

Kurgans of the Eastern Kugitang piedmonts. Preliminary report on an archaeological surface survey in the 2022 season

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ABSTRACT

The eastern Kugitang piedmonts, southern Uzbekistan, have recently shown to be a particularly rich region in terms of archaeology. Among a wide range of archaeological sites spreading chronologically from the Neolithic to Pre-Modern period, kurgan mounds turned out to be a particularly frequent feature characteristic for the areas surrounding the narrow river valleys. This report presents new data on the occurrence of kurgan mounds gathered by the Czech-Uzbekistani archaeological mission in the spring season 2022. By means of a targeted extensive surface survey, the Czech-Uzbekistani team focused on four principal areas: 1) north of the village of Karabag, 2) east of the village of Khojaulkan, 3) the valley of Alamlisay, and 4) the area between the villages of Khatak and Panjob. The survey yielded in total 188 kurgan mounds, not counting hundreds of other various archaeological features identified. The total number of kurgans recorded so far in the eastern Kugitang piedmonts exceeds four hundred, indicating an intensive past exploitation of the highland areas of the nowadays Surkhandarya province. This report focusses on the morphology and spatial distribution of newly detected kurgan mounds and attempts to put them in the context of previous research.

KEYWORDS

Central Asia; Northern Bactria; kurgans; cairns; landscape archaeology.

INTRODUCTION

Since 2014 the Czech-Uzbekistani archaeological mission has in various ways systematically focused on mapping and investigating the past cultural landscape of the eastern foothills of the Kugitang mountain range (Surkhandarya province, southern Uzbekistan). The primary impetus for the initiation of long-term activities in this area had been the discovery of two, so far unrecorded, kurgan fields near the villages of Karabag and Kayrit, respectively (STANČO *et al.* 2014, 31–32). Although the main interest quickly moved toward the investigation of settlement sites dated from the Late Bronze Age to the Early Iron Age (STANČO *et al.* 2016; KYSELA – AUGUSTINOVÁ – KINASTON 2018), Antiquity (STANČO *et al.* 2020; STANČO 2021), and Middle Ages (DAMAŠEK *et al.* 2020), the study of kurgan mounds remained constant among the objectives of the expedition, either as a part of the general surface survey activities (STANČO *et al.* 2018), or as a sole focus of a specialised sub-project conducted between 2017 and 2018 (HAVLÍK – STANČO – HAVLÍKOVÁ 2017; HAVLÍK – HAVLÍKOVÁ – STANČO 2018; HAVLÍK *et al.* 2018). Up to 2018 these efforts had resulted in more than five hundred stone and/or earthen-made structures being recorded. More than two hundred of them have been classified as kurgan mounds.

In the spring of 2022, a small team of the Czech-Uzbekistani mission focused on surveying the areas of the eastern Kugitang piedmonts, which had not been investigated in detail for various reasons in the course of preceding projects. Going from the west to the east, these

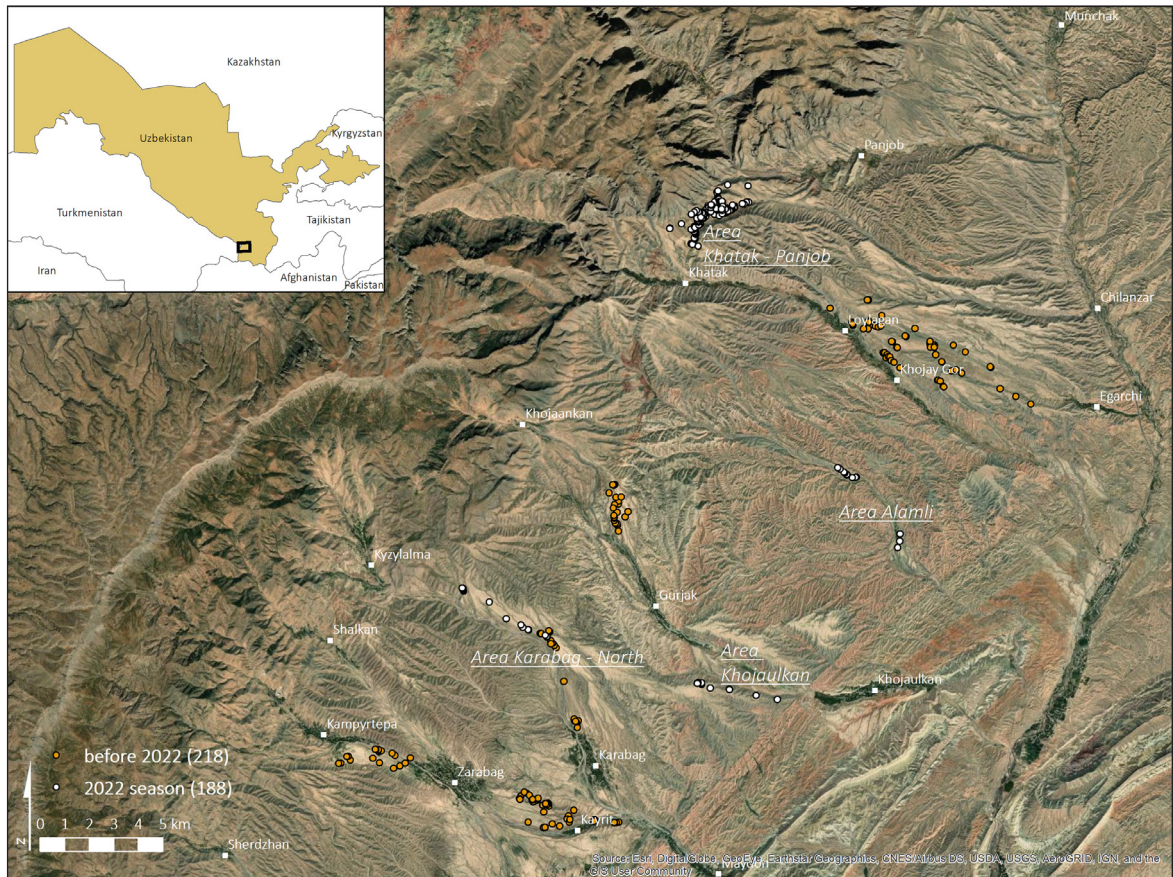


Fig. 1: Northern part of the eastern Kugitang piedmonts. Distribution of kurgans. Kurgans recorded in 2022 are marked white. Map by J. Havlík. Basemap: Esri.

areas (**Fig. 1**) comprise: 1) the area to the north of Karabag village in the direction of Zarautsay and Kyzyl Alma village, 2) the area to the east of Karabag, between the village itself and the village of Khojaulkan, 3) the valley of Alamlisay and its surroundings, and 4) the area between the villages of Khatak and Panjob. Based on the study of satellite imagery and the field survey, the objective of the field season was to complete image of the distribution of kurgan mounds in the eastern Kugitang piedmonts, as well as to assess the archaeological potential of these areas. Although the investigation of kurgan mounds concentrates on a single landscape feature category, in conjunction with other field projects, it attempts to contribute to the long-term goal of the Czech-Uzbekistani archaeological mission, i.e., a better understanding of the past cultural landscape of the foothill steppe zone as a whole. This report outlines the preliminary results of the 2022 spring season and, having no intention of proposing its detailed analysis at this point, introduces the list of recorded kurgan mounds accompanied by field observations on their distribution and morphological characteristics.

Following the local terminological practice, the term *kurgan* is throughout this text used for a regular, circular- or oval-shaped mound (cairn, tumulus) of apparent anthropogenic origin made of stone or earth, regardless of its actual purpose (sepulchral, ritual, etc.).

RESEARCH AREA AND BACKGROUND

The Kugitang mountain range with its highest peak at Airi Baba (3139 m.a.s.l.) is located on the borderlands of two Central Asian republics, Uzbekistan and Turkmenistan. Its well-defined ridge top forms a considerable part of their southernmost borderline. The eastern foothills of Kugitang spread out towards the Surkhandarya depression in the territory of the Uzbekistani province of the same name, occupying a considerable part of the Sherabad and Baysun districts. At an altitude of ca. 1200 m.a.s.l., the sharp ridges are alternated with the dry rolling steppe. The distinctively hilly steppe environment is interspersed with river valleys formed by the right bank tributaries of Sherabad Darya and Amu Darya and adjacent flat river terraces and elevated plateaux. Even though they are not the only passable areas in the piedmonts, the predominantly northwest to southeast orientated river valleys represent important natural corridors used frequently by modern traffic, taking advantage of concrete roads. The local climate is semi-arid continental, characterised by drastic temperature variations between both day and night and summer and winter. While village microoases watered from numerous springs offer the opportunity for localised horticulture and small-scale agriculture, the vast steppe areas beyond the villages are for most of the year exploited for grazing, and only occasionally allow rain-fed agriculture in suitable locations.

Even though the piedmont zone offers archaeologists a much better preserved landscape than the lowland areas transformed beyond recognition by the Soviet-period collectivisation (STRIDE 2004, 132–133; STANČO 2019a, 14–15; STANČO 2019b, 380–383; HAVLÍK *et al.* 2022; cf., MANTELLINI – BERDIMURADOV 2019), the degree of modern human impact on the older cultural landscape causes significant limitations for surface survey. The waterway network and general terrain relief are not affected there by modern agriculture, as in the case of lowlands, nevertheless, ploughing of flat plateaux and river terraces caused significant losses in microtopography, affecting many features of the cultural landscape, especially those of smaller size, kurgan mounds among them. Foothill dry farming has a long tradition in Surkhandarya province (MAEV 1879a, 304–305; MAEV 1879b, 92–94), reaching its highest scale probably right before the initiation of large-scale lowland irrigation projects in the 1960s. If the moisture conditions allow, elevated fields are also being sown today. In addition to the damage caused by ploughing, the preservation of various stone structures in the foothill area suffers from the stone collection for building purposes, usually without any interest of locals in robbing the findings hidden potentially beneath the structure. Cairns and stone settings located near dwellings and roads are naturally most exposed to this threat, however, with population growth, the stone collection activity affects an increasingly larger area more intensively. During the last ten years, the team members of the Czech-Uzbekistani mission noticed a rapid degree of disappearance of stone-made archaeological features, a pressing impetus to intensify an attempt to map and document as large number of endangered objects as possible before it is too late.

Because the importance of this area has been recognised relatively recently, the archaeological mapping of the eastern Kugitang piedmonts cannot profit extensively from previous research. Before launching several international research projects in the 2000s, the foothill valleys were subject to only cursory reconnaissance surveys or small-scale excavations (RTVELADZE 1974; BOBOKHOJAEV – ANNAEV – RAKHMANOV 1990) that had shown no great interest in minor archaeological features such as kurgans, which remained unnoticed (or unpublished) except for J. Duke's brief mention of his excavations of kurgan field of Loyalgagan (DUKE 1975). It is not without interest that, in contrast to neighbouring regions, where a frequent occurrence of various kurgan burial grounds has been recorded already during

the second half of the 20th century (MENDELSHTAM 1975; LITVINSKIY – SEDOV 1984, 104–120), the evidence for the occurrence of this peculiar burial form commonly associated with mobile pastoralists of the Eurasian steppe zone, is surprisingly scarce in the area of the nowadays Surkhandarya province as a whole (LITVINSKIY – SEDOV 1984; PUGACHENKOVA – RTVELADZE 1990, 44; SVERCHKOV 2007, 9–15). Consequently, the motivation of the Czech-Uzbekistani archaeological mission had become to shed more light on this phenomenon, especially in relation to a spatial correspondence between the kurgan concentrations discovered at the initial stage of the investigation and an exceptionally well preserved cluster of sites attributed to the Yaz I culture (cf., HAVLÍK – STANČO – HAVLÍKOVÁ 2017; HAVLÍK – HAVLÍKOVÁ – STANČO 2018; HAVLÍK *et al.* 2018). In some cases, the excavation of mounds confirmed that they are coeval with Yaz I culture settlement, in the prevailing number of mounds the chronological clues are rather unclear. Surprisingly, the excavation has not proved the relationship between the kurgans of the Kugitang piedmonts with (at least primary) sepulchral function (HAVLÍK *et al.* 2018; HAVLÍK – HAVLÍKOVÁ – STANČO 2018, 156–157), leaving an area for future research.

OBJECTIVES AND METHODOLOGY

Following up on the sub-project ‘Kurgans of the Eastern Kugitang Piedmonts’ that took place in 2017–2018, the research design of the 2022 investigation closely reflected its objectives and methodology (cf., HAVLÍK – STANČO – HAVLÍKOVÁ 2017; HAVLÍK – HAVLÍKOVÁ – STANČO 2018). To assess the characteristics of their occurrence and potential relation to the surrounding physical and cultural landscape, mapping kurgan mounds by means of extensive surface survey became the main focus of the 2022 season. A major difference from previous survey seasons was the employment of historical HEXAGON satellite imagery to identify locations for a subsequent field survey. While combination of the CORONA and modern freely available imagery (Google Earth, Esri) used by the Czech-Uzbekistani mission before 2022 has not proved to be particularly suitable for identification of rather small features like kurgans in the rugged piedmont steppe landscape, the high resolution HEXAGON imagery (cf., HAMMER – FITZPATRICK – UR 2022 for its employment in archaeology) depicting the research area in the early 1970s has shown itself to be well utilisable for this purpose, revealing a considerable number of so far unrecorded potential kurgan mounds and other terrain anomalies. However, certain bias must be expected in favour of identification of kurgan mounds in historically ploughed areas, where kurgans and other protruding anomalies are highlighted by plough marks avoiding the particular feature, and thus forming a characteristic lenticular shape well visible on the satellite imagery (cf., **Fig. 10**). Other factors limiting the extent of the surveyed area were the borders of the Uzbekistani side of Kugitang nature reserve and the presence of guard dogs protecting sheepfolds, and also very effectively eliminating the passability in their surroundings.

The field survey was conducted at pre-selected locations covering both areas emerging from remote sensing as promising in terms of the occurrence of terrain anomalies and those areas which did not yield such data, however, have not been surveyed in detail by the Czech-Uzbekistani team yet. Given the character of the piedmont area and its expanse, the survey operated in an extensive way, focusing on verification in the field of the previously identified features in combination with reconnaissance-orientated field walking. Even though not described in detail in this report, the other archaeological features (stone settings, field terraces, abandoned corrals, collapsed walls, fences, water channels, etc.) and artefact scatters were recorded as well to be re-examined and published separately. The identified kurgan clusters

were surveyed in detail in order to map them optimally to their full extent and to collect any surface material that could give a better idea of the dating of past human activities at a particular location. The collection was conducted in a non-systematic way to take a preliminary grab sample as small as possible. Individual mounds were spatially recorded using a handheld GPS device, measured, and described in terms of size, construction, state of preservation, orientation, and position within the cluster and surrounding terrain. Attention was regularly paid to the way of the kurgan clustering, possible structural and spatial patterns of the studied kurgans, and to the relations between the kurgans and various other features in the landscape, both natural (i.e., cardinal directions, terrain features, river beds, etc.) and anthropogenic (i.e., settlements, irrigation, petroglyphs, etc.) including their visual (inter)connectivity.

SURFACE SURVEY

AREA KARABAG-NORTH

As the name given to this cluster suggests, the Karabag-North kurgan field is located north of the village of Karabag, which is commonly considered a part of the Pashkhurt valley. This concentration was discovered in 2011 by L. Stančo and Sh. Shaydullaev (STANČO *et al.* 2014, 31), and subsequently resurveyed in 2017 (HAVLÍK – STANČO – HAVLÍKOVÁ 2017, 174–179). However, partly due to the border regime at that time, this area was not walked in its entirety in the northern direction, towards the village of Kyzylalma. The identified kurgans are situated on the right bank of the Kyzylalma river, on elevated terraces above the stream. The terraces show clear signs of mechanised agriculture. Isolated strips of land have apparently been ploughed recently. For practical reasons, the kurgan cluster Karabag-North has already been divided into two sub-clusters following the spatial grouping in 2017. The total of 21 features was known until 2017 while 16 more were recorded in 2022 (see **Tab. 1**). The newly detected kurgans largely fit to the prevailing characteristics of the previously identified features in terms of both distribution and morphology: Except for several more tightly clustered lines consisting of three to five mounds, the kurgans are rather sparsely distributed over the terraces following roughly the orientation of the Kyzylalma river and its nameless tributary. Given the flat terrain, a high degree of intervisibility within the cluster may be observed, except for the northernmost identified sub-cluster KAN_03 (**Fig. 2**, inset left). Being a single line of six mounds of various sizes, sub-cluster KAN_03 is located on the lower river terrace surrounded by slopes on most sides. All the newly detected mounds are of simple, rather low, predominantly stone construction (see **Fig. 3**). With only several exceptions (originating in ploughing damage?) all the features are of circular shape. No attached features or stone settings were recorded.

To the north of KAN_03, a cairn field was identified consisting of more than a dozen small-sized (d. up to 1.5 m) stone concentrations. Given the lichen coating and soil cover between individual stones, these features do not seem to be of modern date, and rather they are related to small-sized system of water channels and field(?) terraces, reflecting highly probably premodern agricultural activities of uncertain date. The area of sub-cluster KAN_01 yielded a small assemblage of surface ceramic material: two pottery scatters of limited extent (cf., **Fig. 2**) gave rather unconvincing evidence in terms of chronology pointing to (High?) Medieval period. A single sherd of blue glazed plate dated from the High (pre-Mongol) Middle Ages found in the vicinity of kurgan KAN_01_024 corresponds to the assemblage collected at the no-name tepa site (cf., STANČO *et al.* 2014, 31; HAVLÍK – STANČO – HAVLÍKOVÁ 2017, 177),

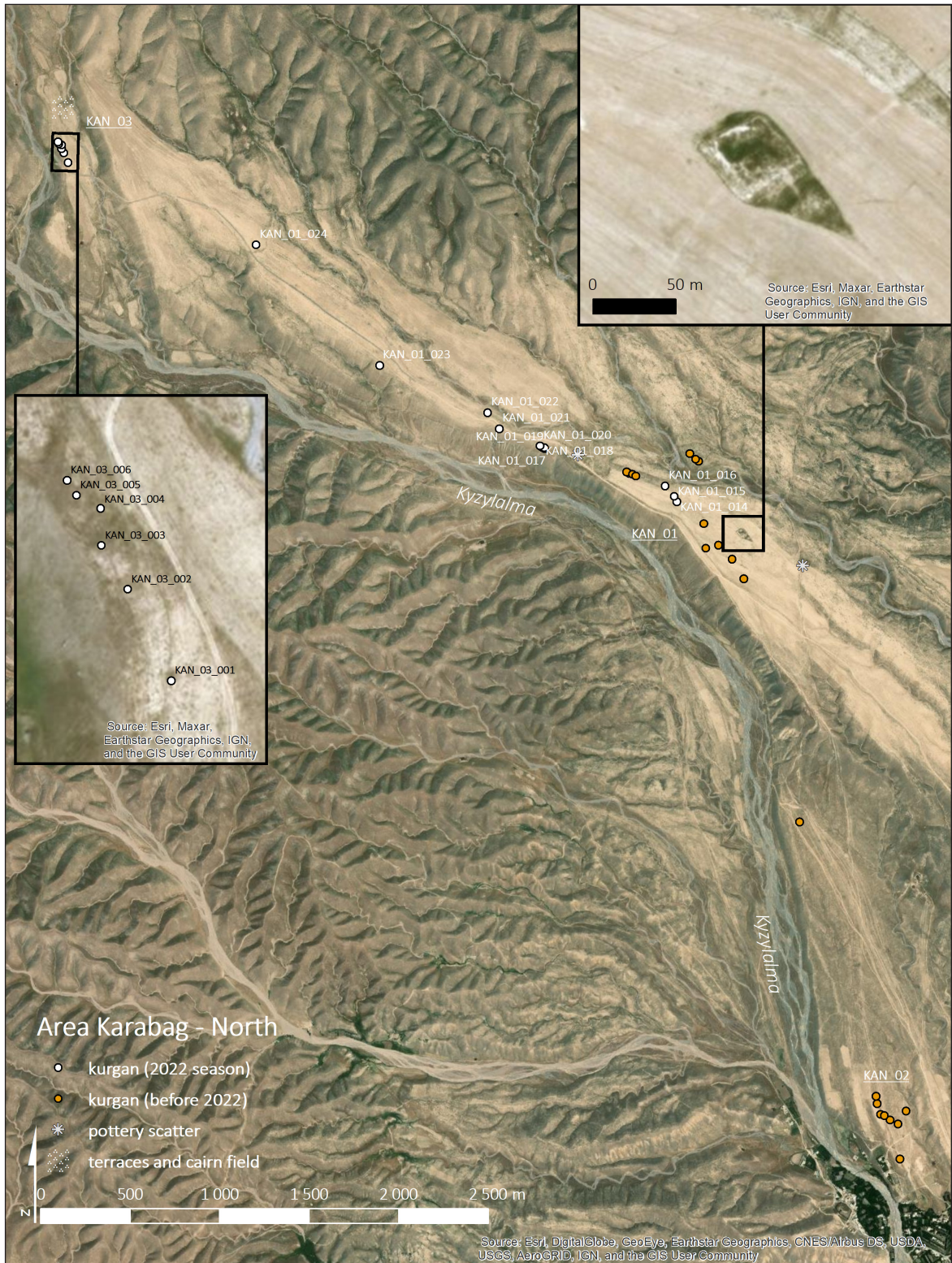


Fig. 2: Kurgan distribution within the Karabag-North area. Inset right: no name tepa mound. Map by J. Havlík. Basemap: Esri.

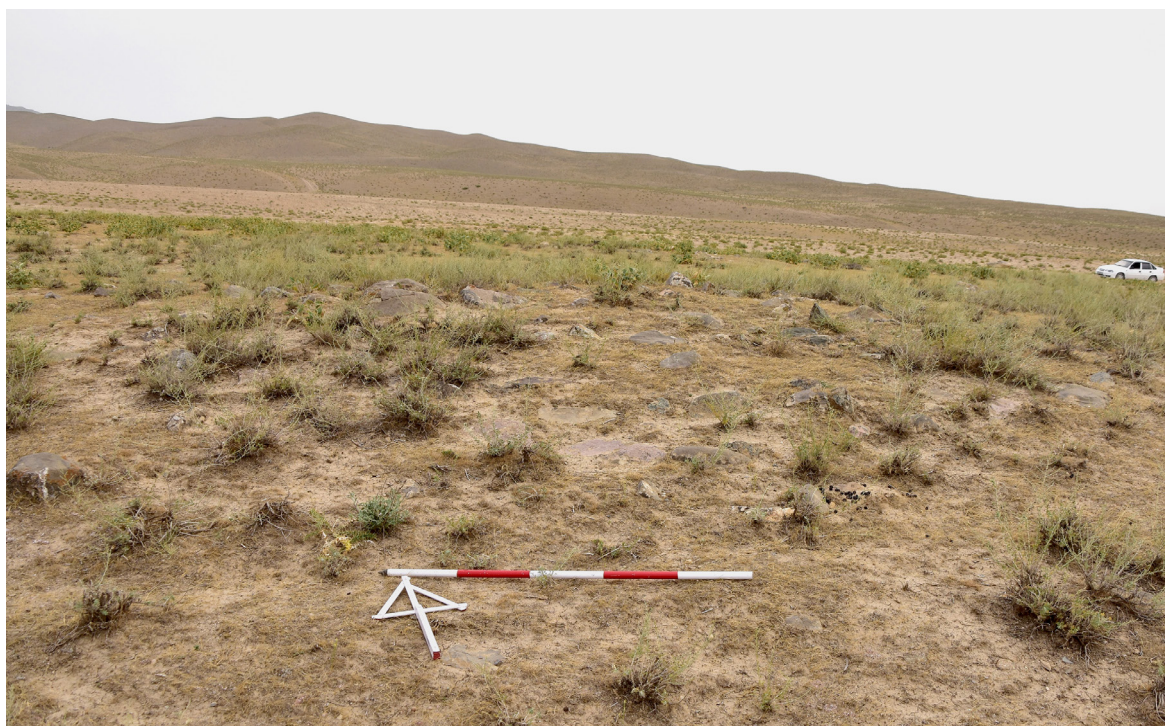


Fig. 3: Kurgan KAN_01_018, view from the south. Photo by V. Dědková.

itself aligned with kurgan mounds. The association of the surface ceramic material with the kurgans may not be considered certain, rather it reflects activities coeval to the supposed medieval settlement. The inspection of the nameless tepa (**Fig. 2**, inset right) confirmed previous dating of its occupation (white, white and black, and white and green glazed pottery sherds are abundant in the surface material), and revealed that the eastern extension of the tepa, or a kind of platform apparent on the satellite imagery, is covered by oval-shaped stone enclosures. Judging from their size and orientation these features may be preliminarily interpreted as an Islamic cemetery, likely chronologically corresponding with the occupation of the tepa.

AREA KHOJULKAN

The area to the west of Khojaulkan (i.e., to the south-east of Karabag-North cluster), is characterised by a small number of identified features distributed without a particular spatial pattern over a relatively large area. All mounds are located on the northern edge of the elevated plateau, which is itself situated above intermittent streams that run down through the valley in the direction of the Khojaulkan village. This discontinuous concentration consists of ten mounds in total. Three of them - Khj_001, 002, and 004 - differ significantly from the rest, being, however, almost identical to mounds already recorded in the valley of Loylagan (HAVLÍK – HAVLÍKOVÁ – STANČO 2018, 160–161). These three earthen mounds are convex and almost perfectly circular in plan (their d. range from 5 to 6.3 m, h. 0.5 m) and delimited around the perimeter by a shallow ditch (w. 0.2 m; depth 5–10 cm). The rest of the kurgans significantly recall those of the Karabag cluster (circular shape, made of rather small stones, diameter ranges between 4.5 and 13(?) m); however, the state of preservation is much worse here. Khojaulkan kurgans are frequently damaged by ploughing, and recent activities are also evidenced by stones piled up on the top of the mounds, most likely to make way for tractors

Tab. 1: Kurgans of the Karabag-North area. Only kurgans recorded in 2022 are included.

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
KAN_01_014	66.78563100	37.81904500	4.5	5.2	0.25	0.1	badly defined edges; circular shape; mostly earthen-made, stones only rarely on the surface
KAN_01_015	66.78546800	37.81930900	5.3	5.3	0.25	0.15	
KAN_01_016	66.78487900	37.81981900	5.4	1.2	0.2	0.35	disrupted on sides
KAN_01_017	66.77716156	37.82157480	4.5	6	0.4	0.3	some stones piled up recently on the top of the older structure.
KAN_01_018	66.77700855	37.82162532	5.5	6	0.2	0.4	a low mound; large gaps between stones
KAN_01_019	66.77713000	37.82161267	10	9	0.1	0.3	a very low mound; depression in the central part
KAN_01_020	66.77687000	37.82168600	1.2	1.2	0.2	0.3	a small circular-shaped mound; compact and low; made mostly of small stones
KAN_01_021	66.77424800	37.82251300	7	7	0.3	0.2	
KAN_01_022	66.77350249	37.82331140	4.5	5	0.3	0.3	some stones exceptionally large (d. up to 0.5 m)
KAN_01_023	66.76655900	37.82555200	3	3	0.2	0.4	a small mound made of large stones
KAN_01_024	66.75855017	37.83147517	6	8.5	0.5	0.15	relatively large mound made of small stones and earth; several large stones (d. around 0.5 m); a High Medieval sherd discovered in the vicinity
KAN_03_001	66.74648300	37.83540300	6.45	6	0.4	0.3	
KAN_03_002	66.74620000	37.83587200	10.5	11.1	0.5	0.3	
KAN_03_003	66.74603000	37.83609700	2	2	0.2	0.3	a small circular-shaped kurgan; one larger stone (0.45×0.45 m) on E side
KAN_03_004	66.74602400	37.83628800	2.5	2	0.2	0.2	a small irregular-shaped kurgan
KAN_03_005	66.74586733	37.83635633	2	2	0.2	0.3	a small irregular-shaped kurgan
KAN_03_006	66.74580667	37.83643383	7	9	0.45	0.25	one larger stone (0.5×0.5 m) located in the central part of the kurgan

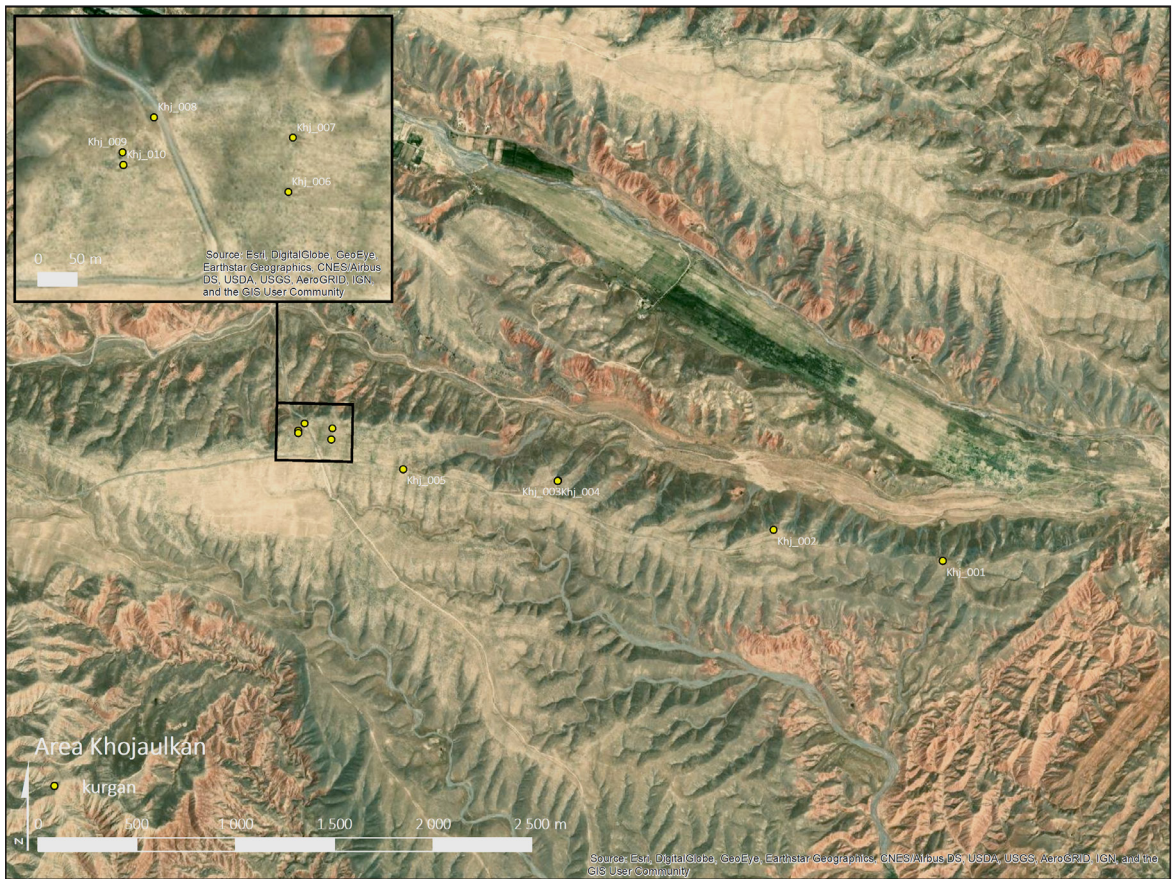


Fig. 4: Kurgan distribution within the Khojaulkan area. Map by J. Havlík. Basemap: Esri.



Fig. 5: Kurgan Khj_003, view from the east. Photo by J. Havlík.

Tab. 2: Kurgans of the Khojaulkan area.

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
Khj_001	66.89292200	37.79814100	6.3	5.5	0.5	0	earthen-made mound; a ditch around the perimeter (depth: 5–10 cm; w: 0.2 m)
Khj_002	66.88315700	37.79938400	6	5.4	0.5	0	earthen-made mound; a ditch around the perimeter (depth: 5–10 cm; w: 0.2 m)
Khj_003	66.87070000	37.80141967	7.6	7.6	0.5	0.3	some larger stones, d. up to 0.5 m; signs of disruption on the surface, missing stones(?)
Khj_004	66.87066500	37.80140400	5	5.7	0.5	0	earthen-made mound; a ditch around the perimeter (depth: 5–10 cm; w: 0.2 m)
Khj_005	66.86178033	37.80177183	7.5	13	0.7	0.3	an oval-shaped mound; probably partly destroyed by ploughing in E-W direction; not certain
Khj_006	66.85760981	37.80305861	5.2	5.5	0.5	0.3	disrupted on sides by ploughing in E-W direction
Khj_007	66.85766497	37.80355621	4.5	6	0.4	0.2	some stones recently piled up on the top of the mound
Khj_008	66.85605483	37.80374333	9	7.5	1	0.3	disrupted by a modern road
Khj_009	66.85568850	37.80342367	7.5	7.5	0.2	0.3	a low mound; some stones recently piled up on the top
Khj_010	66.85569500	37.80330767	5.4	3	0.4	0.2	disrupted by ploughing

avoiding kurgans from sides. Given the high number of false targets gathered during the remote sensing phase of the investigation, it is possible that a considerable part of the kurgan mounds was destroyed over the last fifty years. On the other hand, objects resembling kurgans on the HEXAGON imagery may just as well be a product of the intensified ploughing in the 1960s/1970s.

Neither surface finds nor terrain features were discovered in the area of the Khojaulkan cluster.

AREA ALAMLI

This remote area (not to be confused with Alamli in Baysun district, cf., STANČO *et al.* 2019) was for the first time cursorily surveyed by L. Stančo and his team in 2021, recognising the occurrence of kurgan mounds. A thorough survey followed in spring 2022. The name of the area is derived from the name of a spring located roughly in the central part of the narrow valley of Alamlisay, known in its lower reaches as Jidabulaqsay, a right bank tributary of Sherabad Darya (see STANČO 2009). Even though historical maps and ruins in the valley suggest the presence of scattered settlement in some form at least until the second half of the 20th century, nowadays,

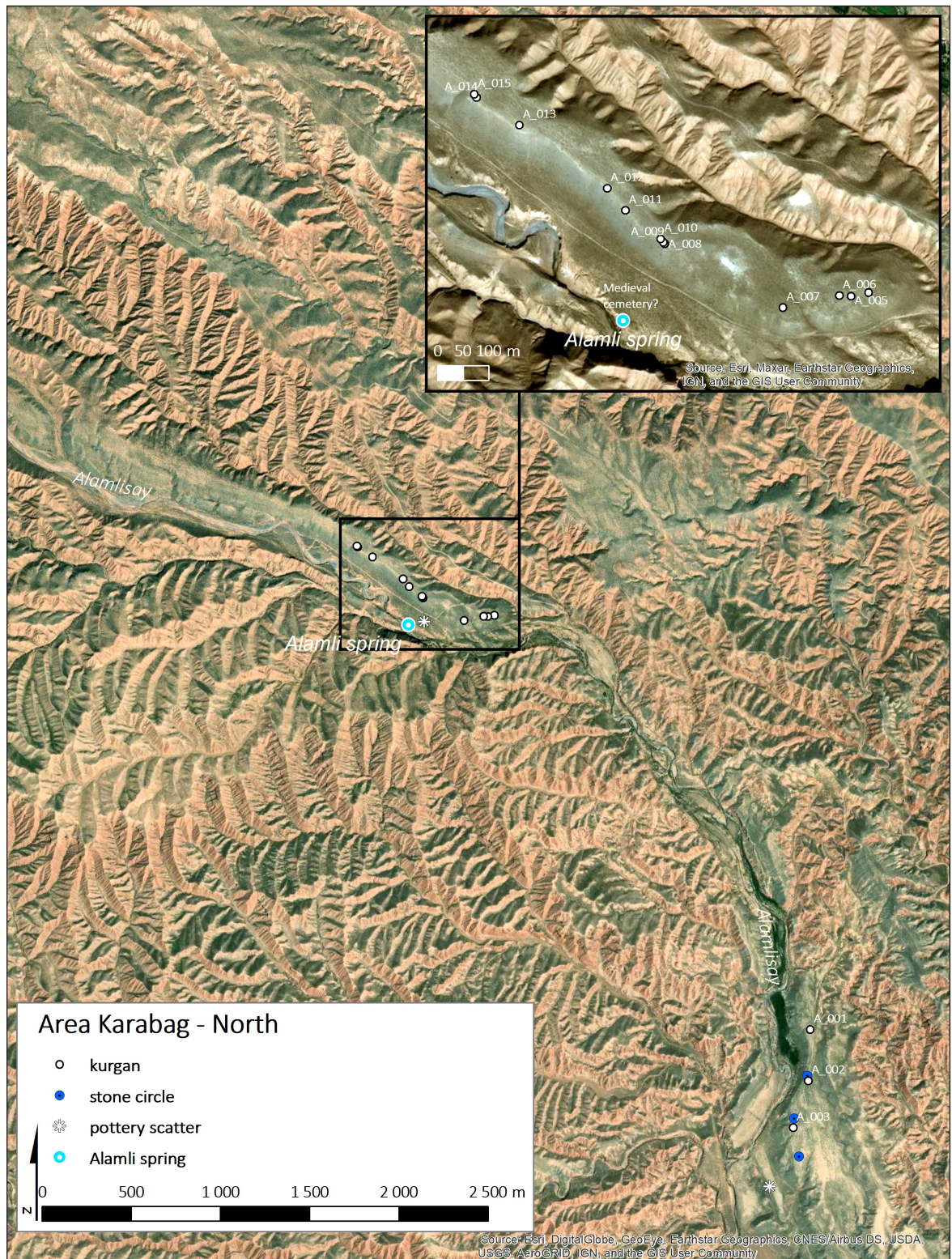


Fig. 6: Kurgan distribution within the Alamli area. Map by J. Havlík. Basemap: Esri.



Fig. 7: Kurgan A_012, view from the south. Note the well-laid circle of stones. Photo by V. Dědková.



Fig. 8: Kurgan A_014, view from the south. Note the stoneless depression (a robber's pit?) in the central part. Photo by V. Dědková.

Tab. 3: Kurgans of the Alamli area.

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
A_001	66.94810400	37.85995300	5.4	5.4	0.4	0.4	a mound made of large stones
A_002	66.94804100	37.85736600	6.9	8	0.3	0.4	a low mound made of large stones; depression in the central part: stones missing, resembling a stone circle.
A_003	66.94714900	37.85497900	1.5	2	0.2	0.25	a small compact stone mound
A_004	66.92737100	37.88056200	6	6	0.5	0.4	
A_005	66.92698633	37.88048750	3	2.7	0.3	0.4	a small compact mound made of large stones
A_006	66.92672200	37.88049600	6	6.5	0.3	0.4	an area almost free from stones located in the central part
A_007	66.92548000	37.88026100	4.5	5.5	0.4	0.3	mostly earthen-made mound, only limited number of stones visible
A_008	66.92282550	37.88133883	6	5.5	0.2	0.2	
A_009	66.92279008	37.88136423	2.7	2.4	0.2	0.25	
A_010	66.92273200	37.88142200	6	6	0.3	0.4	a compact mound made of large stones
A_011	66.92193100	37.88190800	7.5	7.1	0.4	0.35	some stones recently piled up on the W edge of the mound
A_012	66.92151700	37.88229300	3.8	3.5	0.2	0.25	inner structure: a regular circle (2.2 m in diameter) clearly visible in the central part of the kurgan
A_013	66.91953800	37.88337200	6	6.5	0.4	0.35	
A_014	66.91857200	37.88384000	8.2	7.5	0.25	0.4	a depression free of stones in the central part
A_015	66.91852117	37.88389800	3	3.8	0.3	0.35	irregular- or oblong-shaped mound

this area is occupied predominantly seasonally with the only permanent settlement in the small hamlet of Bidak, ca. 4.5 km as the crow flies from Khojaunkan, without any paved road leading to it. Most of the valley is very poorly accessible using often unstable dirt roads; this circumstance is well reflected by the very poor state of archaeological knowledge of this area.

The Alamli kurgan cluster consists of 15 mounds that take advantage of the two rather rare flat terrain strips on the elevated terraces on the left bank of the river. To the south of Alamli spring, there are only three mounds located on the terrace above the river bend ca.

300 m from each other, accompanied by three low stone circles (d. 5 m; 6.2 m; 7.4 m, going from north to south) situated in a similar way as kurgans, just tens of metres from the edge of the river terrace. The small amounts of non-diagnostic surface pottery fragments collected on both, lower and upper river terraces do not represent chronologically sensitive material. To the north, the terrace, located above the opposite bank from the Alamli spring, hosts the remaining 13 mounds. This group is arranged in a line (distances range between 4 and ca. 260 m) following ca. 1 km stretch of the river course. Given the distribution and topography of the terrain, a high degree of mutual intervisibility among individual features may be noticed, making this concentration a compact and well-defined group. On the opposite side of the river, just next to the spring, the hummocky terrain and a pottery scatter (small quantity of sherds is characterised by a high degree of fragmentation and absence of diagnostic fragments, again preventing from any precise chronological attribution) testify to past human activity at this location. The two small circular- and oval-shaped stone enclosures recorded could suggest the presence of an Islamic period cemetery.

Talking of the Alamli cluster as a whole, the identified mounds are relatively homogeneous in terms of morphology. Circular structures made of large stones usually prevail. The diameters of individual features range from 1.5/2 m to 8.2/7.5 m, however, most of them exceed 5 m at least in one of the measured values. Given the absence of past ploughing in the area where the kurgans are located, the mounds are relatively well-preserved with only infrequent signs of disruption or stone collecting.

AREA KHATAK-PANJOB

The area labelled Khatak-Panjob is the northernmost and highest area in the Kugitang piedmonts, where the Czech-Uzbekistani team has detected a kurgan concentration. Just beneath the sharp rocky slopes of the Kulbattau ridge, there is a saddle that connects two parallel valleys of the Loylagansay and Gazak rivers. This elevated saddle occupies a unique position in the landscape, connecting not only the two villages (Khatak to the south and Panjob to the north), but also the two gorges (Baglydara and Yukari Panjob) that represent the natural passages through the Kugitang mountains. Nowadays, the dirt roads leading through the saddle are used rather occasionally, except by shepherds with their flocks and rangers managing the nature preserve to the north-west. However, Soviet military maps suggest a greater importance of these communications in the recent past (**Figs. 9**). A route leading from Baglydara in the direction of Sayrob and Darband mentioned by N.A. Maev (MAEV 1879a, 305) must have led right through this saddle, giving this pathway a regional importance. Given the geomorphology of this saddle just beneath the rocky spurs, an abundance of rainwater clearly creates suitable conditions for dry farming which is evidenced by omnipresent ploughing marks (almost all the area of the valley basin was cultivated during the 20th century, though not necessarily in its full extent at the same time), and also long deserted baulks and field terraces (see below).

In terms of archaeological knowledge, this area is rather unsatisfactorily researched (or published), and the surface survey of spring 2022 may still be considered the initial phase of its reconnaissance. L. Sverchkov (2007, 14) localised here the Loylagan burial ground excavated by J. Duke in 1973 (DUKE 1975), contradicting the location suggested by Bobokhojaev, Annaev, and Rakhmanov (1990). In present report a working title Khatak-Panjob (KhP) is used for the recorded kurgan cluster. So far, no evidence of permanent settlement sites has been detected in the saddle area, where the kurgans are located. However, north of the saddle, by the Gazak river, near the mouth of the gorge, pottery scatters dated from the Early and High Middle Ages were detected by L. Stančo (STANČO *et al.* 2019, 161–162). In 2022, the location marked on the

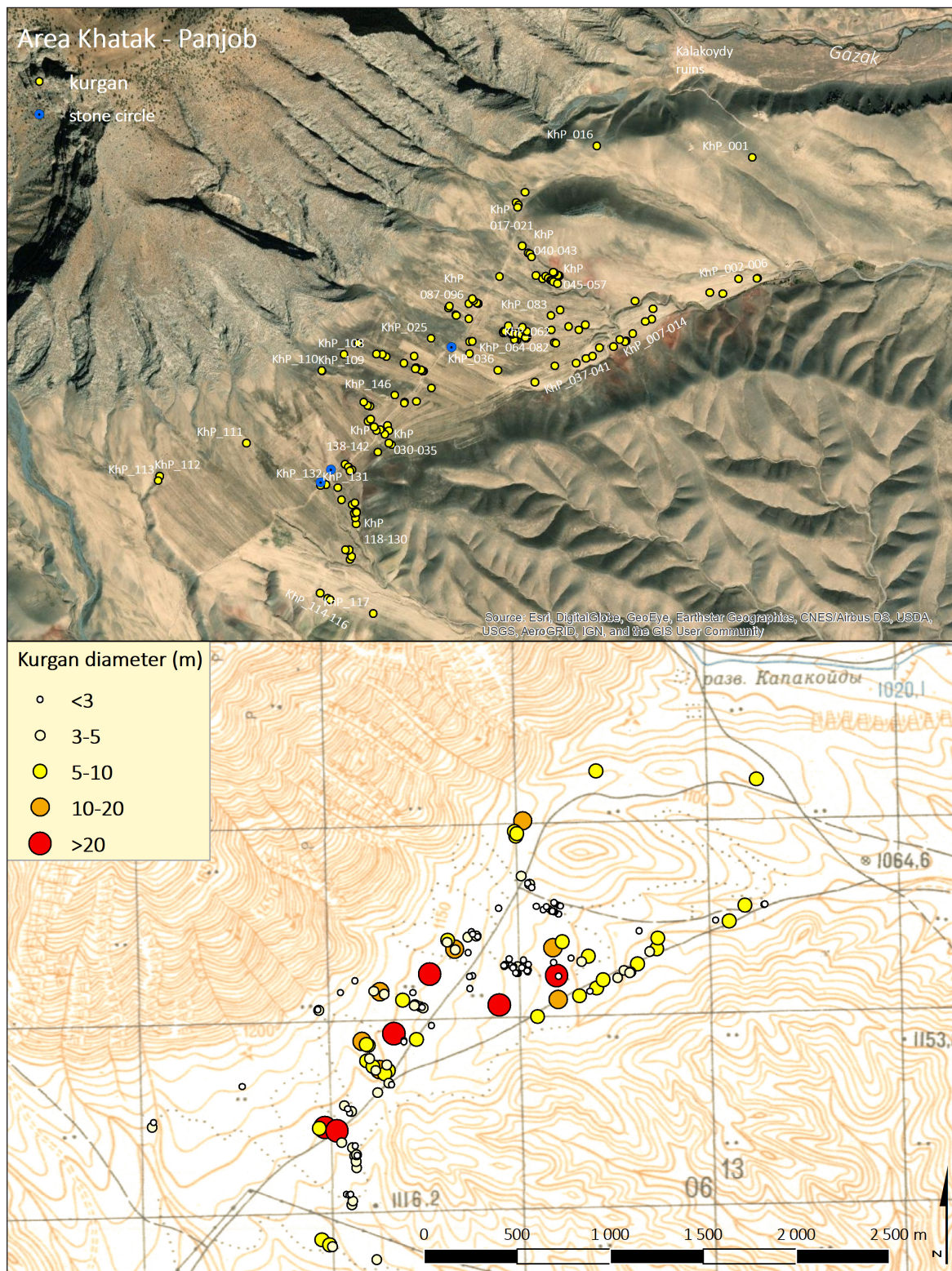


Fig. 9: Above - distribution of kurgans within the Khatak-Panjob area. Basemap: Esri. Below - Visualization of the kurgan distribution in relation to diameter (the average diameter of two measured values was taken into account). Basemap: Soviet military map from 1983 (J-42-074-B, corresponds to the state of 1975), the solid black lines indicate dirt road. Map by J. Havlík.

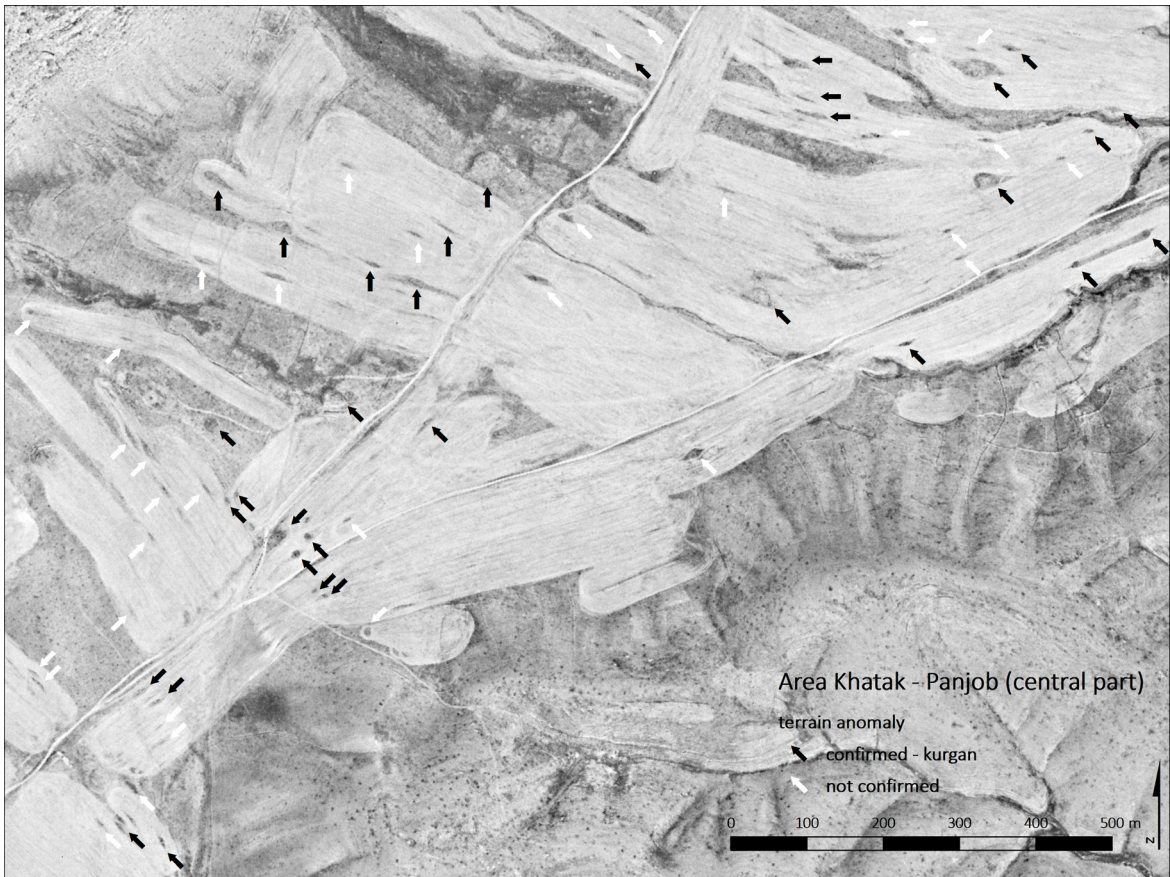
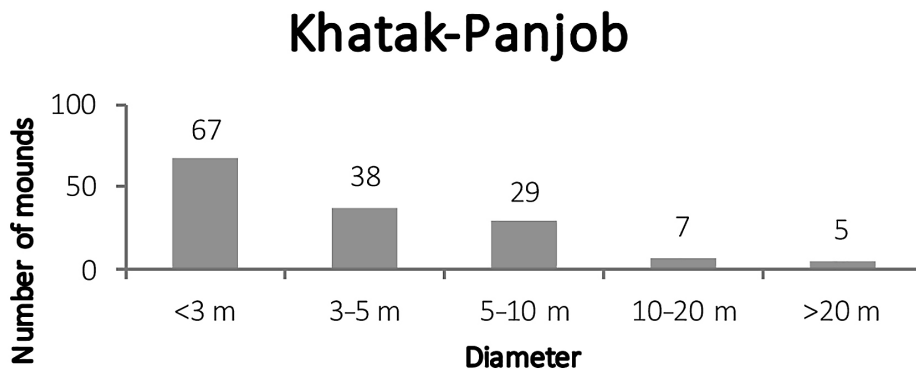


Fig. 10: Central part of the Khatak-Panjob area as captured by KH-9 HEXAGON (1978/03/25). Black arrows indicate terrain anomalies identified as kurgan mounds during the field verification.



Graph 1: Kurgan diameter frequency for the Khatak-Panjob cluster. The diameter corresponds to the average value of two (N-S and E-W) measured values.

Soviet military maps as Kalakoydy ruins¹ was also inspected (report in preparation). Being crossed by the dirt road leading up to the saddle, this site is located on the southern bank of the Gazak, just near the gorge mouth. This area (ca. 200×200 m) is marked by well-visible remains of thick stone walls forming large rectangular structures. Collected surface material indicates High Medieval (monochrome white- or green-glazed plates) and Pre-Modern (thick sherds with plastic fishnet decoration and linear combed incisions) occupation of this location. Surveying this area in 2018, A. Augustinová collected ceramic assemblage dated preliminarily to the Early Middle Ages (5th–6th c. AD). A minority of surface sherds was attributed to the Achaemenid period, however, evidence for this dating has been considered rather unconvincing (A. Augustinová, personal communication, July 17, 2023).

Being the most numerous concentration of kurgans identified in the eastern Kugitang piedmonts so far, the Khatak-Panjob cluster consists of 146 kurgans. In contrast to the clusters mentioned above, kurgan mounds of the Khatak-Panjob are of a much more heterogeneous nature in terms of the distribution of mounds in the landscape, as well as their size and morphology. Even though a certain tendency towards linear distribution may be observed, it seems that there is no determinative orientation among the kurgans of this group, and it is hard to find any (uniform) distributional pattern. There are several lines consisting of three or four kurgans of roughly NW–SE orientation, nevertheless, in the eastern part of the cluster, the SW–NE orientation prevails. In this part of the cluster, the kurgan distribution corresponds to the course of the dirt road depicted on the Soviet topographic maps from the 1980s, which is nowadays rather hard to recognise in the field. To some extent, the Khatak-Panjob cluster as a whole appears to be aligned with the two dirt roads that run through the saddle (cf., **Figs. 9–10**), which could hypothetically suggest a relation to past communications.

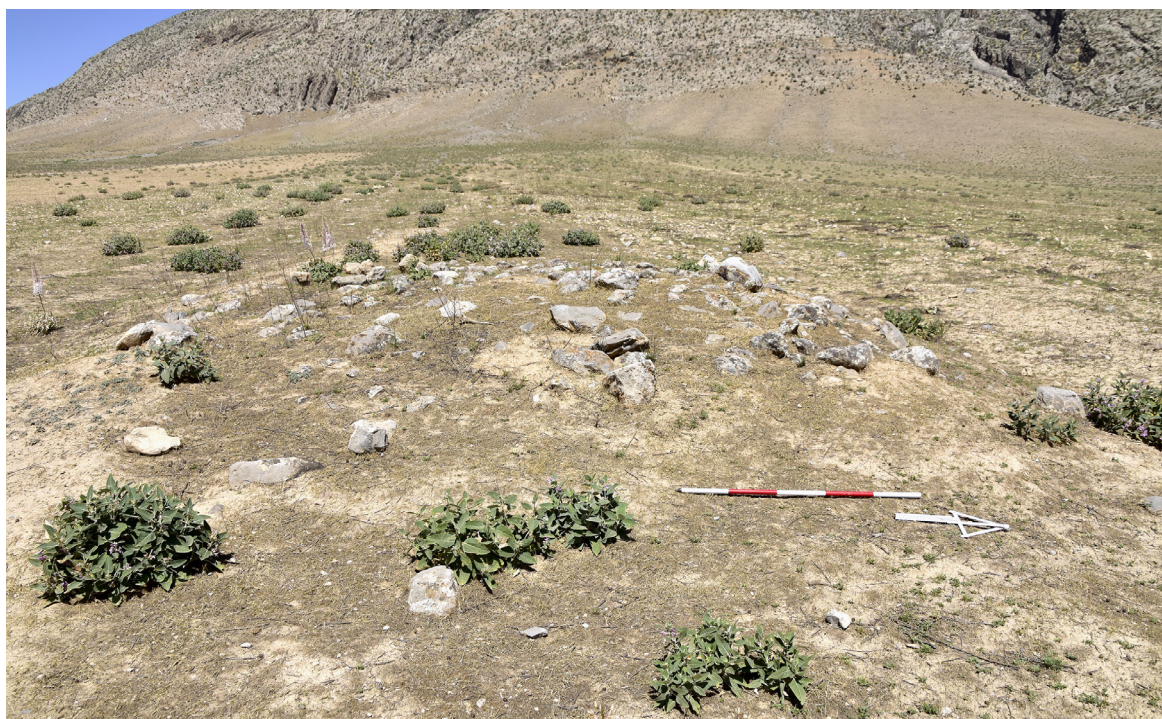


Fig. 11: Kurgan KhP_103, view from the east. A typical medium-sized stone-made kurgan. Photo by V. Dědková.

1 ‘разв. Калакойды’, cf., topographic map sheet J-42-074-B; **Fig. 9** below.



Fig. 12: Kurgan KhP_105, view from the east. Photo by V. Dědková.



Fig. 13: Kurgan KhP_130, view from the north-west. Note that only part of the original mound is preserved. Photo by V. Dědková.

In terms of morphology, regularly rounded concave kurgans made predominantly of stones of various sizes are the most characteristic (see **Figs. 11–13**). Their diameters range from 3 to 10 m, with some larger exceptions (KhP_087; 105; 145). These kurgans resemble those recorded by the Czech-Uzbekistani mission throughout the Kugitang piedmonts, particularly near Kayrit, Karabag, and Loylagan (HAVLÍK – STANČO – HAVLÍKOVÁ 2017, HAVLÍK – HAVLÍKOVÁ – STANČO 2018, 151–157), or near Khojaulkan and Alamli described above. Correspondingly to distributional preferences of the previously known clusters, there is a certain tendency towards linearity. This is the case of a sub-cluster KhP_007–014; KhP_037–041, which seems to follow an abandoned dirt road in SW–NE direction, or NW–SE oriented KhP_143–145 situated on a slightly elevated prominence. The same orientation may be observed in the case of KhP_098–106, which also consists of smaller or badly preserved kurgans – mostly due to frequent ploughing, which causes the overall bad state of preservation of the mounds. Next to the ploughing marks and related to this activity modern field clearances located frequently on the top of kurgans, stoneless depressions in the mounds central parts represent another kind of damage, caused probably a long time ago in an effort for robbing the kurgan mounds.

A peculiar type of kurgans is represented by regularly rounded mounds of large diameter (19–40 m). Two kurgans of similar dimensions had been detected before 2022 only in the valley of Gurjak (i.e., north of Khojaulkan), being considered exceptionally large in the measures of the eastern Kugitang piedmonts (HAVLÍK – HAVLÍKOVÁ – STANČO 2018, 169). The seven detected mounds of this type (KhP_025; 036; 062; 083; 131; 132; 146) are distributed over the saddle without any clear pattern with relatively large distances between each other. Except for KhP_036 which shows no signs of stone construction, the remains of well-laid stone rings around the perimeter delimit each of them. In most cases, the stone ring is much better preserved on the western side of the mound (see **Figs. 15, 17**). Both the dimensions and construction (i.e., an earthen mound with a stone ring) of these kurgans recall Wusun (or Saka-Wusun) burial mounds of the last centuries BC in southern Kazakhstan (cf., AKISHEV – KUSHAEV 1963, 235–245; BAIPAKOV – TAIMAGAMBETOV 2006, 156–160; cf., CHANG 2018, 27–29). However, without proper excavation, no dating can be attributed to these kurgans at this point. In the cases of KhP_025 and KhP_146, there is a regularly circular stone-made mound located in the central part of the earthen structure. These stone kurgans on the top of the earthen ones are identical with the type common throughout the eastern Kugitang piedmonts (see above). It cannot be ruled out that, in the case of kurgans KhP_025 and KhP_146, we are dealing with two subsequent construction phases, perhaps a reutilization of older mounds?

The reutilization of the large mounds of Khatak-Panjob is also evidenced in other ways: A roughly 440 m long linear structure (w. ca. 1 m; h. up to 0.3 m) is attached from the south-west to the mound KhP_062. This structure (a baulk of uncertain date?), probably later than the construction of the mound itself, curves to the north-west, towards the nowadays dirt road. This linear structure divides field strips (the ploughing marks follow the course of the structure from both sides), presumably enhancing the potential of rain-fed agriculture by catching water coming during rains down from the rocky slopes and gullies in the north-west. A similar kind of what seems to be a reutilization of a large kurgan mound presents the KhP_025 and the area in its immediate proximity. There are two stone lines (w. ca. 1 m, h. up to 0.4 m) attached to the stone ring in the north-west direction (see **Fig. 16**). Going parallel to each other and keeping a distance of ca. 60 m, these two lines are discernible for almost 200 m leading towards the rocky mountain slopes. At two places at least, the area defined by the stone lines is perpendicularly divided by what appear to be field terraces of uncertain date, taking advantage of water coming from the rocky slopes.



Fig. 14: Kurgans KhP_130-132 (from left to right), view from the north-east. Photo by V. Dědková.



Fig. 15: Kurgan KhP_025 (d. of the stone ring: 24.3-26.6 m), view from the north-west. Photo by V. Dědková.

Large circular kurgans, made either of stone or earth, are in the Khatak-Panjob saddle surrounded by numerous smaller (d. less than 3 m, usually around 2 m) or less regular kurgan mounds. Given the active modern agricultural use of this area, it is frequently hard to assess to what degree the observed morphological characteristics reflect a different construction type, or whether the present-day shape is the result of damage by ploughing. Except for the isolated features or mounds occurring within a cluster of larger mounds, there are two distinguishable coherent sub-clusters of small kurgans in Khatak-Panjob: KhP_045-057 and KhP_064-082, consisting of 13 and 19 individual mounds, respectively. Both are located on a gentle elevation. In the case of KhP_064-082, the crescent-shaped strip of land shows only minor or no signs of ploughing suggesting a different past treatment with this delimited area,



**Fig. 16: One of the two stone lines leading to the kurgan KhP_025 from the north-western direction.
Photo by V. Dědková.**



Fig. 17: Kurgan KhP_146 (d. of the stone ring 39–40 m), view from the north-west. Photo by V. Dědková.

just tens of meters to the north from the baulk(?) going from KhP_062 described above. On the other hand, right here, function of these mounds as field clearances may be suggested, leaving the interpretation of their original purpose rather uncertain.

In addition to kurgans, a number of other features have been recorded in the Khatak-Panjob area, which can be related either to the past ritual or economic land use with a very limited chance of its exact chronological attribution. Three stone circles were identified in the close vicinity of the kurgan mounds. Ca. 120 m from KhP_025, there is a slightly elevated, almost regular circle (15×14 m) made of large stones. Very similar, larger, circle (d. 23.5 m) is located in the close vicinity (ca. 20 m to the west) of KhP_132, and just around 80 m to the north-east, another small (d. 5 m) circle was detected. Other than the spatial relation of the stone circles to the largest category of kurgan mounds cannot be confirmed at this point.² Next to apparently modern field clearances spread over the fields, the slopes bordering the saddle plain are frequently occupied with remains of abandoned field terraces, enclosures, and slope fields, which may reflect preindustrial, but also significantly older, agricultural activities there. Their frequent occurrence illustrates a relatively intensive past land use, opening space for future research of the midland (upper foothill) environment represented by the Khatak Panjob saddle.

CONCLUSIONS

By introducing new data on the occurrence of kurgan mounds and thus supplementing the predominantly settlement-orientated research activities, the 2022 surface survey season contributed significantly to a long-term mapping programme of the eastern Kugitang pied-

² Similar, though smaller, circles have been detected within kurgan clusters in Kayrit (HAVLÍK – STANČO – HAVLÍKOVÁ 2017, 165, 168) and Loylagan (HAVLÍK – HAVLÍKOVÁ – STANČO 2018, 154, 161). Use of similar structures as a place of (commemorative) offerings was not infrequent among Turkic peoples (cf., OKLADNIKOVA 1986, 81–88; KUBAREV 2005, 16), however, they have been identified also as grave markers: For Kushan period in southern Tajikistan see MENDELSHTAM 1975, 64–109. Similar relation could confirm also newly excavated Yuezhi period burials in the valley of Loylagan (publication in preparation by L. Stančo) ca 12 km as the crow flies from Khatak-Panjob area.

monts. Based on the gathered evidence and its comparison with the previous state of research, several observations can be made. Although the piedmont area clearly does not represent a landscape untouched by modern activities, it still offers a relatively good opportunity to study various facets (economic, ritual, settlement) of the land use dated probably from long before the industrial period and complement the archaeological research of northern Bactrian lowlands. The 188 kurgan mounds identified in 2022 make a total number of 406³ mounds recorded in the eastern Kugitang piedmonts so far, showing their distribution literally in every piedmont river valley. The newly mapped kurgans bear similarity to those previously known: The stone-made roughly circular mounds of medium size (most usually between 5 and 8 m in diameter), have already been well evidenced in the valleys of Kayrit, Karabag, Loylagan, and elsewhere, appearing to be the best defined and well represented type throughout the eastern Kugitang piedmonts as a whole (cf., SVERCHKOV 2007, 9–15 for similar, less regular kurgans recorded in the Baysun piedmonts). The locations favoured by the past mound-builders show certain regularities as well, either in the tendency towards the use of elevated plateaux and river terraces, or in the preference of linear clustering of kurgans, often along water streams and corridors through the landscape (cf. HAVLÍK – SHAYDULLAEV in preparation). While these common traits indicate a coherent and continuous past attitude towards the human exploitation of this area, the number and spread of mounds suggest a rather long period of their formation. On the other hand, the occurrence of exceptionally large and morphologically distinct earthen mounds in Khatak-Panjob, evidenced so far only at one other location in the Kugitang piedmonts (i.e., near Gurjak), could suggest more complex dynamics of the kurgan landscape formation. The precise dating and purpose of the mounds remain unclear, and the surface survey offers only limited possibilities for a better understanding of them. Given the relatively small sample size of the excavated features (cf., HAVLÍK *et al.* 2018), the relation to sepulchral use must still be seriously considered, and the conducted survey needs to be completed by excavations in the future to bring more firm data.

However, the kurgan mounds and dozens of other archaeological features recorded during a single extensive surface survey season have underlined the unexploited potential of the area and the need for more detailed, systematic ways of its future investigation. As shown by the results of the survey in the valley of Alamlisay and the saddle between the villages of Khatak and Panjob, the remote valleys of minor water streams, as well as the areas between individual river valleys, deserve more attention to achieve a more complete and representative coverage of the foothill zone and eventually better understand the socioeconomic development of this area in a long-term perspective.

ACKNOWLEDGEMENTS

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3 Note that French-Czech-Uzbekistani excavation of what appeared to be two separated features, Kayrit 01_003 and Kayrit 01_004 (cf. HAVLÍK – STANČO – HAVLÍKOVÁ 2017, 169) showed that these two features recorded by a surface survey were actually badly damaged remains of a single structure consisting of a circular mound with a well-defined stone ring and a pathway lined with large stones oriented to the East (report in preparation).

Tab. 4: Kurgans of the Khatak-Panjob area.

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
KhP_001	66.87398100	37.98661900	4.5	5.6	0.4	0.4	one large stone (d. 0.5 m); unclear edges (maximum extent 6.1×6 m?), badly defined mound
KhP_002	66.87448661	37.98076789	1.5	1.5	0.1	0.2	oval-shaped core, probably disrupted by farming; stones scattered around
KhP_003	66.87443900	37.98075400	1.6	1.6	0.2	0.2	a small, low kurgan made of small stones
KhP_006	66.87156317	37.98001367	1.6	1.6	0.2	0.4	a small, compact kurgan
KhP_008	66.86807083	37.97867917	6.1	7.4	0.4	0.3	unclear edges
KhP_009	66.86766050	37.97854167	4.6	4.6	0.4	0.3	a compact, medium-sized kurgan made of large stones
KhP_010	66.86693500	37.97795900	6.6	6.6	0.4	0.5	some larger stones; signs of extension in E-W direction (d. 8.2 m?)
KhP_011	66.86652400	37.97759500	4.1	3.6	0.4	0.2	very close to KhP_012, creating almost continuous oval-shaped platform
KhP_012	66.86652400	37.97755300	3.2	3	0.4	0.2	very close to the KhP_011, forming almost continuous oval-shaped platform
KhP_013	66.86652400	37.97765900	4.1	4.8	0.4	0.3	a compact kurgan made of large stones; well-visible circle of larger stones delimiting the edges
KhP_014	66.86652400	37.97730300	2.9	3.5	0.3	0.4	disrupted on sides by ploughing; some stones piled up on the top recently
KhP_015	66.86652400	37.97952400	2.6	3	0.5	0.4	an oval-shaped feature
KhP_016	66.86652400	37.98700600	5.8	6.1	0.4	0.4	some larger stones
KhP_017	66.86652400	37.98415979	6.8	8	0.4	0.3	
KhP_018	66.86652400	37.98406000	6	5.3	0.7	0.5	
KhP_019	66.86652400	37.98393300	9.1	10.6	1	0.2	mostly small stones (d: 0.1–0.15)
KhP_020	66.86652400	37.98466404	17.5	9.1	0.7	0.3	a large oval-shaped object, unclear edges – uncertain; some larger stones

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
KhP_021	66.86652400	37.98207200	3	3.8	0.3	0.2	most of the stones seem to be piled up recently
KhP_022	66.86652400	37.98057267	2.2	3	0.2	0.1	a small, badly defined feature
KhP_023	66.86652400	37.97737500	1.9	2.1	0.2	0.3	a small cairn; uncertain, piled up recently?
KhP_024	66.86652400	37.97740900	2.7	2.3	0.3	0.15	a small cairn; uncertain, piled up recently?
KhP_025	66.86652400	37.97748700	26.6	24.3	2.5	0.3	a large kurgan consisting of two parts: soil-made mound with ring on the perimeter made of small stones (d. ca. 0.1 m) on S side; a stone-made mound (8.4×9.1 m) made of larger stones (d. up to 0.3 m) located on the top; well-preserved; two lines of stones running from the feature in the NW direction
KhP_026	66.86652400	37.97508400	3	3	0.3	0.1	disrupted by ploughing
KhP_027	66.86652400	37.97442528	4.5	6.8	0.3	0.3	disrupted on sides by ploughing; ploughed out stones probably collected on the top of the remaining mound in the recent past; the terrain relief suggests originally larger extent of the (circular?) mound: 7 or even 13.7 m?
KhP_028	66.86652400	37.97437000	3	1	0.2	0.2	badly preserved; close to KhP_029 – originally a single object?
KhP_029	66.86652400	37.97432500	3	1	0.2	0.2	badly preserved; close to KhP_028 – originally a single object?
KhP_030	66.86652400	37.97322700	4.5	3.8	0.2	0.4	ploughing disruptions
KhP_031	66.86652400	37.97297300	6.8	9.9	0.4	0.2	irregular shape; partly destroyed on sides by ploughing
KhP_032	66.86652400	37.97280800	8	8	0.2	0.2	a low mound; almost no stones in the central part
KhP_033	66.86652400	37.97302583	9.9	10.6	1.7	0.25	a large kurgan with a stoneless depression in the central part; unclear edges (maximum dimensions: 15×14.4 m); remains of an associated feature – an oblong-shaped stone setting or a stone platform (d. 2.5 m)

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
KhP_034	66.86652400	37.97230800	3	3	0.2	0.2	a small, low, compact kurgan
KhP_035	66.86652400	37.97238017	4.5	3	0.3	0.4	disrupted by ploughing on sides, stones piled up on the top of the mound
KhP_036	66.86652400	37.97603674	24	30.5	1.5	0.1	a large, mostly earthen-made mound; almost no stones except those piled up (in recent past) on the top; ploughing disruptions on sides
KhP_037	66.86652400	37.97550095	6	8	0.15	0.2	a severely disrupted kurgan mound; originally larger (d. 11 m?)
KhP_038	66.86652400	37.97646578	6	6	1	0.4	
KhP_039	66.86652400	37.97668700	1.2	1.2	0	0.3	
KhP_040	66.86652400	37.97682712	8.3	8.3	0.25	0.3	a regularly rounded mound; stoneless depression in the central part
KhP_041	66.86652400	37.97722913	6.8	6	1	0.4	ploughing disruptions on sides
KhP_042	66.86652400	37.98174133	3	3	0.1	0.2	
KhP_043	66.86652400	37.98169021	4.5	4.5	0.3	0.2	some stones piled up on the top recently
KhP_044	66.86652400	37.98154700	2	2	0.1	0.2	
KhP_045	66.86652400	37.98065683	3	2.6	0.2	0.1	
KhP_046	66.86652400	37.98049950	1.5	2	0.3	0.25	a small kurgan located in the slope: its height is hard to assess
KhP_047	66.86652400	37.98064543	1.6	1.6	0.2	0.1	a very small feature, maybe just a field clearance?
KhP_048	66.86652400	37.98053044	1.9	1.9	0.2	0.2	a small feature, very uncertain
KhP_049	66.86652400	37.98043974	1.5	1.5	0.3	0.2	a small feature, very uncertain - severely disrupted?; some larger stones piled up on the top
KhP_050	66.86652400	37.98044700	1.2	1.2	0.2	0.1	a small feature, very uncertain
KhP_051	66.86652400	37.98041700	1.76	1.5	0.2	0.2	a small feature, very uncertain

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
KhP_052	66.86652400	37.98038200	1.5	2.3	0.2	0.2	a small feature, very uncertain
KhP_053	66.86652400	37.98029650	2	4	0.4	0.2	a small feature, very uncertain
KhP_054	66.86652400	37.98066655	1.5	3	0.3	0.35	a small feature, very uncertain
KhP_055	66.86652400	37.98069600	3	3	0.5	0.4	a compact mound made of large stones
KhP_056	66.86652400	37.98079300	2	2	0.3	0.3	a small feature, very uncertain
KhP_057	66.86652400	37.98083500	2.2	1.5	0.4	0.2	a small feature, very uncertain; one larger stone (d. 0.4 m)
KhP_058	66.86652400	37.97833110	6	6	0.3	0.3	a low, circular-shaped kurgan; located on the edge of a minor ravine
KhP_059	66.86652400	37.97822900	2.6	2.6	0.3	0.4	a disrupted mound; badly-defined shape: E-W extent originally 5,5 m?
KhP_060	66.86652400	37.97806600	4	2.6	0.2	0.3	ploughing disruption on sides; many stones scattered around
KhP_061	66.86652400	37.97630159	16	8.3	0.9	0.3	a large, oval-shaped kurgan made of large stones; could it originally be two disrupted kurgans close to each other?
KhP_062	66.86652400	37.97742600	21.6	22	1.7	0.4	a large earthen kurgan with a stone ring around the perimeter - well-preserved on the N, NE side; stones piled up on the top; an associated feature: earthen line (a baulk chronologically later than the mound?) ca 440 m long goes to the west from the feature
KhP_063	66.86652400	37.97739300	2.1	2.1	0.3	0.2	
KhP_064	66.86652400	37.97752600	1.5	1.5	0.1	0.2	a compact small-sized cairn; it belongs to a cluster of similar features located on a strip of land that has been spared from ploughing; uncertain - could it be an old field clearance?
KhP_065	66.86652400	37.97752800	1.5	1.5	0.1	0.2	same as KhP_064

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
KhP_066	66.86652400	37.97754300	1.5	1.5	0.1	0.2	same as KhP_066
KhP_067	66.86652400	37.97784900	1.5	1.5	0.1	0.2	same as KhP_067
KhP_068	66.86652400	37.97788700	1.5	1.5	0.1	0.3	same as KhP_068
KhP_069	66.86652400	37.97792800	2.6	3	0.1	0.3	same as KhP_069
KhP_070	66.86652400	37.97790800	2.3	2.3	0.1	0.2	same as KhP_070
KhP_071	66.86652400	37.97788700	2.7	2.7	0.2	0.2	same as KhP_071
KhP_072	66.86652400	37.97778500	1.9	2	0.1	0.2	a compact small-sized cairn; it belongs to a cluster of similar features located on a strip of land that has been spared from ploughing; uncertain - could it be an old field clearance?; some stones piled up on the top recently
KhP_073	66.86652400	37.97784100	2.4	2.8	0.3	0.35	same as KhP_072
KhP_074	66.86652400	37.97783400	3	4	0.25	0.2	same as KhP_065
KhP_075	66.86652400	37.97778745	1.5	2.2	0.3	0.4	a compact small-sized cairn of uncertain origin; It belongs to a cluster of similar features located on a strip of land that has been spared from ploughing; differs from the rest of the features on this plain
KhP_076	66.86652400	37.97767600	2.3	3	0.3	0.4	a compact small-sized cairn; it belongs to a cluster of similar features located on a strip of land that has been spared from ploughing; uncertain - could it be an old field clearance?; some stones piled up on the top recently
KhP_077	66.86652400	37.97759300	2	3	3.8	0	same as KhP_076
KhP_078	66.86652400	37.97763473	1	1	0.1	0.1	same as KhP_065
KhP_079	66.86652400	37.97793765	1.5	4.5	0.2	0.2	severe ploughing disruptions on sides

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
KhP_o80	66.86652400	37.97793510	2.3	2.5	0.2	0.3	a small rounded mound; originally larger size?
KhP_o81	66.86652400	37.97814179	2.3	3.4	0.2	0.3	severely disrupted by ploughing; larger stones on the eastern side
KhP_o82	66.86652400	37.97819896	1.5	1.5	0.1	0.2	a disrupted mound; some stones recently piled up on the side
KhP_o83	66.86652400	37.97873267	19	19	1.8	0.5	a large kurgan, almost regularly circular-shaped; a stone ring made of large stones runs around almost complete perimeter; S side better preserved than the N side; almost stoneless central part of the mound
KhP_o84	66.86652400	37.97901000	6	6	0.5	0.2	a disrupted kurgan, damaged by ploughing on two sides (N-S); relief on the E-W axis suggest originally larger extent (15 m?); remains of a stone ring visible as non-continuous stone lines around the perimeter
KhP_o85	66.86652400	37.97803900	2	2.5	0.7	0.3	stones piled up recently(?) on the top of the older structure
KhP_o86	66.86652400	37.97681039	2.4	2.5	0.2	0.3	
KhP_o87	66.86652400	37.97865443	11.5	11.8	1	0.4	a large kurgan made of large stones arranged in well-visible concentric circles; flattened top part; a small 'satellite' kurgan mound (1×1 m) attached next to its edge
KhP_o88	66.86652400	37.97897900	3.9	4.5	0.4	0.4	
KhP_o89	66.86652400	37.97907700	6	4.5	0.2	0.4	
KhP_o90	66.86652400	37.97862817	3.8	3.9	0.2	0.25	
KhP_o91	66.86652400	37.97849200	2.3	3	0.3	0.35	some stones recently piled up on the top
KhP_o92	66.86652400	37.97921774	3.9	2.6	0.4	0.3	a small kurgan made of large stones
KhP_o93	66.86652400	37.97922956	2.3	1.5	0.25	0.45	one large stone in the central part

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
KhP_094	66.86652400	37.97926979	2.2	4	0.2	0.2	
KhP_095	66.86652400	37.97935912	0.7	0.8	0.2	0.2	
KhP_096	66.86652400	37.97945976	1.9	1.5	0.2	0.25	
KhP_097	66.86652400	37.97661331	2	3	0.45	0.25	ploughing disruption
KhP_098	66.86652400	37.97590017	4	2.5	0.3	0.15	together with KhP_099, this feature forms a larger N-S oriented linear elevation – does it reflect an older kurgan line damaged by ploughing, or other linear feature?
KhP_099	66.86652400	37.97592269	2.3	3.1	0.25	0.2	cf. KhP_098
KhP_100	66.86652400	37.97596176	3	3.75	0.4	0.15	
KhP_101	66.86652400	37.97605629	2.9	4	0.4	0.15	severely damaged by ploughing
KhP_102	66.86652400	37.97600094	2.7	3.4	0.4	0.2	some stones recently piled up on the top of the older structure
KhP_103	66.86652400	37.97627226	6	6	0.7	0.3	some larger stones scattered around the perimeter
KhP_104	66.86652400	37.97655203	2.7	3.7	0.5	0.15	severely damaged, removed stones scattered around
KhP_105	66.86652400	37.97666390	14.5	15	0.9	0.4	well-preserved western side of the mound; a stoneless depression in the central part
KhP_106	66.86652400	37.97667635	2.7	5.7	0.6	0.4	ploughing disruptions on sides
KhP_107	66.86652400	37.97718000	1.9	2.7	0.4	0.4	uncertain; some stones recently piled up on the top
KhP_108	66.86652400	37.97662000	1.1	1.1	0.3	0.25	
KhP_109	66.86652400	37.97578560	3.4	3.4	0.2	0.4	several stones exceptionally large (d. around 1 m)
KhP_110	66.86652400	37.97582200	2.3	1.9	0.3	0.3	
KhP_111	66.86652400	37.97221850	2.2	2.2	0.4	0.25	
KhP_112	66.86652400	37.97052500	2.4	2.7	0.2	0.15	
KhP_113	66.86652400	37.97029700	4.5	4.6	0.25	0.2	

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
KhP_114	66.86652400	37.96503866	6.8	8.4	0.15	0.2	a low kurgan mound; stoneless central part; a 'satellite' mound attached on SE, 5,3×4.2 m
KhP_115	66.86652400	37.96480317	4.5	6	0.25	0.4	a low, irregular mound made of large boulders
KhP_116	66.86652400	37.96472283	4.5	5.3	0.2	0.45	a low mound made of large boulders
KhP_117	66.86652400	37.96411672	3.8	3	0.5	0.4	signs of disruption on the surface
KhP_118	66.86652400	37.96669200	3	3.7	0.3	0.3	
KhP_119	66.86652400	37.96684700	3.8	2.6	0.5	0.3	an oval-shaped structure, probably damaged by ploughing
KhP_120	66.86652400	37.96713800	1.5	1.8	0.2	0.4	
KhP_121	66.86652400	37.96716678	1.5	1.1	0.25	0.2	
KhP_122	66.86652400	37.96716051	2.3	2.3	0.25	0.3	
KhP_123	66.86652400	37.96841830	4	4	0.5	0.4	disrupted on the side by a seasonal water stream running along the mound
KhP_124	66.86652400	37.96871773	4	4	0.4	0.3	
KhP_125	66.86652400	37.96895705	4	4.5	0.5	0.3	
KhP_126	66.86652400	37.96903000	4.5	3.5	0.4	0.3	closely attached to KhP_127
KhP_127	66.86652400	37.96899031	3	3	0.2	0.3	closely attached to KhP_126
KhP_128	66.86652400	37.96936428	5.3	4	0.5	0.4	
KhP_129	66.86652400	37.96943967	1.3	1.3	0.2	0.3	a small compact feature
KhP_130	66.86652400	37.96958762	4.5	2.3	0.6	0.4	only stone part of the feature measured: a significantly larger not-ploughed area around slightly elevated (origin unclear)
KhP_131	66.86652400	37.97015937	26.5	25	1.6	0.3	an earthen mound, only limited number of stones: only on the W side, there are remains of a perimeter stone ring preserved; satellite imagery (Bing) indicates even larger extent of the construction – ca 35 m in d.

Code	Longitude	Latitude	Width N-S (m)	Length E-W (m)	Height (m)	Max. stones diameter (m)	Note
KhP_132	66.86652400	37.97029368	29	31	1.3	0.25	Minor disruption caused by road coming through the western part of the kurgan; on the western side, clear signs of a stone ring/plinth consisting of several lines of stones.
KhP_133	66.86652400	37.97026320	10	10	0.6	0.4	a significant depression in the central part
KhP_134	66.86652400	37.97131917	4	6	0.45	0.5	disrupted by the dirt road on the side
KhP_135	66.86652400	37.97117505	3	2	0.2	0.25	a small compact mound
KhP_136	66.86652400	37.97105092	4.5	3	0.5	0.4	damaged by ploughing on both sides
KhP_137	66.86652400	37.97099000	3.5	2	0.3	0.3	damaged on sides by ploughing
KhP_138	66.86652400	37.97192900	4	4	0.2	0.2	a low, incompact stone mound
KhP_139	66.86652400	37.97296667	5	4	0.2	0.2	a stone line attached to the western side
KhP_140	66.86652400	37.97315197	6	4.4	0.4	0.3	
KhP_141	66.86652400	37.97341486	5	6	0.3	0.2	
KhP_142	66.86652400	37.97352502	6	3.8	0.4	0.3	
KhP_143	66.86652400	37.97414600	8.5	7.5	0.4	0.25	some of stone around the perimeter are exceptionally large (d. 0.5-0.6 m)
KhP_144	66.86652400	37.97418600	6	7.5	0.3	0.3	some of stone around the perimeter are exceptionally large (d. 0.5-0.6 m)
KhP_145	66.86652400	37.97433500	17	17	0.5	0.2	some larger stones (d. 0.4-0.5 m)
KhP_146	66.86652400	37.97470050	40	39	3	0.3	mostly earthen-made mound; a stone-made circular feature (d. 8 m) located on the top in the central part; remains of a perimeter stone ring on the NW side

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