



Report on the Autumn 2024 Field Season of the “Georgian-Italian Gardabani Archaeological Project”

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INTRODUCTION

The autumn 2024 field season of the Georgian-Italian Gardabani Archaeological Project Ca' Foscari University, jointly carried out by Ca' Foscari University of Venice (Italy) and Ilia State University of Tbilisi was dedicated the continuation of the regional survey of the southern part of the Gardabani district.

The Italian team arrived in Georgia on September 26th and reached the city of Rustavi, where the expedition house was located, on the same day. The team was headed by prof. Elena Rova of Ca' Foscari University (co-director of the project) and included: Stefania Fiori (PhD candidate at Kiel University, Germany) and Alper Aslan (PhD candidate at Torino University), specialists in landscape archaeology, responsible for the survey project; Francesco Bianchi (PhD candidate at the Ludwig-Maximilian University of Munich, Germany), Sebastiano Claut (PhD student at Torino University), and Sina Judith Wieser (MA Student at Kiel University), archaeologists. While the other members of the team flew back to Italy on October 11th, Elena Rova remained in Tbilisi until October 25th.

The Georgian team was composed of: prof. Mikheil Eloshvili (official representative of Ilia State University, not on the field) and Levan Navrozashvili (PhD candidate at Ilia State University), geologists; Tamar Aptsiauri, Giorgi Argevnishvili, Ani Bughashvili, Paata Chlaidze, Tatuli Tsetskhladze, and Mariam Tsiklauri (BA students in Archaeology at Ilia State University), Mikheili Lobjanidze, MA (Ilia State University, topographer) and Nino Ustiashvili (MA student at Ilia University, palynologist, not on the field). Mr. David Kandelakhi and Mr. Bakuri Chergezishvili drove the Toyota Landcruiser kindly provided by Ilia State University.

The first activity of the season consisted of ground-truthing possible sites identified by Stefania Fiori in the survey region through remote-sensing (analysis of recent and historical satellite images), with a special focus on the identification of funerary barrows (kurgans). We also continued the visit, begun during the summer 2024 season, of different environmental zones (plain, plateaus, hilly flanks, mountains etc.) within the region, carrying out informal pedestrian transects on selected areas of each of them in order to verify the presence of possible archaeological sites and to evaluate the disturbance caused to archaeological heritage by modern agricultural, industrial and military activities. We also carried out a complete drone survey of a cluster of kurgan sites (GS016, GS017, GS018, GS026) we had identified during the previous seasons, in order to better understand the relations among them.

Mikheil Lobjanidze expanded the drone-based map and DEM of Gardabani Kurgan Field (Site GS001) he had created in 2023 to get a better view of the geomorphological context of the site. Geological corings were carried out under the supervision of Levan Navrozashvili to complete the work accomplished by the expedition's geologists in Summer 2024.

After the end of the field activities in Rustavi, Elena Rova spent 15 days in Tbilisi where she was engaged in didactical activities at both Ivane Javakhishvili Tbilisi State University and Ilia University, in meetings with local authorities and scholars and in individual research.

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



Fig 1. Map of the Gardabani Municipality with approximate location of the survey area and of Gardabani Kurgan Field

SURVEY OF THE SOUTHERN PART OF THE GARDABANI MUNICIPALITY

The area of interest of the joint team is the southern part of the Gardabani Municipality, approximately from the city of Rustavi to the north to the present border with Azerbaijan to the south (**Fig. 1**).

The region comprises three distinct geomorphological and environmental zones: the lowlands of the Kura River and its tributaries to the west (A), the intermediate zone occupied by hills and plateaus (B), and the mountainous area to the east (C) (**Fig. 2**). As a continuation of the summer 2024 expedition's activities, the team explored all the three zones in order to collect data across the different geomorphological regions. In the fertile lowlands, visibility was, however, significantly limited due to the soil conditions and ongoing agricultural activities. In the other areas, at altitudes varying between 300 and 600 m a.s.l., vegetation remained dense, but it was relatively dry. While visibility in these regions was not optimal, it was sufficient to detect the presence of archaeological structures and materials.

The survey employed a combination of intensive and extensive methods. In the lowlands, participants conducted straight transects with a 10-meter spacing between them, focusing particularly on the few accessible ploughed fields. In the hilly region, a mixed approach was applied, combining parallel transects with adaptations to follow the natural contours of the landscape, which in this area is characterised by numerous alluvial terraces and gullies.

Besides investigating specific areas in the three geomorphological zones, we verified points identified by Stefania Fiori through remote sensing, further refining the accuracy and scope of the survey. Remote sensing methods played a key role in the initial phases of the study, enabling the identification of potential archaeological features and offering valuable insights into the landscape. To better understand landscape changes over time, assess the impact of modern human activities, and enhance the detection of archaeological features, we integrated historical and recent imagery into our analysis. Specifically, we utilised Corona satellite imagery from 1971, Hexagon from 1973 and 1977, Gambit from 1966 alongside contemporary imagery available on Google Earth Pro.

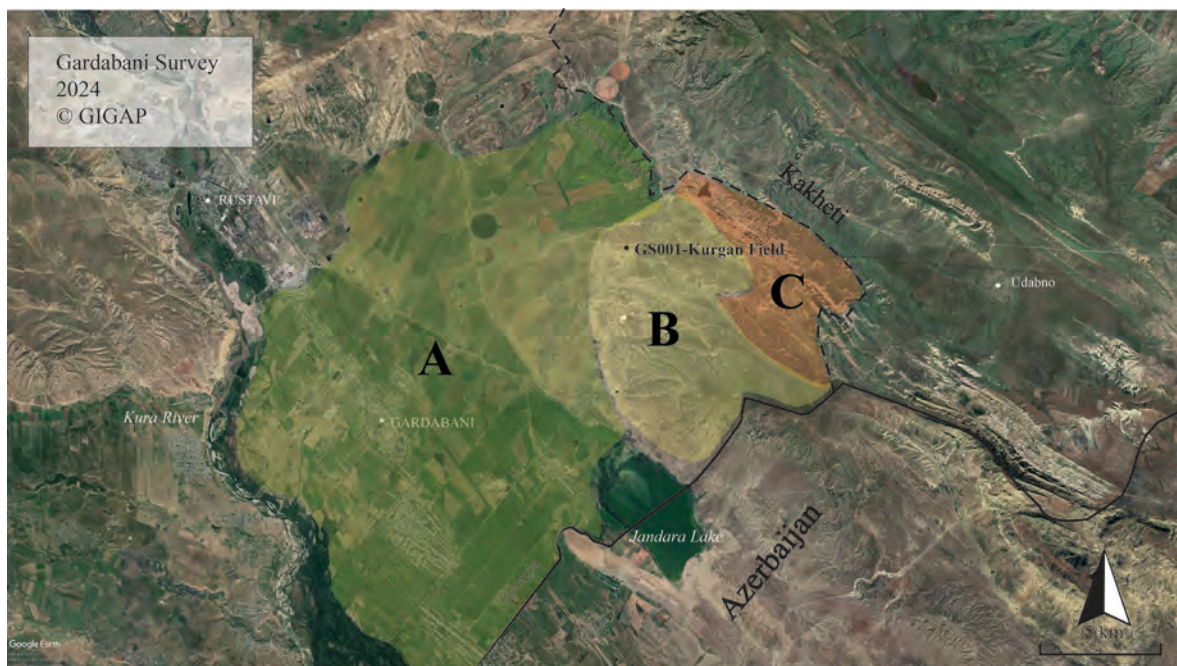


Fig 2. Map of the survey region with different geo-morphological/ environmental zones

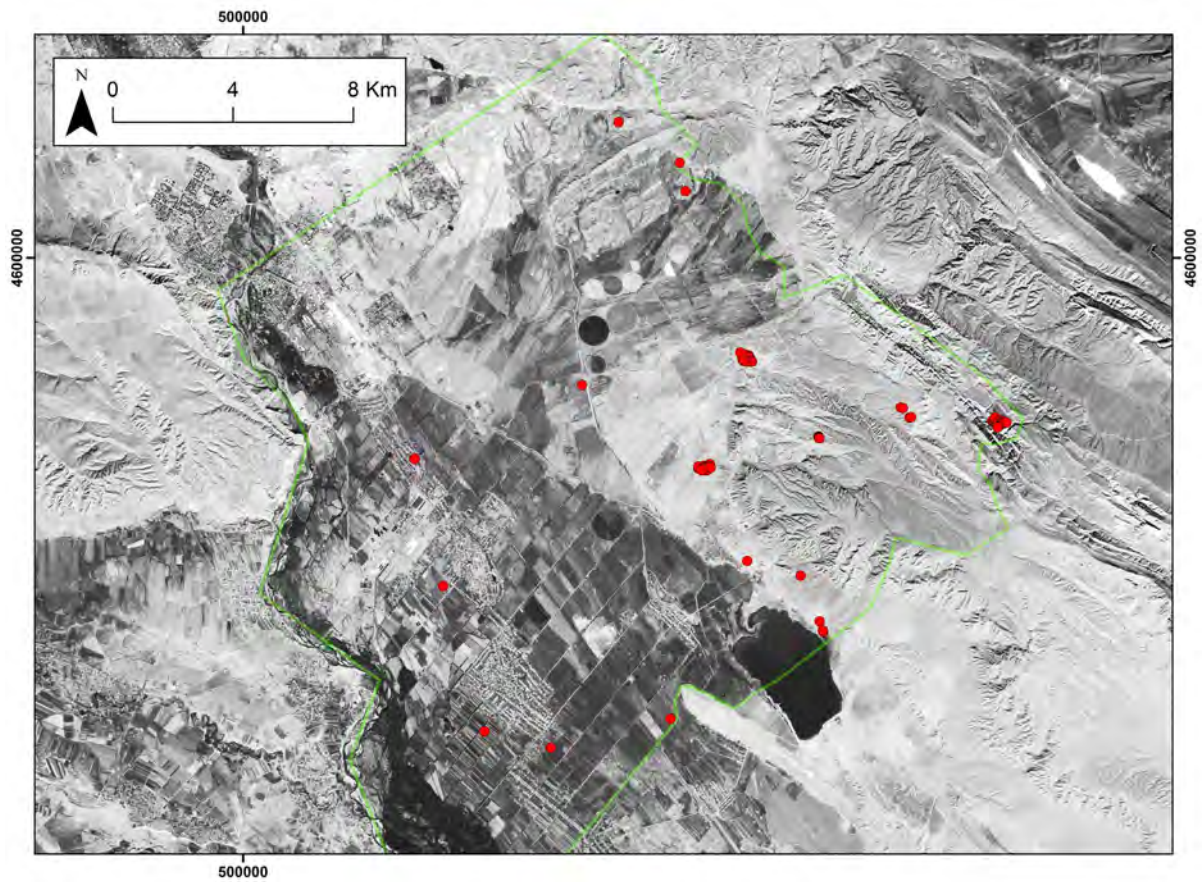


Fig 3. Map of the 120 POIs identified with remote sensing (Basemap Landsat from 29 Oct. 2019. Courtesy of the USGS)

All data collected during the remote sensing and fieldwork phases were consolidated within a Geographic Information System (GIS). This provided the foundation for planning fieldwork and guiding survey activities, ensuring a comprehensive understanding of the study area and maximising the efficiency and effectiveness of the research.

This first step led to the detection of a total of 120 points of interest (POIs) (**Fig. 3**). Nearly all of these were verified, except for three points located too close to the border with Azerbaijan, where access was restricted. Among the verified points, seven were identified as modern military installations, and three were attributed to modern human activities.

During the analysis of historical imagery, three new clusters of kurgans were identified. Unfortunately, they appear to have been destroyed (or partially destroyed), likely within the last 50 years, due to the expansion of agricultural activities. In two cases (sites GS028 and GS029), the pedestrian survey revealed possible traces of the kurgans, although the mounds themselves had been entirely obliterated, and only minimal surface material could be recovered. Notably, in one case (site GS026), very few kurgans (two out of 33) were spared from destruction, likely due to their larger size, which may have made them more challenging to remove (**Fig. 4**). Overall, the integration of remote sensing techniques proved instrumental in the identification of kurgans, both intact and destroyed. This approach significantly enhanced the survey's effectiveness by highlighting specific areas of interest for further investigation.

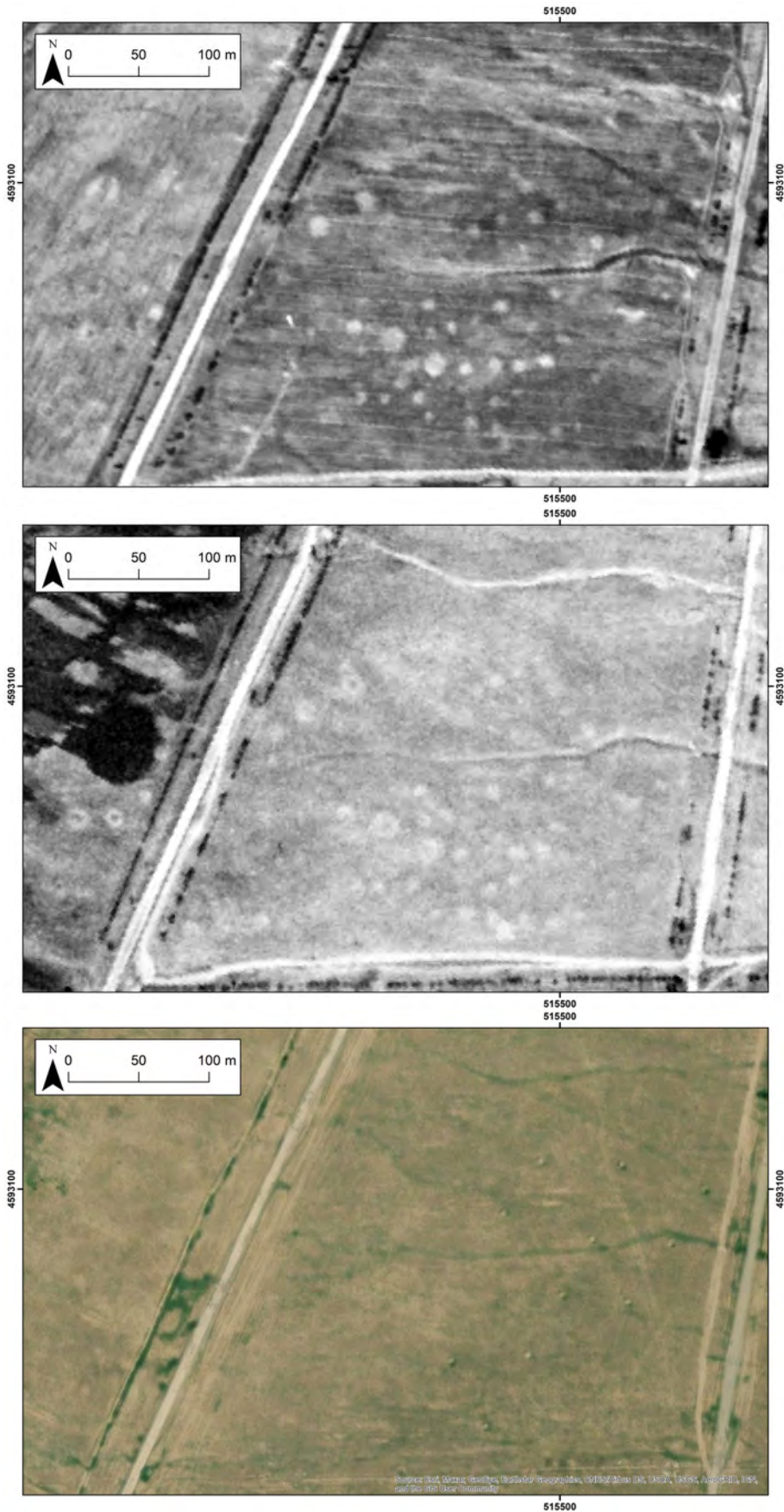


Fig 4. Detail of site GS026 from satellite imagery. From left: Hexagon image dated to 1973, Hexagon image dated to 1977, ESRI Basemap

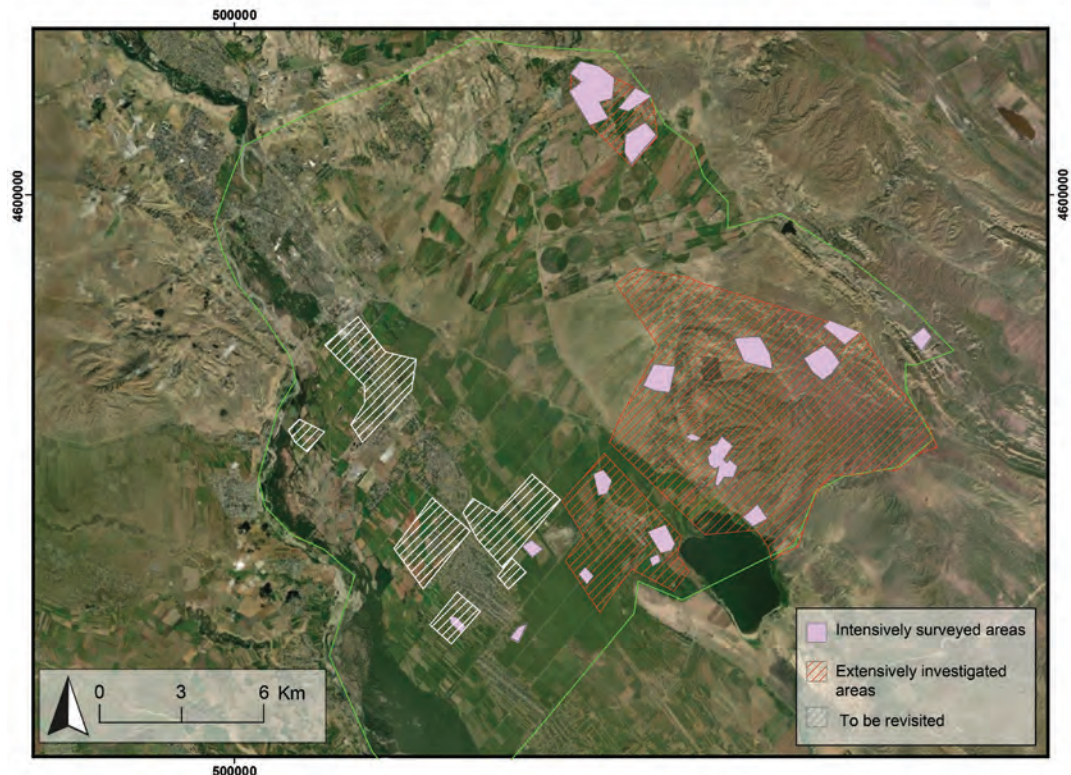


Fig 5. Map of the survey region with autumn 2024 surveyed areas

During the autumn survey season, the team successfully surveyed an area of approximately 1100 hectares (**Fig. 5**). Within this area, 12 new sites (GS025-GS036) were identified, including 9 kurgan clusters, one isolated kurgan, and two settlements (**Fig. 6**). The preliminary settlement pattern emerging from the summer and autumn surveys indicates that human occupation was primarily concentrated in the mid-to-lower areas of the territory, close to arable fields and watercourses.

In contrast, the hilly zone, located at altitudes between 300 and 600 meters, revealed very few signs of occupation apart from some kurgans. These kurgans suggest that the area was sporadically frequented, likely serving as pastureland for animals, but not used for long-term settlement. This sporadic use could indicate seasonal movements, where communities utilised the plateau during specific periods, such as summer, for grazing livestock. It is plausible that this zone functioned as a transitional area, located between the arable lowlands and the higher mountain regions, where settlements were likely favoured due to the availability of water resources, better opportunities for sustenance and/or strategic position controlling routes or crossing points. The strategic placement of the kurgans in this intermediate zone may also reflect a symbolic or territorial function, marking boundaries or asserting control over key transit routes between different ecological zones.

The piedmont zone, where the majority of the evidence from the survey was concentrated, demonstrates not only frequent use of the territory but also its significance from a funerary perspective. However, the reasons for the placement of these cemeteries remain unclear. Further investigation in the flatlands could help identifying some of the associated settlements, providing crucial insights for developing more robust hypotheses.

As previously noted, cultivated fields were underexplored during the 2024 survey expeditions. This limitation will be addressed in future surveys, likely scheduled for a different season, in order to optimise visibility and data collection in these areas. Further investigation, including paleoenvironmental studies or targeted excavation, could also help clarify the role of this territory in the broader landscape and provide insights into how ancient communities interacted with and adapted to these different environments.

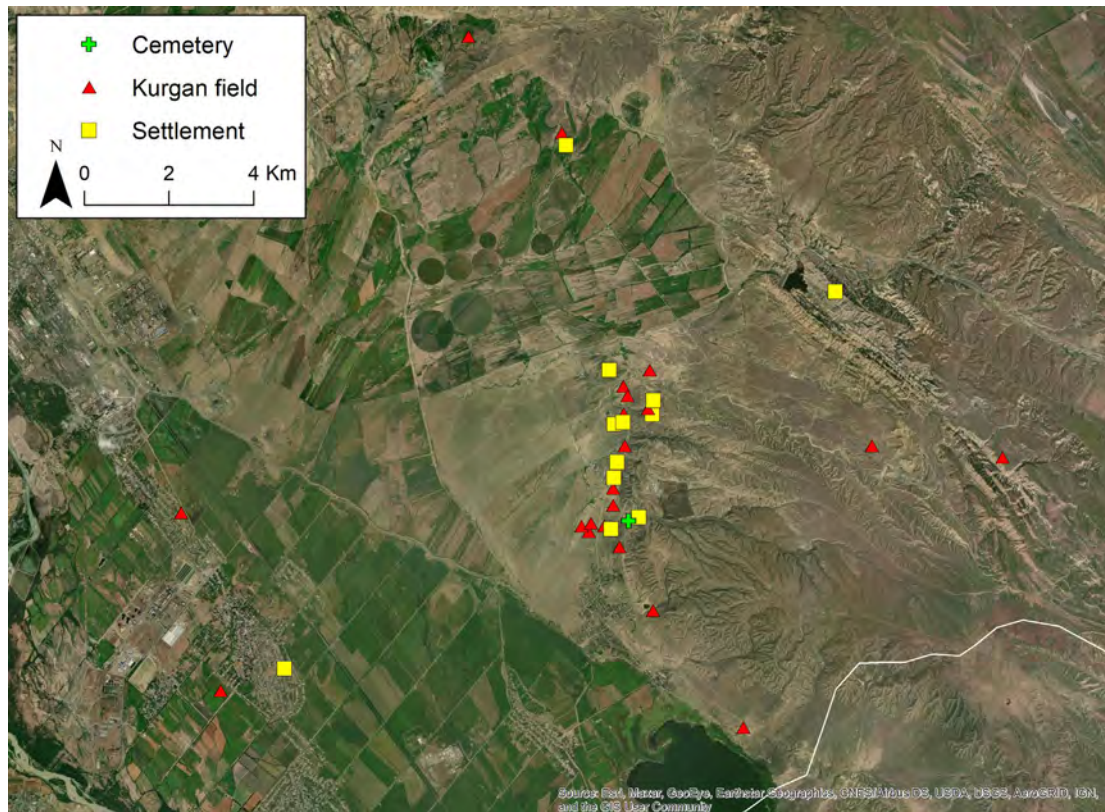


Fig. 6. Map of the survey region with identified sites (state autumn 2024)

As it was already the case in summer 2024, very little surface material (including only a few diagnostic sherds) was recovered from all these sites, which would allow to date them precisely. The date of the many kurgan fields remains unknown; most of the recovered settlements appear to date either to the Late Bronze/Early Iron or to the later Iron Age (late 2nd and 1st millennium BC), with a more sporadic presence of Medieval and post-Medieval occupation.

DRONE SURVEY AND MAPPING

In the course of the season Francesco Bianchi and Alper Aslan carried out a drone-based photogrammetric survey over an area of ca. 74 ha where in the survey carried out in summer 2024 the team had identified three neighbouring kurgan fields (GS016-GS017-GS018) and Stefania Fiori's remote-sensing analysis had suggested the presence of a fourth one (GS026).

The surveyed area is located north of the village of Lemshveniera and extends from the foot of the hills (to the east) to the plain (to the west). The three kurgan fields are currently divided from each other by two parallel roads that roughly run in a NS direction; GS016 is located to the east, between the piedmont and the first road, GS017 between the two roads, west of GS016, and GS018 west of GS017, between one road and a paleo-riverbed. GS026, presently almost invisible from the ground, lies to the north of GS017 (**Fig. 7**, above).

The aim of the aerial survey was to investigate the visibility of the kurgans from drone pictures as compared from old and recent satellite images and photos taken on the ground and to analyse the mutual relations between the different kurgans and kurgan clusters. The survey was carried out with

two drones (a DJI Mini2 and a DJI Mini3) and took place in two different days, October 7th and October 9th. The two batches of data were subsequently merged together. All pictures were taken from an altitude of 40m with an overlap of 70%, resulting in a general orthomosaic of the area (**Fig. 7**, below), which is presently in course of elaboration.

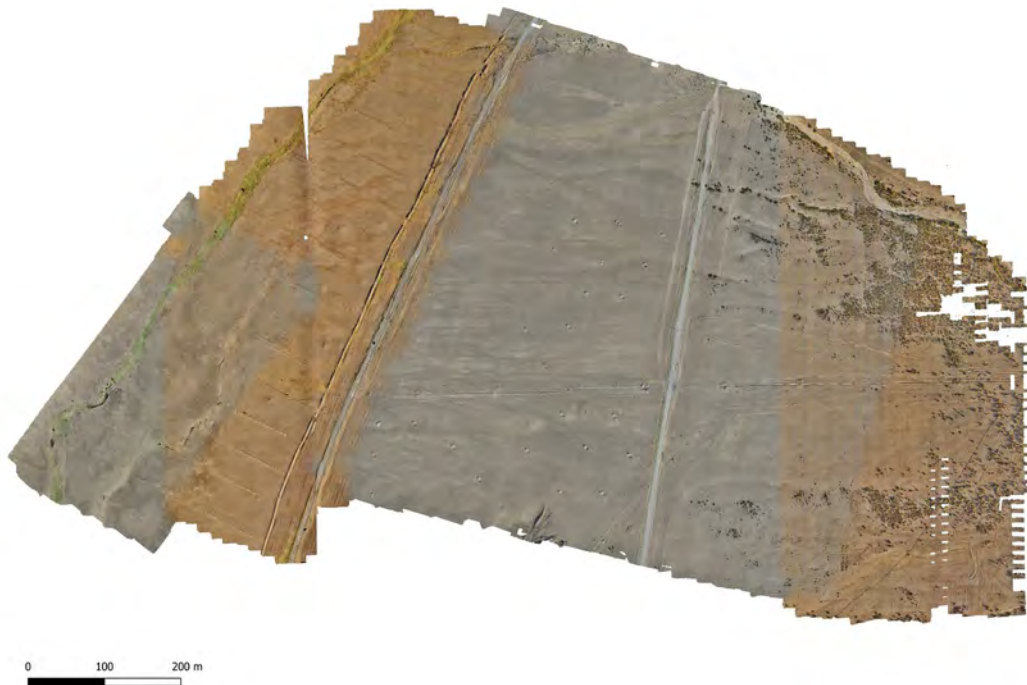
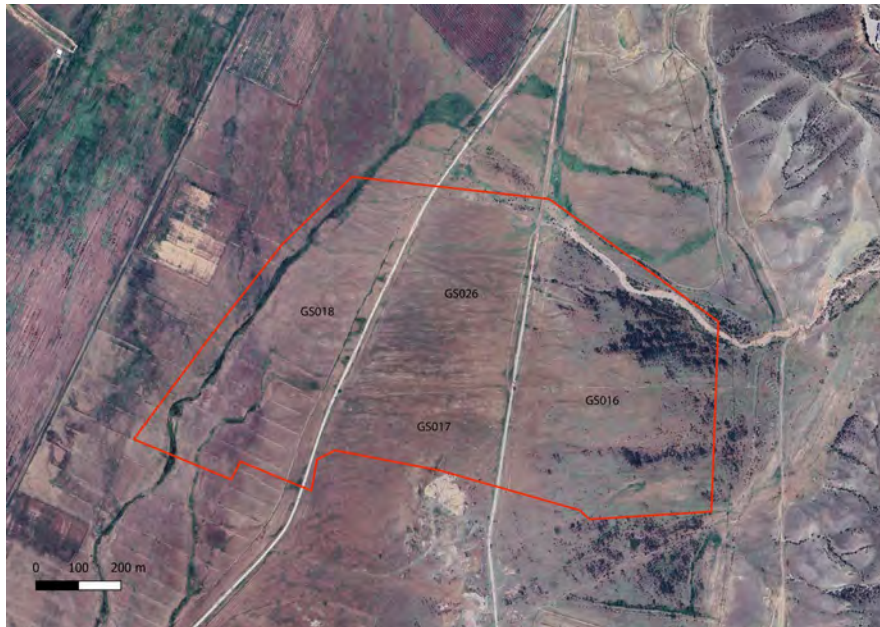


Fig 7. Map and preliminary orthomosaic of the drone-surveyed area (sites GS016, GS017, GS026 and GS018)

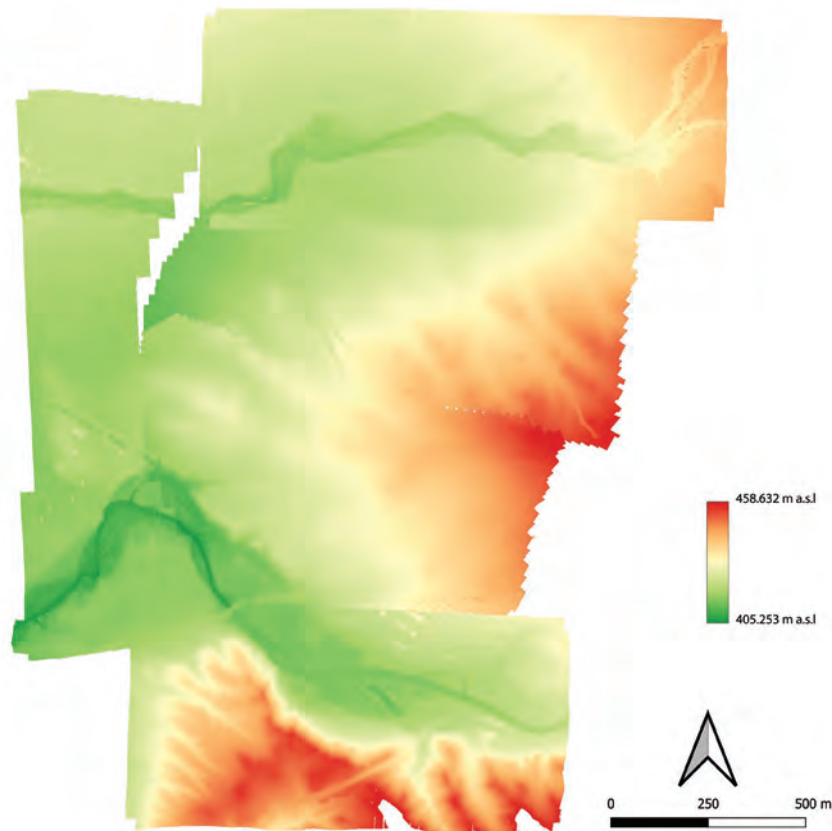


Fig. 8. Completed orthomosaic and DEM of Gardabani Kurgan Field (site GS001) and surrounding area

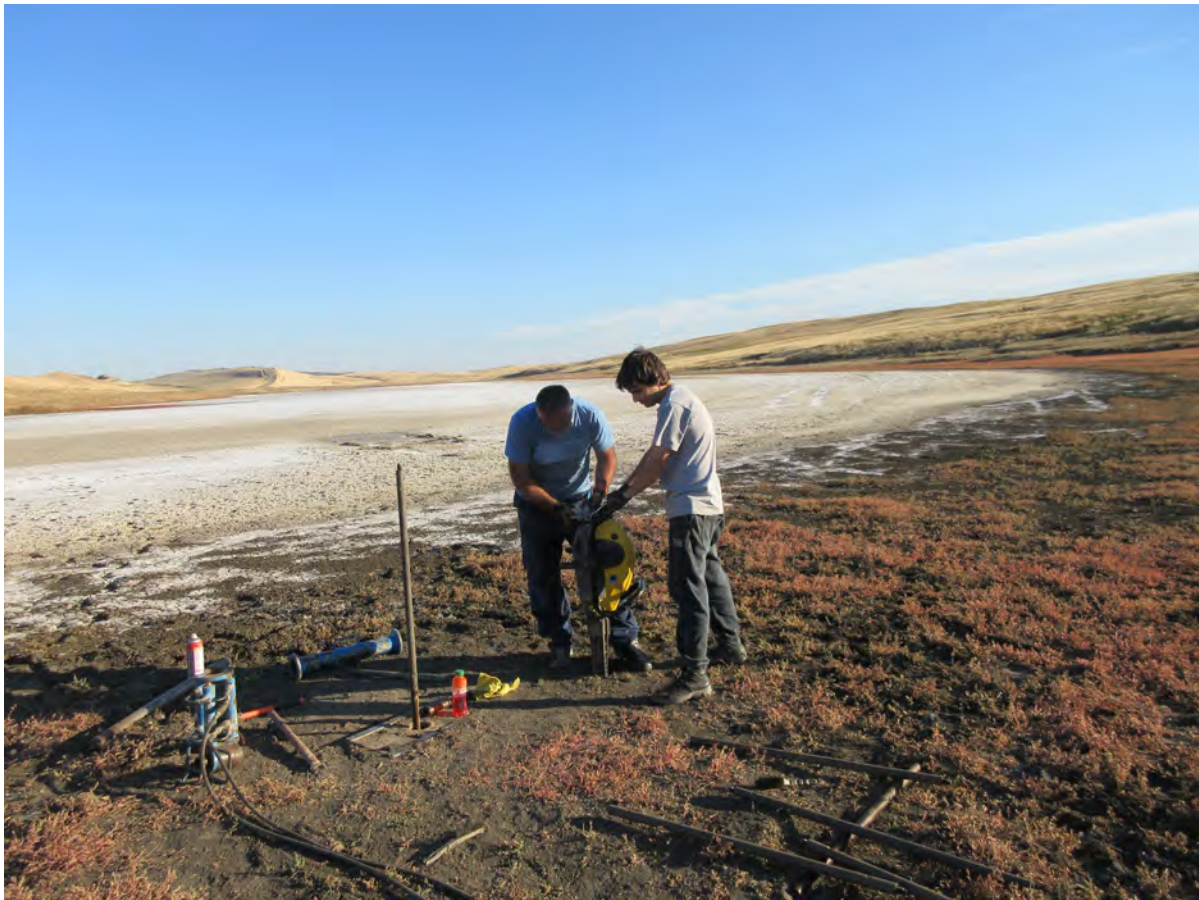


Fig. 9. Members of the team drilling geological cores at Mlashe lake

During one day at the end of the field season Mikheil Lobjanidze carried out a new drone survey on the area of Gardabani Kurgan Field (Site GS001). The aim was to expand the drone-based map and DEM he had created in 2023 in order to incorporate the surrounding region (consisting of the course of the Gezaldere river, the slopes and top of the neighbouring hills to the south, the course of the Jangirsu river to the north, and part of the plain to the west) for the expedition's geologists to get a more complete view of the geomorphological context of the site. The final high definition map and DEM (**Fig. 8**) comprise a total area of nearly 300 hectares, and also include site GS002, a settlement located on top of the hills discovered by the expedition in 2023.

GEO-ARCHAEOLOGICAL RESEARCH

On 09/10/2024 Levan Navrozashvili, accompanied by the members of the archaeological expedition, drilled geognostic cores at Mlashe lake in the mountainous area of Udabno (Sagarejo district), close to the border with Gardabani municipality, in order to complete the geo-archaeological work carried out there in August 2024 in collaboration with Giovanni Boschian of Pisa University. The aim of the work is to date the alluvial layers encountered in the Gardabani plain and reconstruct the sedimentological and palaeoenvironmental history of the region by drilling cores at locations, such as small lake deposits on the hills surrounding the plain, which are more favourable to the preservation of organic materials than the sand and pebbles layers encountered there.

The cores reached a depth of 9 meters and allowed to retrieve samples for sedimentological and palynological analysis and ^{14}C dating (**Fig. 9**). The analyses will be carried out at the laboratories of Ilia State University under the responsibility of Levan Navrozashvili (sedimentological analyses) and Nino Ustashvili (palynological analyses) and at the Weizmann Institute of Science (Rehovot, Israel) under the responsibility of prof. Elisabetta Boaretto.

DISSEMINATION AND OTHER ACTIVITIES

From 12/10 to 25/10/2025 Elena Rova remained in Tbilisi in the framework of the Erasmus + ICM 2022 teaching staff mobility. During this period she gave a series of lectures about “Recent trends in the archaeology of the Southern Caucasus: some case studies” at the Institute of Archaeology of Ivane Javakhishvili Tbilisi State University. Together with Mikheil Elashvili, she organised, on 21/10/2024, an interdisciplinary workshop titled “Overview of collaborative multidisciplinary geo-archaeological studies” at Ilia State University, where the first results of the joint project of the “Georgian-Italian Gardabani Archaeological Project” were presented at the public and ISU students who took part in the field seasons of the expedition had the opportunity to present their experience to their fellows.

On those occasion, E. Rova also had meetings with scholars and students of both universities and discussed with them possible future collaborations and exchange opportunities.

She also had meetings with collaborators of the former “Georgian-Italian Shida Kartli Archaeological project” (prof. Liana Biadze, dr. Davit Gagoshidze) in order to discuss the final publication of Doghlauri cemetery 2012-2015 salvage excavations, which is presently in an advanced state of redaction, and visited archaeological sites in different regions of Georgia.

RESULTS AND FUTURE PERSPECTIVES

The short autumn season of the “Georgian-Italian Gardabani Archaeological project” was very successful in incorporating the occasional survey work carried out in autumn 2023 and summer 2024 into a systematic surface study of the southern part of the Gardabani district integrating remote-sensing and ground-truthing by means of extensive and intensive pedestrian survey. The general pattern of occupation and the state of preservation of the archaeological remains in the different zones of the region are now rather clear. We estimate that another season of survey, to be carried out in better visibility conditions presumably in late autumn 2025 or early spring 2026, will allow us to “fill the gaps” and obtain a better view, in particular, of the western part of the area (esp. the Kura river plain), which was hitherto underexplored due to the presence of cultivated fields and thick vegetation and of the mountainous region close to the border between Gardabani and Sagarejo municipalities that was only occasionally visited.

On the other hand, due to the scarce quantity and poor diagnostic value of the material recovered during these surface investigations, as well as to the very preliminary state of the available regional ceramic sequences, regular excavations at “Gardabani Kurgan Field”, which we plan to start in 2025 and continue over the next years, and possibly at other sites, will be mandatory in order to understand the evolution of human occupation in the region throughout the time.

Acknowledgements

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Fig. 10. Group picture of the Autumn 2024 team