# Report on the Summer 2025 Field Season of the "Georgian-Italian Gardabani Archaeological Project"

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## INTRODUCTION

The Summer 2025 field season of the Georgian-Italian Gardabani Archaeological Project, jointly carried out by Ca' Foscari University of Venice (Italy) and Ilia State University of Tbilisi, was mainly dedicated to completing the non destructive preliminary investigation (drone survey, geophysical prospections, identification and description of individual funerary barrows) at the Gardabani Kurgan Field site and other neighbouring kurgan fields, and the geomorphological and paleoenviromental research initiated in 2023-2024. Finds from previous excavations in the area stored at Gardabani Local Museum were also checked and photographed during the season.

The Italian team arrived in Georgia on June 25th and reached Gardabani, where the expedition house was located, on the same day, and its last members flew back to Italy on July 20th. The team was headed by prof. Elena Rova of Ca' Foscari University (co-director of the project) and included: Dr. Francesco Bianchi, Sebastiano Claut (PhD student at Torino University), Riccardo Fava, MA student, and Veronica Basso, BA student (Ca' Foscari University), archaeologists, and prof. Giovanni Boschian, geo-archaeologist (University of Pisa, Italy). At the end of the season, from July 16th to July 19th, part of the team undertook a short trip to Armenia in order to document some similar kurgan fields in that region for comparative purposes.

The Georgian team was composed of: prof. Mikheil Eloshvili (Ilia University), who followed the expedition's work in remote, Levan Navrozashvili (assistant professor at Ilia State University) officially representing the Georgian institution on the Field), geologists; Nika Metreveli and Dimitri Akubardia (researchers from the Department of Earth Sciences at Ilia University), GPR specialists; Mikheili Lobjanidze, topographer, Nino Ustashvili and Dimitri Natchebia (MA), Paata Chlaidze, Ani

Bughashvili, Mariam Tsiklauri, Tamar Aptsiauri (BA), students at Ilia University, and Giorgi Matiashvili (high school student from Tbilisi, volunteer). Mr. David Kandelakhi and Mr. Bakuri Chergezishvili drove the Toyota Landcruiser kindly provided by Ilia State University.

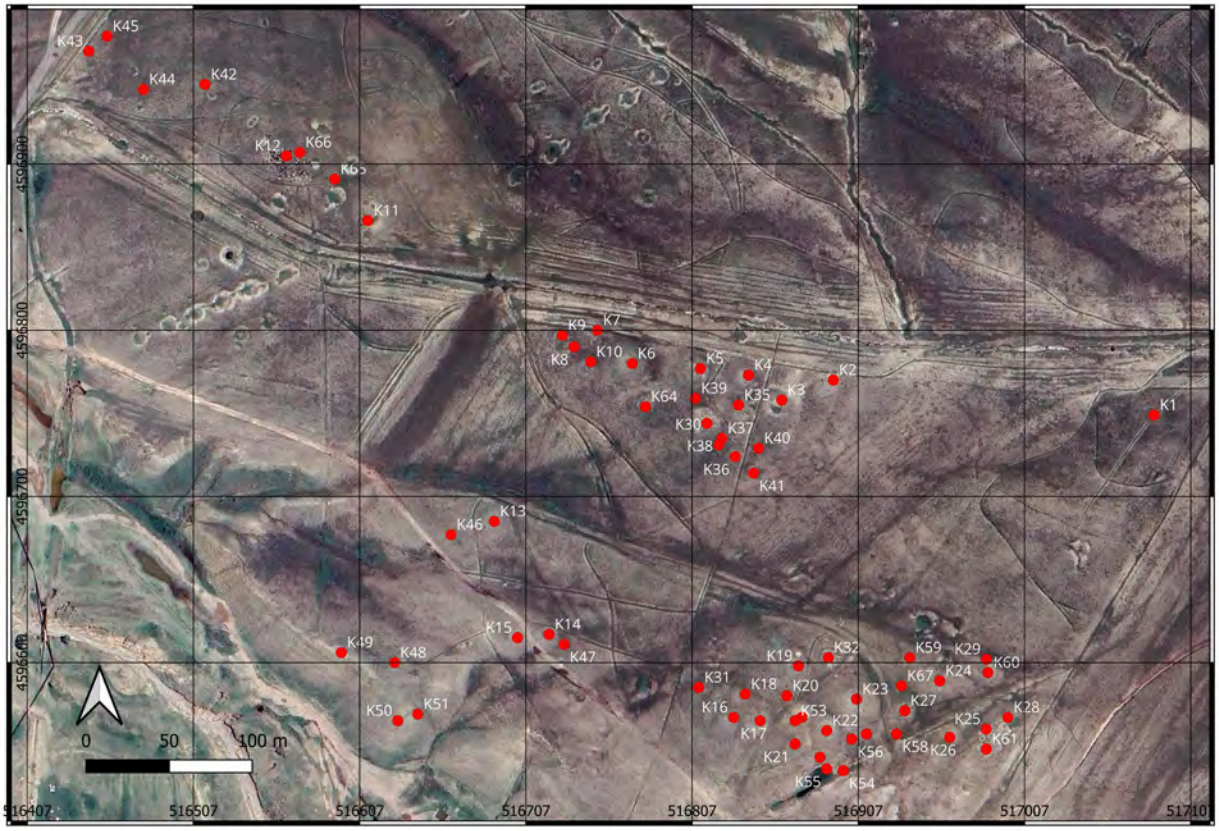
The following paragraphs contain a detailed description of the season's activities.

## WORK AT GARDABANI KURGAN FIELD (SITE GS001) (Fig. 1)

### Ground-truthing possible kurgans identified through Remote Sensing

The first activity undertaken at Gardabani Kurgan Field was checking six POW (Points of Interest) identified by Stefania Fiori through Remote Sensing on historical and modern satellite images as possible locations of additional kurgans. Four of them did not correspond to any visible remain, and are not visible even on modern satellite images. The remaining two are still evident on present- day Google Earth images, and might correspond to completely flattened kurgans. It was impossible to trace one of them on the ground, but we managed to locate the position of the last one, to which we assigned a Kurgan number, no. 64.

**Fig 1.** Updated map of the main kurgan distribution area of Gardabani Kurgan Field with location of the identified kurgans



**Ground-truthing aspects of the kurgans' layout identified through the analysis of drawing from drone photomosaics**

Most of the season was dedicated to systematic ground-truthing of the circular features identified by Riccardo Fava during the past winter as part of his MA thesis on the photomosaics derived from the drone images of the first 63 kurgans taken in 2023-2024: grass, grit, stone circles and circles highlighted by a slight change in soil colour and/or vegetation density (**Fig. 2**). This work is part of an experimental test study aimed at understanding how much of the buried internal features of the different kurgans can be perceived from the surface with different levels of definition.

Results are still preliminary but appear extremely promising; it is our aim to verify them through the excavation of a small number of different kurgans. Most kurgans show a larger circular "halo", well visible in the drone images but rarely perceptible on the ground, which may represent the maximum spreading of slopewash from their sides or, alternatively, a narrow outer ditch or path surrounding them. The most reliable indicators of the kurgan's size appear to be the large circles of thinner vegetation and, respectively, of gritty material – generally not perfectly coinciding with each other), which usually, but not always, roughly correspond to the outer limit of the beginning of the rise marking the barrow, when this is still preserved on the ground. These circles are best identified through the drone images, as they are often not immediately perceptible on the ground, where their limits are rather blurred.

In many cases the kurgans are characterised by the presence of an outer ring of stones, one to up to 4 meters wide. This can be more easily appreciated on the drawing derived by the drone pictures, as on the ground it is often damaged by modern disturbances, or does not immediately appear as a continuous circle. On some kurgans, an internal circle of stones can also be identified. An interesting feature, which can be often seen on the drone drawing, but is most clearly appreciated on the ground, is the presence, along both the internal and the external rings, of a number of structures of smaller dimensions: circles with a diameter between less than one and 2-2.5 m, some times with a larger stone in the centre, and possible squares or rectangles of similar dimensions. The meaning of all these structures is unclear, and it will only be possible to clarify it by proper excavation: they might represent contemporary or later secondary graves, or pits full of offers, etc.

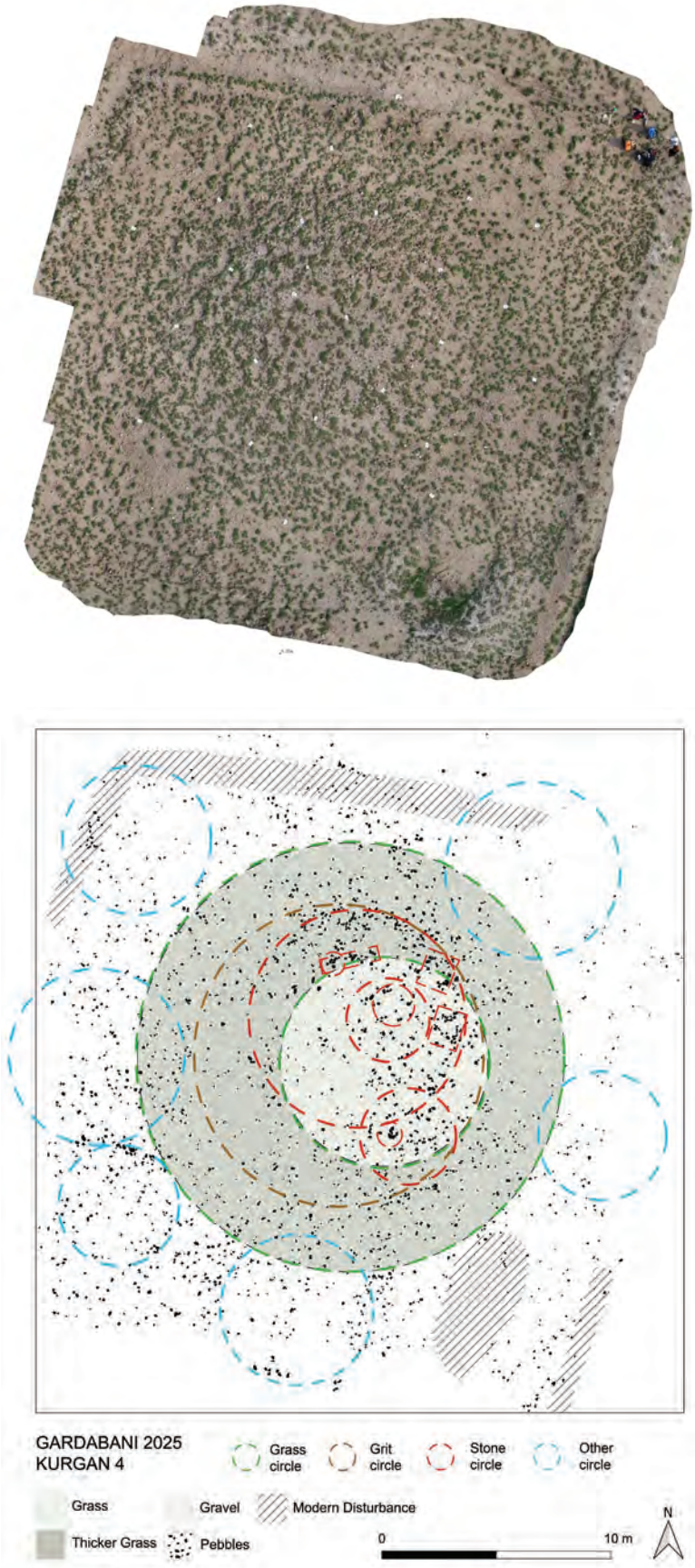
Another recurring aspect of unclear significance is the presence of a number of circles, usually tangent or intersecting the kurgan's outer limits, all along its outer perimeter of the kurgan. Their diameter is variable, but generally lies between 5 and 10-11 meters. It can be observed that such circles usually respect the central part of the barrow, and that they are often tangent to, but only rarely intersecting each other. We tentatively interpret them as markers of possible later burials cutting the original body of the kurgan.

In selected, special cases, the presence of two circles, tangent to each other, occupying the whole of one diameter of the kurgan, was observed. This suggests that an original central burial chamber or pit was replaced by two later ones.

Finally, is interesting to observe that, in spite of a range of variety, these different features appear to be present on most examined kurgans, but they are more clearly visible on the partially of totally flattened ones, an hint to the fact that kurgans were originally more similar to each other than they presently appear, and that they were originally covered with a more homogeneous pebble layer which, when preserved, hinders the visibility of the underlying structures.

In the course of the ground-truthing operations, three new kurgans (nos 65, 66, 67) were discovered and documented at Gardabani Kurgan Field. We are rather confident that this number reliably represents the barrows originally present at the site.

**Fig 2.** Drone-photomosaic (above) and derived map (below) of Kurgan no. 4, with highlighted features identified through analysis of the drawing and subsequent ground-truthing

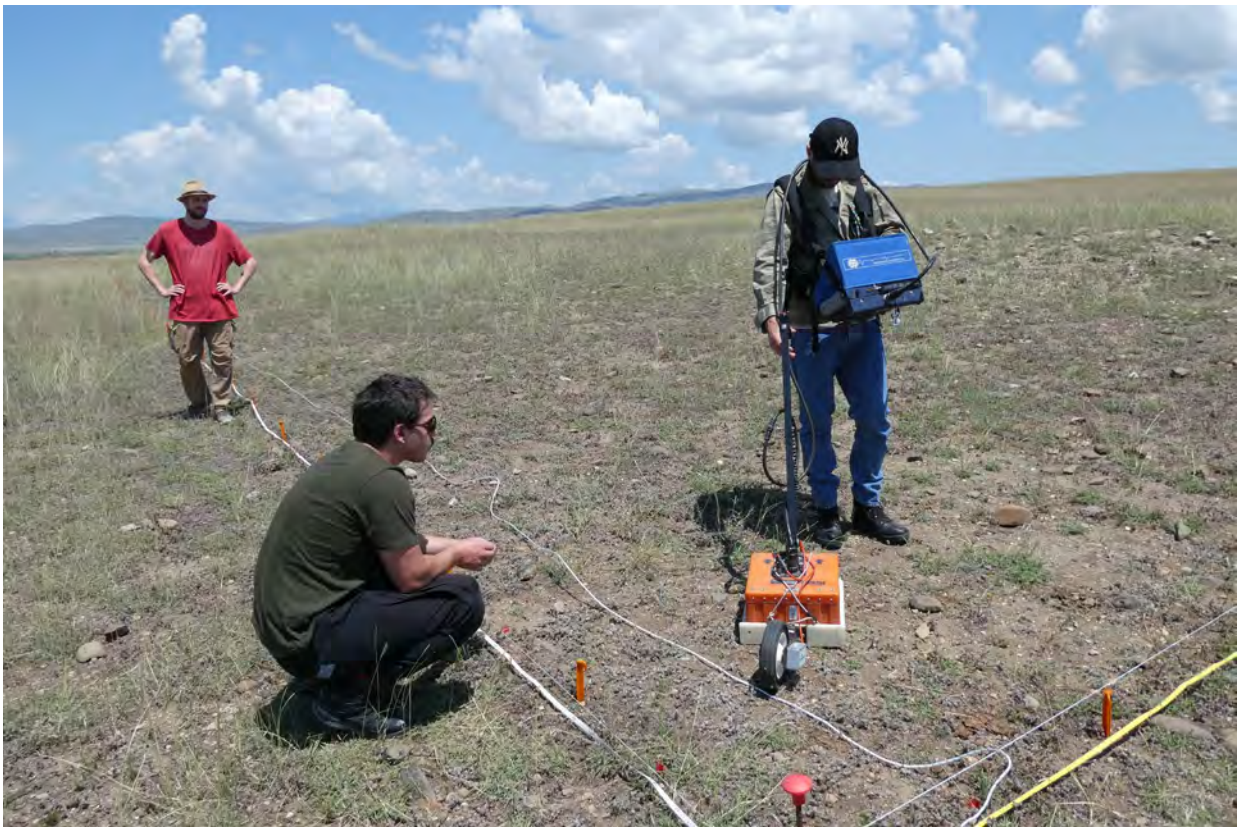


**GPR Prospections**

Two areas, one in the northern part and one in the southern part of the burial ground, were identified for Ground-Penetrating Radar prospections, to be carried out researchers from the Department of Earth Sciences at Ilia University (**Fig. 3**). The first one, measuring 50 x 50 m and including kurgans nos 5, 30, 39, 4, 35 was successfully prospected by Nika Metreveli and Dimitri Akubardia on July 7th with the help of members of the Italian team; the results are presently being processed.

The second, larger area, measuring 100 x 65 m, located in the southern part of the kurgan field and including kurgans nos 16, 17, 18, 19, 20, 21, 22, 23, 32, 52, 53, 56, 57, will be prospected by the same Georgian researchers during the month of August, after verifying the results obtained on the first one and optimising the instrument's parameters for the specific situation (types and thickness of natural sediments and archaeological remains) encountered.

**Fig 3.** Nika Metreveli and Dimitri Akubardia operating the Ground Penetrating Radar on the Kurgan field



**Sampling for geochemical prospection**

Samples for this kind of analysis, successfully carried out in recent years on kurgan fields from Armenia (cf. Hovhannisyan et al., Archaeological Prospection 31, 2024, 3–22) were collected by the Georgian-Italian expedition on in the same two areas prospected by magnetic prospection in 2024 and by Georadar in 2025 (and foreseen to be excavated in the next future) in order to test the methods and compare the results of the different methods.

Geochemical prospections proved capable to identify buried graves by the presence of halos left on the subsurface soil by phosphorus (as a result of the presence of buried human bones) and different metals (often an important constituent of burial goods). The two areas selected for sampling measured 1250 $m^2$ (22.5x50 m: Area 1, the northern one, including kurgans nos. 5, 39 and 30) (**Fig. 4**) and, respectively 1620 $m^2$ (54 x 30 m: Area 2, the southern one, including kurgans 16, 17, 18, 20, 52, 53). The mesh was set at 2.5 m in the first case, resulting in 224 samples, and at 3 meters in the second one, resulting in 209 samples. Analyses will be performed by Arshavir Hovhanissyan (Armenian Academy of Sciences, Yerevan) in the course of the next winter by using approximate quantitative spectral atomic emission determination of chemical elements.

**Fig. 4.** View of Area 1 after geo-chemical sampling

## WORK AT OTHER KURGAN FIELDS CLOSE TO GKF

The team completed (by surveying sites GS010, GS011, GS012, GS008, GS004, GS003 and GS020) the systematic drone coverage of the kurgan fields located along the road leading from the village of Lemshveniera to Gardabani Kurgan Field started in 2024 with sites GS016, GS017, GS018, GS026 (**Fig. 5**).

**Fig 5.** Map of the Lemshveniera-Gardabani Kurgan Field road with highlighted areas covered by systematic drone footage highlighted

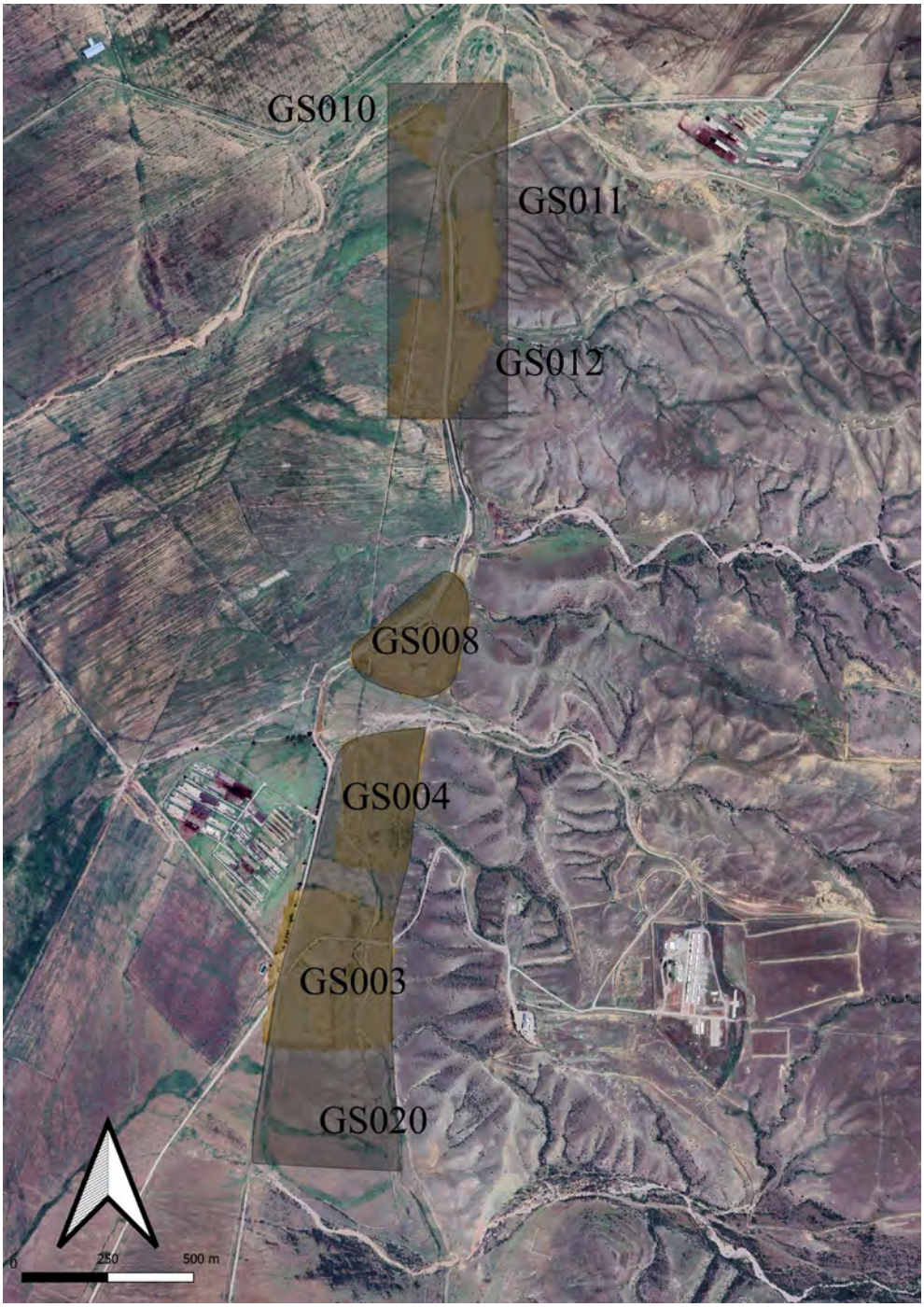


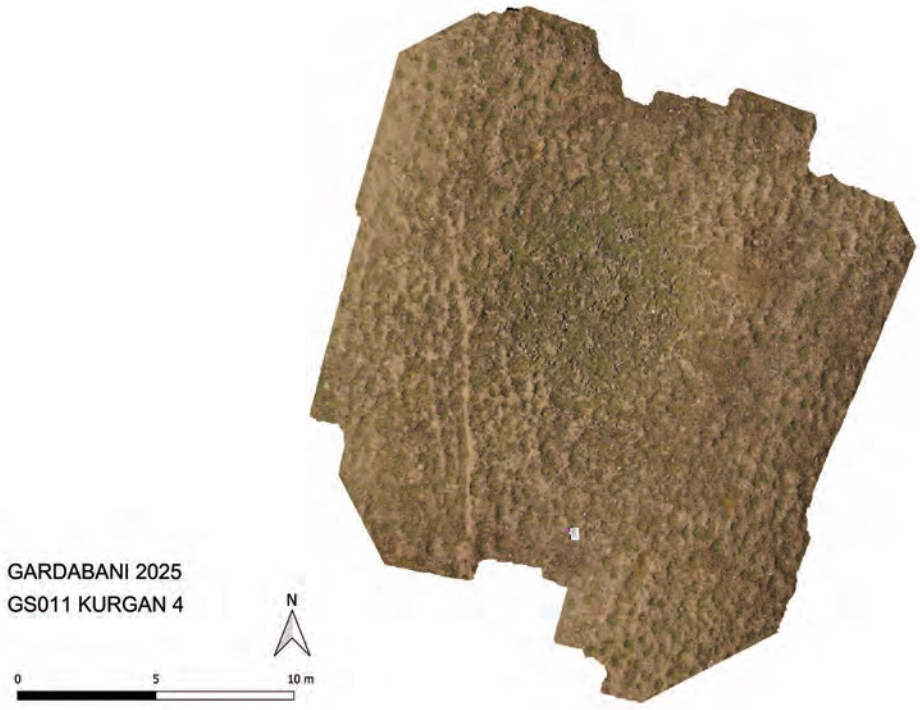
**Fig 6.** Exposed section f Kurgan no. 1 at site GS011 damaged by road construction

Besides its scientific value, this activity has a great value in terms of the protection of the local archaeological heritage, as the remains of the barrows are literally disappearing under our eyes due to the construction and improving of infrastructures and to continuing agricultural activities. One example of this is the partial destruction of two kurgans (nos 1 and 11) at site GS011 due to the rectification of the course of the road, used by tourists to access the well-known medieval monastery of David Gareja, which left and exposed section on the former (**Fig. 6**) and partially destroyed the burial chamber of the second. The joint team documented the damage and forwarded the documentation to Mr. Gocha Omaidze, responsible of the archaeological Department of the Gardabani Historical Museum. G. Boschian produced a geological description of the exposed section of Kurgan no. 4.

The complex represented by sites GS010 and GS011, which lies closest to Gardabani Kurgan Field, was also the object of a more detailed documentation, which we will possibly continue in the following years on the remaining funerary sites of this group. The area was revisited looking for additional kurgans that we might have missed during our first visit in 2024 (whereby we identified 12 new ones: Kurgan no. 4 at site GS010 and Kurgans nos 11-21 at site GS011) (**Fig. 7**). All the barrows identified thus far were separately described and photographed, and orthophotos of them were produced from drone images taken from a low elevation (**Fig. 8**), thus following the procedure already experimented at Gardabani Kurgan Field with the aim producing detailed maps of the distribution of stones, grit, grass etc. on each barrow.

**Fig 7.** Updated map of Sites GS010 and GS011 (areas covered by drone footage highlighted)


**Fig 8.** Example of drone orthophoto (Kurgan no. 4 at site GS011)



## WORK AT GARDABANI HISTORICAL MUSEUM

This activity was carried out, after a preliminary visit of the Georgian-Italian team to the Museum on June 27th, on July 2nd and July 6th 2025 by Veronica Basso with the assistance of Giorgi Matiashvili. They reviewed ceramic vessels and fragments dating from the Bronze Age to the Medieval period from the Gardabani municipality exposed in the museum showcases, translated the descriptions given in the attached labels, and took new photos of them, mainly aiming at creating a reference collection for the material discovered by the Georgian-Italian team during the regional survey and future excavations at Gardabani Kurgan Field and other sites of the area. In total, 211 ceramic items were photographed anew.

Special attention was dedicated to the finds from the Late Bronze/Early Iron Age Age at Mikhailovka, located in the area of the modern cemetery (**Fig. 9**).These were identified and compared with the items illustrated in a recent MA thesis from Ilia State University, Tbilisi (შალვა ბაბუციძე, გარდაბნის ველის გვიანბრინჯაო-ადრერკინის ხანის არქეოლოგიური ძეგლები, Shalva Babutsidze, Late Bronze/Early Iron Age sites inthe Gardabani plain, 2020), which was translated with the help of Georgian students affiliated to the project.

**Fig. 9.** Images of Late Bronze/Iron Age vessels from Mikhailovka settlement at the Gardabani Museum

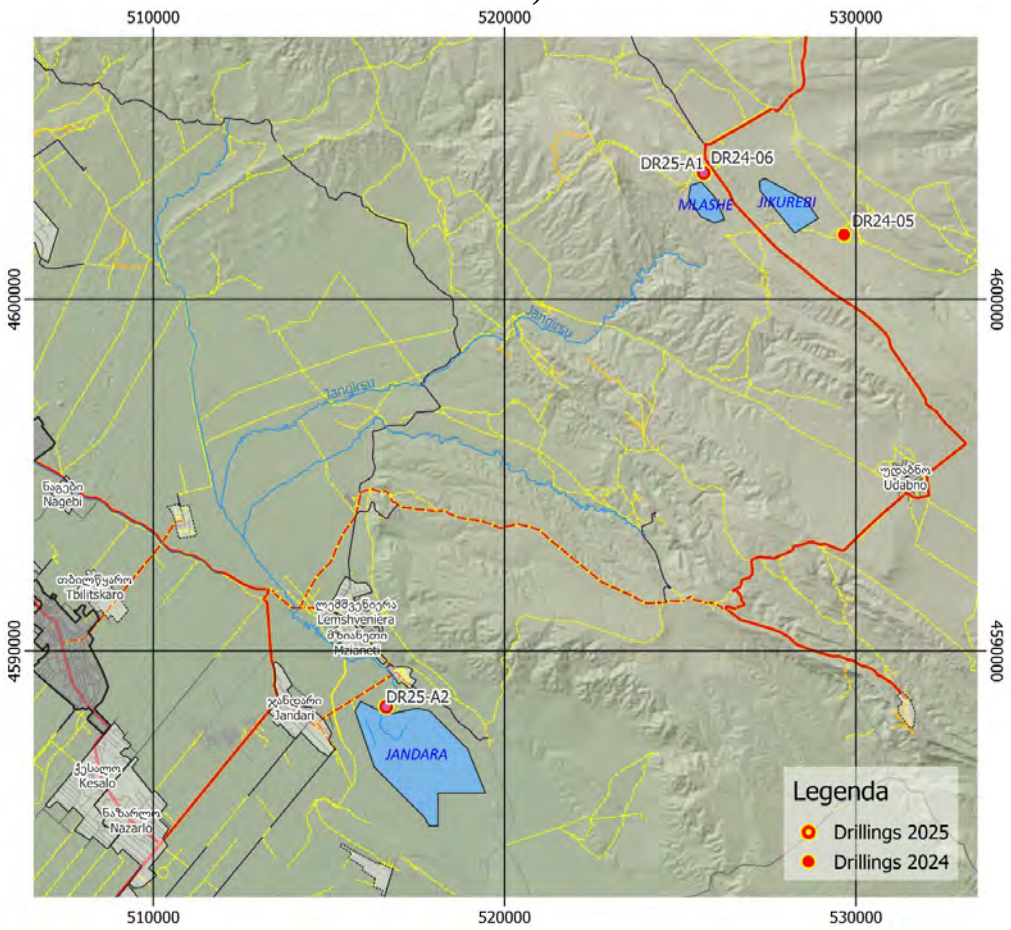
## GEOARCHAEOLOGY

Geoarchaeological research was carried out by Giovanni Boschian, Levan Navrozashvili, and Nino Ushtashvili with the assistance of other members of the expedition. During three days, the joint team drilled cores in the Gareji and Gardabani region, continuing the work initiated in 2024 with the main purpose to sample good quality pollen sequences and absolute radiometric dates. During the remaining days of the field season, G. Boschian concluded the local survey for setting up a detailed geological map of the area surrounding Gardabani Kurgan Field.

### Palaeoenvironmental drillings

Drillings for palaeoenvironmental purposes, mostly pollen and sedimentology studies, were resumed after the 2024 field season. The promising palynological results obtained by N. Ustiashvili from preliminary analyses carried out on clay levels cored at Mlashe Lake (core DR-24-06) suggested to continue more in depth the exploration of this sequence. Coring DR24-06 had been interrupted at about 6 m depth in 2024 because of technical difficulties, whereas a new core (DR25-A1) was drilled near the previous one during fieldwork in July 2025. It could be located in a more favourable position, towards the centre of the lake basin because of the lower lake level of 2025 (**Fig. 10**). These coring locations are situated in different geomorphological and environmental contexts, to the north and the south of the archaeological study area and may provide good insights about the environmental evolution of the area.

**Fig. 10.** Location map of the coring sites DR25-A1 (Mlashe Lake) and DR25-A2 (Jandara Lake)



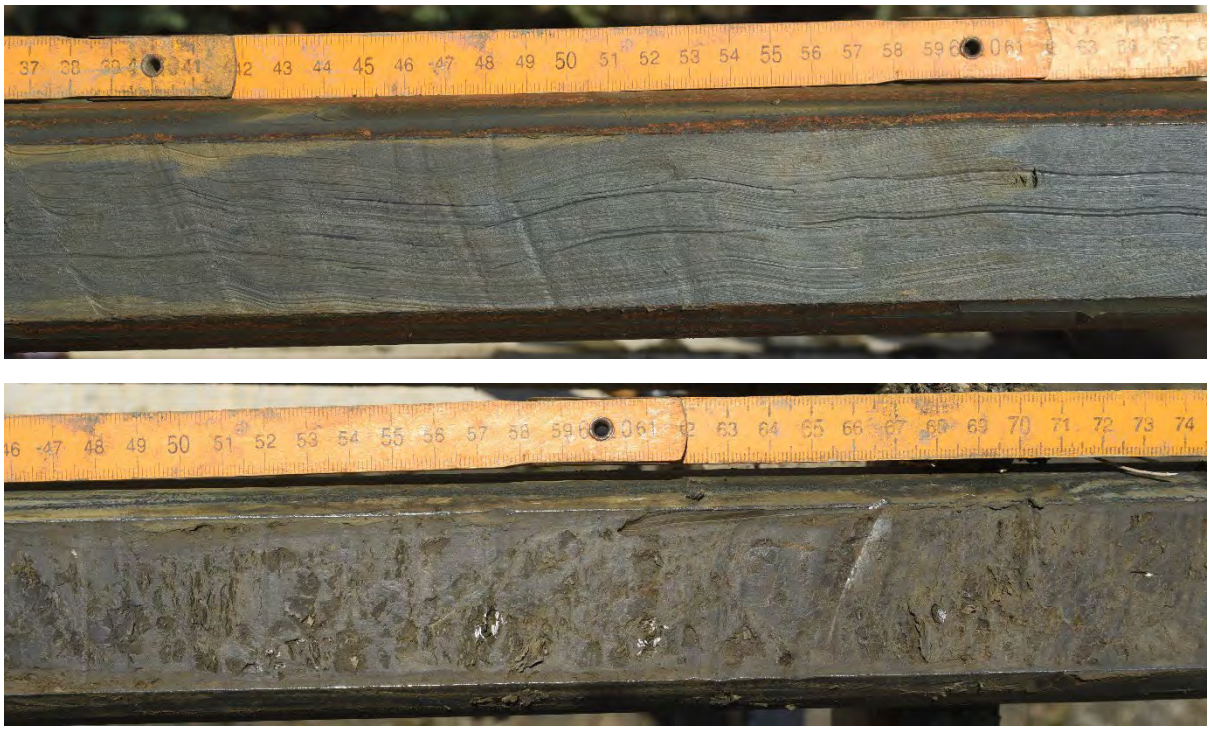
*Core DR25-A1 at Mlashe Lake*

The coring put into light a succession composed almost exclusively of fine-grained sediments -clay and silt- characterised by grey to blackish hues, which were accumulated in reducing depositional environment. Minor evidence of oxidisation occurs sparsely along the succession, suggesting a taphonomic environment favourable for pollen preservation (**Fig. 11**, above).

The bottom of the succession, i.e. the core segment between 7 and 9 m depth, is characterised by more oxidised sediments including external inputs like soil pedorelics and some coarse sand/very fine gravel clasts suggesting external inputs. The very bottom of the core, between 9 and 10 m depth, is composed by compact and rather oxidised lacustrine sediment including pedorelics that indicate a phase of lake drying and soil formation (**Fig. 11**, below).

The nature of the deepest sediments collected and the morphology of the lake basin suggest that deeper coring may put into light a longer succession, providing palaeoenvironmental data over a longer time-span. Samples for radiocarbon dating were collected on organic matter-rich layers.

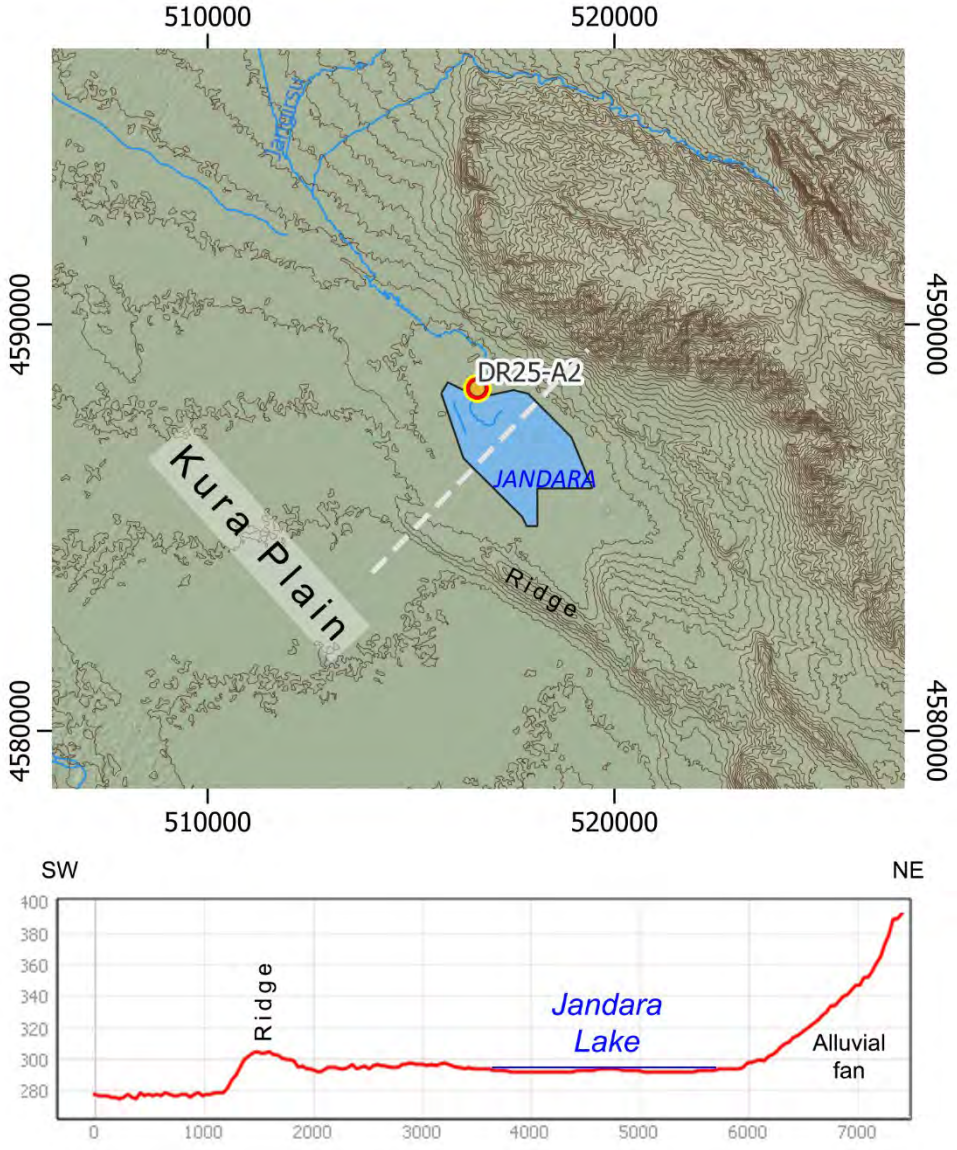
**Fig. 11.** Mlashe Lake, Core DR25-A1, depth 3.37-3.65 m, showing sediments composed of homogeneous dark grey clay (above) and Core DR25-A1, depth 9.46-9.74 m, showing compact lacustrine clay with soil pedorelics, oxidised by soil-forming processes



*Core DR25-A1 at Jandara Lake*

Coring on the northern (Georgian) side of Jandara Lake is justified by the flat morphology of the area and by historical studies, suggesting that marshy environments existed in the area before the relatively recent and partly artificial formation of the lake. The lake basin is situated in a flat horizontal area some 15-20 m higher than the nearby Kura Plain, whose slope is around 3 ‰, and separated from it to the SW by a low ridge of hills. To the NE, the lake basin is limited by alluvial fans descending from the hills (**Fig. 12**).

**Fig. 12.** Detailed map of the Jandara Lake basin, with transversal profile through the lake and nearby landscape.




The top part of the core (about 2.7 m) is characterised by alternating clay and sand sediments, organised in layers of variable thickness and with sharp limits (**Fig. 13**, above), suggesting a river depositional environment, very likely recent and due to the activity of the tributary Jangirsu River, whose mouth is located few hundred metres west of the coring site.

The depositional environment was characterised by lower energy at greater depth, from about 3 to 4 m (**Fig. 13**, centre) as testified by mm- to cm-thick clay layers, alternatingly light and dark but generally rather oxidised and with common Fe/Mn-oxides pedofeatures. From 4 to 5 m depth (**Fig. 13**, below) the sediments are composed of homogeneous dark grey to blackish clay, typical of very low energy reducing depositional environment. Coring was terminated at 5 m depth due to technical reasons, but it will be resumed in the future.

**Fig. 13.** Jandara Lake, core DR25-A2, depth 2.48-2.77 m, showing low (clay) and high energy (sand) sediments accumulated in river environment (above); core DR25-A2, 3.04-3.33 m, showing alternating laminae and thin layers of clay and silty clay, prevalently oxidised (in the centre) and core DR25-A2 core, depth 4.48-4.77 m; dark grey to blackish clay sediments (below)

## OTHER ACTIVITIES

At the end of the season, from July 16th to July 19th, Elena Rova, Francecso Bianchi and Veronica Basso undertook a short trip to Armenia where, accompanied by the excavators, they visited three different, partially excavated kurgan fields: Karashamb, Artanish and Gegharot.

The aims of the visit were: 1) to test the drone survey experimental procedure applied at GKF and other barrow fields in the Gardabani region to similar funerary sites located in different landscapes; 2) to compare the results of the drone survey with those obtained by excavation in nearby areas and 3) to verify at the same time the presence in other areas of barrow fields of the same type of those encountered in the Gardabani district.

**Fig. 14. View of excavated kurgan at Karashamb**

On July 17th the Italian group, accompanied by Varduhi Melikyan, visited the site of Karashamb in the Kotyak province. Both the excavated area of the cemetery and the adjacent unexcavated part were surveyed by drone, and detail drone pictures of six excavated (**Fig. 14**) and unexcavated kurgans were taken. Descriptions of both categories of barrows, based on what could be seen on the ground, were also recorded.

The same protocol was used, on the following day, on three kurgan fields located in the Artanish peninsula on the eastern shore of Lake Sevan in the Gegharkunik province: Artanish 9, 23 and 29, which was visited together with the excavator prof. Arsen Bbokhyan and dr. Arshavir Hovhannisyan. At the two latter sites, a total of 10 kurgans, both excavated and unexcavated, were recorded at Artanish 9 the wind was too strong for the drone to be operated). A short visit was also made, on the same day, to the famous funerary site of Lchashen on the western shore of the lake, where however, vegetation was too high for attempting a drone survey of the area.

Finally, on 19/07 the group, guided by prof. Ruben Badalyan and Levon Aghikyan, visited the well-known site of Gegharot in the Aragatsotn region, where six excavated kurgans and six unexcavated ones were drone-surveyed and recorded (**Fig. 15**).

The results of the drone survey are presently being processed; it can however be already anticipated that in all cases, which represent kurgans of different periods and are located in different natural environments, significant similarities with, but also quite interesting differences from, were observed compared to the kurgans of the Gardabani region we had previously analysed. While some of these (for instance the type and size of the stones used) are certainly connected to local factors such as the availability of different raw material, other aspects seem to rather be connected to chronology or to different cultural traditions.

**Fig. 15. The team recording excavated and unexcavated kurgans at Gagharot**

On the occasion of the visit to Armenia, the Italian team delivered the samples for the geo-chemicalprospection collected a few days earlier on the Gardabani Kurgan field to Dr. Arshavir Hovhannisyan (Institute of Geological Sciences, National Academy of Sciences of Armenia, Yerevan), who will analyse them following the same procedure previously applied at Artanish (see above).

## CONCLUSIONS

The short summer season of the expedition (**Fig. 16**) was very successful, as it allowed to complete all the activities began in the previous two years and to collect a huge amount of data about the kurgan phenomenon in the Gardabani region and elsewhere. The excavation of some kurgans at Gardabani Kurgan Field, which we plan to undertake in autumn 2025, will represent the beginning of the second phase of the project. This will be mainly dedicated to verify and to integrate the information collected thus far with data recovered by more traditional archaeological methods, but with a special focus on the use of micro-scale archaeological techniques for the analysis of the finds.


## Acknowledgements

Thanks are due to Ilia State University of Tbilisi and to the Italian Embassy in Tbilisi for their constant support during the field activities of the expedition. We are extremely grateful to Mr Gocha Omaidze and the personnel of the Gardabani Historical Museum. We would also like to thank profs Ruben Badalyan, Arsen Bobokhyan, drs. Varduhi Melikyan, Levon Aghikyan (Institute of Archaeology and Ethnography, Yerevan, Armenia) and dr. Arshavir Hovhannisyan (Institute of Geological Sciences, National Academy of Sciences of Armenia, Yerevan), for taking the time to guide us to Kurgan fields on Armenia and generously sharing their knowledge about them with us. The 2025 field season of the Georgian-Italian Lagodekhi Archaeological expedition was funded by Ca' Foscari University of Venice (Fondo Ateneo Scavi Archeologici 2025 and DSU department funds), Ministero degli Affari Esteri e della Cooperazione Internazionale (Contributi Missioni archeologiche, antropologiche e etnologiche italiane all'estero 2025) and Ministero dell'Università e della Ricerca Scientifica (PRIN-2022 ESPREMO project).


**Fig. 16.** Group photo of the summer 2025 GIGAP team