STUDIA HERCYNIA XXVI/2, 115–140

A systematic archaeological survey in the environs of Khaytabad Tepa (Southern Uzbekistan). Preliminary report on the 2021 pilot season

Jakub Havlík – Ján Bobik – Vendula Dědková – Kateřina Dontová – Jan Krčál – Jana Matznerová – Elena Paralovo – Razieh Taasob – Kahramon Toshaliyev – Jan Ždimera – Shapulat Shaydullaev

ABSTRACT

Tepa sites have often been the focus of archaeological investigations in the lowland areas of Soviet and post-Soviet Central Asia. This bias frequently led to paying only a little attention to the surrounding landscape and its potential for the study of historical settlement and land use. Moreover, in these environs archaeologists face particularly unfavourable conditions in the landscape, which has been radically transformed by decades of mechanised agriculture and settlement growth. The newly launched project of the Czech-Uzbekistani Archaeological Mission aims to answer the challenges of research in the heavily exploited lowlands of southern Uzbekistan and explore the surroundings, supposedly an economic territory, of Khaytabad Tepa, a walled settlement occupied between the Achaemenid period and the Middle Ages. For the investigation of various parts of a culturally and physically diverse landscape (village areas, fields, tepa mounds), a flexible methodology was developed, building on an intensive surface survey as the dominant research component to analyse the Khaytabad Tepa surroundings. Given the initial stage of the research, this report focuses on the background, objectives, and methodology of the project and evaluates the 2021 pilot season. The amount and chronological range of collected material point to the great potential of the adopted approach as well as the research area itself. The identified artefact scatters indicate a substantially more complex settlement development than has been acknowledged so far: The collected pottery assemblages largely correspond to the occupation timespan of the central walled settlement. The widespread distribution of Iron Age and Middle Ages material suggests an extensive exploitation of the area in these particular periods.

KEYWORDS

Surface survey; Ploughsoil assemblages; Central Asian Archaeology; Northern Bactria; Yaz culture.

INTRODUCTION

In the last three decades, the archaeology of Central Asia has witnessed a rapid growth of interest in landscape studies. This growth builds on a rich tradition of survey archaeology of the Soviet period and its aim of completing regional archaeological maps (for southern Uzbekistan, see Rtveladze – Khakimov 1973; Arshavskaya – Rtveladze – Khakimov 1982; cf., Mokroborodov *et al*. 2017) and on the involvement of foreign expeditions in the initiation of various regional surveys (Gubaev – Koshelenko – Tosi eds. 1989; Mantellini – Berdimuradov 2016; Stančo – Tušlová eds. 2019; Rante – Mirzaakhmedov 2019). In combination with the development of GIS and the accessibility of high-definition satellite imagery (e.g., Cerasetti 2008; Thomas – Kidd 2017), landscape archaeology approaches became one of the crucial directions in the study of Central Asia's past.

One of the traditional focuses of landscape archaeology, the study of surface artefact distribution, represents a key instrument in order to gain a better understanding of past landscape use behaviour. This approach also became the key component of the newly launched project under the aegis of the Czech-Uzbekistani Archaeological Mission. During the one-month pilot season in October 2021, a small team consisting of students of the Institute of Classical Archaeology, Charles University, with the support of colleagues from Termez State University conducted an archaeological survey in the surroundings of Khaytabad Tepa,[1] Jarkurgan district, Uzbekistan (37°33'50.69"N, 67°26'51.06"E). The project aims to investigate the site's catchment area – a supposed economic territory. Being considered a microregional centre of the middle Surkhan Darya basin (Rtveladze – Khakimov 1973, 33; Rtveladze 1978, 115–116; Rtveladze 1987, 66; Šajdullaev 2002, 272–273), this walled settlement was to various degrees continuously occupied between the Achaemenid period and the High Middle Ages (Leriche – Annaev 1995, 11–13; Leriche – Annaev 1996a, 295–298; Šajdullaev 2002, 271–273, 323–327; Houal 2021, 22–25). The investigation of its surroundings offers the potential for a detailed evaluation of both spatial and temporal transformations of past settlement patterns and land use in a *longue durée* perspective. The dominant research approach, a systematic intensive surface survey, putting emphasis on the analytical assessment of artefact distribution over the landscape, represents an opportunity to study the lowland area irreversibly damaged by decades of industrial agriculture. The terrain project had originally been planned for three seasons 2020–2022. Due to the 2020 pandemic, the pilot terrain season was postponed until 2021. Taking into account the character of the research and its initial stage, this report outlines the objectives and methodology of the project and focuses on its background and an evaluation of the first field season 2021.

BACKGROUND

Being well defined concrete remains of past human activities, *tepa* sites have often become the principal focus of archaeological research in Central Asia. The tepa-oriented surveys have provided crucial data that represent an irreplaceable base for the study of past settlement, nevertheless, their obvious bias has also often led to underestimating a wide range of activities that were taking place in the surrounding landscape. Relatively well-preserved mountainous and desert zones show the richness of archaeological phenomena associated with various subsistence strategies as well as other (ritual, funeral...) activities occurring beyond the area of settlement sites (See e.g., Andrianov 1969; Stark *et al*. 2010; Thomas – Kidd 2017; Rouse – Tabaldiev – Motuzaite Matuzeviciute 2022; see below for Czech-Uzbekistani activities in the Kugitang foothills). By contrast, in agriculturally exploited lowland areas characterised by the decreased chance of the survival of archaeological features caused by virtually continuous settlement over more than three thousand years and by more than seventy years of mechanized agriculture, archaeologists face particularly unfavourable conditions for conducting off-site oriented research. Although intensive surface survey approaches (i.e., quantified observation and controlled artefact collection), traditionally widespread in the Mediterranean and Europe (Cf., Alcock – cherry – Davis 1994; Alcock – Chery eds. 2004; Attema *et al*. 2020), have already been adopted in Central Asia (Cattani 2008, 120–121; Tušlová 2011; 2012; 2019;

1 The transcription of the toponym ('Khaytabad Tepa', from the Uzbek Cyrillic transcription) used reflects the widespread form among the archaeological literature. The Latin Uzbek alphabet form of the toponym is 'Hayitobodtepa'.

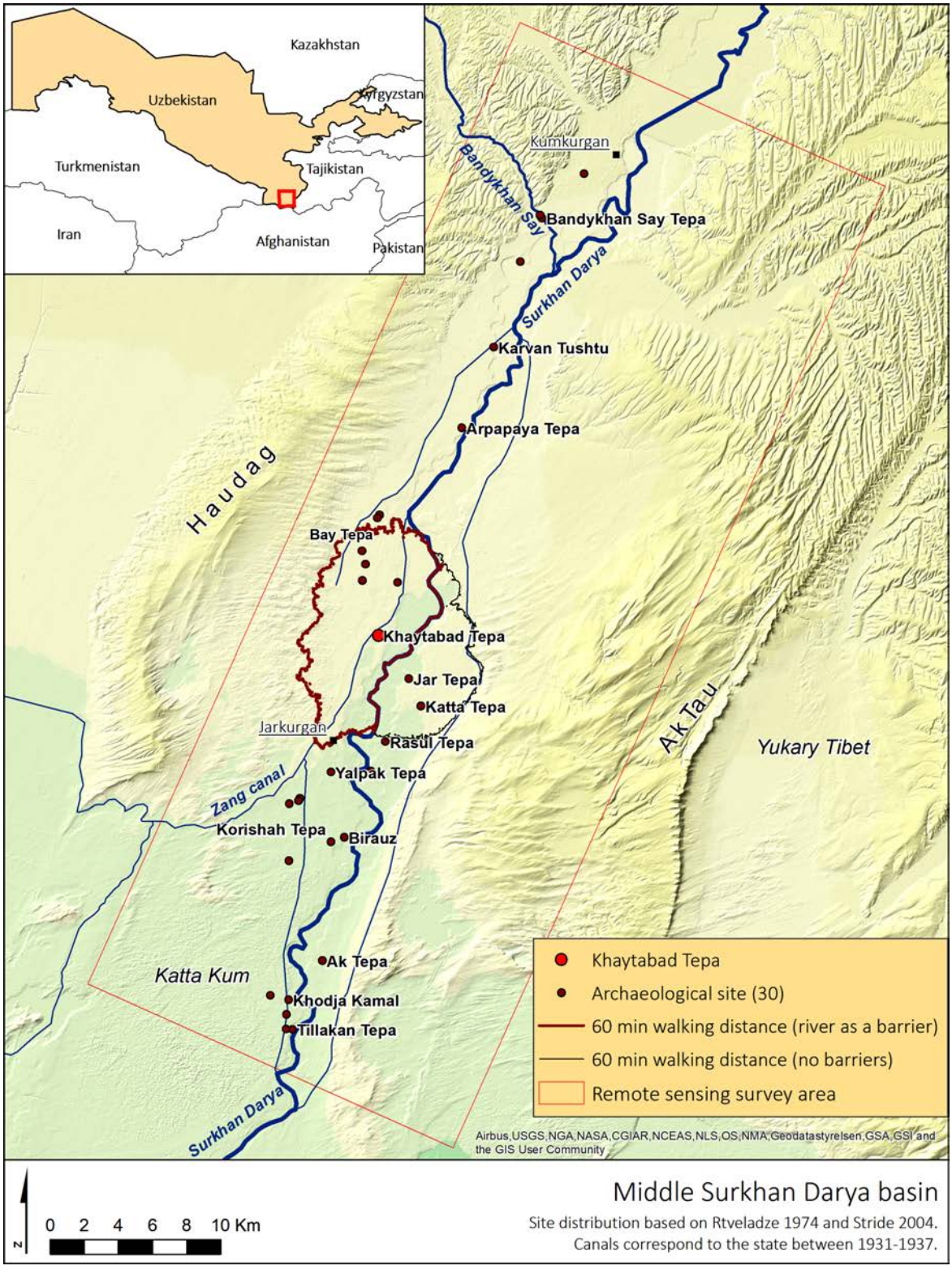


Fig. 1: Intensive survey research area (irregular polygon) within the middle Surkhan Darya basin. A rectangle represents the area of the remote sensing survey. Map by J. Havlík.

Markofsky – Bevan 2012; Cerasetti – Codini – Rouse 2014; Markofsky 2014; Augustinová – Mach – Mrvová 2018; Kidd – Stark 2019, 169–170),[2] their systematic application still remains infrequent there.

As part of its long-term goals, the Czech-Uzbekistani archaeological mission, co-directed by L. Stančo and Sh. Shaydullaev, has sought to map and investigate the past landscape of southern Uzbekistan in its complexity. Using various methods, specialised (sub-)projects focus on various components of the cultural landscape, including off-site archaeology, either artefact scatters in the Sherabad Darya oasis (Tušlová 2019) or, more recently, a diverse assemblage of archaeological features (petroglyphs, cairns, enclosures, yurt camps, etc.) in the Kugitang foothills steppe zone (Augustinová *et al*. 2015; Augustinová – Stančo 2016; Stančo 2016; Havlík – Stančo – Havlíková 2017; Havlík – Havlíková – Stančo 2018). In this matter, the newly initiated field project builds on the previous agendas of the Czech-Uzbekistani mission and expands on them in another kind of landscape, defined by a narrow valley formed by a major river.

RESEARCH AREA

The middle Surkhan Darya basin (**Fig. 1**) is naturally defined by the narrow river depression between the mountain ridges of Haudag and Babatag, which ranges between 500 and 750 m.a.s.l. Flanked on both sides by sand dunes and piedmont steppes, this depression constitutes an important natural corridor connecting historically densely settled areas to the north and to the south. The topography of the river terraces (elevation of ca. 300 m.a.s.l.) is today predominantly flat, gently sloping towards the river and the floodplains formed by deposition on the inside of the river meanders. The limited width of the valley allows one to cross floodplains and river terraces very quickly, usually reaching sand dunes beyond the presently settled area of the right riverbank within an hour on foot from the river. Unlike floodplains, affected by riverine erosion and deposition, river terraces, nowadays mainly under cultivation, represent an area suitable for archaeological fieldwork. Irrigated agriculture is dominant in the middle Surkhan Darya valley, profiting from the dense water channel network and mild winters. Cereals (as summer crops) and cotton (as a winter crop) clearly predominate, supplemented on a smaller scale by various other crops, including legumes and herbaceous and flowering plants. We encountered grown maize, peanuts, and carrots, harvested at the time of the survey in October, but also young or just seeded dill, garlic, parsley, etc.

The tepa mounds, which show the attraction of past populations to the abundance of water along the river, represent almost the only projections in the landscape. However, the current state is to a certain degree the product of many years of mechanized agricultural intensification, including the restructuring of fields and irrigation systems, the relocation of old settlements, and the foundation of new ones as a part of the Soviet collectivization policy (for Surkhandarya province, see Stride 2004, 130–132; for Samarkand area, see Mantellini – Berdimuradov 2019; for southern Kathlon in Tajikistan, see Nebbia – Cilio – Bobomulloev 2021, 186–187). These processes led to a radical disruption of the older cultural landscape and the destruction of many archaeological features, tepa mounds among them. The present-day landscape thus reflects the past one to only a very limited degree, which makes any effort to reconstruct the past environment extremely challenging. This can be seen in the relatively

2 It should be noted that the scope, objective, intensity, and particular method of individual projects differ significantly.

Fig. 2: Khaytabad Tepa and its surroundings (left), Bay Tepa II–IV group (right). The scale of landscape transformation illustrates the comparison of the present state with that captured during the 1960s and early 1970s by military reconnaissance satellite missions. Above: 1973 (Hexagon KH-9, property of USGS); below: 2021 (Esri).

early employment of mechanised agriculture practices (cf., Stride 2004, 36–38) which was faster in the middle Surkhan Darya basin than in comparison with, for example, the Sherabad oasis to the west (see Tušlová 2019, 43–78).

The middle Surkhan Darya basin has been studied by archaeologists, however since the reconnaissance mission (see Rtveladze – Khakimov 1973; Rtveladze 1974) conducted at the end of the 1960s under the auspices of the Uzbekistan Art History Expedition (Узбекистанская искусствоведческая экспедиция), only one site has been studied there systematically[3] – Khaytabad Tepa. A stratigraphical trench – a cut of a fortification wall excavated in 1977 by K. Sabirov (Sabirov 1978) and in 1986 by T. Annaev (Annaev 1988; Shaydullaev 1990) was enlarged between 1993–1997 by the French-Uzbek expedition (Mission archéologique Franco-Ouzbèque de Bactriane du Nord). The stratigraphical cut confirmed the presence of a fortified settlement occupied between the Yaz III/Kuchuk III–IV (Achaemenid?)[4] period and the Middle Ages. Simultaneously, trenches were opened in the area of the Khaytabad Tepa citadel, reveal-

3 In the case of a few sites, a small-scale trial excavation was conducted without proper publication of their results (for Barat Tepa, see Rtveladze – Khakimov 1973, 27).

4 J.B. Houal (2021, 35) agreed with the presence of a pre-Hellenistic occupation of Khaytabad Tepa, however, he had doubts about the attribution of the fortification wall to such an early period.

ing predominantly High Medieval layers (Leriche 1993; 1994; Leriche – Annaev 1995; 1996a; 1996b; Leriche *et al*. 1997; Šajdullaev 2002). In the last 25 years, the middle Surkhan Darya basin has not received particular interest from the researchers working in the area, and the list of archaeological sites assembled by E.V. Rtveladze (Rtveladze – Khakimov 1973, 23–29; Rtveladze 1974, 79–82) corresponds largely also to the present state of research (cf., Stride 2004, 219–226 adding otherwise unpublished data and observations).

OBJECTIVES

The initiated project aims to analytically evaluate the character and intensity of the past human activities that were taking place in the area of the middle Surkhan Darya basin. The research is designed as a complex systematic surface survey of the Khaytabad Tepa territory (its catchment area) focused on the clarification of landscape use transformations and a better understanding of the general trends of settlement development in a *longue durée* perspective. Following this goal, the project focuses on areas stretching between well-defined tepa mounds and seeks a better understanding of the relationship between a tepa and the surrounding landscape in general. In view of the severe damage of the past cultural landscape caused by industrial agriculture practices of over the past seventy years – in particular, often by unscrupulous Soviet period collectivization – the project's parallel objective is to develop and test a methodology for the systematic investigation of the characteristic rural lowlands of present-day Central Asia. The proposed methodology flexibly combines an intensive surface survey of the various components of the current landscape including built-up areas with an extensive survey, remote sensing, and the study of historical maps.

METHODOLOGY

GEOGRAPHICAL INFORMATION SYSTEM

To achieve its goals, the project integrates various mutually interconnected research components. The pilot terrain season was preceded by an exhaustive gathering of data of varied character to create complex data sets, both physical (elevation, waterway network, land cover) and cultural (known archaeological sites, communication network, landmarks, land use), integrated into the multifunctional geographical information system (GIS) which serves as both the database for data preparation and storage and an analytical tool. Satellite imagery and topographical maps of various ages (see below) became the key data sets not only for the identification of potential anthropogenic (archaeological) features (see below for a brief overview of the remote sensing application), but also for a better understanding of the recent past changes in land use and the degree of modern anthropic influence on the landscape. The generated data sets were uploaded to a handheld tablet allowing easy access right in the field. The relational database using MS Access was developed and linked with both the paper field forms and the GIS, forming thus a coherent and mutually interconnected research framework. Once incorporated in the GIS, the data are used to analyse and interpret patterns of artefact distribution across the survey area. The daily data upload enables the research team to reflect the field situation and react flexibly to the immediate field situation and conditions.

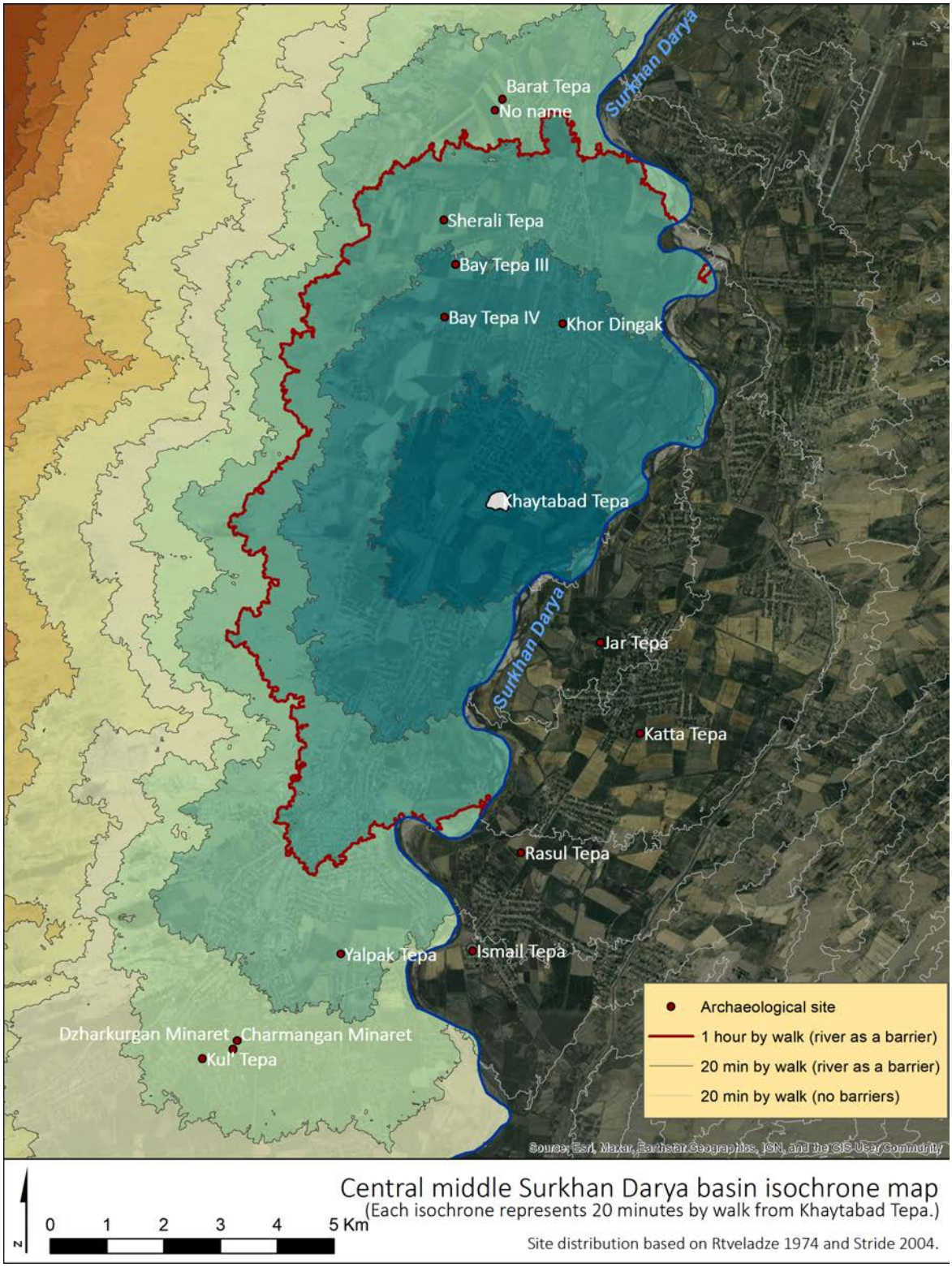


Fig. 3: Isochrone map of the central part of the middle Surkhan Darya basin. Each isochrone represents 20 minutes walking (Tobler's hiking function, ALOS PALSAR DEM). In this calculation, the river is not considered to be a barrier. Map by J. Havlík.

DEFINING THE RESEARCH AREA

In order to analyse the hypothetical economic territory – the catchment area – of Khaytabad Tepa, the research area was set up on the basis of an hour walking distance (cf. Bintliff 1999 with references) calculated using Tobler's hiking function and the digital elevation model (ALOS PALSAR) in the GIS (cf. **Fig. 3**). Because the location(s) of the ancient river crossing(s) in the vicinity of Khaytabad Tepa is/are not known with certainty, the current riverbed served as an insurmountable barrier in the calculation. The generated isochrone map will also serve for the subsequent spatial analysis of sites and artefact distribution over the research area.

STUDY OF SOVIET MILITARY MAPS AND REMOTE SENSING

Since 2020, the wider area of the middle Surkhan Darya basin (see **Fig. 1**) has been investigated by means of a systematic 'remote survey' employing the study of Soviet military maps and both modern and historical satellite imagery. The study of Soviet military maps represents a relatively reliable tool for the identification of terrain anomalies corresponding frequently to tepa mounds (cf., Rondelli – Stride – García-Granero 2013; Stančo – Tušlová eds. 2019, 25). In addition to that, a wide range of features directly reflecting (past) human activities (such as yurt camps, burial mounds, ruins, corrals, cemeteries, etc.) occur on military maps, as well as many other features of indirect archaeological importance (springs, wells, paths, river crossings, etc.). Soviet military maps of differing ages and resolution[5] were digitized and became a basis for the multifunctional GIS database comprising cultural and physical data sets that reflect the exploitation of the research area in a wider spatial and temporal perspective. The logical next step at this stage of the project has been remote sensing in the form of the interpretation of historical (CORONA KH-4; HEXAGON KH-9) and modern (Esri, Bing, Google Earth) satellite imagery (cf. Hammer *et al*. 2018; Boak 2019; Stančo 2019a, 21–25; for the evaluation of HEXAGON imagery use, see Hammer – Fitzpatrick – Ur 2022). To systemize the investigation procedure, a 1×1 km grid was laid over the wider area of the middle Surkhan Darya valley and the available imagery examined in each square (see Boak 2019 for this approach applied in the Kandahar region). This remote survey yielded more than 1200 different anthropogenic features that are currently going through the second phase of examination and assessment. Part of the identified features was subject to verification by means of both intensive and extensive surface survey during the first terrain season in 2021.

SURFACE SURVEY

Being the key element of the research project, the methodology of the surface survey builds on the experience of the Czech-Uzbekistani archaeological mission gathered over many years of research in the Sherabad district (Stančo – Tušlová eds. 2019). However, various

5 Our team employed three different series of military topographical maps published by the Soviet General Staff (Карты Генштаба СССР) at a resolution of 1:50,000 (depicting the state of 1985), 1:100,000, and 1:200,000 (both corresponding to the state of 1975–1985). In addition, United States military maps at a resolution of 1:250,000 were used. This map series was compiled in 1952 from Soviet military maps depicting the state of 1931–1939 and thus providing – despite their low resolution – an insight into the situation before the initiation of the Soviet collectivization policy in the region (cf. Stančo 2019b, 368–370).

Fig. 4: Systematic survey in the harvested cotton field south of Khaytabad village. On the horizon: Khaytabad Tepa from the south. Photo by J. Krčál.

projects in Central Asia (Ceraseti – Codini – Rouse 2014; Tušlová 2019), the Mediterranean (e.g., Tartaron *et al.* 2006; Bintliff – Howard – Snodgrass 2007; Davis – Bennet eds. 2017; Akkeraz – Collins-Elliot 2017; cf. Mattingly 2000), as well as in the homeland of the research team (Kuna *et al.* 1993) provided valuable inspiration in designing the research framework to be used in the specific environment of the research area. The field surface survey operates in three modes that reflect different scales of investigation of a culturally and physically diverse landscape (cf., Tartaron *et al.* 2006): The systematic on-site mode directed at the investigation of tepa mounds and related features, the intensive (off-site) mode in fields and gardens, which predominantly employs grid walking, and the extensive mode. The unified intensity of the controlled artefact collection (20% – 10 m walker spacing) allows a statistical comparison of the collection units that cover various features of the present landscape, i.e., fields, pastures, orchards, gardens in the village, as well as specific features such as tepa sites or cemeteries, taking into account various post-depositional processes. For the intended better understanding of the spatial distribution of past human activities in the research area and their mutual relationships, the survey aims to cover by fieldwalking a large contiguous block(s) of landscape (cf. Bintliff 2000, 201–203, 213) instead of predefined narrow transects running through (such as in the case of Carreté – Keay – Millet *et al.* 1995 or Akkeraz – Collins-Elliot 2017). The choice of tracts to be surveyed was determined to a large extent by concurrent surface cover (collection units with a visibility below 40 % were excluded from the systematic collection) and general accessibility, factors that emerged to be particularly limiting in view of an intensively agriculturally exploited landscape. These two limitations thus constitute a randomization factor for sampling the research area and substitute to a certain extent the aforementioned parallel transects or automatically generated randomized tract selection (cf., Kuna *et al.* 1993, 122–123).

The basic unit of artefact collection – the collection unit (CU) – is a geophysical entity defined by the topography of the physical terrain. Most frequently, the collection unit cor-

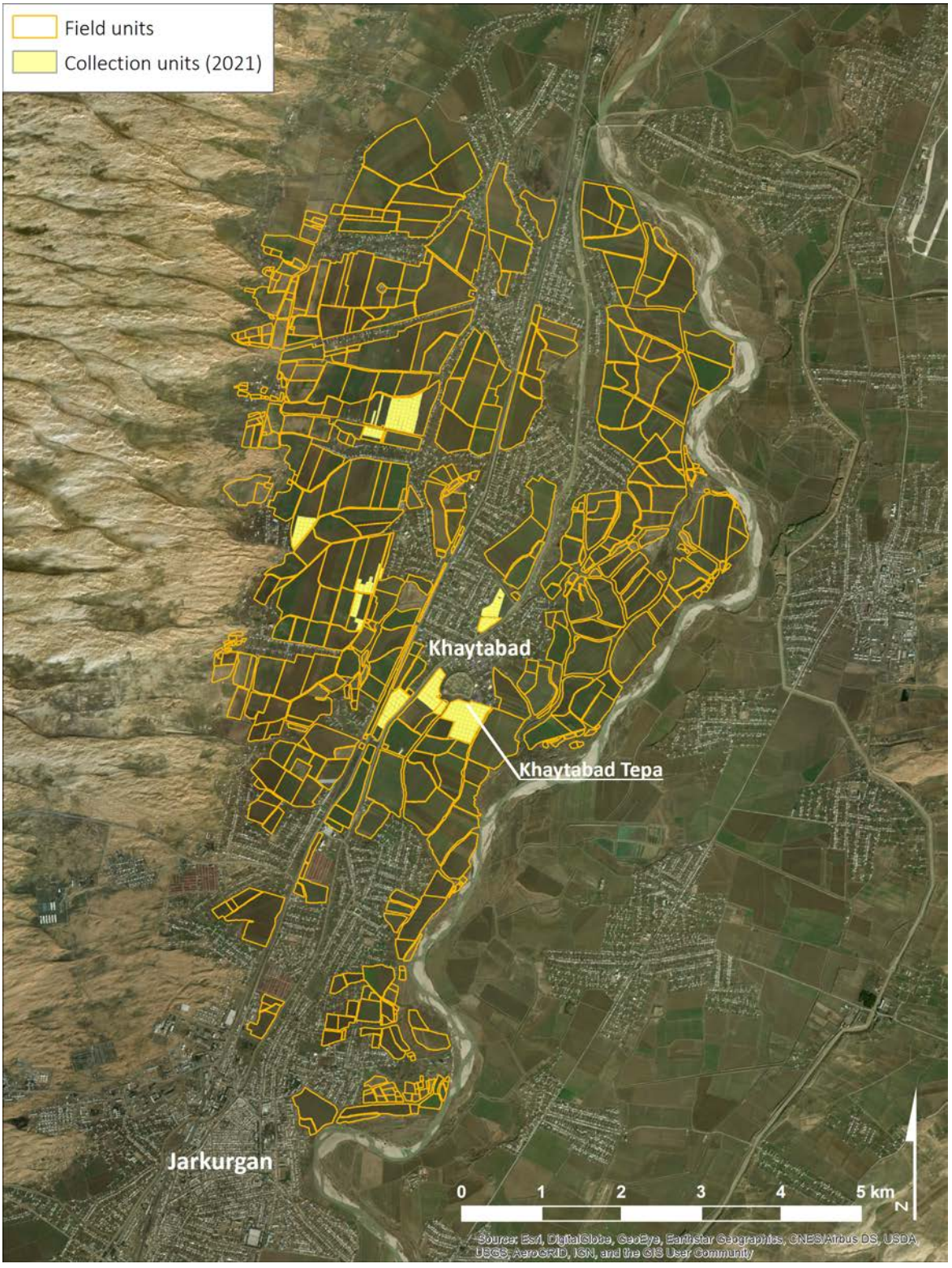


Fig. 5: Present day field boundaries in the research area (based on the 2021 Google Earth imagery). With regard to the current surface cover, the field units overlap with one or more collection units. Map by J. Havlík and J. Matznerová. Basemap: Esri.

responds to a modern field, garden, orchard, etc. Even though a large part of these entities (field units, FU; **Fig. 5**) was mapped ahead of the terrain season using the modern satellite imagery as a part of the preceding systematic remote sensing survey, the actual conditions in the field often lead to dividing these pre-defined units into a larger number of CUs. If its size allows, the collection unit is to be further subdivided into a number of collection sub-units (CSU) of comparable size 50×50 m to be easily walked by five field-walkers spaced at regular (10 m from each other) distances. The emerging grid often reflects the ploughing orientation or CU/FU shape to cover its surface in the most fitting way. Identified artefact scatters likely to reflect activity *foci* as well as terrain anomalies and other anthropogenic features are classified as 'places of interest' (POI) and to be further investigated in more detail. For these purposes a secondary detailed survey should be undertaken either immediately after the primary collection or during the following seasons to determine more closely its spatial, functional, and chronological characteristics. In special cases, the research methodology allows for the excavation of a test pit of a limited extent in order to understand better the relation between surface, sub-surface and stratified artefact assemblages (cf. Tušlová 2019, 37–38).

In the pilot season 2021 (**Fig. 5**; **Pl. 2/1**), the CUs were recorded following the current field (garden, orchard, etc.) boundaries using concurrently two handheld GPS devices (Garmin Oregon 600 and Garmin Oregon 750 with a high-sensitivity GPS and GLONASS receiver) as well as a rugged tablet with Multi-Band Multi-System GNSS Positioning Module (TAU1201/TAU1204) attached. Using standardised sheets (**Figs. 6–8**), the delimitation of the collection unit, its topography, present day land use, surface cover, visibility, and walking conditions were evaluated. The collecting of finds within a collection unit was usually carried out in both a systematic way to gather a representative artefact assemblage and a non-systematic way (a grab sample) in order to collect diagnostic sherds or artefacts of other qualitative significance. A non-systematic grab sampling was always undertaken after a systematic walking of the unit. In the case of CUs, the character of which prevented a systematic collection (archaeological material located in water channels and ravines, artefact scatters on roads, cut features in the river/channel banks, archaeological finds discovered while digging the foundations, etc.), only a grab sample was taken. Although grid walking the ploughed fields constituted the main part of the 2021 season, of great importance was the systematic survey of the partly built-up area in the present-day village, considered until recently to be unfeasible for any kind of systematic research (but see Augustinová *et al*. 2015; 2017 for the investigation of village areas in the micro-oases of the Kugitang foothills).

APPLICATION OF METAL DETECTOR

A metal detector survey was conducted for a trial in 2021 only in the area of Bay Tepa IV (see below; for the application of the metal detector survey in southern Uzbekistan, see Dvurechenskaya 2018; Stančo *et al.* 2022). The recently harvested fields, surveyed previously by intensive surface survey, were walked by a single detectorist in a non-systematic way. Given the long-standing intensive exploitation of the fields and the depth of ploughing, the chance of disrupting the preserved subsurface archaeological layers is highly unlikely under such circumstances. The discovered artefacts (four coins and several tractor parts, see below) were detected at a depth of up to 10 cm, in all probability located in the secondary context. The great potential of metal detectors to bring forth chronologically sensitive material calls for their further application within the project. Systematic point or transect sampling suggests itself as a suitable method compatible with the research framework.

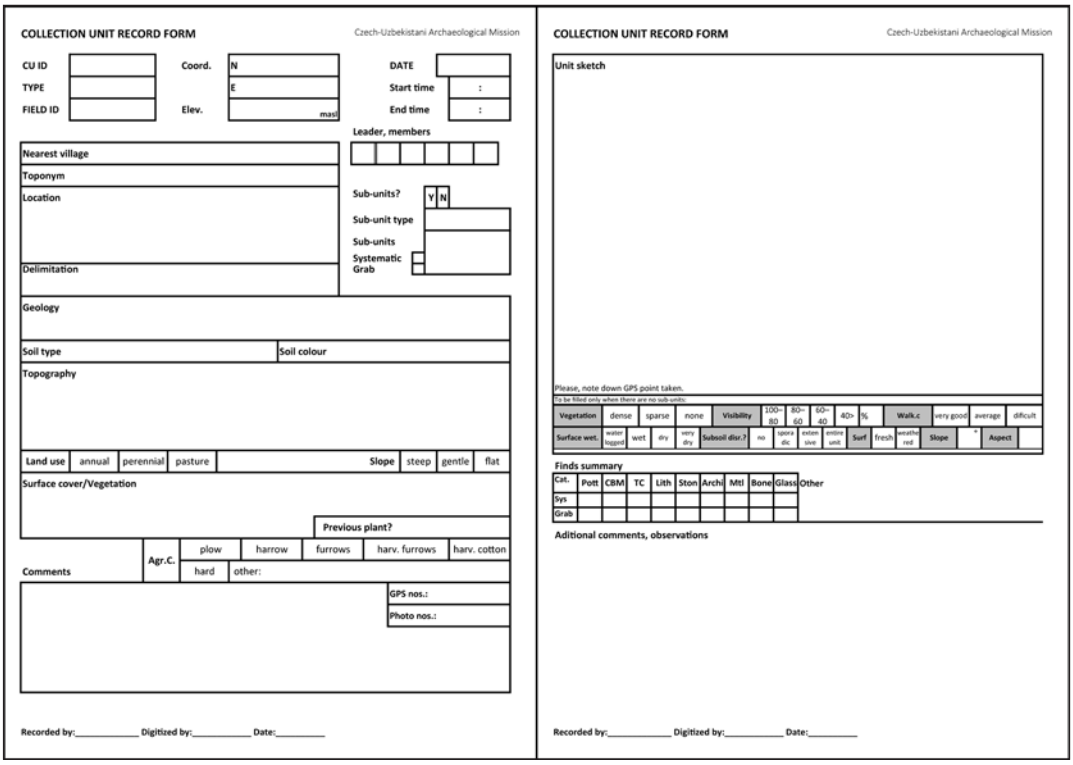


Fig. 6: Collection unit (CU) record form used in the 2021 season (based on Kuna 2004, 333–335; Akkeraz – Collins-Elliot 2017, fig. 7; Davis *et al.* 2017, fig. 4–6).

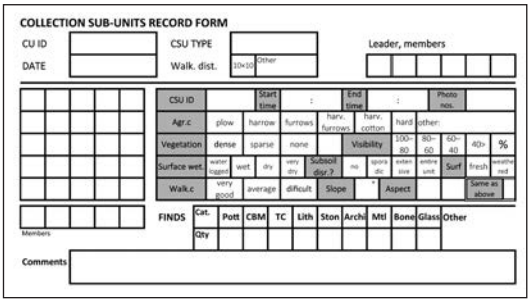


Fig. 7: Collection sub-unit (CSU) record form used in the 2021 season (inspired by Tušlová 2019, fig. 3, 14). The grid on the left side represents five rows walked by five team members spaced at 10 m intervals. Every 10 m, field walkers are supposed to stop and report the artefact count per section. This method not only allows one to control the regular passing of the field, but also to identify the location and approximate extent of artefact concentrations directly in the field. Eventually, this information facilitates the targeting of a more detailed resampling (POI) grid.

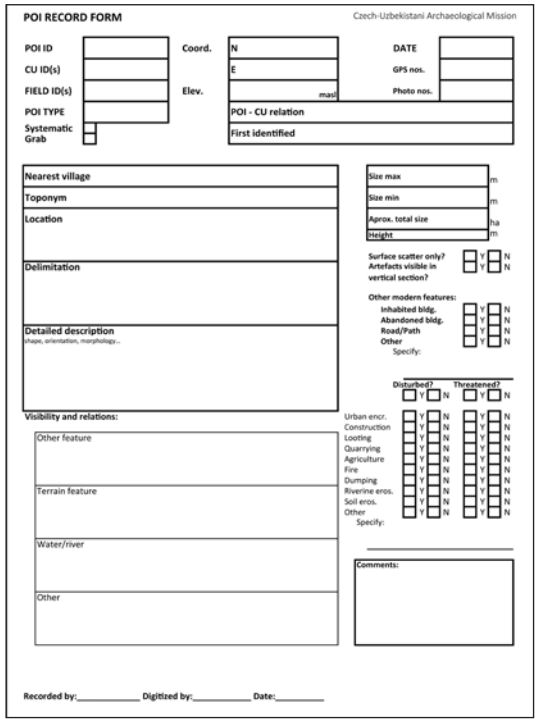


Fig. 8: Place of Interest (POI) record form used in the 2021 season (inspired by Davis *et al.* 2017, fig. 5; Nebbia – Cilio – Bobomulloev 2021, tab. 1). The second page is identical to the CU record form.

FINDS ANALYSIS

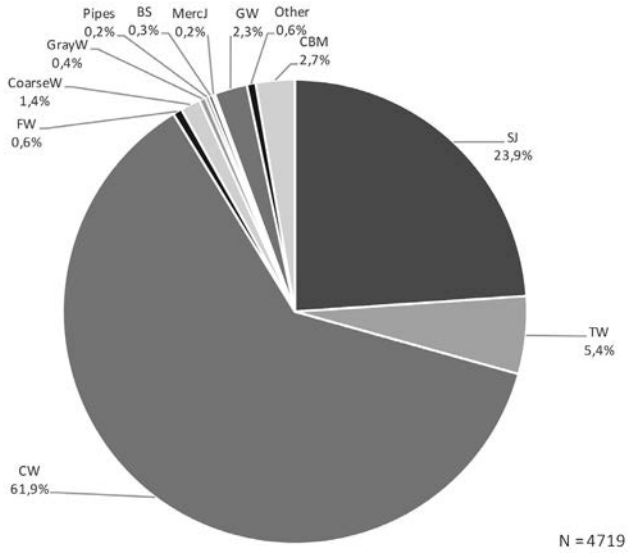
To analytically evaluate the distribution of the find material across the survey area, a standardised procedure was performed to acquire the quantified data with special emphasis placed on its functional and chronological characteristics. In the 2021 season, the finds were collected into bags according to the CU (CSU) and the collection method, i.e., systematic, or non-systematic. The material included pottery, terracotta, ceramic building material (CBM), worked stones, metal objects, and bones. The pottery of each bag went through the initial steps of washing and drying; once dried, the material was weighed and sorted as follows: first, CBM, stone, metals, and bones were separated from the pottery sherds. Diagnostic sherds were numbered: for each of them, the measures of thickness, diameter, height, and weight were recorded in specific pottery forms. Where possible, the estimated percentage of vessel equivalent (EVE) (for bottoms and rims) was estimated. All the sherds were divided into pre-defined functional classes and further divided (if possible) according to preliminary dating. For the purposes of classification, the material was divided following a functional division based on the main characteristics of the pottery itself (see **Tab. 1**). Subsequently, the emerging groups were photographed separately. Diagnostic fragments were also drawn. Moreover, to determine the approximate fragmentation of the pottery and CBM, a fragment size was estimated for each sherd (**Tab. 2**).

Tab. 1: Functional classification of ceramic wares employed during the 2021 season.

Ware	Description	Thickness (cm)
Fine ware (FW)	This class is characterised by a fine, well-fired fabric and smooth surfaces. In some cases, a slip coat can be detected.	Up to 0.5
Common ware (CW)	The most represented ware. The fabric is fine, thicker and the shapes are relatable to kitchen activities or everyday uses.	0.5–1.5
Table ware (TW)	A cross-class. This class is defined as fine or common ware that can be related to table uses (where it is possible to distinguish the function). The table ware class can be further subdivided according to particular characteristics (fabric, surface treatment) of a pottery group: Red slip TW, Grey TW, Glazed TW, etc.	Up to 1.5
Storage jars (SJ)	Large jars for storing and conservation.	From 1.5
Coarse ware (CoarseW)	Coarse fabric. Regarded as everyday storage, food preparation, and cooking vessels.	/
Mercury jars (MercJ)	Spherical jars. Well-represented and distinctive pottery class characterized by a thick body modelled in globular or elongated spherical shape, stretched neck that ends in a holed lid. This shape is linked to the storage of medicaments, oils, and – traditionally – mercury, hence its name.	/
Burners	Ceramic burners	/
Pipes	Tubular ceramic (water) pipes	/
Other	E.g. misfired pottery, technical ceramics etc.	/

Tab. 2: Sherd fragmentation scale.

Class	Size (cm)
α	0–1.5
β	1.5–3
γ	3–6
δ	6–9
ε	9–12
ζ	12–15
η	15–18
ϑ	18–21
ι	21 >



Graph 1: Pottery wares representation in the assemblage collected in the 2021 season.

PRELIMINARY RESULTS OF THE 2021 PILOT SEASON

Besides the general objectives of the project, familiarization with the character of the research area was among the aims of the 2021 pilot season. This goal was largely achieved through an evaluation of the general terrain passability, current field situation and walkability, common agricultural cycle, and general conditions of archaeological work in the heavily agriculturally exploited and relatively densely inhabited area. Acquired by terrain observation and interviewing locals, this knowledge had an inevitable impact on the research strategy and everyday decision-making in the field. The choice of areas as well as tracts to be surveyed during the pilot terrain season were influenced by three factors:

1) Current surface cover (see above) defined accessibility of fields and gardens: grown fields (e.g., carrot, peanuts, etc.) and fields that were just being harvested (cotton, maize) or intensively watered (recently seeded parsley, wheat, etc.) at the time of the survey were excluded from the collection; however, an observation of the surface cover was recorded to determine tracts to be surveyed under better circumstances. Especially in the first half of the 2021 season (i.e., first half of October), the very intensive exploitation of the fields significantly limited the range of walkable tracts. However, this period emerged to be ideal for surveying gardens in the village area which, often being harvested earlier than the fields run by corporate farms surrounding the village, frequently offered suitable conditions.

2) The pilot survey season focused in particular on the area directly adjacent to Khaytabad Tepa (i.e., village gardens to the north of the tepa and harvested cotton fields to the south of it) and on the wide strip of cultivated land between the Surkhan Darya River (to the east of Khaytabad) and the piedmont desert/steppe of Haudag to the west of the village, in the area of sovkhoz Surkhan (divisions n° 4 and 5). In this regard, the aim was to take a closer look at the distribution of artefacts in relation to the distance from both the river and Khaytabad Tepa.

3) Of great methodological importance was the testing of the survey strategy against various features of the present cultural landscape. In addition to fields and gardens, the village cemetery and site of Bay Tepa IV, already known from the Soviet reconnaissance mission, nowadays destroyed by ploughing, were investigated. These two locations were (purely purposively) chosen to be surveyed because they represent features specific in both morphology and post-depositional processes.

The character of the research allows for only a very preliminary assessment of the pilot season results at this point. The area covered by the survey (almost 85 ha representing roughly 3% of the accessible land – above all ploughed fields, orchards and gardens – in the research area; see **Pl. 2/1–2**) has not reached a representative sample and the emerging image is highly fragmentary. However, the amount and distribution of artefacts in the surveyed polygons reveals certain patterns to be verified and investigated in more detail in the following seasons.

SYSTEMATIC SURVEY IN THE VILLAGE AREA

The walkable house plots, gardens and small fields in the village area of Khaytabad proved to be a valid and contributive method of systematic investigation of an area significantly affected by recent past activities (cf. Augustinová *et al*. 2015; 2017). The village survey is conditioned by many factors and, above all, by the kind willingness of plot owners to allow such an activity to be conducted, as well as by their actual presence (many villagers were taking part in the harvesting and processing of cotton and other crops in the autumn when the research took place). The north-eastern vicinity of Khaytabad Tepa, almost completely divided into plots to this day, brought in the 2021 season predominantly negative evidence in terms of surface finds. If collected, the ceramic material was present in small quantities and the high level of fragmentation and abrasion often prevented a functional interpretation or chronological attribution. On the other hand, intensive contact with villagers frequently led to the acquisition of a wide range of information on the occurrence of archaeological material and various historical features in the village and its close vicinity. In this phase of research, such a local knowledge assessment constitutes a strong impetus to target further research (cf., Augustinová *et al*. 2015; Mantellini – Berdimuradov 2019, 10–11). The information kindly provided by the locals also confirmed the degree of archaeological landscape destruction throughout the last century. The handover of various artefacts, chance finds discovered previously while building houses etc., was a frequent reaction to the presence of archaeologists in the village, which brought important pieces of evidence, often of better chronological sensitivity than that acquired by the systematic collection. The mapping of isolated chance finds and inspecting archaeological layers disrupted by recent activity (esp. channel digging and foundation building) quickly became a common and important part of the village survey. Despite the seeming ineffectiveness of this time-consuming approach, the village area survey proved to be an important research component to continue in the following season.

SURVEYING THE VILLAGE CEMETERY

With kind permission and under the supervision of the cemetery caretaker, the systematic surface survey of the present-day Khaytabad village cemetery (37°34'21.13"N, 67°27'6.53"E) was carried out with appropriate reverence. The specifics of the topography as well as the character of this feature of a living village cultural landscape impacted the applied methodology: instead

of regular square CSUs, a looser grid was employed to cover the hummocky terrain formed by old as well as very recent graves, abandoned enclosures, and building remains related to the religious rites. The high densities of the collected material (because of their abundance, brick fragments were only counted on the spot) clearly reflect the repeated disruption of the subsurface layers by digging the graves. Although the artefact distribution is largely impacted by post-depositional processes, the composition and general location of finds have great potential to reveal functional and chronological differences within the cemetery area (on the survey of the cemeteries in southern Uzbekistan, see Augustinová *et al.* 2015, 266–269; Stančo 2019a, 27–28).

The large amount of ceramic material consisting of a wide range of pottery classes including glazed table ware, storage jars, or so-called 'mercury jars', as well as candlesticks with ornamental decoration, terracotta figurines and lamps, fired bricks of various formats, water pipes, and technical ceramics, points to the assumption that the present-day cemetery overlays a settlement which can be – based on the majority of diagnostic sherds – dated to the High (pre-Mongol) Middle Ages. Several sherds discovered in the southwestern part of the cemetery indicate even earlier – probably Late Antique[6] – activities in this area. The reuse of (an) older tepa mound(s) for burial purposes corresponds to the pattern frequent in Central Asia (see Mantellini – Berdimuradov 2019, 10–11; Stančo 2019a, 27–28) making this hypothesis plausible. Z.A. Arshavskaya, E.V. Rtveladze, and Z.A. Khakimov (1982, 119) refer to traces of High Medieval settlement identified roughly at this location on the bank of the Zang canal (see Stride 2004, Uz-SD-027 for a more recent evaluation). High and Late Medieval (Timurid period) pottery and fired bricks are a common chance find also in the surrounding part of the village, pointing to (settlement) activities far outside the area of the present-day cemetery. Artefacts dated to the Middle Ages are also widespread in many other CUs surveyed in 2021 outside the present-day village (**Pl. 2/2–3**) reflecting the probable extensive exploitation of this area in the post-Antique periods.

SURVEYING THE FIELDS

The fields around Khaytabad village and in the area of sovkhoz Surkhan were being intensively exploited by farmers during the 2021 season. The easily irrigable fields close to the river or main water channels are usually ploughed, harrowed, sowed again, and watered in rapid sequence after the harvest, leaving only a small window of opportunity to conduct an artefact collection. Despite this fact, the systematic field survey succeeded in covering a much larger area than the village survey. Except for the village itself, the systematic collection in 2021 was conducted in the four principal locations accessible during its course: 1) the area south of the present-day Khaytabad village on both sides of the Zang canal, in the direct vicinity of Khaytabad Tepa; 2) the area of sovkhoz Surkhan (N° 5), west of Khaytabad village and the Zang canal; 3) the area of sovkhoz Surkhan (N° 5) to the east of the village Kumli; and 4) the area of sovkhoz Surkhan (N° 4) around the site of Bay Tepa IV, known from previous research.

By means of the intensive (off-site) survey, several relatively well-defined artefact scatters were identified, reflecting probable *foci* of localised past activities. In some cases, these locations of relatively higher artefact density correspond to terrain anomalies recognized on topographical maps or via remote sensing. This is the case of an anomaly near the village of

6 There are only two diagnostic rim fragments dated to the Kushano-Sasanian period from this area. The rest, ten nondiagnostic fragments, were attributed by Sh. Shaydullaev to the (Late) Antique period based on the typical surface treatment.

Kumli (37°34'51.54"N, 67°25'27.35"E), confirmed to reflect a tepa mound destroyed during the second half of the twentieth century. The only site known for previous research investigated during the 2021 season is Bay Tepa IV (37°35'39.98"N, 67°26'9.13"E; Rtveladze – Khakimov 1973, 29 – *Безымянное тепа* n° 4; Rtveladze 1974, 80 – Б-53). Because the tepa had been levelled by modern cultivation, the survey was motivated by methodological issues. How does the destroyed tepa manifest itself in the surface assemblage? Among the large amount of pottery sherds, including many storage jar fragments, a wider range of finds emerged including saddle querns and several terracotta figurine fragments (**Fig. 11**). The limestone column base (**Fig. 10**) indicates the presence of monumental architecture. Based on the ceramic material, the dating of the site ranges from the Late(?) Iron Age to the High Middle Ages. The presence of artefact material in locations that do not show any signs of anthropogenic features (such as a terrain anomaly, a cropmark, a soilmark, etc.) probably represents some kind of past human activity that took place in the Khaytabad Tepa environs and did not leave such traces in the landscape. It is also possible that if there was some kind of terrain relict, it was destroyed before the satellite imagery or topographical maps were acquired (cf. Tušlová 2019). The identified artefact scatters will be further investigated by means of both period- and function--based analysis of the collected assemblage and subsequent resampling of the location using a more detailed grid and higher survey intensity.

An important discovery of the pilot season, to be verified and further investigated, is a widespread distribution of Iron Age ceramic material in the surface assemblages (see **Pl. 2/3**). Previously, Iron Age material has been identified in the middle Surkhan Darya basin only in the deep stratigraphical trench of Khaytabad Tepa (Shaydullaev 1990; Šajdullaev 2002, 271–273, 323–327; Houal 2021, 22–25) and approximately 30 km to the north at the site of Bandykhan Say Tepa (Rtveladze 1987, 57). Preliminary analysis conducted by Sh. Shaydullaev indicates that among the diagnostic sherds identified as being from the Iron Age,[7] the majority can generally be attributed to the Yaz II–III culture (Middle to Late Iron Age, ca. 1000–330 BC), or in particular cases to the Yaz III culture (cf. **Fig. 9** for area of Bay Tepa IV).[8] The following research and the detailed study of the collected assemblages will hopefully allow us to determine the character of the identified activity *foci* reflected by the recorded pottery scatters. Their distribution recalls a settlement dispersal that appears to be characteristic of the Yaz III (Achaemenid?) period in Northern Bactria: A cluster of farmsteads surrounding the fortified centre Kyzyl Tepa was recognised in the Shurchi district, approximately 50 km north of Khaytabad Tepa (Sagdullaev 1987; Wu 2018). A similar pattern was also observed around Jandavlat Tepa in the Sherabad district, about 30 km to the west as the crow flies (Stančo 2018; Stančo – Tušlová eds. 2019, 357–362).

The post-Achaemenid activities, simultaneous to the Hellenistic and Kushan period occupation of Khaytabad Tepa, appear to be rather sparsely distributed in the CUs surveyed in the 2021 season (**Pl. 2/3–4**). On the basis of the preliminary analysis by Sh. Shaydullaev, the limited number of diagnostic sherds collected around the fortified settlement points to the Kushano-Sasanian period of the 3rd to 4th centuries AD. Material that can be convincingly attributed to the earlier period was collected only in the area of Bay Tepa IV, where surface finds indicate – in addition to the Late Antiquity – also the Hellenistic and/or Yuezhi period occupation phases of the site. This dating is also supported by metal detector finds: two vari-

7 Fabric and surface treatment analysis allowed us to attribute many non-diagnostic body sherds collected to the Iron Age in general.

8 On the absolute chronology of Yaz II and Yaz III cultures pottery, see Lhuillier 2018, 258–259 with references.

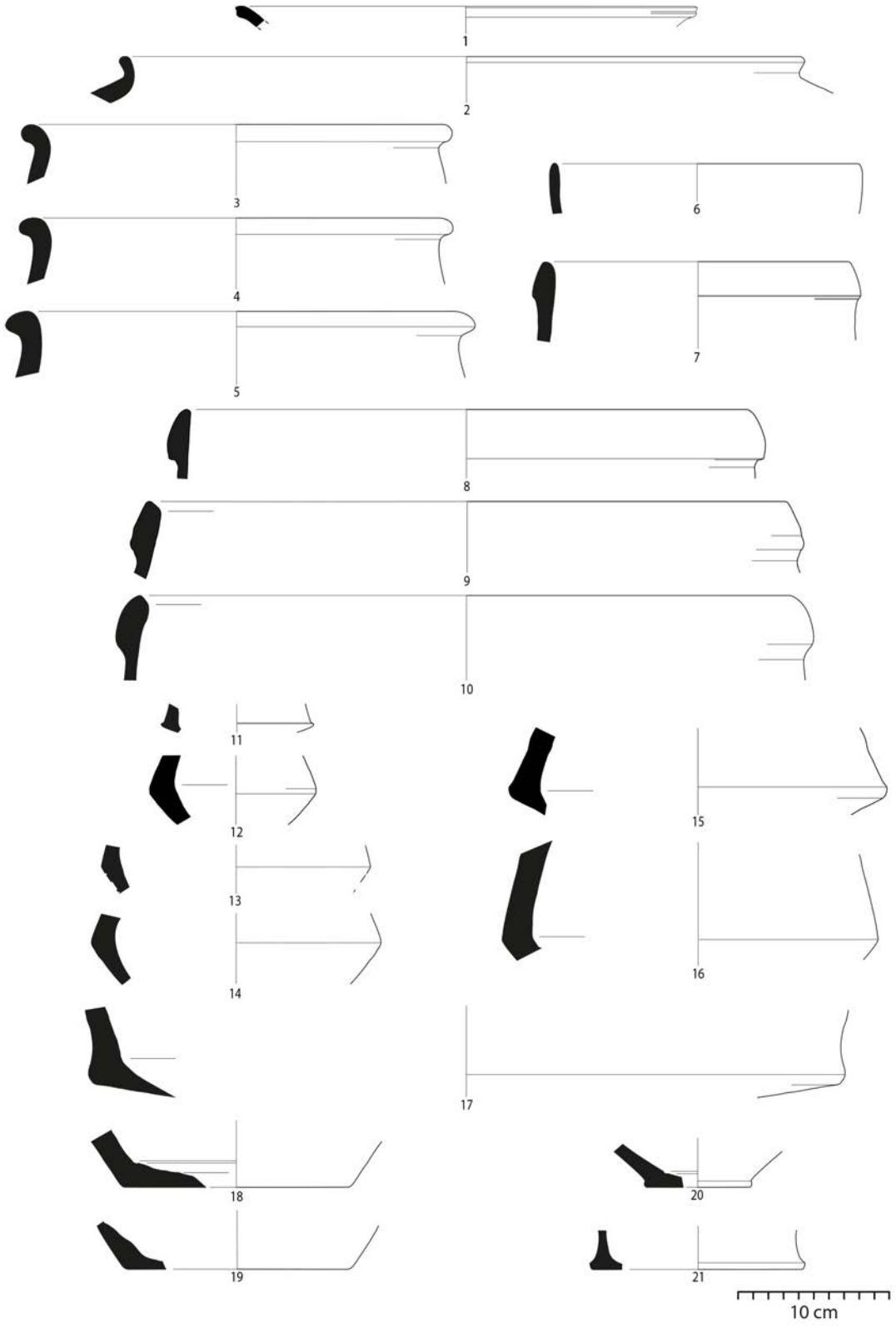


Fig. 9: Iron Age ceramic assemblage from the area of Bay Tepa IV (selection). Yaz II–III: 1–6 and 11–20; Yaz III: 7–10 and 21. Drawings by E. Paralovo, J. Ždimera, and J. Matznerová.

Fig. 10: A column base (52×36×26 cm, torus diameter: 50 cm) discovered in the modern water channel, south of the supposed location of Bay Tepa IV. Photo by V. Dědková.

ants of a Heliocles imitation type[9] and one Vasudeva imitation (**Fig. 12**; see Addendum below). The fourth coin find, a two-kopek coin from 1961, bears witness to activities of another crucial period of local landscape transformation.

CONCLUSIONS

In 2021, a new archaeological project was initiated in the middle Surkhan Darya basin, southern Uzbekistan, focusing on the past settlement and land use transformations in the Khaytabad Tepa environs. In order to analyse the landscape as a whole, a flexible methodological framework based on systematic intensive survey approaches was developed, incorporating various research components. Besides an intensive (both on-site and off-site) survey, these components are: satellite remote sensing, the study of old topographic maps, and an extensive survey. Facing the present-day situation in the area – an intensively exploited agricultural land formed to a large extent by unscrupulous collectivization of the Soviet period – the ongoing project aims to investigate various elements of the present cultural landscape, including those considered less promising for archaeological research: fields, pastures, village areas, tepa mounds, present-day cemeteries, etc. Besides the interest in the past settlement pattern transformations, one of the questions of the pilot season was: What can archaeology gain from an investigation of a landscape damaged by modern activities to such a degree as it is in the case of the middle Surkhan Darya basin? Testing the methodology against the model elements of the current landscape proved its validity and – taking into consideration various post-depositional processes – also its potential for an analytical evaluation of the imprints of the past landscape use in the area. The very presence of archaeological material in and around the village, as well as its amount and wide chronological range (Iron Age to Middle

9 Heliocles imitation type coins have already been discovered at Khaytabad Tepa (Leriche – Annaev 1996, 298–299) and the surrounding sites (Barat Tepa and Sherali Tepa, see Rtveladze – Pidaev 1981, 25, 49–51) probably indicating an increased exploitation of the central part of the middle Surkhan Darya basin in the Yuezhi period.

Ages, corresponding to the occupation time span of Khaytabad Tepa), point to the great archaeological potential of the research area itself. The preliminary results of the first survey season indicate much more complex settlement dynamics than has been acknowledged until now. The widespread distribution of Iron Age and High Medieval ceramic material seems to be indicative, however, particular facets of settlement patterns naturally deserve more attention. The following seasons of field surveys, including the resampling of identified areas of higher artefact density and further detailed analysis of the collected material, will hopefully give us a more reliable insight into the past settlement and land use development.

ADDENDUM: TERRACOTTA FIGURINES AND COINS FROM THE AREA OF BAY TEPA IV

In the 2021 season, among the other 'small finds', predominantly fragments of saddle querns and grinding stones, the survey of the area of the destroyed site of Bay Tepa IV brought to light a small collection of anthropomorphic terracotta figurines and ancient coins. The three figurines were collected close to each other, in the fields adjacent to the modern water channel which runs south of the supposed location of Bay Tepa IV. The three coins (two variants of a Heliocles imitation type and one Vasudeva imitation) were unearthed during an extensive metal detector survey in the freshly ploughed fields in this area.

TERRACOTTA FIGURINES

Torso of a male figurine

This terracotta figurine (7.8×6.6×3.1 cm) of a light yellowish colour made of finely washed clay was modelled at least partially by hand. The figurine represents a seated male figure wearing caftan-like clothes. The head, palm of the right hand, about half of the left hand and most of the legs are missing. From the position of the legs, which spread wide enough to allow the figure to sit on a horse's back, it seems to represent a rider. Figures of horses and riders were a popular subject of small-scale art in the Yuezhi and Kushan periods in Bactria and throughout Central Asia (Abdullev 2011, 163–164; Dvurechenskaya 2016, 144–148). Nevertheless, the rather rough modelling does not allow one to make a chronological attribution of the figurine at this point.

Headless standing female figurine

The figurine (6.1×3.2×1.7 cm) was made in a one-piece form with its back sides smoothed flat. The clay is pinkish, well washed with small white inclusions (up to 0.25 mm). In the less worn parts of the figurine, the remains of a darker, reddish slip of poor quality are noticeable. The figurine, a standing female figure, is preserved almost entirely, missing only the head and a part of the right arm. The right hand is holding an object, perhaps a bird or a musical instrument, and the left hand is hanging freely along the body and is holding the end of the object from the other side. She is wearing a long dress reminiscent of a Greek-style drapery, which is flowing in folds along the body and hiding the figure's legs, with a decoration or probably a necklace on her chest similar to that depicted on female terracotta figurines found in Kampyr Tepa, Zar Tepa, and Kara Tepa (Dvurechenskaya 2016, 149, ris. 180). The figurine is close to a terracotta found by a French-Uzbek expedition in ancient Termez, identified as a lute player (Leriche *et al*. 2005, 18–19, fig. 69). Based on the parallels and the presence of red slip, this figurine can be roughly dated to the Kushan and/or Kushano-Sasanian period.

Fragment of the upper body of a female figurine

The last terracotta figurine (7.5×4.8×3 cm), made using the same technique as the preceding one, depicts a female figure. The statuette is made of pinkish clay with relatively large (up to 1 mm) black and white inclusions and voids. The surface colour is light beige. The head and upper part of the torso are preserved. The figurine is wearing a chiton and a cloak (himation) wrapped over her left shoulder. She has a broad rectangular face, large almond-shaped eyes, and full lips; her nose is broken off. She is wearing a headdress, probably a modius, a wig or hair combed back, and earrings or decorative wig ends. She appears to be wearing a necklace or an ornate dress hem. Close parallels are not known to the authors yet, however, this figurine could be preliminarily related to the group of small-scale depictions of a sitting goddess typical for Kushan period Northern Bactria (cf. Ilyasov – Mkrtychev 1991; Abdullaev 2000).

Fig. 11: Terracotta figurines discovered during a surface survey of the area of Bay Tepa IV, scale 2:3. Photo by V. Dědková.

COINS

1: Heliocles imitation type (after c. 130 BC)
Diademed Heliocles and standing Zeus (Mitchiner 1975, type 502)
Reduced Attic Standard copper tetradrachm
Obverse: Diademed and debased copy of the king with curled hair, facing to the right, wears diadem and cloak around shoulders, surrounded by a reel and pellet motif.
Reverse: A crude style of Zeus in a frontal standing position, holds multi-branch thunderbolt in right hand and long sceptre in left hand, surrounded by the corrupted Greek legends: ΒΑΣΙΛΕΩΣ ΔΙΚΑΙΟΥ ΗΛΙΟΚΛΕΟΥΣ (of King Heliocles, the just).
AE. 15.07g. 30.10 mm

2: Heliocles imitation type (after c. 130 BC)
Diademed Heliocles and standing Zeus (Mitchiner 1975, type 504; Mitchiner 1978, 1875–1876; Jongeward – Cribb 2015, 31–35)
Reduced Attic Standard copper tetradrachm
Obverse: Diademed and debased copy of the king with curled hair, facing to the right, wears diadem and cloak around shoulders.

Reverse: A crude style of Zeus in a frontal standing position, holds multi-branch thunderbolt in right hand and long sceptre in left hand, surrounded by the corrupted Greek legends: ΒΑΣΙΛΕΩΣ ΔΙΚΑΙΟΥ ΗΛΙΟΚΛΕΟΥΣ (of King Heliocles, the just).
AE. 14.23g. 28.60 mm

3: Vasudeva imitation (Kushano-Sasanian period)
Standing king at an altar with Oesho (Göbl 1984, 1008; cf. Jongeward – Cribb 2015, 1730)
Copper units
Obverse: Standing king at fire altar, head to left, making an offering at a small fire altar with extended right hand, armoured tunic, holds trident in raised left hand.
Reverse: Oesho stands leaning against a bull facing left, trident in extended left hand, corrupted inscription.
AE. 3.01g. 17.70 mm

Fig. 12: Coins discovered in the area of Bay Tepa IV by the metal detector survey. Scale 1:1. Photo by V. Dědková.

ACKNOWLEDGEMENTS

This research was financially supported by the Charles University Grant Agency, project No. 412120, entitled 'Transformations of Cultural Landscape of the Middle Surkhan Darya Basin (Southern Uzbekistan): Contribution to Knowledge of Settlement Patterns of Ancient Bactria', implemented at the Faculty of Arts of Charles University.

BIBLIOGRAPHY

Abdullaev 2000 = Абдуллаев, К.: К атрибуции тронных изображений в кушанской коропластике (По материалам крепости Паенкурган в Северной Бактрии). *Вестник древней истории* 233/2, 18–29.

Abdullaev, K. 2011: Terracotta figurines, appliques and gem imprints. In: K. Abdullaev – L. Stančo (eds.): *Jandavlattepa 1. The Excavation Report for Seasons 2002–2006.* Praha, 157–171.

Akerraz, A. – Collins-Elliott, S.A. 2017: Gardens of the Hesperides. The Rural Archaeology of the Loukkos Valley. Interim Report on the 2016 Season. *Fasti Online Documents & Research. The Journal of Fasti Online* Archaeological Survey 5.

Alcock, S.E. – Cherry, J.F. eds. 2004: *Side-by-Side Survey. Comparative Regional Studies in the Mediterranean World*. Oxford.

Annaev 1988 = Аннаев Т.Д.: *Раннесредневековые поселения северного Тохаристана*. Ташкент.

Andrianov 1969 = Андрианов, Б.В.: *Древние оросительные системы Приаралья (в связи с историей возникновения и развития орошаемого земледелия)*. Москва.

Arshavshkaya – Rtveladze – Khakimov 1982 = Аршавская, З.А. – Ртвеладзе, Э.В. – Хакимов, З.А.: *Средневековые памятники Сурхандары*. Ташкент.

Attema *et al.* 2020 = Attema, P. – Bintliff, J. – Van Leusen, M. – Bes, P. – De Haas, T. – Donev, D. – Jongman, W. – Kaptijn, E. – Mayoral, V. – Menchelli, S. – Pasquinucci, M. – Rosen, S. – García Sánchez, J. – Gutierrez Soler, L. – Stone, D. – Tol, G. – Vermeulen, F. – Vionis, A.: A guide to good practice in Mediterranean surface survey projects. *Journal of Greek Archaeology* 5, 1–62.

Augustinová *et al.* 2015 = Augustinová, A. – Stančo, L. – Shaydullaev, Sh. – Mrva, M.: Archaeological Survey in the Micro Oasis of Zarabag (South Uzbekistan), Preliminary Report for the Season 2015. *Studia Hercynia* 19/1-2, 262–281.

Augustinová *et al.* 2017 = Augustinová, L. – Stančo, L. – Damašek, L. – Mrva, M. – Shaydullaev, Sh.: Archaeological Survey of the Oases of Zarabag, Karabag and Kampyrtepa in the Piedmont of Kugitang Mountains, South Uzbekistan – Preliminary Report for the Season 2016. *Studia Hercynia* 21/1, 104–148.

Augustinová, A. – Mach, P. – Mrvová, P. 2018: Kyzyl Gul. The relicts of an abandoned village in Kugitang Piedmont (South Uzbekistan). *Studia Hercynia* 22/2, 121–146.

Augustinová, A. – Stančo, L. 2016: The Petroglyphs of Pashkhurt Valley in the Surkhan Darya Province (South Uzbekistan) – Preliminary Report. *Studia Hercynia* 20/2, 122–138.

Bintliff, J. 1999: Settlement and Territory. In: G. Barker (ed.): *The Routledge Companion Encyclopedia of Archaeology*. London – New York, 505–545.

Bintliff, J. 2000: The concept of 'site' and 'offsite' archaeology in surface artefact survey. In: M. Pasquinucci – F. Trement (eds.): *Non-Destructive Techniques Applied to Landscape Archaeology*. Oxford, 200–215.

Bintliff, J. – Howard, Ph. – Snodgrass, A. 2007: *Testing the hinterland. The work of Boeotia Survey (1989–1991) in the southern approaches to the city of Thespiai*. Cambridge.

Boak, E. 2019: From conflict archaeology to archaeologies of conflict. Remote survey in Kandahar, Afghanistan. *Journal of Conflict Archaeology* 14/2-3, 143–162.

Carreté, J.M. – Keay, S. – Millet, M. eds. 1995: *A Roman provincial capital and its hinterland. The survey of the territory of Tarragona, Spain, 1985–1990*. Portsmouth.

Cattani, M. 2008: Excavations at Sites No. 1211 and No. 1219 (Final Bronze Age). In: Salvatori – Tosi eds. 2008, 119–132.

Cerasetti, B. 2008: A GIS for the Archaeology of the Murghab Delta. In: Salvatori – Tosi eds. 2008, 29–37.

Cerasetti, B. – Codini, G.B. – Rouse, L.M. 2014: Walking in the Murghab alluvial fan (Southern Turkmenistan). An integrated approach between old and new intepretations about the interaction between settled and nomadic people. In: C.C. Lamberg-Karlovsky – B. Genito – B. Cerasetti (eds.): *'My Life is like the Summer Rose.' Maurizio Tosi e l'Archeologie come modo di vivere. Papers in honour of Maurizio Tosi for his 70th birthday*. Oxford, 105–114.

Davis *et al.* 2017 = Davis, J.L. – Alcock, S.E. – Bennet, J. – Lolos, Y.G. – Shelmedine, C.W.: Overview and the Archaeological Survey. In: Davis – Bennet eds. 2017, 63–142.

Davis, J.L. – Bennet, J. eds. 2017: *Pylos Regional Archaeological Project. A retrospective*. Princeton.

Dvurechenskaya 2016 = Двуреченская, Н.Д.: *Терракотовая пластика древнейших государств Средней Азии IV в. до н. э. – IV в. н. э. (археологический аспект)*. Санкт-Петербург.

Dvurechenskaya 2018 = Двуреченская Н.Д.: К методике полевых исследований в горной местности (на примере эллинистической крепости Узундара). *Краткие сообщения Института археологии* 251, 168–180.

Göbl, R. 1984: *System und Chronologie der Münzprägung des Kusanreiches*. Wien.

Gubaev, A. – Koshelenko, G. – Tosi, M. eds. 1998: *The Archaeological Map of the Murghab Delta. Preliminary Reports 1990–95*. Roma.

Hammer, E. – Fitzpatrick, M. – Ur, J. 2022: Succeeding CORONA. Declassified HEXAGON intelligence imagery for archaeological and historical research. *Antiquity* 96/37, 679–695.

Hammer *et al*. 2018 = Hammer, E. – Seifried, R. – Franklin, K. – Lauricella, A.: Remote assessments of the archaeological heritage situation in Afghanistan. *Journal of Cultural Heritage* 33, 125–144.

Havlík, J. – Havlíková, H. – Stančo, L. 2018: Kurgans of the Eastern Kugitang Piedmonts. Preliminary Report for Season 2018. *Studia Hercynia* 22/2, 147–172.

Havlík, J. – Stančo, L. – Havlíková, H. 2017: Kurgans of the Eastern Kugitang Piedmonts. Preliminary Report for Season 2017. *Studia Hercynia* 21/2, 161–182.

Houal, J.-B. 2021: *La céramique antique et médiévale de Termez et de Khaitabad (Ouzbékistan). Regards sur l'Asie centrale du III^e siècle av. J.-C. au XVIII^e siècle*. Paris.

Ilyasov, D. – Mkrtychev, T. 1991: Bactrian Goddess from Dalverzin-tepe (Attempts at Typological Analysis). *Silk Road Art and Archaeology* 2, 107–127.

Jongeward, D. – Cribb, J. 2015: *Kushan, Kushano-Sasanian, and Kidarite coins. A catalogue of coins from the American Numismatic Society*. New York.

Kidd, F. – Stark, S. 2019: Urbanism in Antique Sogdiana? A view from Bukhara oasis. In: Ch. Baumer – M. Novák (eds.): *Urban Cultures of Central Asia from Bronze Age to the Karakhanids. Learning and conclusions from new archaeological investigations and discoveries*. Wiesbaden, 169–170.

Kuna *et al*. 1993 = Kuna, M. – Zvelebil, M. – Foster, P. J. – Dreslerová, D.: Field survey and landscape archaeology research design: methodology of regional field survey in Bohemia. *Památky archeologické* 84/2, 110–130.

Kuna, M. 2004: Povrchový sběr. In: Kuna *et al*. 2004, 305–352.

Kuna, M. *et al*. 2004: *Nedestruktivní archeologie. Teorie, metody a cíle* [*Non-Destructive Archaeology. Theory, Methods and Goals*]. Praha.

Leriche, P. 1993: *Mission archéologique Franco-Ouzbeque de Bactriane Septentrionale. Bilan de la campagne 1993. Programme de la campagne 1994*. Paris.

Leriche, P. 1994: *Mission archéologique Franco-Ouzbeque de Bactriane Septentrionale. Bilan de la campagne 1994. Programme de la campagne 1995*. Paris.

Leriche, P. – Annaev, T. 1995: *Mission archéologique Franco-Ouzbeque de Bactriane Septentrionale. Bilan de la campagne 1995. Programme de la campagne 1996*. Paris.

Leriche, P. – Annaev, T. 1996a: Bilan des travaux de la MAFOUZ de Bactriane (Mission archéologique Franco--Ouzbèque de Bactriane Septentrionale. In: *La Persia e l'Asia Centrale da Alessandro al X secolo*. Roma, 275–303.

Leriche, P. – Annaev, T. 1996b: *Mission archéologique Franco-Ouzbeque de Bactriane Septentrionale. Bilan de la campagne 1996. Programme de la campagne 1997*. Paris.

Leriche, P. – Pidaev, Sh. – Gentelle, P. 1997: *Mission archéologique Franco-Ouzbeque de Bactriane Septentrionale. Bilan de la campagne 1997. Programme de la campagne 1998*. Paris.

Leriche *et al*. 2005 = Leriche, P. – Pidaev, S.R. – Boniteau, J. – Fantin, R. – Houal, J.-B. – Juhel, K. – Moustafakoulov, S. – Mouradova, D. – Pérou, M.-O. – Pézier, A.: *Mission archéologique Franco-Ouzbeque de Bactriane Septentrionale. Bilan de la campagne 2005*. Rapport pour la Commission consultative des recherches archéologiques à l'etranger session de décembre 2005. s.l.

Lhuillier, J. 2018: Central Asia during the Achaemenid Period in Archaeological Perspective. In: S. Gondet – E. Haerinck (eds.): *L'Orient est son jardin. Hommage à Rémy Boucharlat*. Leuven – Paris – Bristol, 257–271.

Mantellini, S. – Berdimuradov, A.E. 2016: The archaeological and historical heritage of Samarkand. An overview from the Uzbek-Italian expedition 2001–2016. In: A.E. Berdimuradov (ed.): *Archaeology of Uzbekistan during the Years of the Independence: Progress and Perspectives*. Institute of Archaeology. Samarkand, 60–63.

Mantellini, S. – Berdimuradov, A.E. 2019: Evaluating the human impact on the archaeological landscape of Samarkand (Uzbekistan). A diachronic assessment of the Taylak district by remote sensing, field survey, and local knowledge. *Archaeological Research in Asia* 20, 100–143.

Markofsky, S. 2014: When Survey Goes East. Field Survey Methodologies and Analytical Frameworks in a Central Asian Context. *Journal of Archaeological Method and Theory* 21, 697–723.

Markofsky, S. – Bevan, A. 2012: Directional analysis of surface artefact distributions. A case study from the Murghab Delta, Turkmenistan. *Journal of Archaeological Science* 39, 428–439.

Mattingly, D. 2000: Methods of collection, recording and quantification. In: Alcock – Cherry eds. 2004, 5–15.

Mitchiner, M. 1975: *Indo-Greek and Indo-Scythian Coinage 4. Contemporaries of the Indo-Greeks*. London.

Mitchiner, M. 1978: *Oriental coins and their Values 2. The Ancient and Classical World 600 B.C. – A.D. 650*. London.

Mokrobordov *et al*. 2017 = Мокробородов, В.В. – Страйд, С. – Максудов, Ф. – Ронделли, Б. – Мантеллини, С.: Последние работы по составлению археологических карт Средней Азии. Методы, результаты, перспективы. *Археология и геоинформатика* 8. Available online: https://www.archaeolog.ru/media/periodicals/agis/AGIS-8/Mokrobrod/page1.html

Nebbia, M. – Cilio, F. – Bobomulloev, B. 2021: Spatial risk assessment and the protection of cultural heritage in southern Tajikistan. *Journal of Cultural Heritage* 49, 183–196.

Rante, R. – Mirzaakhmedov, D. 2019: *The Oasis of Bukhara 1. Population, Depopulation and Settlement Evolution*. Leiden – Boston.

Rondelli, B. – Stride, S. – García-Granero, J.J. 2013: Soviet military maps and archaeological survey in Samarkand region. *Journal of Cultural Heritage* 14, 270–276.

Rouse, L.M. – Tabaldiev, K. – Motuzaite Matuzeviciute, G. 2022: Exploring Landscape Archaeology and UAV-Based Survey in the Kochkor Valley, Kyrgyzstan. *Journal of Field Archaeology* 47/1, 32–53.

Rtveladze 1974 = Ртвеладзе, Э.В.: Разведочное изучение бактрийских памятников на юге Узбекистана. In: В.М. Массон (ed.): *Древняя Бактрия. Предварителние сообшения об археологических работах на Юге Узбекистана*. Ленинград, 74–85.

Rtveladze 1978 = Ртвеладзе, Э.В.: О генезисе кушанских поселений северной Бактрии. *Вестник древней истории* 146/4, 108–116.

Rtveladze 1987 = Ртвеладзе, Э.В.: Новые бактрийские памятники на юге Уэбекистана. *История материалной культуры Узбекистана* 21, 56–66.

Rtveladze – Khakimov 1973 = Ртвеладзе, Э.В. – Хакимов, З.А.: Маршрутные исследования северной Бакгрии. In: *Из истории античной культуры Узбекистана*. Ташкент, 10–34.

Rtveladze – Pidaev 1981 = Ртвеладзе, Э.В. – Пидаев, Ш.Р.: *Каталог древних монет южного Узбекистана*. Ташкент.

Sabirov 1978 = Сабиров, К.: *Оборонительные сооружения древних поселений и городов Средней Азии: VI тыс. до н.э. – IV в. н.э.* Unpublished dissertation. Институт Археологии АН РУз. Самарканд.

Sagdullaev 1987 = Сагдуллаев А.С.: *Усадьбы Древней Бактрии*. Ташкент.

Salvatori, S. – Tosi, M. eds. 2008: *The Bronze Age and Early Iron Age in the Margiana Lowlands. Facts and methodological proposals for a redefinition of the research strategies*. Oxford.

Shaydullaev 1990 = Шайдуллаев, Ш.Б.: Хайтабадтепа – древнебактрийский город. In: *Археология Средней Азии. Тезисы докладов*. Ташкент, 107–108.

Stančo, L. – Tušlová, P. eds. 2019: *Sherabad Oasis. Tracing Historical Landscape in Southern Uzbekistan*. Praha.

Stančo, L. 2016: Archaeological Survey in the Surroundings of Kayrit (South Uzbekistan), Preliminary Report for Season 2015. *Studia Hercynia* 20/2, 73–85.

Stančo, L. 2018: New Data on the Iron Age in the Sherabad district, South Uzbekistan. In: J. Lhuillier – N. Boroffka (eds.): *A Millennium of History. The Iron Age in southern Central Asia (2nd and 1st Millennia BC)*. Proceedings of the conference held in Berlin (June 23–25, 2014). Dedicated to the memory of Viktor Ivanovich Sarianidi. Berlin, 171–188.

Stančo, L. 2019a: Extensive archaeological survey. In: Stančo – Tušlová eds. 2019, 21–30.

Stančo, L. 2019b: The oasis in time and space: dynamics of the settlement pattern. In: Stančo – Tušlová eds. 2019, 353–386.

Stančo *et al*. 2022 = Stančo, L. – Kysela, J. – Shaydullaev, Sh. – Bek, T. – Kmošek, M. – Toshaliev, K. – Mrvová, P. – Votroubeková, T. – Matznerová, J.: The Iron Gate and its environs in the Hellenistic period: Preliminary report for archaeological research in the Baysun District (South Uzbekistan), Season 2019. *Studia Hercynia* 26/2, 91–114.

Stark *et al*. 2010 = Stark, S. – Eshonkulov, U. – Gütte, M. – Rakhimov, N.: Resource exploitation and settlement dynamics in high mountain areas. The case of medieval Ustrūshana (Northern Tadzhikistan). *Archäologische Mitteilungen aus Iran und Turan* 42, 67–85.

Stride, S. 2004: *Géographie archéologique de la province du Surkhan Darya (Ouzbékistan du Sud / Bactriane du nord)*. Unpublished PhD thesis, Université Paris I – Pantheon-Sorbonne. Paris.

Šajdullaev, Š.B. 2002: Untersuchungen zur frühen Eisenzeit in Nordbaktrien. Archäologische *Mitteilungen aus Iran und Turan* 34, 243–339.

Tartaron *et al*. 2006 = Tartaron, T.F. – Gregory, T.E. – Pullen, D.J. – Noller, J.S. – Rothans, R.M. – Rife, J.L. – Tzortzopoulon-Gregory, L. – Schon, R. – Caraher, W.R. – Pettegrew, D.K. – Nakassis, D.: The Eastern Korinthia Archaeological Survey. Integrated Methods for a Dynamic Landscape. *Hesperia* 75/4, 453–523.

Thomas, D.C. – Kidd, F.J. 2017: On the Margins. Enduring Pre-Modern Water Management Strategies in and Around the Registan Desert, Afghanistan. *Journal of Field Archaeology* 42/1, 29–42.

Tušlová, P. 2011: Systematic Field Survey in Sherabad District, South Uzbekistan. *Studia Hercynia* 15/2, 27–38.

Tušlová, P. 2012: Systematic Field Survey in the Sherabad District, Report of the 2011 Season. *Studia Hercynia* 16/2, 15–21.

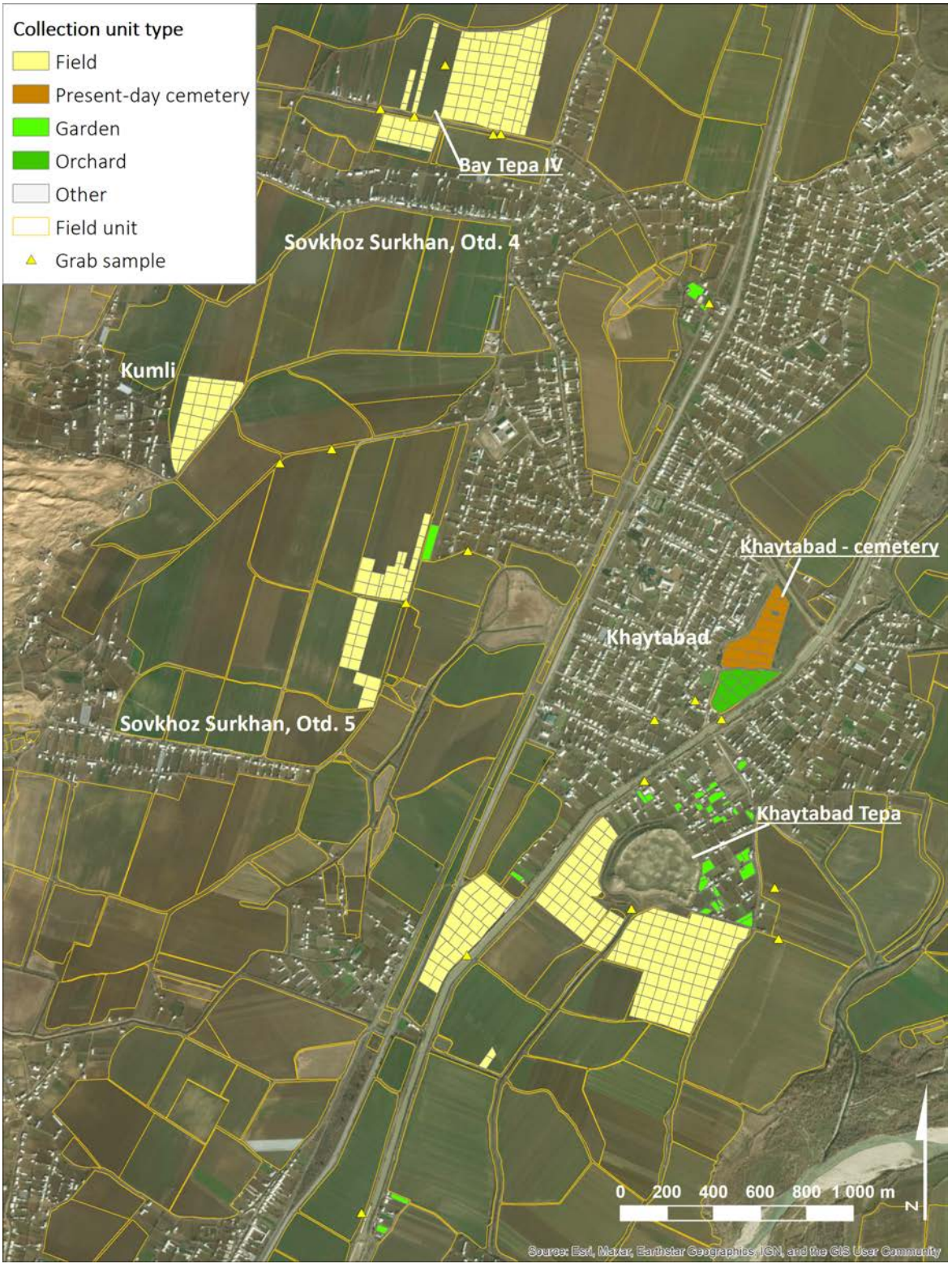
Tušlová, P. 2019: Intensive surface survey. In: Stančo – Tušlová eds. 2019, 31–93.

Wu, X. 2018: Exploiting the Virgin Land. Kyzyltepa and the effects of the Achaemenid Persian Empire on its Central Asian frontier. In: J. Lhuillier – N. Boroffka (eds.): *A Millennium of History. The Iron Age in southern Central Asia (2nd and 1st Millennia BC)*. Proceedings of the conference held in Berlin, June 23–25, 2014. Dedicated to the memory of Viktor Ivanovich Sarianidi. Berlin, 189–214.

Jakub Havlík
Ján Bobik
Kateřina Dontová
Jan Krčál
Jana Matznerová
Elena Paralovo
Razieh Taasob
Jan Ždimera
Institute of Classical Archaeology
Faculty of Arts, Charles University
Celetná 20, Prague 1, CZ-110 00
jakub.havlik@ff.cuni.cz
jan.bobik@ff.cuni.cz
katkadontova@seznam.cz
john.krcal@gmail.com
j.matznerova@seznam.cz
elena.paralovo01@gmail.com
razieh.taasob@ff.cuni.cz
zdimera.jan@seznam.cz

Vendula Dědková
The City of Prague Museum
Kožná 1, 110 00 Prague 1
dedkova@muzeumprahy.cz

Shapulat Shaydullaev
Kahramon Toshaliev
Termez State University
190100, 42, Fayzulla Khojaev
Termez, Uzbekistan
shapulat@mail.ru
kahramon19821801@mail.ru



Pl. 2/1: Types of collection units surveyed in the 2021 season reflecting both the collection method and present-day land use. Map by J. Havlík. Basemap: Esri.

Pl. 2/2: Artefact distribution in the collection units surveyed in the 2021 season. A simple count. Map by J. Havlík. Basemap: Esri.

Pl. 2/3: Distribution of artefacts dated preliminarily from the Iron Age and Antiquity. The map reflects the presence of finds regardless of their quantity and weight. Map by J. Havlík. Basemap: Esri.

Pl. 2/4: Distribution of artefacts dated preliminarily from the Antiquity and Middle Ages. The map reflects the presence of finds regardless of their quantity and weight. Map by J. Havlík. Base-map: Esri.