the channel in the 1930s Studena Reka River. It may be part of the high concentration of sites and artefacts found in the 1930s during the channeling of Studena Reka riverbank (Стефанов 1956, 41-43, 46; Стефанов 1974; Дремсизова-Нелчинова, Иванов 1983, 51–52). In the spring of 2019 site 21 was part of large agricultural fields (Вагалински et al. 2020b). The fields were ploughed and seeded with crops with surface visibility above 80%. Artefacts with the following quantities were recorded: 679 pottery fragments (50 handmade; 629 wheelmade); 83 pieces of daub; 74 pieces of tiles and bricks; 118 stones; 5 flints; 2 stone tools. The amount of diagnostic pottery fragments collected was 316. Three spots of a higher concentration of mixed artefacts were recorded. The site area was extended in the N direction, but this area was not covered due to poor surface visibility. Artefacts dated to the Early Middle Ages prevailed, but Roman, LIA, EIA and LA pottery fragments were also recorded. Seven geomorphological corings fell within the site 21 area.
Publications	Вагалински et al. 2020b
Maps	*Sites 21, 22, 24 and 36 – counted artefact concentration, polygons Nos.*
Photos	*Field survey, pottery fragments*

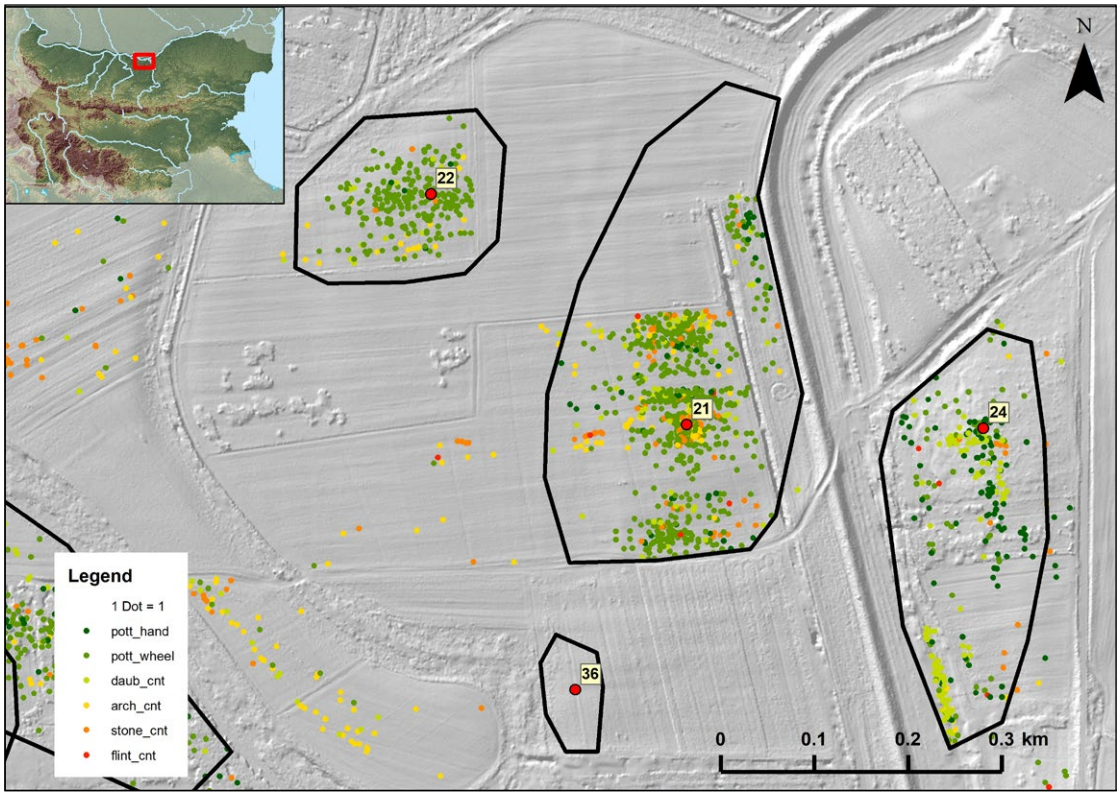


Fig. 70. Sites 21, 22, 24 and 36. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

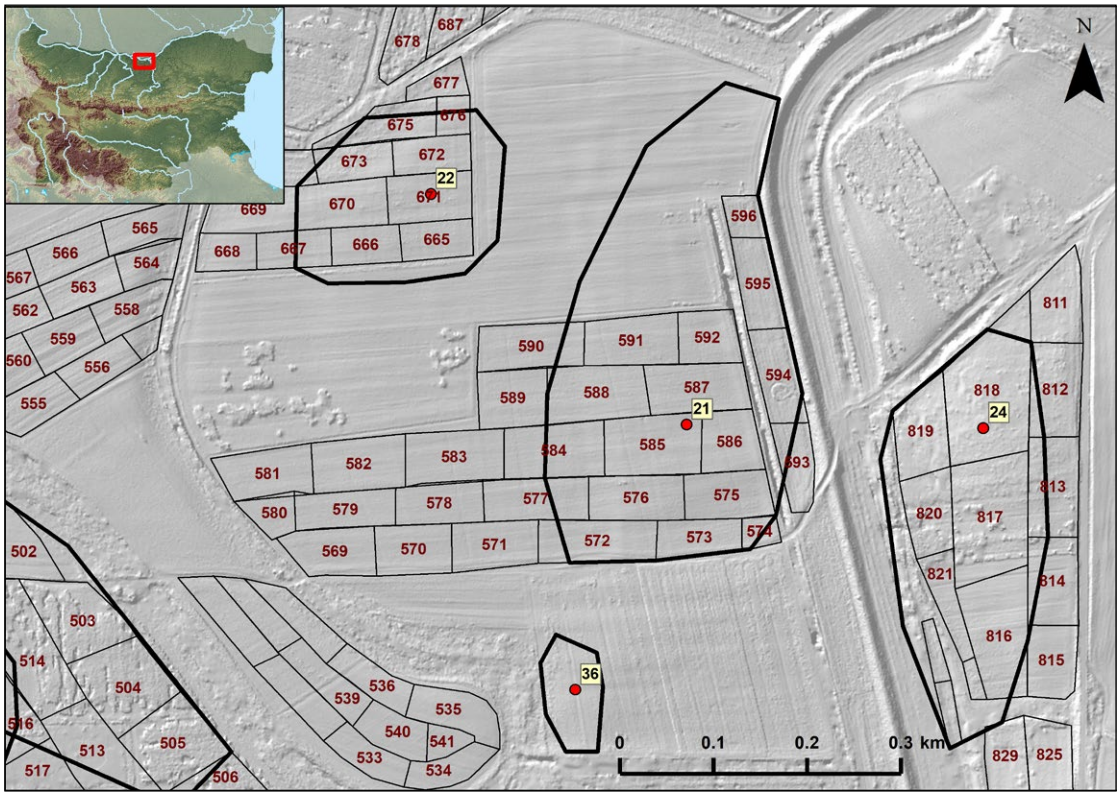


Fig. 71. Sites 21, 22, 24 and 36. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)



Fig. 72. Site 21. View from north, March 2019 (photo by L. Vagalinski)



Fig. 73. Site 21. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)

SITE 22

Field	Data											
Site ID	22											
Region	Ruse											
Municipality	Tsenovo											
Village	Novgrad											
Distance and azimuth	1.9 km, azimuth 249 degrees SW from the centre of Novgrad											
Locality	***BG cadastre***											
	• Pri kolibite											
Location	The lowlands											
Baltic height (m)	20–21											
Slope	Plain											
Aspect	Plain											
Legacy site actions	***ID from survey 1997–2001***											
	Not recorded											
Site actions	***2019***											
	• Intensive field survey											
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Other finds**	**Cat. No. Finds**
	234	4	230	13	20	3	0	2	0	0	0	SF 67 to SF 68
Collected diagnostic pottery fragments (field surveys)	156											

Field	Data						
Description (field surveys)	***N***	***Chronology***	***Type***	***Diagnostic finds***	***Facilities***	***Notes***	***Cat. Nos. Diagnostic finds***
	22.e	Late Iron Age (5th–3rd c. BC)	Undefined function	• Diagnostic pottery fragments – 6	No facilities		
	22.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Undefined function		No facilities		
	22.g	Roman period	Undefined function	• Diagnostic pottery fragments – 13	No facilities		
	22.h	Late Antiquity	Undefined function	• Diagnostic pottery fragments – 2	No facilities		
	22.i	Early Middle Ages	Settlement	• Diagnostic pottery fragments – 135	No facilities		
Polygons	***Amount of polygons***		***Nos***				
	11 polygons		• From 665 to 667, • From 669 to 676				
Small polygons	***Amount of small polygons***			***Notes***			
	189 small polygons			Maps			
Area (ha)	3.4						
AIS AKB	***No***			***Author***			
	10006997			Nadezhda Kecheva in a survey in 2019			
Coordinates	N 43.599242, E 25.564058						
Notes	Site 22 is situated in the lowlands, to the east of an old meander of Yantra River, and on the left bank of the channel of the 1930s Studena Reka River. In the spring of 2019 site 22 was part of large agricultural fields (Вагалински et al. 2020b). The fields were seeded with crops with surface visibility above 80%. Artefacts with the following quantities were recorded: 234 pottery fragments (4 handmade; 230 wheelmade); 13 pieces of daub; 20 pieces of tiles and bricks; 3 stones; 2 pieces of millstones. The amount of diagnostic pottery fragments collected was 156. The artefacts were recorded as scattered all over the site area. Artefacts dated to the Early Middle Ages prevailed, but Roman, LIA, and LA pottery fragments were also recorded.						
Publications	Вагалински et al. 2020b						
Maps	*See site 21 for maps*						
Photos	*Field survey, pottery fragments*						



Fig. 74. Site 22. View from south, March 2019 (photo by L. Vagalinski)



Fig. 75. Site 22. Part of the collected diagnostic pottery fragments, March 2019 (photo by S. Conrad)

SITE 23

Field	Data										
Site ID	23										
Region	Veliko Tarnovo										
Municipality	Svishtov										
Village	Vardim										
Distance and azimuth	5.6 km, azimuth 90 degrees E from the centre of Vardim										
Locality	***BG cadastre***										
	• Blatoto										
Location	The lowlands, floodplain										
Baltic height (m)	19										
Slope	Plain										
Aspect	Plain										
Legacy site actions	***ID from survey 1997–2001***				***Years of legacy site survey in the period 1997–2001***						
	8				1999, 2000						
Site actions	***2019***										
	• Intensive field survey										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	0	0	0	1	1	1804	0	0	0	0	No
Collected diagnostic pottery fragments (field surveys)	0										
Description (field surveys)	***N***	***Chronology***	***Type***		***Diagnostic finds***		***Facilities***		***Notes***		***Cat. Nos. Diagnostic finds***
	23.g	Roman period	Road		• No diagnostic finds		No facilities				
	23.h	Late Antiquity	Road		• No diagnostic finds		No facilities				

Field	Data		
Polygons	***Amount of polygons***	***Nos***	
	10 polygons	• From 777 to 778, • 781, • 791, • From 795 to 796, • From 802 to 803, • From 805 to 806	
Small polygons	***Amount of small polygons***		***Notes***
	87 small polygons		Maps
Area (ha)	7.9		
AIS AKB	***No***		***Author***
	10006998		Nadezhda Kecheva in a survey in 2019
Coordinates	N 43.613546, E 25.537311		
Notes	Site 23 is situated in the lowlands, north of Tash Bair ridge. It could be identified as a recorded site in the expeditions between 1997–2001, described as site 8 in the MS Access database of S. Conrad (Conrad 2006, Conrad, Stančev 2002). It is interpreted as being part of the Antique road between *Novae* and *Iatrus*. The site is visible as a linear anomaly in SW to NE-E direction on: • Analytical hillshade derived from LiDAR DTM – length of 0.94 km with direction 200° – 20° • Georeferenced aerial photographs from 1944–1945 – length of 0.94 km with direction 200° – 20° and 0.56 km with direction 260° – 80° going around an old meander of Yantra River • Georeferenced aerial photographs from 1970 – length of 0.94 km with direction 20° – 200°, 0.56 km with direction 260° – 80° going around an old meander of Yantra River and 0.34 km with direction 264° – 84° • Satellite imagery from 4th of March 2012 – total length of 2.45 km from the asphalt road between villages of Vardim and Novgrad to the left bank of Yantra River The traces of the road were cut by three modern artificial channels. The traces of the road were recorded in 2000 and partially excavated with a trench approximately 900 m north of the asphalt road between villages of Vardim and Novgrad at the foot of Tash Bair promontory, near the building of a former electrical transformer (Вагалински et al. 2001b, 81). Stone padding had been recorded at a depth of 0.30–0.40 m with a width of 5.30 m. The pottery fragments that were found during the partial excavations dated in 4th – the beginning of the 5th c. (Вагалински et al. 2001b, 81). In the spring of 2019 site 23 was part of large agricultural fields (Вагалински et al. 2020b). The fields were seeded with crops with surface visibility between 60–80%. Only 0.5 km of the visible linear anomaly was intensively surveyed – the ones closest to the asphalt road between villages of Vardim and Novgrad. A high concentration (1804 in number) of stones was recorded. In the polygons near the linear anomaly single wheelmade pottery fragments dating in Antiquity were recorded.		

Field	Data
Publications	Вагалински et al. 2001b; Conrad, Stančev 2002; Conrad 2006; Вагалински et al. 2020b
Maps	*Counted artefact concentration, polygons Nos.*
Photos	*Field survey*

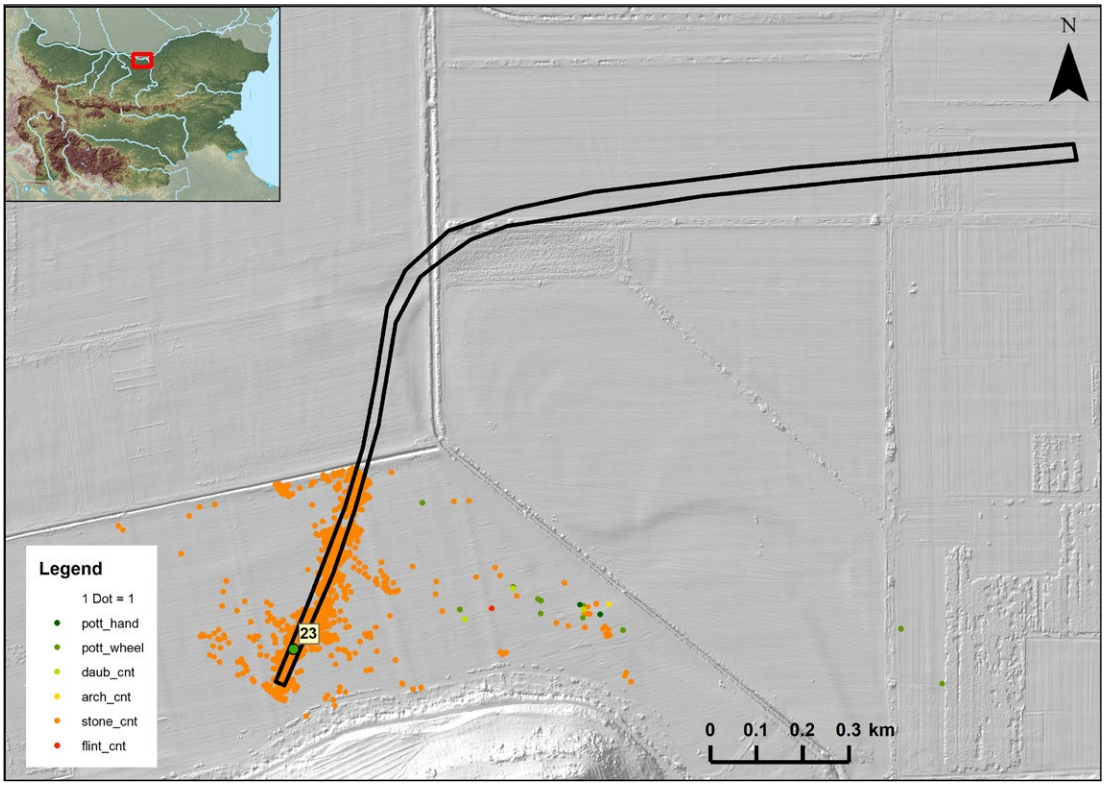


Fig. 76. Site 23. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – a road – as a green dot. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

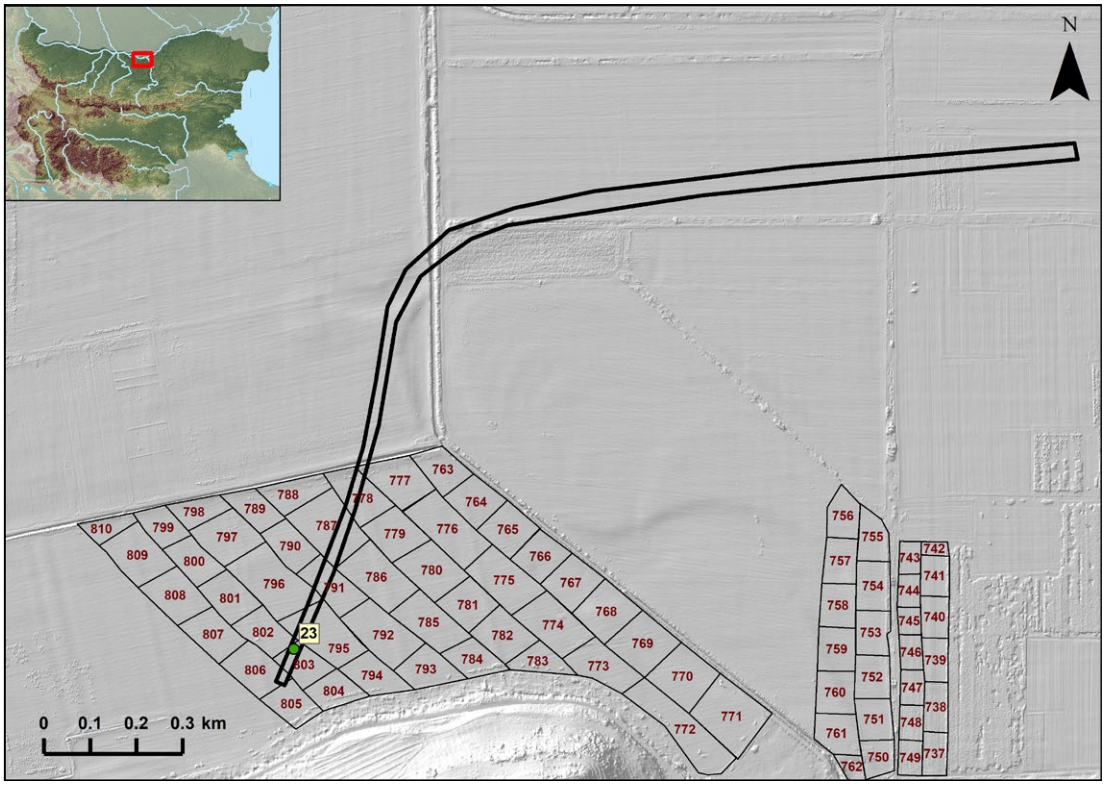


Fig. 77. Site 23. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)



Fig. 78. Site 23. View from the southwest, April 2019 (photo by L. Vagalinski)



Fig. 79. Site 23. View from east, April 2019 (photo by N. Kecheva)

SITE 24

Field	Data										
Site ID	24										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	1.5 km, azimuth 232 degrees SW from the centre of Novgrad										
Locality	***BG cadastre***										
	• Dolni lozya										
Location	The slope of the high terrace at the eastern edge of Yantra lowlands										
Baltic height (m)	36 to 18										
Slope	5.71 degrees rising W to E										
Aspect	W										
Legacy site actions	***ID from survey 1997–2001***				***Years of legacy site survey in the period 1997–2001***						
	16 (16_1)				1999, 2000						
Site actions	***2019***										
	• Intensive field survey										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	168	101	67	133	9	14	4	1	0	0	SF 70
Collected diagnostic pottery fragments (field surveys)	142										

Field	Data						
Description (field surveys)	***N***	***Chronology***	***Type***	***Diagnostic finds***	***Facilities***	***Notes***	***Cat. Nos. Diagnostic finds***
	24.d	Early Iron Age	Undefined function	• Diagnostic handmade pottery fragments – 72	No facilities		P24/001–006
	24.e	Late Iron Age (5th–3rd c. BC)	Undefined function	• Diagnostic pottery fragments – 41	No facilities		P24/007
	24.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Undefined function		No facilities		P24/008
	24.g	Roman period	Undefined function	• Diagnostic pottery fragments – 3	No facilities		
	24.i	Early Middle Ages	Undefined function	• Diagnostic pottery fragments – 20	No facilities		
Other traces	Single artefacts from High Middle Ages and Ottoman period						
Polygons	***Amount of polygons***		***Nos***				
	15 polygons		• From 811 to 824, • 829				
Small polygons	***Amount of small polygons***			***Notes***			
	331 small polygons			Maps			
Area (ha)	5.7						
AIS AKB	***No***			***Author***			
	10006999			Nadezhda Kecheva in a survey in 2019			
	0820136			Dimitar Stanchev			
Coordinates	N 43.597081, E 25.571414						

Field	Data
Notes	Site 24 is situated at the slope of the high terrace, on the right bank of the channel in the 1930s Studena Reka River. It may be part of the high concentration of sites and artefacts found in the 1930s during the channeling of the Studena Reka riverbank (Стефанов 1956, 41–43, 46; Стефанов 1974; Дремсизова-Нелчинова, Иванов 1983, 51–52). It could be identified as a recorded site in the expeditions between 1997–2001, described as site 16 (16_1) in the MS Access database of S. Conrad (Вагалински et al. 2001a; Вагалински et al. 2001b; Conrad 2006). In the spring of 2019 site 24 was part of large agricultural fields (Вагалински et al. 2020b). The fields were seeded with crops with surface visibility above 80%. Only two polygons were in an orchard with the same surface visibility. Artefacts with the following quantities were recorded: 168 pottery fragments (101 handmade; 67 wheelmade); 133 pieces of daub; 9 pieces of tiles and bricks; 14 stones; 4 flints; 1 piece of a millstone. The amount of diagnostic pottery fragments collected was 142. Most of the artefacts were scattered in two spots: one was higher on the slope, in the NE part of the site area, and the other one – close to the contemporary Studena Reka riverbank, in the SW part of the site area. Pottery fragments dated to the EIA and LIA prevailed, but Early Medieval and Roman periods were also present.
Publications	Стефанов 1956; Стефанов 1974; Дремсизова-Нелчинова, Иванов 1983; Вагалински et al. 2001a; Вагалински et al. 2001b; Conrad 2006; Вагалински et al. 2020b
Maps	*See site 21 for maps*
Photos	*Field survey, pottery fragments*



Fig. 80. Site 24. View from the northeast, April 2019 (photo by N. Kecheva)



Fig. 81. Site 24. Part of the collected diagnostic pottery fragments, April 2019 (photo by S. Conrad)



Fig. 82. Site 24. Part of the collected diagnostic pottery fragments, April 2019 (photo by S. Conrad)

SITE 25

Field	Data							
Site ID	25							
Region	Ruse							
Municipality	Tsenovo							
Village	Novgrad							
Distance and azimuth	2.2 km, azimuth 211 degrees SW from the centre of Novgrad							
Locality	***BG cadastre***	***Topographic map with scale 1:5000***						
	• Challaka	• Borushov geran						
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	Yes				Yes			
Location	High terrace							
Baltic height (m)	38.6							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	109							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	25	Undefined	Burial mound	No finds	No facilities	60	2–2.5	Ploughed mound, partially destroyed by machine ploughing
Area (ha)	0.3							
AIS AKB	***No***			***Author***				
	10007000			Nadezhda Kecheva in a survey in 2019				

Field	Data
Coordinates	N 43.588006, E 25.571846
Notes	A burial mound (Вагалински et al. 2020b). It was recorded as site 109 in the MS Access database of S. Conrad (Conrad 2006).
Publications	Conrad 2006; Вагалински et al. 2020b
Maps	*Sites 25 and 26 – counted artefact concentration, polygons Nos.*
Photos	*Field survey*

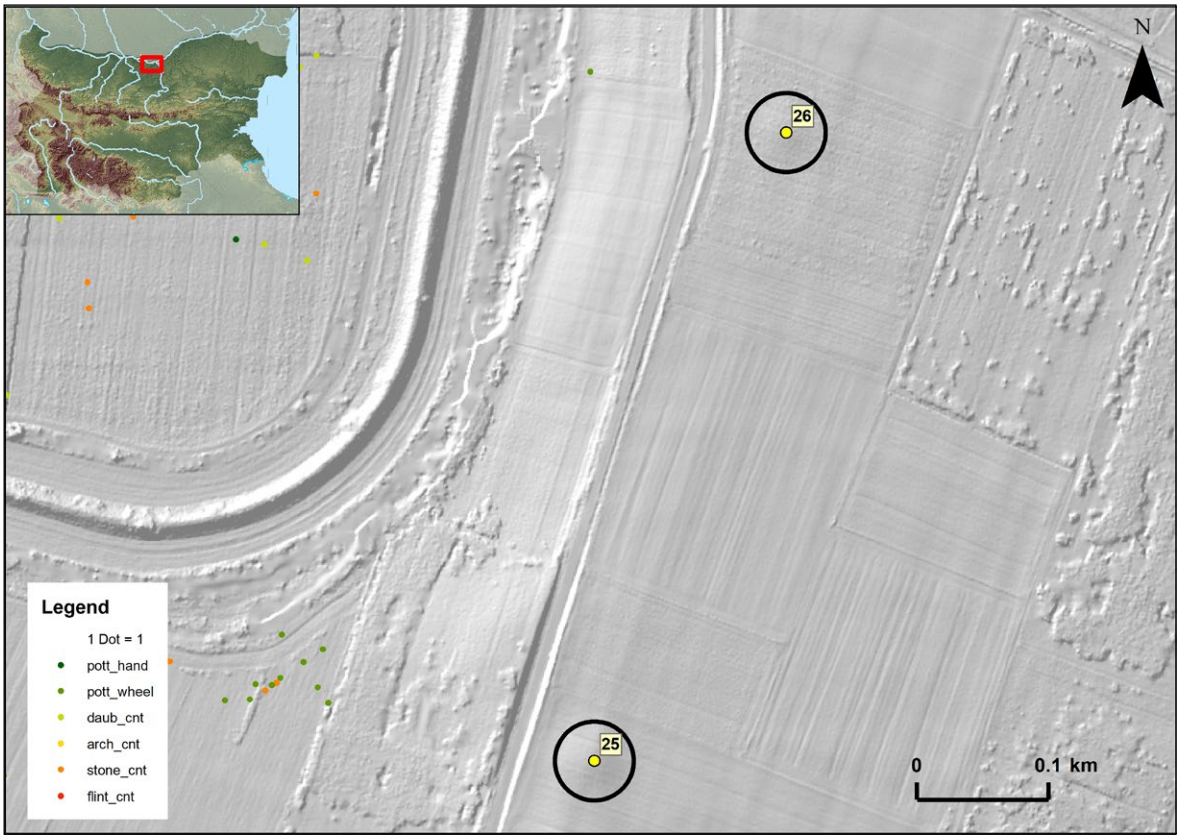


Fig. 83. Sites 25 and 26. Recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

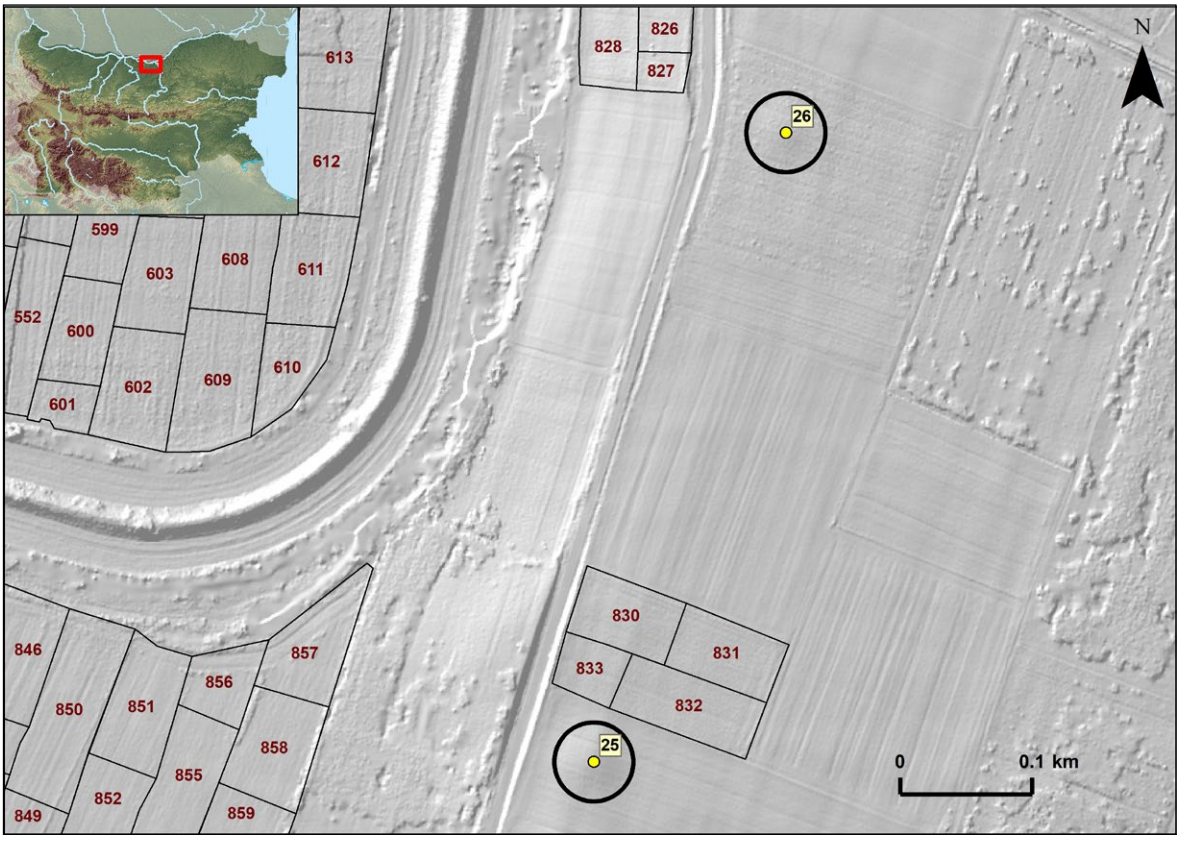


Fig. 84. Sites 25 and 26. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)



Fig. 85. Site 25. View from north, April 2019 (photo by L. Vagalinski)

SITE 26

Field	Data							
Site ID	26							
Region	Ruse							
Municipality	Tsenovo							
Village	Novgrad							
Distance and azimuth	1.8 km, azimuth 214 degrees SW from the centre of Novgrad							
Locality	***BG cadastre***							
	• Challaka							
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	No				No			
Location	High terrace							
Baltic height (m)	37.7							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	108							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	26	Undefined	Burial mound	No finds	No facilities	60	1–1.5	Ploughed mound, destroyed by machine ploughing; in the SE part traces of burned daub was found with several pottery fragments dated in LIA and Early Middle Ages; the finds were not connected to the chronology of the mound
Area (ha)	0.3							

Field	Data	
AIS AKB	***No***	***Author***
	10007001	Nadezhda Kecheva in a survey in 2019
Coordinates	N 43.592327, E 25.573549	
Notes	A burial mound (Вагалински et al. 2020b). It was recorded as site 108 in the MS Access database of S. Conrad (Conrad 2006).	
Publications	Conrad 2006; Вагалински et al. 2020b	
Maps	*See site 25 for maps*	
Photos	*Field survey, pottery fragments*	



Fig. 86. Site 26. View from north, April 2019 (photo L. Vagalinski)



Fig. 87. Site 26. Collected pottery fragments, April 2019 (photo by S. Conrad)

SITE 27

Field	Data	
Site ID	27	
Region	Veliko Tarnovo	
Municipality	Svishtov	
Village	Vardim	
Distance and azimuth	4.4 km, azimuth 107 degrees SE from the centre of Vardim	
Locality	***BG cadastre***	
	• Tash Bair	
Labelling on topographic maps	*Topographic map with scale 1:50 000*	*Topographic map with scale 1:5000*
	Yes	No
Location	The top of a ridge	
Baltic height (m)	149	
Slope	Plain	
Aspect	Plain	
Legacy site actions	***ID from survey 1997–2001***	
	70	
Site actions	***2019***	
	• Intensive field survey	

Field	Data								
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***	***Cat. Nos. Diagnostic finds***
	27	Undefined	Burial mound	• Diagnostic fragment of iron knife – 1 • Human bones including third vertebrae of a grown individual (with traces of osteoporosis) • Horse tooth – 1	No facilities	25	3–3.5	Unploughed mound, covered with grass, its periphery was destroyed by ploughing, the mound was destroyed by looter trenches and animal dens in the S part; human bones including third vertebrae of a grown individual (with traces of osteoporosis) were found scattered in the trenches; in the SE part more human bones were found including a horse tooth and a piece of an iron knife; probably they belonged to a destroyed burial in the mound	SF 71
Area (ha)	0.1								
AIS AKB	***No***			***Author***					
	3300036			Plamen Draganchev in a survey of Peti Donevski and Plamen Draganchev in 1992					
Coordinates	N 43.601516, E 25.520844								
Notes	A burial mound, part of mound necropolis on the ridge top with direction E-W (Вагалински et al. 2020b). It was recorded in older publications (Стефанов 1956, 24), and as site 70 in the MS Access database of S. Conrad (Conrad 2006).								
Publications	Стефанов 1956; Conrad 2006; Вагалински et al. 2020b								
Maps	*See site 16 for a map*								
Photos	*Field survey*								



Fig. 88. Site 27. View from north, April 2019 (photo L. Vagalinski)



Fig. 89. Site 27. Some of the looter trenches, view from the northeast, April 2019 (photo L. Vagalinski)

SITE 28

Field	Data							
Site ID	28							
Region	Veliko Tarnovo							
Municipality	Svishtov							
Village	Vardim							
Distance and azimuth	4.1 km, azimuth 108 degrees SE from the centre of Vardim							
Locality	***BG cadastre***				***Topographic map with scale 1:5000***			
	• Tash Bair				• Tash Bair			
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	Yes				Yes			
Location	The top of a ridge							
Baltic height (m)	158.07							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	71							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	28	Undefined	Burial mound	No finds	No facilities	50	4	Unploughed mound, covered with grass and its N part was covered with trees; triangular sign on the top; the mound was very destroyed in S and SW part from two massive concrete pools and a cage connected with hydration processes; from W it was destroyed by a machine work probably executed when building the concrete facilities

Field	Data	
Area (ha)	0.36	
AIS AKB	***No***	***Author***
	3300037	Plamen Draganchev in a survey of Peti Donevski and Plamen Draganchev in 1992
Coordinates	N 43.601614, E 25.517384	
Notes	A burial mound, part of mound necropolis on the ridge top with direction E-W (Вагалински et al. 2020b). It was recorded in older publications (Стефанов 1956, 24), and as site 71 in the MS Access database of S. Conrad (Conrad 2006).	
Publications	Стефанов 1956; Conrad 2006; Вагалински et al. 2020b	
Maps	*See site 16 for a map*	
Photos	*Field survey*	



Fig. 90. Site 28. View from south, April 2019 (photo L. Vagalinski)



Fig. 91. Site 28. Concrete pools and a cage connected with hydration processes in the southwestern part of the mound, April 2019 (photo L. Vagalinski)

SITE 29

Field	Data							
Site ID	29							
Region	Veliko Tarnovo							
Municipality	Svishtov							
Village	Vardim							
Distance and azimuth	3.3 km, azimuth 117 degrees SE from the centre of Vardim							
Locality	***BG cadastre***							
	• Zad salkama							
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	Yes				No			
Location	The top of a ridge							
Baltic height (m)	166.6							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	72							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	29	Late Iron Age?	Burial mound	• Diagnostic handmade and wheelmade LIA pottery fragments – 3	No facilities	45	4	Mound with ploughed S part; N part was covered with bushes and grass; there was a triangular sign on the top and next to it – a partially processed large stone; in the S part of the mound 3 pottery fragments (handmade and wheelmade) were found
Area (ha)	0.43							

Field	Data	
AIS AKB	***No***	***Author***
	3300038	Plamen Draganchev in a survey of Peti Donevski and Plamen Draganchev in 1992
Coordinates	N 43.599489, E 25.50511	
Notes	A burial mound, part of mound necropolis on the ridge top with direction E-W (Вагалински et al. 2020b). It was recorded in older publications (Стефанов 1956, 24), and as site 72 in the MS Access database of S. Conrad (Conrad 2006).	
Publications	Стефанов 1956; Conrad 2006; Вагалински et al. 2020b	
Maps	*Sites 29, 30, 31 and 32*	
Photos	*Field survey, pottery fragments*	



Fig. 92. Sites 29, 30, 31 and 32. Recorded archaeological site centres with field number site IDs (from 1 to 38) – mortuary sites – in yellow dots. The background maps use hillshade derived from airborne laser scanning data and soviet headquarters topographic maps created during the 1980s in scale 1:50 000 (figure by N. Kecheva)



Fig. 93. Site 29. View from east, April 2019 (photo L. Vagalinski)



Fig. 94. Site 29. Collected pottery fragments, April 2019 (photo by S. Conrad)

SITE 30

Field	Data							
Site ID	30							
Region	Veliko Tarnovo							
Municipality	Svishtov							
Village	Vardim							
Distance and azimuth	2.8 km, azimuth 124 degrees SE from the centre of Vardim							
Locality	***BG cadastre***							
	• Zad koriyata							
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	Yes				No			
Location	The top of a ridge							
Baltic height (m)	169.3							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	74							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	30	Undefined	Burial mound	No finds	No facilities	50	2–2.5	Ploughed mound, partially destroyed by machine ploughing
Area (ha)	0.18							
AIS AKB	***No***			***Author***				
	3300039			Plamen Draganchev in a survey of Peti Donevski and Plamen Draganchev in 1992				
Coordinates	N 43.5986, E 25.497811							
Notes	A burial mound, part of mound necropolis on the ridge top with direction E-W (Вагалински et al. 2020b). It was recorded in older publications (Стефанов 1956, 24), and as site 74 in the MS Access database of S. Conrad (Conrad 2006).							

Field	Data
Publications	Стефанов 1956; Conrad 2006; Вагалински et al. 2020b
Maps	*See site 29 for a map*
Photos	*Field survey*



Fig. 95. Site 30. View from east, April 2019 (photo L. Vagalinski)

SITE 31

Field	Data							
Site ID	31							
Region	Veliko Tarnovo							
Municipality	Svishtov							
Village	Vardim							
Distance and azimuth	2.5 km, azimuth 128 degrees SE from the centre of Vardim							
Locality	***BG cadastre***		***Topographic map with scale 1:5000***			***Topographic map with scale 1:50 000***		
	• Zad koriyata		• Zad koriyata			• Karaman Bair		
Labelling on topographic maps	*Topographic map with scale 1:50 000*					*Topographic map with scale 1:5000*		
	No					No		
Location	The top of a ridge							
Baltic height (m)	171							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	Not recorded							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	31	Late Iron Age?	Burial mound	• Diagnostic wheelmade LIA pottery fragment – 1	No facilities	50–55	1	Ploughed mound, partially destroyed by machine ploughing; one wheelmade pottery fragment was found
Area (ha)	0.2							
AIS AKB	***No***			***Author***				
	10007005			Nadezhda Kecheva in a survey in 2019				

Field	Data
Coordinates	N 43.598841, E 25.49292
Notes	A burial mound, part of mound necropolis on the ridge top with direction E-W (Вагалински et al. 2020b). It was recorded in older publications (Стефанов 1956, 24).
Publications	Стефанов 1956; Вагалински et al. 2020b
Maps	*See site 29 for a map*
Photos	*Field survey, a pottery fragment*



Fig. 96. Site 31. View from west, April 2019 (photo L. Vagalinski)



Fig. 97. Site 31. Collected pottery fragment, April 2019 (photo by S. Conrad)

SITE 32

Field	Data		
Site ID	32		
Region	Veliko Tarnovo		
Municipality	Svishtov		
Village	Vardim		
Distance and azimuth	2.4 km, azimuth 136 degrees SE from the centre of Vardim		
Locality	***BG cadastre***	***Topographic map with scale 1:5000***	***Topographic map with scale 1:50 000***
	• Zad koriyata	• Zad koriyata	• Karaman Bair
Labelling on topographic maps	*Topographic map with scale 1:50 000*	*Topographic map with scale 1:5000*	
	Yes	No	
Location	The top of a ridge		
Baltic height (m)	176.53		
Slope	Plain		
Aspect	Plain		
Legacy site actions	***ID from survey 1997–2001***		
	75		
Site actions	***2019***		
	• Intensive field survey		

Field	Data							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	32	Undefined	Burial mound	No finds	No facilities	45	3	Unploughed mound, covered with grass, its N part was covered with trees; part of its periphery was ploughed; triangular sign on the top; mound was very destroyed in SW 1/4 part from a massive concrete pool connected with hydration processes; a trench with direction W-E for the concrete facility also partially destroyed the mound; in the NE part there was an old and very deep looter trench, and in the S part – shallow trench with direction N-S
Area (ha)	0.23							
AIS AKB	***No***			***Author***				
	3300040			Plamen Draganchev in a survey of Peti Donevski and Plamen Draganchev in 1992				
Coordinates	N 43.597468, E 25.489571							
Notes	A burial mound, part of mound necropolis on the ridge top with direction E-W (Вагалински et al. 2020b). It was recorded in older publications (Стефанов 1956, 24), and as site 75 in the MS Access database of S. Conrad (Conrad 2006).							
Publications	Стефанов 1956; Conrad 2006; Вагалински et al. 2020b							
Maps	*See site 29 for a map*							
Photos	*Field survey*							



Fig. 98. Site 32. View from south, April 2019 (photo L. Vagalinski)

SITE 33

Field	Data							
Site ID	33							
Region	Ruse							
Municipality	Tsenovo							
Village	Karamanovo							
Distance and azimuth	3.2 km, azimuth 348 degrees NW from the centre of Karamanovo							
Locality	***BG cadastre***							
	• Eliyata							
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	No				No			
Location	The lower part of a slope of a ridge							
Baltic height (m)	26							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	Not recorded							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	33	Undefined	Burial mound	No finds	No facilities	40	1.5	Ploughed mound, partially destroyed by machine ploughing; it was situated on the area of site 34; no pottery fragments were found that could be related to the mound
Area (ha)	0.17							
AIS AKB	***No***			***Author***				
	10007006			Nadezhda Kecheva in a survey in 2019				

Field	Data
Coordinates	N 43.578489, E 25.51917
Notes	A burial mound, part of a larger mound necropolis on the lower part of the ridge with direction E-W (Вагалински et al. 2020b). It was recorded in older publications (Стефанов 1956, 24).
Publications	Стефанов 1956; Вагалински et al. 2020b
Maps	*Sites 33, 34 and 35 – counted artefact concentration, polygons Nos.*
Photos	*Field survey*

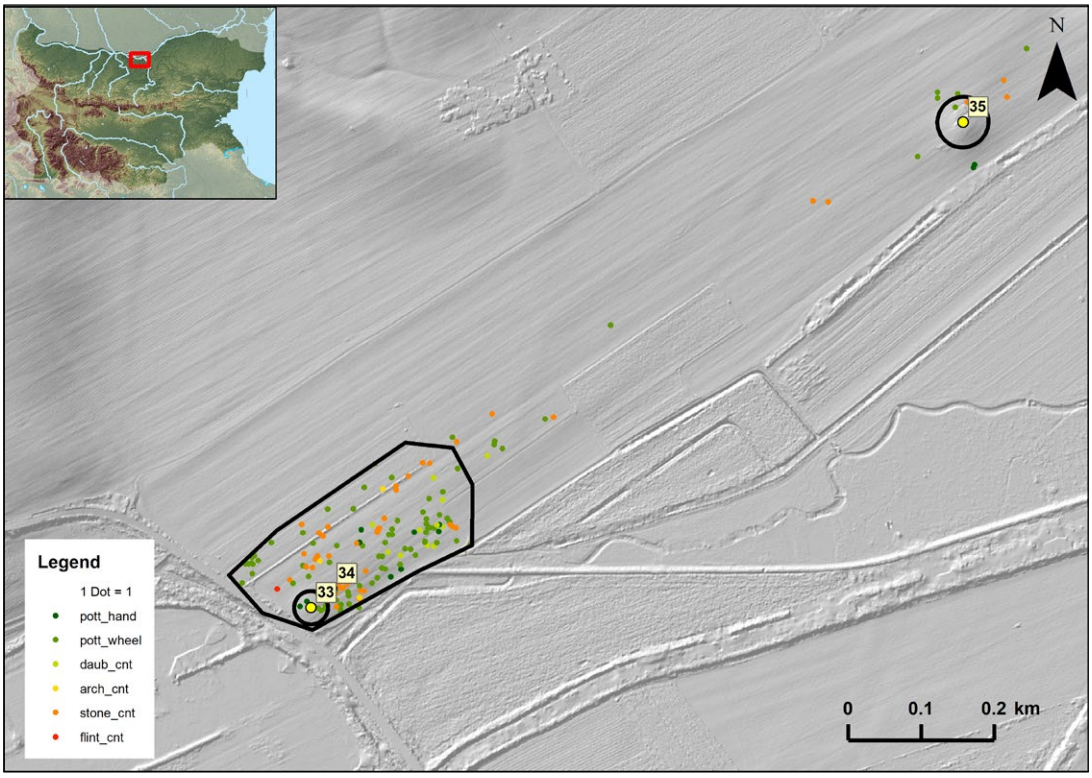


Fig. 99. Sites 33, 34 and 35. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots; mortuary sites – in yellow dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

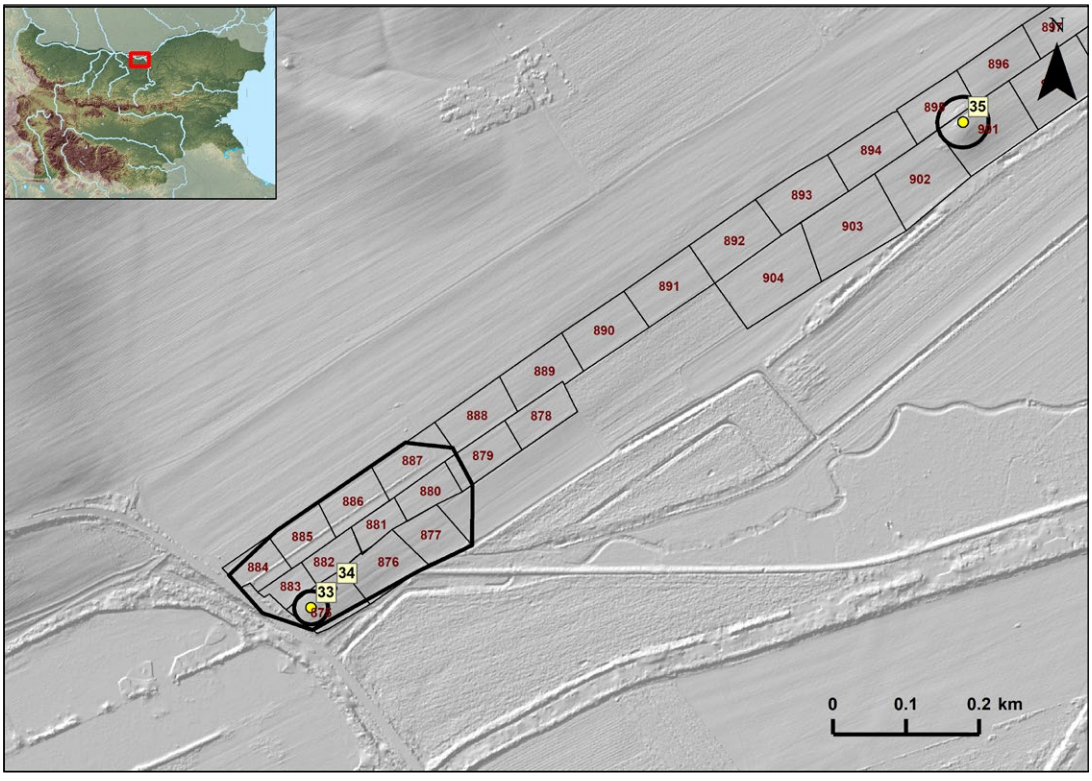


Fig. 100. Sites 33, 34 and 35. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)



Fig. 101. Site 33. View from the southeast, April 2019 (photo by L. Vagalinski)

SITE 34

Field	Data										
Site ID	34										
Region	Ruse										
Municipality	Tsenovo										
Village	Karamanovo										
Distance and azimuth	3.3 km, azimuth 350 degrees N-NW from the centre of Karamanovo										
Locality	***BG cadastre***										
	• Eliyata										
Location	The lower part of a slope of a ridge										
Baltic height (m)	26										
Slope	Slightly SE										
Aspect	Slightly SE										
Legacy site actions	***ID from survey 1997–2001***										
	Not recorded										
Site actions	***2019***										
	• Intensive field survey										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	99	9	90	11	3	38	1	0	0	0	No
Collected diagnostic pottery fragments (field surveys)	99										

Field	Data						
Description (field surveys)	*N*	*Chronology*	*Type*	*Diagnostic finds*	*Facilities*	*Notes*	*Cat. Nos. Diagnostic finds*
	34.d	Early Iron Age	Undefined function	• Diagnostic handmade pottery fragments – 3	No facilities		
	34.e	Late Iron Age (5th–3rd c. BC)	Undefined function	• Diagnostic pottery fragments – 38	No facilities		P34/001
	34.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Undefined function		No facilities		
	34.g	Roman period	Undefined function	• Diagnostic pottery fragments – 3	No facilities		
	34.i	Early Middle Ages	Undefined function	• Diagnostic pottery fragments – 49	No facilities		P34/002 – 003
Other traces	Single artefacts from the High Middle Ages and Ottoman period						
Polygons	*Amount of polygons*		*Nos*				
	13 polygons		• From 875 to 877, • From 879 to 888				
Small polygons	*Amount of small polygons*			*Notes*			
	394 small polygons			Maps			
Area (ha)	4.8						
AIS AKB	*No*			*Author*			
	10007004			Nadezhda Kecheva in a survey in 2019			
Coordinates	N 43.57873, E 25.519514						
Notes	Site 34 is situated on the lower part of the southern end of a ridge (Tash Bair) with direction E-W, on the left bank of the channel created in the 1930s Studena Reka River. It is close to the asphalt road between the villages of Karamanovo and Vardim. In the spring of 2019 site 34 was part of large agricultural fields (Вагалински et al. 2020b). The fields were seeded with crops with surface visibility above 80%. A burial mound 33 was recorded on the site area. Artefacts with the following quantities were recorded: 99 pottery fragments (9 handmade; 90 wheelmade); 11 pieces of daub; 3 pieces of tiles and bricks; 38 stones; 1 flint. The amount of diagnostic pottery fragments collected was 99. The artefacts were recorded as scattered all over the site area. Artefacts dated to the Early Middle Ages and LIA prevailed, but EIA and Roman pottery fragments were also recorded.						
Publications	Вагалински et al. 2020b						

Field	Data
Maps	*See site 33 for maps*
Photos	*Field survey, pottery fragments*



Fig. 102. Site 34. View from the northeast, April 2019 (photo by N. Kecheva)



Fig. 103. Site 34. Part of the collected diagnostic pottery fragments, April 2019 (photo by S. Conrad)

SITE 35

Field	Data							
Site ID	35							
Region	Ruse							
Municipality	Tsenovo							
Village	Karamanovo							
Distance and azimuth	3.8 km, azimuth 3 degrees N from the centre of Karamanovo							
Locality	***BG cadastre***							
	• Eliyata							
Labelling on topographic maps	*Topographic map with scale 1:50 000*				*Topographic map with scale 1:5000*			
	Yes				Yes			
Location	The lower part of a slope of a ridge							
Baltic height (m)	27.6							
Slope	Plain							
Aspect	Plain							
Legacy site actions	***ID from survey 1997–2001***							
	84							
Site actions	***2019***							
	• Intensive field survey							
Description (field surveys)	***Site ID***	***Chronology***	***Type***	***Finds***	***Facilities***	***Diameter (m)***	***Height (m)***	***Notes***
	35	Undefined	Burial mound	Some Early Iron Age and Early Medieval pottery fragments from the surface and near the mound	No facilities	70	3–4.5	Ploughed mound, partially destroyed by machine ploughing; the difference in height was because of the intensive ploughing; in the small unploughed part shallow looter trenches and animal dens were recorded

Field	Data	
Area (ha)	0.4	
AIS AKB	***No***	***Author***
	10007007	Nadezhda Kecheva in a survey in 2019
Coordinates	N 43.584615, E 25.530061	
Notes	A burial mound, part of a larger mound necropolis on the lower part of the ridge with direction E-W (Вагалински et al. 2020b). It was recorded in older publications (Стефанов 1956, 24). The pottery fragments found near the mound could not be associated with its chronology.	
Publications	Стефанов 1956; Вагалински et al. 2020b	
Maps	*See site 33 for maps*	
Photos	*Field survey, pottery fragments*	



Fig. 104. Site 35. View from the southwest, April 2019 (photo by L. Vagalinski)



Fig. 105. Site 35. Collected pottery fragments, April 2019 (photo by S. Conrad)

SITE 36

Field	Data										
Site ID	36										
Region	Ruse										
Municipality	Tsenovo										
Village	Novgrad										
Distance and azimuth	2 km, azimuth 232 degrees SW from the centre of Novgrad										
Locality	***BG cadastre***			***Topographic map with scale 1:5000***							
	• Pri kolibite			• Eliyata							
Location	The lowlands										
Baltic height (m)	20										
Slope	Plain										
Aspect	Plain										
Legacy site actions	***ID from survey 1997–2001***										
	Not recorded										
Site actions	***2019***										
	• Extensive field survey										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	0	0	0	0	0	0	0	0	0	0	No
Collected diagnostic pottery fragments (field surveys)	8										

Field	Data						
Description (field surveys)	***N***	***Chronology***	***Type***	***Diagnostic finds***	***Facilities***	***Notes***	***Cat. Nos. Diagnostic finds***
	36.e	Late Iron Age (5th–3rd c. BC)	Undefined function	• Diagnostic pottery fragments – 6	No facilities		
	36.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Undefined function		No facilities		
	36.g	Roman period	Undefined function	• Diagnostic pottery fragments – 1	No facilities		
	36.h	Late Antiquity	Undefined function	• Diagnostic pottery fragments – 1	No facilities		
Area (ha)	0.64						
AIS AKB	***No***				***Author***		
	10007002				Nadezhda Kecheva in a survey in 2019		
Coordinates	N 43.594497, E 25.56608						
Notes	Site 36 is situated in the lowlands, to the east of an old meander of the Yantra River, and on the left bank of the channel created in the 1930s Studena Reka River. In the spring of 2019 site 36 was part of large agricultural fields (Вагалински et al. 2020b). The fields were seeded with crops with surface visibility below 20%. No intensive field survey was conducted due to the low surface visibility. Eight diagnostic pottery fragments were collected which dated the site to the LIA, Roman period and LA. Site scatter area is very conditional.						
Publications	Вагалински et al. 2020b						
Maps	*See sites 20 and 21 for maps*						
Photos	*Pottery fragments*						



Fig. 106. Site 36. Part of the collected diagnostic pottery fragments, April 2019 (photo by S. Conrad)

SITE 37

Field	Data										
Site ID	37										
Region	Veliko Tarnovo										
Municipality	Svishtov										
Village	Vardim										
Distance and azimuth	5.3 km, azimuth 95 degrees E-SE from the centre of Vardim										
Locality	***BG cadastre***										
	• Tash Bair										
Location	Lower part of a ridge										
Baltic height (m)	26										
Slope	Slightly NW										
Aspect	Slightly NW										
Legacy site actions	***ID from survey 1997–2001***				***Years of legacy site survey in the period 1997–2001***						
	172				1999, 2000						
Site actions	***2019***										
	• Intensive field survey										
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	104	1	103	0	1	22	0	0	0	0	No
Collected diagnostic pottery fragments (field surveys)	69										

Field	Data						
Description (field surveys)	*N*	*Chronology*	*Type*	*Diagnostic finds*	*Facilities*	*Notes*	*Cat. Nos. Diagnostic finds*
	37.e	Late Iron Age (5th–3rd c. BC)	Undefined function	• Diagnostic pottery fragments – 6	No facilities		
	37.f	Late Iron Age (2nd/1st c. BC – 1st c. AD)	Undefined function		No facilities		
	37.g	Roman period	Undefined function	• Diagnostic pottery fragments – 2	No facilities		
	37.i	Early Middle Ages	Undefined function	• Diagnostic pottery fragments – 60	No facilities		
Other traces	Single artefacts from Ottoman period						
Polygons	*Amount of polygons*		*Nos*				
	5 polygons		• From 834 to 838				
Small polygons	*Amount of small polygons*			*Notes*			
	156 small polygons			Maps			
Area (ha)	1.4						
AIS AKB	*No*			*Author*			
	10007003			Nadezhda Kecheva in a survey in 2019			
Coordinates	N 43.609789, E 25.534232						
Notes	Site 37 is situated on the lower part of the northern end of Tash Bair ridge with direction E-W. It is close south of the asphalt road between villages of Vardim and Novgrad. It is close to the Ancient Roman road part of which was identified as site 23. It could be identified as a recorded site in the expeditions between 1997 – 2001, described as site 172 in the MS Access database of S. Conrad (Вагалински et al. 2001a; Вагалински et al. 2001b; Conrad 2006). In the spring of 2019 site 37 was part of a small agricultural field (Вагалински et al. 2020b). The field was seeded with crops with surface visibility above 80%. Artefacts with the following quantities were recorded: 104 pottery fragments (1 handmade; 103 wheelmade); 0 pieces of daub; 1 piece of tiles and bricks; 22 stones. The amount of diagnostic pottery fragments collected was 69. The artefacts were recorded as scattered all over the site area. Artefacts dated to the Early Middle Ages prevailed, but LIA and Roman pottery fragments were also recorded.						
Publications	Вагалински et al. 2001a; Вагалински et al. 2001b; Conrad 2006; Вагалински et al. 2020b						
Maps	*Counted artefact concentration, polygons Nos.*						
Photos	*Field survey, pottery fragments*						

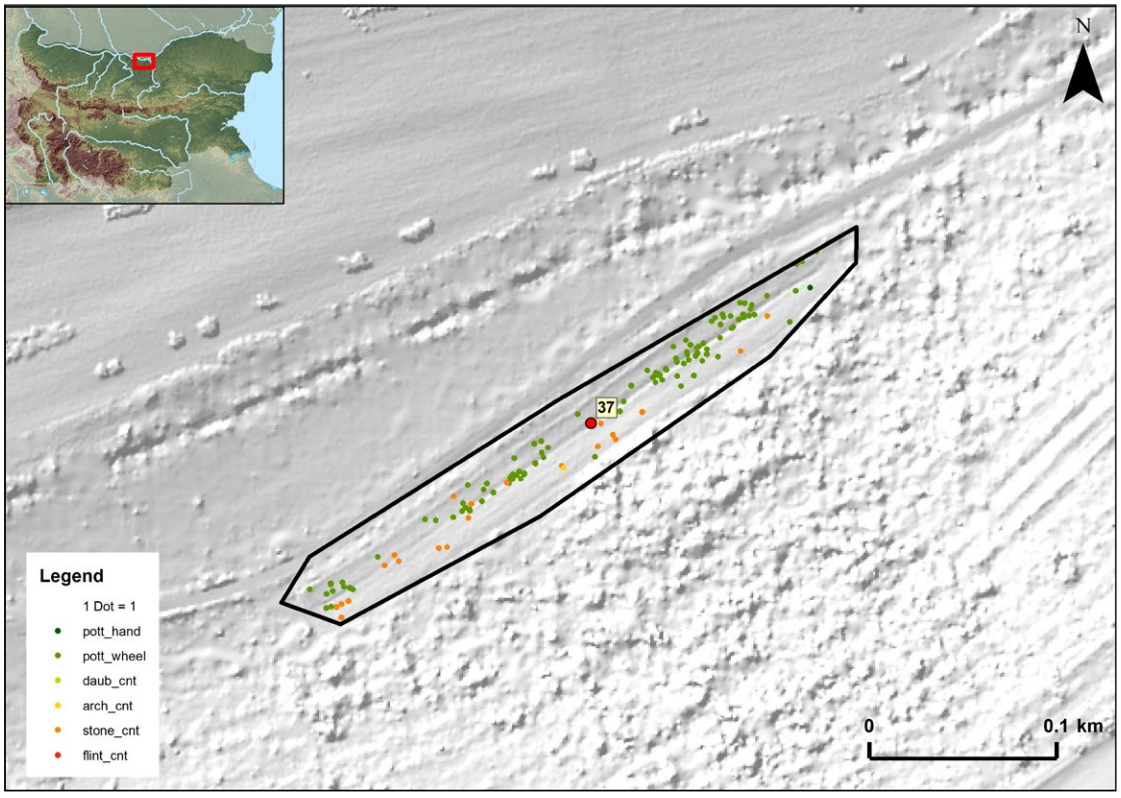


Fig. 107. Site 37. The area covered by concentrations of quantities of handmade and wheelmade pottery fragments, pieces of daub, tiles and bricks, and stones counted on the surface and visualised by dot density quantitative descriptive statistics in GIS (1 dot equals 1 artefact). Recorded archaeological site scatters (in black), recorded archaeological site centres with field number site IDs (from 1 to 38) – habitation sites – in red dots. The background map uses hillshade derived from airborne laser scanning data (figure by N. Kecheva)

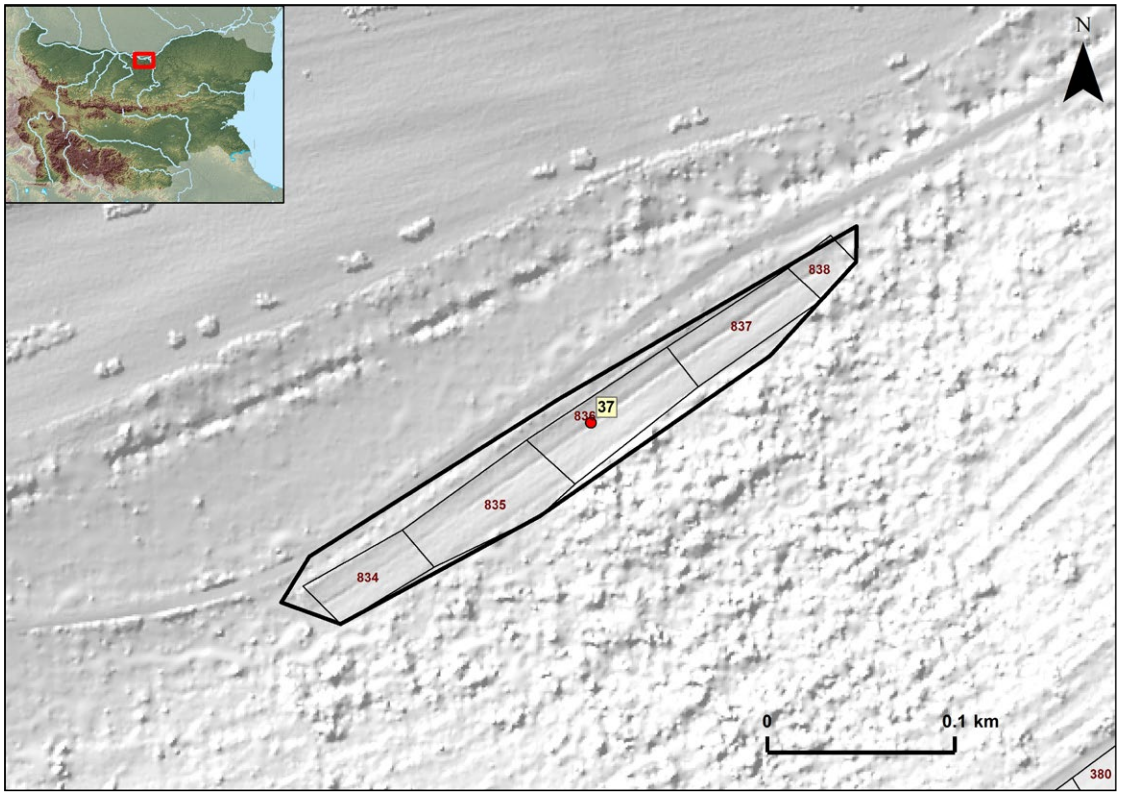


Fig. 108. Site 37. The area covered marked by polygons with visualised numbers and a background map with hillshade derived from airborne laser scanning data (figure by N. Kecheva)



Fig. 109. Site 37. View from the northeast, April 2019 (photo by L. Vagalinski)



Fig. 110. Site 37. Part of the collected diagnostic pottery fragments, April 2019 (photo by S. Conrad)

SITE 38

Field	Data									
Site ID	38									
Region	Ruse									
Municipality	Tsenovo									
Village	Novgrad									
Distance and azimuth	2.7 km, azimuth 242 degrees SW from the centre of Novgrad									
Locality	***BG cadastre***									
	• Punargelyu									
Location	The lowlands									
Baltic height (m)	17–18									
Slope	Plain									
Aspect	Plain									
Legacy site actions	***ID from survey 1997–2001***									
	Not recorded									
Site actions	***2019***									
	• Core sampling									
Counted artefacts (field surveys)	**Pottery fragments**	**Handmade pottery fragments**	**Wheelmade pottery fragments**	**Pieces of daub**	**Pieces of tiles and bricks**	**Stones**	**Flints**	**Millstones**	**Stone tools**	**Loom weights**	**Cat. No. Finds**
	0	0	0	0	0	0	1	0	0	0	No
Collected diagnostic pottery fragments (field surveys)	0									

Field	Data						
Description (field surveys)	***N***	***Chronology***	***Type***	***Diagnostic finds***	***Facilities***	***Notes***	***Cat. Nos. Diagnostic finds***
	38.a	Neolithic (Early Neolithic – 6080–5980 calBC)	Undefined function	• ^{14}C of a bulk	No facilities		
Area (ha)	3.5						
Geomorpholo-gical corings	***Amount of corings***		***Nos***		***Notes***		
	6 corings		• From T1C25 to T1C32		Cf. the contributions by A. López del Olmo et al., chapter 4		
AIS AKB	***No***			***Author***			
	10006994			Nadezhda Kecheva in a survey in 2019			
Coordinates	N 43.594306, E 25.557428						
Notes	Site 38 was recorded by coring (Вагалински et al. 2020b). At a depth between 2.80 and 3.60 m below the surface, a layer enriched with anthropogenic artefacts (including a flint fragment) was recorded. Its thickness was between 0.30 and 0.35 m followed by alluvium. ^{14}C analysis showed that the buried layer could be dated to the Early Neolithic (6080–5980 calBC). Some of the corings were situated within the contemporary surface of site 19. *Terminus post quem* for the deposition processes is Early Neolithic and *terminus ante quem* – the Early Iron Age which is the oldest period that has been proven by finds on today's surface in the lowlands. Site scatter area is very conditional.						
Publications	Вагалински et al. 2020b						
Maps	*See site 19 for maps*						
Photos	*Cf. the contributions by A. López del Olmo et al., chapter 4*						

Table 1. Table showing attributes of sites and polygons: counted artefacts on the field (columns 2–8) and post-processed collected diagnostic pottery fragments (columns 9–24) per a site and per a polygon (cf. chapter 5.2, chapter 7, chapter 9.1)

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
Site 1	**3500**	1411	2089	77	384	34	81	47	2	0	8	0	66	36	135	29	1	147	0	3	10	0	1
1	16	8	8	0	1	0	0	0	0	0	0	0	9	1	1	0	0	7	0	0	1	0	0
2	25	3	22	0	1	0	0	0	0	0	0	0	0	1	0	0	0	6	0	1	1	0	0
3	22	1	21	0	0	0	0	0	0	0	0	0	0	0	1	0	0	8	0	0	0	0	0
4	43	12	31	0	0	0	0	0	0	0	0	0	2	1	1	0	0	4	0	0	0	0	0
5	90	68	22	0	1	0	0	3	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0
6	193	172	21	0	1	0	0	5	0	0	0	0	3	1	0	2	1	0	0	0	1	0	0
7	213	208	5	0	2	0	0	4	0	0	0	0	0	0	6	0	0	1	0	0	0	0	0
8	76	64	12	0	4	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
9	20	6	14	0	3	0	0	0	0	0	1	0	0	0	5	0	0	6	0	0	0	0	0
10	13	1	12	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
11	36	1	35	0	1	0	0	0	0	0	0	0	0	1	9	0	0	2	0	0	0	0	0
12	71	0	71	0	6	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0
13	58	3	55	0	2	0	0	0	0	0	0	0	0	0	5	0	0	1	0	0	1	0	0
14	34	16	18	0	3	0	0	1	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0
15	169	130	39	0	4	0	0	8	0	0	1	0	3	2	10	4	0	2	0	0	0	0	0
16	54	40	14	0	7	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
17	31	12	19	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	49	1	48	0	2	0	0	0	0	0	0	0	0	0	7	0	0	1	0	0	1	0	0
19	42	0	42	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
20	145	0	145	0	9	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0
21	70	0	70	0	4	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
22	72	2	70	0	3	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
23	94	8	86	0	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
24	39	1	38	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
180	155	31	124	3	123	0	1	0	0	0	0	0	2	0	0	0	0	10	0	0	0	0	0
181	181	30	151	0	44	0	10	0	0	0	0	0	1	0	0	0	0	22	0	0	1	0	0
182	179	48	131	5	31	1	7	0	0	0	3	0	8	2	2	3	0	3	0	0	0	0	0
183	192	86	106	7	27	1	3	1	0	0	2	0	7	5	3	1	0	0	0	0	0	0	0
184	123	46	77	1	12	0	6	0	0	0	0	0	3	1	5	0	0	11	0	0	0	0	0
185	143	54	89	8	7	0	11	0	0	0	0	0	8	7	3	0	0	7	0	0	0	0	0
186	249	80	169	2	25	2	9	0	0	0	0	0	5	0	2	0	0	20	0	0	2	0	0
187	220	126	94	9	11	0	15	11	0	0	1	0	3	3	12	3	0	3	0	0	0	0	0
188	175	77	98	7	26	0	11	8	1	0	0	0	1	0	13	9	0	6	0	0	0	0	0
189	102	52	50	3	13	1	7	4	1	0	0	0	3	0	8	4	0	1	0	0	2	0	0
388	37	6	31	10	1	3	0	1	0	0	0	0	0	0	4	1	0	13	0	0	0	0	1
389	24	5	19	11	0	8	0	0	0	0	0	0	0	4	3	0	0	5	0	2	0	0	0
390	2	0	2	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
391	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
392	29	11	18	6	2	3	0	0	0	0	0	0	0	6	2	0	0	3	0	0	0	0	0
393	14	2	12	5	1	4	1	0	0	0	0	0	5	0	0	0	0	1	0	0	0	0	0
Site 2	**2396**	**57**	**2339**	**4**	2675	**25**	**1**	**4**	**2**	**0**	**4**	**1**	**8**	**3**	**158**	**26**	**0**	**3**	**0**	**0**	**8**	**1**	**0**
25	80	0	80	0	19	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	2	0	0
26	74	3	71	0	12	0	0	0	0	0	0	0	1	1	3	1	0	0	0	0	0	0	0
27	51	0	51	0	6	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
29	17	0	17	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	125	0	125	0	40	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
31	245	4	241	0	186	0	0	1	1	0	0	0	0	0	8	0	0	0	0	0	1	0	0
32	124	0	124	0	171	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
33	90	5	85	0	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	60	5	55	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	53	0	53	0	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	20	0	20	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	121	3	118	0	39	0	0	0	0	0	0	0	0	0	11	3	0	0	0	0	0	0	0
39	154	2	152	0	74	0	0	0	0	0	0	0	0	0	7	2	0	0	0	0	0	0	0
40	41	1	40	0	24	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	0	0	0
41	37	4	33	0	11	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
42	5	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	25	3	22	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	8	0	8	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	30	0	30	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	47	0	47	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	42	1	41	0	29	0	0	0	0	0	0	0	1	2	10	0	0	0	0	0	0	0	0
110	76	0	76	0	213	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	1	1	0
111	55	2	53	0	45	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0
112	51	0	51	0	39	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
113	5	0	5	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	210	6	204	0	98	0	1	0	0	0	2	0	0	0	24	0	0	0	0	0	0	0	0
191	119	9	110	2	20	0	0	2	0	0	0	0	3	0	8	0	0	0	0	0	0	0	0
192	89	2	87	0	220	2	0	1	0	0	0	0	2	0	15	3	0	1	0	0	0	0	0
193	59	2	57	1	37	0	0	0	0	0	0	0	1	0	9	0	0	0	0	0	0	0	0
194	22	0	22	0	56	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0
195	12	1	11	0	23	0	0	0	0	0	1	0	0	0	2	1	0	0	0	0	2	0	0
196	98	1	97	0	218	1	0	0	0	0	0	0	0	0	5	3	0	0	0	0	0	0	0
197	27	0	27	0	42	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
198	8	0	8	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
199	16	1	15	0	49	0	0	0	1	0	0	0	0	0	3	1	0	0	0	0	1	0	0
200	3	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
201	34	0	34	0	25	0	0	0	0	0	0	0	0	0	12	3	0	0	0	0	0	0	0
202	0	0	0	1	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
203	2	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
204	34	0	34	0	157	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0
205	10	0	10	0	392	1	0	0	0	0	0	0	0	0	7	2	0	0	0	0	0	0	0
206	6	0	6	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
210	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211	3	0	3	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
300	2	0	2	0	12	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
301	2	2	0	0	3	3	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0
Site 3	**5**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site 4	**11**	**9**	**2**	**1**	**0**	**0**	**54**	**0**	**0**	**0**	**2**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**
212	3	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
213	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
214	2	1	1	1	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
215	2	1	1	0	0	0	10	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
216	1	1	0	0	0	0	11	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
217	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
218	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
219	1	1	0	0	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
220	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
221	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
222	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
224	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225	1	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
226	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
228	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
229	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
230	1	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
232	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site 5	**1408**	**407**	**1001**	**32**	**299**	**11**	**8**	**0**	**0**	**0**	**7**	**0**	**3**	**78**	**48**	**26**	**0**	**4**	**1**	**0**	**4**	**0**	**0**
122	2	1	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	7	4	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	10	4	6	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	5	2	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	12	5	7	3	6	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0
127	9	4	5	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
128	5	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	1	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	7	3	4	0	3	0	0	0	0	0	2	0	0	1	3	0	0	0	0	0	0	0	0
132	12	6	6	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	9	2	7	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	7	1	6	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	7	3	4	0	4	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0
136	9	7	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	13	5	8	1	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
141	18	6	12	0	1	0	0	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0
142	14	2	12	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
143	10	2	8	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
144	4	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
146	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	5	1	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	14	2	12	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	6	2	4	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
150	5	2	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
151	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	5	1	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
153	1	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
158	23	4	19	0	10	0	3	0	0	0	1	0	0	1	2	0	0	1	1	0	1	0	0
159	54	18	36	0	2	1	0	0	0	0	3	0	0	2	4	0	0	1	0	0	1	0	0
160	101	45	56	4	7	0	1	0	0	0	0	0	0	9	0	0	0	1	0	0	0	0	0
161	74	23	51	0	14	0	0	0	0	0	0	0	0	6	1	1	0	0	0	0	0	0	0
162	112	49	63	5	6	0	1	0	0	0	1	0	2	6	3	0	0	0	0	0	0	0	0
163	53	20	33	5	3	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
164	7	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	23	9	14	0	3	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
166	90	25	65	4	5	1	1	0	0	0	0	0	1	3	3	4	0	0	0	0	0	0	0
167	74	34	40	1	3	0	0	0	0	0	0	0	0	5	2	0	0	0	0	0	0	0	0
168	27	10	17	0	10	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0
169	34	6	28	2	12	0	0	0	0	0	0	0	0	3	2	1	0	0	0	0	0	0	0
170	78	17	61	1	15	1	0	0	0	0	0	0	0	6	1	1	0	0	0	0	0	0	0
171	51	22	29	1	4	0	1	0	0	0	0	0	0	2	5	0	0	0	0	0	0	0	0
172	40	22	18	1	6	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
173	93	21	72	0	17	0	0	0	0	0	0	0	0	6	6	1	0	0	0	0	0	0	0
174	38	3	35	0	9	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
175	30	0	30	0	19	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
176	64	4	60	0	21	3	0	0	0	0	0	0	0	1	3	2	0	0	0	0	0	0	0
177	18	0	18	0	11	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
178	32	0	32	0	22	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	0	0
179	31	2	29	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
409	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
410	53	0	53	0	22	5	0	0	0	0	0	0	0	3	7	6	0	0	0	0	0	0	0
Site 12	**259**	**6**	**253**	**4**	**380**	**19**	**2**	**0**	**0**	**0**	**0**	**0**	**3**	**4**	**63**	**20**	**0**	**13**	**0**	**0**	**1**	**0**	**0**
233	19	3	16	1	10	5	1	0	0	0	0	0	3	0	1	1	0	5	0	0	0	0	0
234	16	0	16	0	148	2	0	0	0	0	0	0	0	0	9	0	0	1	0	0	0	0	0
235	2	0	2	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
243	97	0	97	0	160	3	0	0	0	0	0	0	0	1	26	6	0	0	0	0	0	0	0
244	106	2	104	0	51	2	1	0	0	0	0	0	0	2	22	12	0	6	0	0	0	0	0
245	6	1	5	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
246	4	0	4	3	5	4	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
247	9	0	9	0	5	2	0	0	0	0	0	0	0	0	2	1	0	0	0	0	1	0	0
Site 17	**126**	**60**	**66**	**43**	**20**	**42**	**0**	**0**	**1**	**0**	**0**	**2**	**8**	**43**	**10**	**4**	**0**	**4**	**0**	**0**	**2**	**0**	**1**
411	54	32	22	21	5	23	0	0	1	0	0	0	7	12	3	2	0	2	0	0	1	0	0
412	32	13	19	10	11	10	0	0	0	0	0	2	0	9	5	1	0	0	0	0	1	0	0
413	2	1	1	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
416	2	1	1	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
417	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
418	31	9	22	11	4	2	0	0	0	0	0	0	1	16	2	0	0	2	0	0	0	0	1
419	5	4	1	0	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
420	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site 18	**294**	**71**	**223**	**17**	**316**	**20**	**4**	**0**	**0**	**0**	**0**	**1**	**5**	**78**	**47**	**4**	**0**	**1**	**0**	**0**	**4**	**0**	**5**
447	35	14	21	2	17	3	0	0	0	0	0	0	0	17	8	0	0	1	0	0	0	0	1
448	24	14	10	5	6	0	1	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	4
449	3	0	3	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0
450	10	8	2	0	0	1	2	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0
451	24	16	8	1	0	1	0	0	0	0	0	0	0	19	0	0	0	0	0	0	1	0	0
452	4	1	3	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
456	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
457	7	5	2	2	1	3	1	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
458	18	7	11	3	14	0	0	0	0	0	0	0	5	3	10	0	0	0	0	0	1	0	0
459	165	6	159	4	266	8	0	0	0	0	0	0	0	9	27	3	0	0	0	0	0	0	0
460	4	0	4	0	4	3	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
461	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site 19	**1667**	**450**	**1217**	**336**	**76**	**62**	**3**	**0**	**0**	**0**	**0**	**0**	**56**	241	**75**	**27**	**0**	**239**	**0**	**5**	**2**	**0**	**4**
466	48	0	48	1	3	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0
467	5	1	4	4	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
468	4	2	2	3	0	3	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
469	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
473	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
474	27	10	17	5	0	0	0	0	0	0	0	0	0	23	1	0	0	0	0	0	0	0	0
475	14	4	10	12	0	3	0	0	0	0	0	0	0	9	1	0	0	1	0	0	0	0	0
476	17	12	5	7	1	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0
477	14	5	9	8	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	0	0	0
478	20	4	16	5	1	3	0	0	0	0	0	0	0	7	6	0	0	4	0	0	0	0	0
479	72	3	69	3	1	4	0	0	0	0	0	0	0	1	5	0	0	15	0	0	0	0	0
480	71	1	70	2	1	0	0	0	0	0	0	0	0	0	4	15	0	0	0	0	0	0	0
481	17	4	13	9	7	2	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	1
482	23	13	10	9	1	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0
483	23	12	11	17	0	0	0	0	0	0	0	0	2	10	1	0	0	0	0	0	0	0	0
484	13	3	10	10	1	2	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0
485	1	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
489	3	1	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
490	6	3	3	3	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
491	46	17	29	7	0	3	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0
492	26	8	18	2	0	3	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0
493	13	0	13	6	3	4	0	0	0	0	0	0	0	1	1	2	0	1	0	1	0	0	0
494	169	1	168	2	16	3	1	0	0	0	0	0	0	2	7	0	0	22	0	0	0	0	0
495	97	10	87	8	2	2	0	0	0	0	0	0	2	4	8	0	0	29	0	0	0	0	0
496	14	3	11	5	5	2	0	0	0	0	0	0	0	3	2	0	0	1	0	0	0	0	0
497	3	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
498	98	68	30	40	2	0	0	0	0	0	0	0	9	24	0	0	0	0	0	0	0	0	0
499	235	87	148	23	6	7	0	0	0	0	0	0	21	14	8	4	0	27	0	0	0	0	1
500	71	42	29	13	0	3	0	0	0	0	0	0	5	7	2	0	0	7	0	0	2	0	0
501	27	16	11	14	0	2	0	0	0	0	0	0	0	3	0	3	0	0	0	1	0	0	0
502	9	4	5	13	0	1	0	0	0	0	0	0	1	4	1	0	0	1	0	0	0	0	0
503	92	25	67	23	1	3	1	0	0	0	0	0	0	18	5	0	0	31	0	0	0	0	0
504	42	19	23	3	5	2	0	0	0	0	0	0	6	7	4	1	0	0	0	0	0	0	0
505	24	11	13	6	1	2	0	0	0	0	0	0	4	6	2	0	0	0	0	0	0	0	0

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
506	8	4	4	2	3	1	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	1
513	4	1	3	2	1	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0
514	81	13	68	1	7	4	0	0	0	0	0	0	0	4	6	0	0	29	0	2	0	0	0
515	140	33	107	27	2	1	0	0	0	0	0	0	5	2	3	0	0	25	0	1	0	0	0
516	14	3	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	1
517	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
522	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
529	11	1	10	12	3	1	1	0	0	0	0	0	0	0	2	0	0	4	0	0	0	0	0
530	63	5	58	25	3	0	0	0	0	0	0	0	0	1	2	1	0	18	0	0	0	0	0
Site 20	**133**	**49**	**84**	**206**	**20**	**35**	**5**	**0**	**0**	**0**	**0**	**0**	**19**	**17**	**11**	**3**	**0**	**39**	**0**	**3**	**0**	**0**	**2**
509	17	5	12	0	2	16	1	0	0	0	0	0	0	2	1	2	0	5	0	0	0	0	0
542	23	1	22	17	2	4	0	0	0	0	0	0	0	4	1	0	0	10	0	2	0	0	0
543	3	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
546	4	1	3	0	2	0	0	0	0	0	0	0	0	1	1	0	0	2	0	1	0	0	0
547	40	16	24	75	2	4	1	0	0	0	0	0	4	5	1	1	0	10	0	0	0	0	0
548	11	7	4	5	2	0	2	0	0	0	0	0	2	2	1	0	0	3	0	0	0	0	0
549	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
553	6	0	6	3	4	1	0	0	0	0	0	0	0	2	2	0	0	1	0	0	0	0	0
554	12	11	1	39	0	1	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0
597	6	4	2	38	2	1	0	0	0	0	0	0	2	1	0	0	0	2	0	0	0	0	0
598	5	3	2	20	1	4	0	0	0	0	0	0	0	0	2	0	0	3	0	0	0	0	0
599	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
604	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
605	5	1	4	6	3	1	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0
606	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site 21	**679**	**50**	**629**	**83**	**74**	**118**	**5**	**0**	**0**	**0**	**0**	**0**	**8**	**19**	**33**	**3**	**0**	**248**	**0**	**0**	**0**	**0**	**5**
572	22	3	19	2	0	1	0	0	0	0	0	0	0	3	1	0	0	25	0	0	0	0	0
573	66	4	62	4	0	7	1	0	0	0	0	0	1	3	5	0	0	29	0	0	0	0	0
574	2	1	1	1	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
575	21	3	18	3	5	2	1	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0
576	13	2	11	3	0	3	0	0	0	0	0	0	0	0	3	0	0	6	0	0	0	0	0
577	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
584	1	0	1	2	6	7	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
585	166	1	165	11	26	54	0	0	0	0	0	0	0	3	2	0	0	46	0	0	0	0	2
586	31	0	31	5	1	4	0	0	0	0	0	0	0	1	2	0	0	18	0	0	0	0	0
587	133	8	125	13	8	11	1	0	0	0	0	0	0	1	5	0	0	29	0	0	0	0	2
588	22	5	17	7	3	3	0	0	0	0	0	0	5	1	0	0	0	7	0	0	0	0	0
589	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
590	2	1	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
591	79	4	75	14	12	13	1	0	0	0	0	0	2	5	3	0	0	19	0	0	0	0	0
592	73	6	67	9	7	9	0	0	0	0	0	0	0	0	2	0	0	23	0	0	0	0	1
593	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
594	3	0	3	1	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
595	17	4	13	3	1	1	0	0	0	0	0	0	0	0	5	0	0	8	0	0	0	0	0
596	28	8	20	2	0	2	0	0	0	0	0	0	0	0	1	3	0	18	0	0	0	0	0
Site 22	**234**	**4**	**230**	**13**	**20**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**13**	**2**	**0**	**135**	**0**	**0**	**0**	**0**	**0**
665	24	1	23	2	10	0	0	0	0	0	0	0	0	2	1	0	0	24	0	0	0	0	0
666	12	0	12	4	1	0	0	0	0	0	0	0	0	0	2	0	0	5	0	0	0	0	0
667	1	0	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
669	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
670	44	0	44	2	2	1	0	0	0	0	0	0	0	2	4	0	0	28	0	0	0	0	0

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
671	114	2	112	1	2	1	0	0	0	0	0	0	0	0	2	2	0	55	0	0	0	0	0
672	30	1	29	3	2	1	0	0	0	0	0	0	0	1	1	0	0	18	0	0	0	0	0
673	7	0	7	0	0	0	0	0	0	0	0	0	0	1	2	0	0	4	0	0	0	0	0
674	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
675	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
676	2	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
Site 23	**0**	**0**	**0**	**1**	**1**	1804	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
777	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
778	0	0	0	0	0	263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
787	0	0	0	0	0	231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
791	0	0	0	0	0	224	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
795	0	0	0	0	0	505	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
796	0	0	0	1	1	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
802	0	0	0	0	0	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
803	0	0	0	0	0	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
805	0	0	0	0	0	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
806	0	0	0	0	0	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site 24	**168**	**101**	**67**	**133**	**9**	**14**	**4**	**0**	**0**	**0**	**0**	**0**	72	**41**	**3**	**0**	**0**	**20**	**0**	**1**	**3**	**0**	**2**
811	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
812	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813	2	2	0	0	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
814	3	3	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0
815	1	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
816	7	5	2	0	1	4	1	0	0	0	0	0	0	4	1	0	0	3	0	0	0	0	0
817	47	40	7	26	0	1	0	0	0	0	0	0	27	9	0	0	0	2	0	0	0	0	1
818	51	25	26	30	1	6	1	0	0	0	0	0	16	12	0	0	0	0	0	1	3	0	0
819	15	10	5	4	0	0	1	0	0	0	0	0	9	6	2	0	0	1	0	0	0	0	0
820	15	4	11	2	0	0	1	0	0	0	0	0	0	8	0	0	0	4	0	0	0	0	0
821	5	3	2	5	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
822	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
823	12	4	8	26	5	0	0	0	0	0	0	0	11	0	0	0	0	3	0	0	0	0	1
824	6	2	4	39	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0
829	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Site 34	**99**	**9**	**90**	**11**	**3**	**38**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**38**	**3**	**1**	**0**	**49**	**0**	**4**	**0**	**0**	**1**
875	29	2	27	0	1	7	0	0	0	0	0	0	0	6	2	0	0	19	0	0	0	0	0
876	17	2	15	2	0	3	0	0	0	0	0	0	0	11	0	1	0	6	0	0	0	0	0
877	19	3	16	5	0	3	0	0	0	0	0	0	2	15	0	0	0	4	0	0	0	0	0
879	4	0	4	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0
880	2	0	2	2	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0
881	5	2	3	1	0	6	0	0	0	0	0	0	1	1	0	0	0	3	0	0	0	0	0
882	2	0	2	0	1	6	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
883	3	0	3	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
884	10	0	10	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	3	0	0	0
885	2	0	2	0	0	5	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0
886	3	0	3	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1
887	2	0	2	0	0	5	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
888	1	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Site 37	**104**	**1**	**103**	**0**	**1**	**22**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**2**	**0**	**0**	**60**	**0**	**0**	**0**	**0**	**1**
834	12	0	12	0	0	7	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	1
835	27	0	27	0	0	6	0	0	0	0	0	0	0	1	0	0	0	14	0	0	0	0	0
836	22	0	22	0	1	6	0	0	0	0	0	0	0	3	0	0	0	17	0	0	0	0	0

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
837	39	0	39	0	0	2	0	0	0	0	0	0	0	2	2	0	0	18	0	0	0	0	0
838	4	1	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
no site	**261**	**29**	**232**	**92**	**208**	**370**	**21**	**0**	**0**	**0**	**0**	**1**	**2**	**59**	**59**	**17**	**0**	**44**	**0**	**5**	**6**	**1**	**13**
28	9	0	9	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	3	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	2	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	1	0	1	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
121	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
207	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
227	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
231	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
236	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
237	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
238	6	0	6	1	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
239	2	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
241	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
248	1	0	1	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
249	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
254	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
255	1	0	1	0	1	10	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
256	3	1	2	2	0	4	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0
257	0	0	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
258	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
261	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
262	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
266	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
269	2	0	2	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
272	2	1	1	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
279	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
280	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281	2	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
282	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
285	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
287	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
294	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
297	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
298	1	0	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
299	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
302	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
303	2	0	2	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
304	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	1	0	1	0	3	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
306	2	0	2	0	1	2	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
307	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	1	0	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	0	0	0	0	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
322	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323	1	0	1	0	15	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
324	2	0	2	0	1	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
325	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
328	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
329	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
332	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
344	1	0	1	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
345	1	0	1	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
346	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
347	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
348	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
349	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
350	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
352	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
353	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
355	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
358	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
359	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
360	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
361	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
362	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
363	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
364	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
366	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
367	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
369	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
374	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
375	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
376	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
377	1	0	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
378	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
380	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
383	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
385	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
394	3	1	2	4	0	2	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0
395	3	0	3	3	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
396	6	0	6	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1
397	1	0	1	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
399	3	0	3	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
400	7	0	7	1	2	2	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0
401	11	1	10	0	9	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0
402	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
403	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
407	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
408	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
414	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
415	3	2	1	0	1	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0
421	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
423	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
424	3	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
425	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
426	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
428	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
431	2	1	1	0	0	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
433	2	0	2	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
435	1	0	1	0	5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
436	6	0	6	0	7	4	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
437	2	0	2	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
438	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
440	1	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1
441	5	0	5	6	2	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0
442	6	3	3	5	2	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0
443	2	1	1	4	2	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
453	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
454	5	0	5	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	1	0	0
462	0	0	0	2	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
465	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
470	1	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
471	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
472	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
486	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
488	1	0	1	3	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
507	2	0	2	1	2	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
508	8	1	7	0	3	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	0	0	0
510	2	0	2	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
511	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
512	0	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
520	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
521	3	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
523	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
524	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
525	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
527	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
528	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
531	3	0	3	5	12	6	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
532	1	0	1	3	6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
533	0	0	0	1	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
534	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
535	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
537	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
538	1	0	1	0	3	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
539	2	0	2	0	5	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0
540	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
545	2	2	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
550	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
552	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
556	1	0	1	1	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
558	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
559	1	0	1	1	1	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
560	1	0	1	0	0	21	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
561	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
562	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
563	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0
564	1	0	1	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
565	2	1	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
566	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
567	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
568	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
569	1	0	1	0	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
570	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
571	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
578	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
583	1	0	1	0	4	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
600	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
607	1	0	1	2	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
608	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
611	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
612	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
613	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
614	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
639	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
642	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
649	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
657	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
658	2	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
695	8	2	6	2	11	0	0	0	0	0	0	0	0	6	2	0	0	0	0	0	0	0	0
696	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
738	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
745	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
764	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
767	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
768	4	2	2	1	2	11	0	0	0	0	0	0	0	2	1	0	0	0	0	1	0	0	0
769	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
772	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
773	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Site polygonID	Sum of potter_cnt	Sum of pott_hand	Sum of pott_wheel	Sum of daub_cnt	Sum of arch_cnt	Sum of stone_cnt	Sum of flint_cnt	Sum of LN_2018_19	Sum of BA_2018_19	Sum of EBA_2018_19	Sum of BA_IA_2018_2019	Sum of IA_2018_19	Sum of EIA_2018_19	Sum of LIA_2018_19	Sum of RP_II_IV_2018_19	Sum of LRP_IV_V_2018_19	Sum of EByz_V_VI_2018_19	Sum of EMA_VII_X_2018_19	Sum of BP_XI_XII_2018_19	Sum of HMA_XIII_XIV_2018_19	Sum of Ottoman_2018_19	Sum of Renaissance_2018_19	Sum of Modern_2018_19
774	3	0	3	0	0	3	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0
775	1	0	1	2	0	4	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
776	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
780	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
781	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
782	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
786	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
788	0	0	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
792	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
793	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
794	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
798	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
800	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
801	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
804	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
807	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
810	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
825	4	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3
826	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
828	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
830	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
831	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
832	2	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
833	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
839	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
842	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
846	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
848	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
850	6	0	6	0	0	0	0	0	0	0	0	0	0	1	1	0	0	4	0	0	0	0	0
851	6	0	6	0	1	9	0	0	0	0	0	0	0	1	3	0	0	1	0	0	0	0	0
852	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
856	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
857	8	0	8	0	0	1	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0
858	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
864	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
866	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
867	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
868	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
872	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
878	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
890	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
893	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
895	4	0	4	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0
896	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
901	2	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
902	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Grand Total	11344	2714	8630	1053	4486	2617	189	51	5	0	21	5	253	675	660	162	1	1006	1	21	42	2	35

КАТАЛОГ НА АРХЕОЛОГИЧЕСКИТЕ ОБЕКТИ

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(Резюме)

Каталогът е структуриран и базиран на дефинирани археологически обекти. Подходящото и прието определение на „археологически обект“ за проекта в м. Таш баир, което съвпада с концепцията, заложена в Археологическа карта на България, е следното: *определено топографско място в пространството, където човекът през различни хронологически периоди е извършвал различни по вид постоянни и/или периодични дейности.*

Обектите са регистрирани по два начина:

1. Видими обекти – видими с просто око над и под съвременната повърхност, напр. надгробни могили, валове, ровове и т.н.; границите на обектите са дефинирани въз основа на площта на видимите останки.
2. Невидими обекти – невидими с просто око, базирани на количествени анализи в ГИС въз основа на концентрация на преброени артефакти на повърхността, напр. брой керамични фрагменти, фрагменти от мазилки, керемиди, тухли и т.н.; границите на обектите са дефинирани въз основа на площта на по-високите концентрации на артефакти на повърхността в полигоните.

В каталога са включени 38 археологически обекта в единна структура.

След каталога е представена таблица, съдържаща информация за преброените на терен и събраните характерни артефакти, разделена по обекти и полигони.

Структура на каталога

Списък с атрибутите за всяко поле от каталога. Ако дадено поле не е приложимо за определен обект, то е премахнато от таблицата на съответния обект.

Поле	**Описание**
Site ID	*ID на обекта; започва от 1 от началото на проекта*
Region	*Област*
Municipality	*Община*
Village	*Землище*
Distance and azimuth	*Разстояние (в километри) и азимут (в градуси с 0 като север и измервайки ъгъла по часовниковата стрелка, използвайки посоките на света) от центъра на населеното място на землището до центъра на обекта*
Locality	*Различни местности в различни източници за територията на обекта – кадастралната карта, топографски карти в различни мащаби, публикации, информация от местни жители и др. Имената на местностите са транслитерирани на латиница*
Location	*Геоморфологично местоположение на обекта*
Baltic height (m)	*Надморска височина в Балтийска височинна система (в метри) на обекта*
Slope	*Наклон (в градуси) и наклон на терена спрямо посоките на света*
Aspect	*Изложение спрямо посоките на света*
Legacy site actions	*Дейности, извършвани на обекта през различни години преди 2018 г.*
Site actions	*Дейности, извършвани на обекта през 2018 и 2019 г.*

Counted artefacts (field surveys)	*Преброени артефакти в полигоните от територията на обекта по време на теренните издирвания през 2018 и 2019 г. и базирани на различните видове находки, експортирани от атрибутната таблица в ГИС:* • ***Pottery fragments (integer)** – керамични фрагменти (цяло число);* • ***Handmade pottery fragments (integer)** – керамични фрагменти, изработени на ръка (цяло число);* • ***Wheelmade pottery fragments (integer)** – керамични фрагменти, изработени на колело (цяло число);* • ***Pieces of daub (integer)** – фрагменти от мазилки (цяло число);* • ***Pieces of tiles and bricks (integer)** – фрагменти от керемиди и тухли (цяло число);* • ***Stones (integer)** – камъни (цяло число);* • ***Flints (integer)** – кремъци (цяло число);* • ***Cat. No. Finds** – каталожни номера на малки находки.*
Collected diagnostic pottery fragments (field survey)	*Събрани керамични фрагменти в полигоните от територията на обекта по време на теренните издирвания през 2018 и 2019 г. (цяло число)*
Description (field surveys)	***Описание, базирано на различните регистрирани хронологически периоди на територията на обекта <u>по време на теренните издирвания през 2018 и/или 2019 г.</u>:*** • *N – съдържа число (site ID) и буква (същите букви са използвани за едни и същи хронологически периоди), разделени от точка, напр. 1.a, 1.b и т.н.;* • ***Chronology** – различни хронологически периоди, регистрирани на обекта;* • ***Type** – дефиниран тип обект;* • ***Diagnostic finds** – вид и брой диагностични находки;* • ***Facilities** – наличие или отсъствие на различни видове съоръжения;* • ***Diameter (m)** – само за надгробни могили, техният диаметър (в метри);* • ***Height (m)** – само за надгробни могили, тяхната височина (в метри);* • ***Notes** – допълнителни описания;* • ***Cat. Nos. Diagnostic finds** – каталожни номера на диагностични находки.*
Other traces	*Други следи от територията на обекта: ниски концентрации на керамични фрагменти от други хронологически периоди, резултати от визуален анализ на въздушни / сателитни изображения или засенчвания на релефа на цифров модел на терена от LiDAR*
Description (geophysical surveys)	*Видове геофизични проучвания, извършени през различни години на територията на обекта, заедно с резултати от тях*

Scatters in the site	*Когато две или повече от две граници/концентрации са дефинирани в територията на обекта (ако е приложимо):* • ***Scatter No** – съдържа едно число (site ID) и друго число (пореден номер), разделени от долна черта, напр. 1_1, 1_2 и т.н.;* • ***Notes** – пояснение на регистрираните различни граници/ концентрации;* • ***Area (ha)** – площите на различни граници/концентрации (в хектари).*
Description (excavations)	***Описание, базирано на различните регистрирани хронологически периоди на територията на обекта <u>по време на археологическите разкопки през 2018 и/или 2019 г. (ако е приложимо)</u>:*** • ***N** – съдържа число (site ID) и буква (същите букви са използвани за едни и същи хронологически периоди), разделени от точка, напр. 1.a, 1.b и т.н.* • ***Chronology** – различни хронологически периоди, регистрирани на обекта;* • ***Type** – дефиниран тип обект;* • ***Diagnostic finds** – вид и брой диагностични находки;* • ***Facilities** – наличие или отсъствие от различни видове съоръжения;* • ***Notes** – допълнителни описания;* • ***Cat. Nos. Diagnostic finds** – каталожни номера на диагностични находки.*
Polygons	*Полигони при теренните издирвания през 2018 и 2019 г. на територията на обекта:* • ***Amount of polygons** – общ брой полигони;* • ***Nos.** – номера на полигони.*
Small polygons	*Малки полигони при теренните издирвания през 2018 и 2019 г. на територията на обекта:* • ***Amount of small polygons** – общ брой малки полигони;* • ***Notes** – допълнително описание.*
Area (ha)	*Площ на обекта (в хектари)*
AIS AKB	*Номера на регистрационните карти и техните автори в археологическата информационна система „Археологическа карта на България“*
Coordinates	*GPS координати на центъра на обекта (геометричния център или мястото с най-висока концентрация на артефакти) в децимални градуси (N и E)*
Notes	*По-дълго описание на характеристиките на обекта*
Publications	*Цитати на публикувана литература за характеристиките на обекта*
Maps	*Различни подходящи карти на обекта, показващи местоположение, номера на полигоните и пространствена дистрибуция на преброените керамични фрагменти*
Photos	*Различни подходящи снимки на обекта, показващи ситуации на терен, събрани керамични фрагменти*

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