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## David Gareji Monasteries and Hermitages, Georgia

### Technical Report

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## 1. Summary

Overall, the David Gareji Monasteries and associated Hermitages comprise twenty one identified monastery complexes and at least 5000 individual cells and sanctuaries carved out the living rock across the Lori plateau in South-Eastern Georgia. While all of the structures were historically located in Georgia, changing borders, particularly in Soviet times, mean that one site, Bertubani, is in Azerbaijan, while two monasteries lie between Georgia and Azerbaijan. The structures, which range from the simplest of hermit cells to sizeable monasteries, have mostly been hewn from solid rock, taking advantage of some naturally occurring voids and rock fissures. While some of the simple hermitages are no more than holes in the ground, the monasteries can be substantial structures, with churches, chapels, libraries and refectories capable of supporting several dozen monks. Where a monastery takes this particular form, rather than a conventional built structure, it is referred to as a "*Lavra*" (or *Laura*), and this is the term which will be used in the body of this report, except where the term is referring to the religious aspects of the structures.

The earliest structures have been dated to the 6<sup>th</sup> century and are associated with St David Gareji, or Garejeli<sup>1</sup>. He was one of the thirteen<sup>2</sup> Assyrian fathers who established the cluster of monasteries and developed both the monastic life on the site and the Christian church across the wider region. The interiors of the main structures were richly decorated with both representational and symbolic art. In places it is clear that the currently visible friezes and other artwork have been painted over pre-existing artwork which may date from the earliest days of the monasteries. In the middle ages, the monasteries were leaders of intellectual and political thought and played an important role in the development of the country. However, invasions over the centuries, and a lack of support while Georgian territory formed part of the USSR, left the monasteries in a precarious condition. Although three of the monasteries are now occupied and have been partly restored, the remainder are in poor condition and at severe risk of collapse.

A key problem is that the nature of the geology means that the rock strata into which the monasteries have been dug are either fissured and prone to fracture, or are friable. This has resulted in rock falls taking away the exterior wall. This not only weakens the structure, but also exposes the artwork to weathering. The sites have also suffered over the years from vandalism and graffiti. The question is how the sites may be protected, stabilised and, to the extent possible, restored. The sites are scattered over a large plain, or steppe, with very little economic activity and few resources.

Georgia is one of the poorest countries in Europe, but is committed to restoring these sites of international importance. Significant resources: both human and financial, will be required to save what remains, and additional resources will be required to develop the sites. Part of this may come from economic developments, such as tourism in the Gareji region, but external resources will probably be required if the sites are to be rescued before the deterioration proceeds too far.

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<sup>1</sup> Gareji will be used in this report, being a common anglicisation, but Garejeli might be more appropriate.

<sup>2</sup> This number is referenced but it may be for its significance, rather than the actual number, which may have been up to 17.



## **2. Location and purpose**

This report concentrates on the twenty one monastic complexes in the region. These would have housed perhaps 3 - 500 monks. However, there are believed to be some 5 000 cells scattered across the countryside. The number is uncertain and there may be many still to be discovered. In fact, what is believed to be a new one was discovered by accident during the site visit. It is worth noting that these hermitages were probably not occupied by people cutting themselves off from society and the rest of the world, which is how hermits are usually seen. A better term in this context is "anchorite": someone who wishes to lead a contemplative, religious life, independent of society, but still within the framework of a religious order and subject to the control of a senior member of the church such as a bishop. The total religious population would therefore have been measured in thousands, despite this being a semi-arid region.

The monasteries can be seen as having four functions. Firstly, and most obviously, they provide accommodation for the monks. Secondly, they are a focal point of worship and theological development. The third function is the glorification of God and, in the Orthodox tradition, this can include works of art both as decoration and objects of veneration. Finally, monasteries were centres of learning and personal development. It would have been quite normal for the young males of royal and aristocratic families to spend time in a monastery to broaden and deepen their intellectual and social development. Mediaeval monasteries, such as the larger ones here, had an important role to play in the social, intellectual and political life of the country, quite apart from their religious significance. This is reflected simply in the intrinsic, as opposed to religious or artistic, value of the original contents of the monasteries.

The sites are located in the Kakheti region of Eastern Georgia. Historically, the border in the region between Georgia and Azerbaijan is claimed to have been a river to the South of the current border, which was established in Soviet times. One consequence of this is that one site, Bertubani, is currently in Azerbaijan territory and other sites straddle the border. However, although the border is disputed and therefore subject to some political tensions, a site visit was agreed between the border authorities at the working level, allowing access to the Udabno monastery. This complex sits on the border, but the most practical access is via a ridge track passing through Azerbaijan territory.

The geology of the region is complex, sitting as it does in a basin formed between the Black and Caspian Seas, and crushed between the Eurasian and Afro-Arabian tectonic plates. However, what this has resulted in is exposed faces of fractured sedimentary rocks, often with a layer of friable material above and below. The rocks, being solid but relatively soft, can be fairly easily worked to create habitable spaces. Sometimes this may have been aided by natural spaces created by ancient water flows and facilitated by cracks in the stone structures.

However, the same fissures which allowed the relatively easy working of the stone, also allow water penetration which, in time, and with cycles of heating and freezing, can result in splitting of the solid stone architecture, followed by the catastrophic failure of the structure. Where there is a friable layer above the stone, this can aggravate the process by acting as a sponge, to hold moisture. Where there is a friable layer below the carved stone layer, this can be eroded by weathering. When this happens, the solid stone layer, acting as a cantilever riven with cracks, simply falls away. What had been a wall of the monastery, falls away to reveal the interior spaces. In turn, this opens the spaces to

the weather, degrading or even destroying the revealed artwork. During the site visits, it was easy to see where a substantial slab, forming the roof of one of the cloister spaces, had simply fallen away only a few days before. At the Udabno monastery, a substantial part of the roof of the previously relatively well preserved refectory had collapsed a matter of months before.

It is therefore clear that although the structures have existed for centuries, and are carved from the living rock, the rocks themselves are dying and urgent treatment is required to prevent further and accelerating collapses across all of the unattended sites visited. The three functioning monasteries visited show that deterioration and collapse are not inevitable, but these are attended with constant care.

### **3. Context**

The operation of the monasteries ebbed and flowed over the centuries as politics, invasion and banditry made life difficult for the monks, and most of the monasteries fell into desuetude. Georgia has a long history but its rule and status varied over the centuries. It formally first became independent in May 1918, following the Russian revolution. This was followed in 1922 by the creation of the Transcaucasian Socialist Federative Soviet Republic, formally becoming part of the USSR on its creation in 1936. Its second independence came on the 9<sup>th</sup> April 1991. The intervening years were physically very difficult for the Gareji monasteries, with vandalism and graffiti by both individuals and the state which sanctioned the use of some of them as targets for artillery practice. At the time of writing, three complexes are in active use as monasteries, with the St David Lavra being the best preserved and restored, whilst the others are stabilised and under cautious redevelopment, but still performing the function for which they were intended.

When dealing with the events of fifteen centuries ago, it can be difficult to separate fact and fable. However, what is unchallenged is that a group of clerics, probably Assyrian, led by (Saint) David Garejeli, arrived in the region in the 6<sup>th</sup> Century. The number is conventionally presented as thirteen, although there may have been more. The group first established the St. David's Lavra, later dedicated to St David Garejeli, which remains the heart of the complex, while two disciples: Dodo and Luciane, went on to establish the Monasteries of St. Dodo and St John the Baptist (Natlismtsemeli). A total of 21 complexes were built, but these three are the only ones which are still consecrated and carrying out their original function.

Over the next five centuries, and notably under the guidance of Saint Hilarion the Georgian in the 9<sup>th</sup> Century, the complex of monasteries first established its presence, and then developed into a leading centre of theology, of religious art, and of intellectual thought. It developed and then exported its own artistic style to the wider region, and started to have a significant influence at the political level, with royal patronage. This reached its peak in the 12-13<sup>th</sup> Century, in company with the Kingdom of Georgia. However, all this was to end: firstly with the invasion of Mongol forces in the early part of the century, and then the Turco-Mongol forces of Amir Timor the Lame (Tamerlane/Tamburlaine). This effectively destroyed the monastic life in the region. There was some recovery in later years but it was not until the late 17<sup>th</sup> Century that there was a significant recovery under Father Superior Onopre Machutadze in 1690. The life of the monasteries could be said to have ended properly in 1921 when the monasteries were closed, and some sites used in later years for artillery practice.

The sites did not start to fully recover until Georgia regained its sovereignty in 1991 and the reconsecration of the St. David's Lavra.

The landscape of the Gareji semi-desert region is one of rolling plains, quite featureless, bounded by high ridges, some of which are penetrated by subsidiary valleys. Agriculture is currently very limited, with some subsistence planting near outlying farmsteads and the small conurbation of Udabno, but the main activity is free grazing of domesticated animals. There is a complete land register for the region but, outside of Udabno, there is very little marking of property boundaries. The small herds of cattle grazing close to the town are free to roam, with very little control by the occasional herder. More widely, larger flocks of mixed sheep and goats roam under the control of shepherds, assisted by dogs.

The small village of Udabno is the main economic centre of the Gareji region. Most of the current population were relocated in the 1980's from an alpine village in the Svaneti region which was deemed to be at risk from avalanches. This group maintains their old traditions and dialect, offering traditional singing and dancing display to tourists. The town is also the closest source of tourist services to the Gareji sites, including cafés, food and accommodation.

The wider region is semi-arid, and while there is the occasional shrub, most of the plains are covered in a sparse grass. There are very few water courses and only a few lakes up in narrow higher valleys between ridges. However, during the site visits it was noted that some of the plain areas were being prepared for more intensive agriculture. The mission was advised that this was for perennial fruit trees. However, while this might be true in some areas, the areas actually observed had already been prepared and planted for leguminous or grain production. Large scale irrigation systems had been installed, and later it was noted that there were other substantial irrigation systems in the process of being developed. An analysis of the sustainability of intensive agriculture in the region is beyond the scope of this report, and the activity would not have a direct impact on the monasteries *per se*. However, if successful, the intensive agriculture will change the appearance of the valley and the setting and context of the monuments. If unsuccessful, for example if the rate of water extraction is excessive and unsustainable, then there would be a risk of desertification.

In terms of physical infrastructure:

- Roads: There are tarred roads to Udabno, and some of the way towards St. David's *Lavra*, with the rest of the way being metalled<sup>3</sup>; although a fully tarred route is planned for 2019. There are also metalled roads to the other two working complexes visited, although these are single track and in need of maintenance and repair. Otherwise, vehicular access is poor and a high-riding, all-wheel-drive vehicle is needed to follow the routes between the historic sites.
- Public Transport: None beyond Udabno.
- Electricity: There is grid power to Udabno, and a public supply to St David's *Lavra*, but all other locations rely on generators and solar panels.
- Water and Waste Water Treatment: No piped facilities beyond Udabno. Outlying sites and farm buildings mainly depend on boreholes for water.
- Telecommunications: Limited internet and mobile telephone coverage, but no landlines beyond Udabno.

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<sup>3</sup> Roads made with a structured stone foundation, typically with a gravel surface finish.

## 4. Description

The structures visited had three main characteristics:

- The entrances and the voids were mainly in sedimentary rocks. These can have naturally occurring voids and fissures which allow larger spaces to be carved out to create working, living and religious spaces. In this region, this stratum can be sandwiched between layers of friable materials which would have been easier to delve, but less stable and less suitable for the creation of the desired spaces.
- The entrances to these spaces may have been some height from the original valley floor, and the entrance to many must have been via ladders, or possibly ramps. Although this might have been to achieve a degree of seclusion, it may also have been to secure the small communities against wild animals and unfriendly bands of brigands or soldiers.
- To provide water in this semi-arid region, with few naturally occurring springs or water courses, grooves and channels were carved into the rock to channel rainwater for storage in ponds and cisterns.

### St John the Baptist (Natlismtsemeli)



This fully functioning complex sits near the top of a ridge overlooking an open, rather bleak landscape. It has no mains services, with limited water, and lighting is provided via solar panels. The access routes are mainly unmetalled dirt tracks and the ascent from the floor of the



plain up to monastery entrance is steep, narrow and rutted. As may be seen from the accompanying photographs, and despite the relative remoteness, a significant amount of work has already been carried out to reinstate the offices of the monastery. These are on a number of levels, with the main chapel: Narthex (Vestibule), Nave and Sanctuary on what is nominally the ground floor.

Above these carved out spaces are the offices of the monastery e.g. for the Abbot, the refectory and the library. In this case, although the main spaces are carved into the rock-face, there has been additional construction work out from the rock face as may be clearly seen in the photographs. Cells for the monks, and probably also for storage, run along the face of the cliff to left and right of the main offices. Some of these have already been rehabilitated and are occupied by monks and people working on the complex. However, most still present themselves as simple caves, with their number giving an indication of the size and number of the community of monks which must have occupied the site at its peak.



The religious offices of the site are decorated, as will be seen at other sites below. However, the two photographs shown introduce the nature and scale of some of the major risks to these sites. The image here shows the most basic form of decoration. The recess is a relatively simple niche which has been plastered and then decorated with religious motifs and images of saints or the holy family. The image shown here is obviously only a part of a much larger work and is supported with new plaster work: partly to protect it from theft, and partly to stabilise the image.



However, as well as the damage through third parties and the weather, the photograph also shows a serious problem affecting all of the sites. Fissures in the rock substrate can be clearly seen. While these would have facilitated the carving out of this alcove they are not only lines of weakness in the rock structure which can lead to structural failure. They may also develop into conduits for water moisture and then liquid water, leading to damage of the artwork and, again, to structural failure. A clear demonstration of this risk of collapse will be seen at the Udabno site below.

The second major, and continuing, risk to the sites comes from the free access to all of the sites, with the exception of the three occupied monasteries. The abandoned sites have suffered from vandalism, the theft of artefacts, and the destruction and/or theft of murals. This has been due to malice, carelessness, a lack of thought, or indeed a combination of the three. The commonest form of vandalism has been in the form of graffiti. Not all graffiti is bad, as will be shown later. However, large areas of the sites are covered in the type of graffiti shown here. Some of it dates from the period when the area was under the control



of the red army. However, there is also evidence that this destruction is continuing. The problem, apart from being a simple question of public education, is that all of the sites are relatively remote and unprotected. By their nature; effectively groups of open caves in an open landscape, preventative security is difficult and enforcement almost impossible. Counterintuitively, possibly the best way of making the sites more secure, is to encourage more people to visit them.



## Udabno



The former Monastery of Udabno was one of the largest in the complex, and is located close to St. David's Lavra. The *lavra* sits close to the very top of a mountain ridge with a long, steep drop to the valley floor. St. David's Lavra is on the other side of the ridge, lower down but close to the valley floor which is much higher on that side. The approach to Udabno Monastery is from the North, along a ridge with drops on either side, passing through disputed territory. The land levels off slightly as the site is approached and it is possible to identify channels and pools in the bare

rock surfaces which were used to channel rainfall into small cisterns to feed the needs of the monastery. The ridge itself is a disputed border. However, it represents not only the national boundary between Georgia and Azerbaijan, but also, to a certain extent, a cultural and religious divide. Historically, the border was in the valley to the South of the ridge but during the Soviet era the maps were redrawn to follow the ridge. In consequence, therefore, while the route to the site is in Azerbaijan, the Udabno site effectively straddles the border.



The size of the complex may be judged not only by the number of cells which are strung along the ridge, but also by the physical, religious and social infrastructure of the site. The chapel shown on the right above is a significant structure and was highly and richly decorated. Despite being open to the elements, albeit in a semi-enclosed space, some of the artwork is still relatively well preserved.



Similarly well preserved, but of a more practical nature, is a cave set up with a trough for the feeding of cattle and possibly other useful animals. However, one of the clearest indications of the size of the monastery is the number of places carved out in the refectory. This is a substantial structure and the seating places can be clearly seen in the photograph on the right. The structure goes deep into the mountainside and can handle a substantial number of monks and their guests.



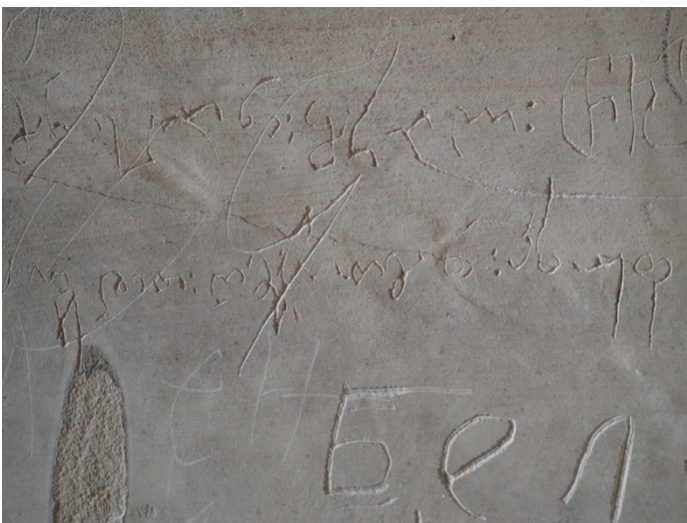
The refectory was primarily a social area, although meals would probably have been accompanied by readings from religious texts. Despite this, the space has been smoothed, plastered and decorated with religious imagery and the portraits of saints. This suggests that the site had an importance which went beyond the

purely religious life of monks.



However, what the refectory image also shows is a collapse of the structure. The refectory would probably have been a cavern, with light and access gained from piercings in a wall of rock. At some point in history this outer skin has fallen away, probably by a combination of a lack of support from underneath and fissures in the ceiling. This has exposed the interior of the room, degrading the images. However, what this created was a rock “canopy” over the front of the space, being supported as a cantilever by the mass of the rock behind. The large rocks lying on the ground show what happened next – and this has been a recent event. “Before and after” images of this event may be seen on Page 16 of Appendix II. Natural stone is relatively strong in compression, which is why it is widely used as a construction material for supporting walls. Unfortunately, it is very weak in tension which is how the upper part of the “canopy” would have been stressed.

The fissures which exist in this natural stone, and the effects of water penetration and repeated cycles of freezing and thawing have eventually split the canopy from the rock behind and it has fallen, breaking into the large, sharp-edged boulders lying in the foreground. This is probably the mechanism which has created the open-fronted aspects of many of the sites and which is putting many of them at risk. It is a time, weather and rock-structure dependent effect which can be mitigated, but it requires sympathetic techniques to stabilise the geology without having a negative impact on the fragile artworks and interior structures.



The last image presented here was referenced in the St John the Baptist (or Nantlismtsemeli) description above. It begs the question about the negative connotations associated with the term “graffiti”. The picture shows part of a now exposed wall in another of the public spaces of the Gareji monastery. The crude scoring at the bottom of the image would be recognised as graffiti: the scoring of words into a relatively soft surface. However, the fainter writing above has also been scratched into the surface. The difference is that this calligraphy is some seven centuries old and believed to be the

work of a famous writer. This begs the question about what graffiti should be obliterated and what should be retained during any restoration process. There is an argument for some of the graffiti being retained during any renovation or restoration process, because even modern graffiti have a role to play in telling the story of these ancient buildings.



## St. David's Monastery

This is arguably the heart of the group of 21 monasteries which makes up the David Gareji site. It has already undergone substantial rehabilitation works and these are continuing. In view of the fact that this structure is largely under control, it might be more appropriate to direct the reader to the website<sup>4</sup> in the footnote below which gives an aerial presentation of the site and shows what can be achieved in a relatively short time, if the funding, will and expertise exists to drive a project forward.



The first image shown here is the view that a visitor would have when descending from the Udabno site. The two structures are separated by height rather than horizontal distance and, allowing for the absence of a made up pathway, it takes about 30 minutes to walk between the two structures. The St. David's Monastery is a living, thriving religious institution which is open to visitors, at least in the relatively limited numbers which currently arrive at the site. Clearly, the first duty of the monks is to their Church which was first established in the first half of the 6<sup>th</sup> century, when it was granted

independence from the Church of Antioch. This independence persisted until the early 1800s when it was forcibly subsumed into the Russian Orthodox Church, although, from the 13<sup>th</sup> Century on, the church's position had been weakening as the country itself was weakened and invaded. It was not until 1990 that the Georgian Church regained its independence when it was recognised as such by the Patriarchate of Constantinople. Until it started to decline, the Church had played an important part in the political life of the country, with significant influence over the ruling elites over the years. It still has a role to play in the political life of the country, with the vast majority of the population being adherents. This made the restoration of the St. David's lavra possible, but the work will continue for many years: partly due to the need to generate funding for the works, but also due to the need for the monastery to restore itself as a religious institution. Although many areas of the *lavra* are now fully operational, including new cells for the brothers, there are still previously public spaces which need to be reconstructed and a large number of cells which lie empty and windowless.



Despite this, the site has taken some initial steps to creating a destination for visitors, with the support of the local government. To create a buffer between the brothers and non-adherent visitors, a visitor centre with a car park and toilets has been built just below the *lavra*. This is still under development, and the absolute number of visitors is small. However, numbers are likely to rise as tourism develops within the country and the transport links with the capital improve.

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<sup>4</sup>[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=2ahUKEwi\\_uobyt9zfAhXirHEKHddPC9MQwqsBMAF6BAGDEAc&url=https%3A%2F%2Fvimeo.com%2F159264298&usg=AOvVaw2eOTMG1CqGF5P06PKAEwFB](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=2ahUKEwi_uobyt9zfAhXirHEKHddPC9MQwqsBMAF6BAGDEAc&url=https%3A%2F%2Fvimeo.com%2F159264298&usg=AOvVaw2eOTMG1CqGF5P06PKAEwFB)



## St. Dodo Monastery (Dodos Rka)



This is the third of the functioning monasteries visited, and is possibly the least (re)developed. However, it is the designated resting place of the bones of St Dodo, one of the founding fathers of the David Gareji Monasteries, and works are under way to create a suitable reliquary for them.

The complex is relatively small and at some distance from the others, in a separate valley system, although linked to the main plain. There is evidence of hermitages nearby, but the main monastery sits alone towards the top of a ridge and is approach by a

steep track. At the time of the site visit, public works were being carried out to provide a water supply and sewage treatment by septic tank, although water is still held in cisterns close to the living and sleeping accommodation of the monks. There is a small number of monks on the site and they closely monitor visitors, their behaviour and their actions to maintain a suitable reverence around this important holy site.

Although some of the fronts of cells and religious offices may have fallen away, the principal religious offices: narthex, nave and sacristy are all present and protected. However, much of the rest of the site still needs substantial restoration work – which is proceeding. The most serious problem is shown in the photograph on the right. This exemplifies the problems seen at all of the other sites. The structure of the rock above the entrance is fissured, as previously described. However, in this case a movement in the roof was observed and the steel structure shown was erected as an emergency measure to stabilise the structure above the entrance. The design and quality of the work may be criticised, but it has achieved its objective for the time being and prevented the catastrophic failure of what is an otherwise well preserved religious space. What it also does is raise



serious questions about the techniques which might be used to stabilise and conserve the remaining monastic spaces. Established techniques e.g. resin injection, drilling and pinning, external buttressing, etc. could be applied, but the permanence, effectiveness and impact of these measures could have a negative impact on the sites, particularly on the artwork, they may not be effective, and they might alter the fundamental nature and attraction of the sites.

Within the chapel, this site has been brought back to religious life. It may not contain all of the icons it once did, which would have filled all of the panelling shown to the left, but there is enough to give an impression of what this most holy of places would have looked like at its height.

Despite having been open to the elements, wildlife and unwanted visitors over many centuries, the artwork, while faded, shows the quality and dedication which went into their creation. Clearly, this is a place of worship and veneration, and the balance between stabilisation, conservation and restoration will need to be given careful consideration. There will therefore need to be a debate between the sacred and secular authorities to establish protocols for both the work to be carried out, and the degree to which the general public, and specifically international tourists who may not share the same values as the Georgian people, should have access to sacred artwork and buildings of international importance. There is a question to be asked: what is the balance between the Church's roles of owner, "operator" and custodian.



### Sabereebi



The final site visited had many of the features of the other sites. One such feature, actually discovered while trying to provide a safe access for the delegation of visitors, was the uncovering of a possible cell to the left hand end of the "*lavra stratum*" (see below).

However, while finds like this, the condition of the interior, and the fact that the "front wall" is intact for much of its width justifies an examination of the site, it is the geological presentation which is of particular interest.



The image below shows the complete width of the Sabereebi complex. The stratum into which all the offices of the have been carved may be clearly seen. The layer above presents itself as a different colour. This is a less dense, porous and more friable material.





The layer below is less clear and it looks as if there has been a sloping hill leading up to the *lavra* stratum. However, what appears to be a natural slope is in fact a slope of scree, or loose material, which has fallen from the upper layers. The layer of material below the “*lavra stratum*” is in fact very friable. Just touching the face of the layer makes it crumble and fall away down the slope. The slope is at an angle of approximately 45%, suggesting that it has a loose and unstructured make-up.



The first feature worth examining appears in the left-hand image. Near the centre of the image, in the “*lavra stratum*”, is a patch, roughly rectangular in shape, which is a significantly darker shade than the surrounding rock. This is where water has been able to penetrate a fissure in the rock. Cycles of freezing and melting, heating and cooling have then enlarged the crack, accelerating the process, until a slab of rock has fallen off the face of the *lavra* and rolled down the slope, breaking up as it went. The darker shade on the face of the “*lavra stratum*” indicates that this has happened very recently, probably just a few days before the visit.

The layer above the “*lavra stratum*” is highly porous and can act like a sponge, continually wetting the upper layer of the rock structure and feeding moisture into the fissures. The friable material underneath the rock layer is less of a risk – provided it is left untouched and protected by the scree material. However, it would not be capable of supporting either infrastructure to facilitate visitors, or defensive structure built up on the front of the “*lavra stratum*” to protect the façade.

In all work it will be important to ensure that measures are taken to ensure to minimise and mitigate the impact that visitors may have on the sites.

## 5. Technical and economic aspects

### Technical

The sites have been the object of a number of studies over the years, particularly since Georgia regained its independence. However, these may have focused on the cultural, artistic and religious significance of the structures and artwork, rather than the underlying physical processes which represent the principal threat to most of the sites visited. The problem is that the degradation of both the artwork and the physical structures is not linear. As the outer rock faces erode, or fall away, the rate of degradation, particularly of the artwork, accelerates. As the artwork is exposed to weathering and increased levels of light, particularly direct sunlight, the pigments fade and detail is lost. This may be clearly seen in Appendix II, where comparative time-separated images are presented.

The only positive aspect of this fading is that details of previous artwork shows through in places where the most recent version has weathered and bleached. This is useful in an archaeological context, telling the story of the site, but less destructive techniques and technologies are available to achieve the same objective.

The threats to the sites can be classified as social, geological, meteorological and electro-magnetic: more specifically the visible light spectrum:

Social Threat In a more perfect world, the significance of these sites would be respected by the population at large. Unfortunately, the imperfections in visitors to the sites mean that graffiti and the taking of souvenirs continue to degrade this unique collection of monuments. With the exception of the three functioning monasteries, the number of sites and their geographical dispersion mean that guarding them, or preventing access to the region is unrealistic. Unusually, one way to mitigate this risk would be to substantially increase the number of visitors. There is an argument that more visitors would provide a degree of self-policing by visitors, and allow more personnel to be employed to monitor the sites. However, while this is certainly the case in some regions of some countries, it may not be true in Georgia, making this, perhaps, a risky strategy. It is also worth reinforcing the idea that while the monasteries have a past, they are also part of the present and the future. They still have a religious significance, particularly for the vast majority of the Georgian population from the meanest labourer up to the vice-minister of culture.

### Geological Threat

As already noted, there can be substantial differences between the geological structures at each site. However, typically, the stratum which contains the physical structures with their artworks is sandwiched between two less stable layers. Above is a layer which acts like a sponge, absorbing the rain when it falls and then allowing it to seep downwards into fissures in the limestone. Below may be a layer of friable aggregate: supporting when it is held in place, but liable to crumble when exposed to weathering. Cycles of heat and cold expand the fissures in the slabs as they become significant cracks, at which point any unsupported slab will break away and fall. If the cracked slab is sitting on an eroded face of the lower layer, then the slab may just fall away: revealing any carved out spaces behind and exposing them to the elements. Where the slab is over an existing cavity, it may fall into that cavity, destroying the site, or access to it, or it may collapse like a canopy as described in the Udabno description above.

## Meteorological Threat

An extension to the geological threat, which is strongly linked to rainfall and cycles of heat and cold, is weathering once the cavities have become exposed. Again using the Udabno refectory as an example, the canopy which fell recently was sheltering the painted pillars shown in the photographs. The location is a mountain ridge. The combination of wind and rain, becoming ice and snow in winter, will have a direct impact on the artworks which are no longer sheltered, however imperfectly, by the collapsed canopy. Again, the problem is how to protect the artwork, without damaging it in the process or hiding the artwork away.

## Light Damage

The frescoes and other images were created in a relatively dark environment, with very little natural light and only oil-lamps and candles to provide artificial illumination. As Appendix II reveals, even if the monuments are physically stabilised, there is a limited window of opportunity to prevent, or at least minimise, the impact of daylight on the artworks. However, even although this is one of the critical risks to the sites, it is arguably also the least expensive to provide a stop-gap solution for: labour intensive, and involving some physical impact on the sites, but inexpensive and not requiring any specific skills.

**It is a very unfortunate, but inescapable, fact that the feasibility and cost of stabilising the geology cannot be estimated at this time.** Only a small sample of the structures have been visited. Two of the occupied complexes are relatively stable and mostly weathertight. The cost to stabilise the third, Dodos Rqa, will depend on the solution selected. Simply pinning the structure would not entail a major expenditure, but this may not be the most appropriate solution.

However, the abandoned complexes will require substantial expenditures, either due to the physical, and in one case political, difficulties in accessing the site, or the difficulty of establishing a working platform for any works to be carried out.

## Economic

Normally, the proper test of desirability and viability of a project should be an economic analysis. However, there are two intangibles in this project which would be difficult to quantify in such a numerical calculation. Firstly, there is the value of artwork. This is either very high or almost nothing, depending on the perspectives of the seller, the valuer and the potential buyer. The second is the intangible value to the country of the sites themselves: symbolising a period in the country's history when it was an important religious, social and economic centre in the wider region. Particularly at a time when the country is undergoing a social and economic renaissance, the possibility of using the monasteries as a focus for the regeneration of the country and increasing international awareness of both its history and its potential gives this project a value which goes beyond the rocks and paintings.

Georgia has a *per capita* GDP of circa USD 4 300 per annum, which more than doubles if the analysis is based on Purchasing Power Parity. This makes it one of the poorest countries in Europe: only Armenia, Ukraine and Kosovo are ranked lower. However, the country is also reported as having one of the largest shadow economies: or parallel economy, black economy, informal economy. Almost by definition, the scale of a shadow economy can be difficult to assess, but external observers<sup>5</sup> suggest that it could be larger than the formal economy. Certainly, the capital gives the impression of being vibrant and active, although people are obviously substantially less

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<sup>5</sup> Medina and Schneider (2018), IMF Working Paper

well off in the countryside. However, if more than half of the economy is avoiding the payment of taxes, except those which are purely and directly based on consumption, then the government at all levels will have less revenue to direct towards projects such as those in cultural heritage. On the other hand, Georgia is seeing a tourism boom with double digit rates of growth in recent years and growth from Western Europe running at over 40% from some of the major outbound countries, such as Germany.

When considering the direction in which the government should direct its spending, it is also worth noting that the Georgian Orthodox church plays a much larger part in the life of the country than in most western European countries. Over 80% of the population claim to be active members of the Orthodox church. Their financial importance is therefore substantial, but to whom they give their vote is also a substantial consideration in the country's governance.

There are very few developing, or even mature, economies which don't believe that tourism is going to drive their economy into a golden future. However, this is unrealistic, even if the figures show that international tourism is growing, and likely to continue to grow, at twice the rate of the world economy as a whole. In 2017, world tourism grew in value by 7%, and the figure for 2018 is expected to be 5%, despite a more difficult economic climate. In comparison, in 2017 the overall world economy grew at 3.7%. Tourism is a highly competitive market, and the smallest perturbations can have dramatic impacts. Egypt's national tourism income fell by over 80% following a single terrorist attack in the 1990's – illustrating the economic weakness of a dependence on tourism.

The use of tourism as a source of revenue to support cultural heritage investments therefore has to be treated with caution. It should also be noted that an analysis of countries with internationally recognised historical sites, such as Egypt and Turkey, shows that visits to historic sites represent less than 10% of tourist days. Marketing the heritage of a country can help draw in tourists and, when asked, a substantial proportion of tourists will suggest that cultural heritage played a significant role in their choice of destination. However, actual heritage tourism, as measured by time spent visiting historic and cultural sites, represents a relatively small part of the market. In the case of the Gareji monasteries, the lack of tourism infrastructure would suggest that visits would be limited to day trips from Tbilisi. This would have a minimal negative impact on the monasteries, as all tourists could be tightly controlled. However, there would be little benefit either. To benefit the monasteries, and the local economy, visitors must come and stay for several days. This would require a full range of tourism services to be available, and there must be activities for the tourists beyond the monasteries. This will require investment by both the public and private sectors, but it might be possible to create a virtuous circle in the region which will benefit the local population, which is among the poorest in the country, and provide the returns needed to justify up-front investments in the cloisters.

A possible development framework is presented in Appendix III

## 6. Implementation

**Action Plans** – With so many sites, each with its own physical characteristics, archaeological and historical values, physical and archaeological risks, and severely limited short term resources, the sites will have to be prioritised. There might be an argument that all should be treated equally and that all need to be saved. Linked to that would be the argument that although the images are fading and cracks are developing, the rate of attrition is actually quite low and that there is a window within which programmes can be developed and funds raised. However, as the country opens up and secular tourism, particularly budget tourism, increases, there is a risk that the sites will be at risk from increasing human interaction. Visitors may be well intentioned, but may not always appreciate the impact of their actions. All of the sites therefore need to have some degree of physical protection, e.g. fences, all sites need to be monitored and, if necessary, permits should be required to enter the “Gareji Zone”. This would not necessarily need a lot of manpower: technology can substitute for much of that, but it may be a means of creating an income stream for local people and of giving them a sense that the monasteries can have a practical as well as spiritual value.

In the short term, the structural stability of each complex needs to be assessed. There is an impression, which may be incorrect, that most of the work to date has focused on the analysis of the artistic, religious and other historical characteristics of each site. The analysis of the physical structures which support the metaphysical structures is less well developed although, by chance, a team of Italian geologists was present during the site visits, working to identify the structural physical framework of the complexes, the risks faced, and the opportunity to mitigate future damage.

One reason for increasing site protection is that safe access for workers, whether paid or volunteers, is a *sine qua non*. The access needed to set up screening systems to provide temporary protection from the elements and install geological stability monitors, will also facilitate visits from less welcome visitors. Sites will therefore have to be continuously monitored, but this can be managed remotely.

A costed action plan will be needed for each site and, because resources will be limited, the sites will have to be prioritised. This suggests that an overall supervisory body is required.

**Stabilisation: Structural** – This probably represents the biggest challenge. Every site will face different risks and issues and will need a structural survey to identify which areas are at greatest risk, and how those risks might be mitigated. Conventional structural techniques involving pinning and external supports may be inappropriate. They would change the nature and appearance of both the exterior and interior of the structures, particularly where external reinforcement is involved. Compromises will have to be found, trading artistic values for stability, and such decisions must not be taken lightly.

**Stabilisation: Archaeological and Artistic** – All of the (known) sites have been the object of recurrent surveys which show deterioration over time – see Appendix II. However, it is worth going back in time and considering the conditions inside the monastic “buildings”. There may have been some naturally occurring chambers, but essentially the complexes were carved into the rock, with relatively small entranceways – and doors and windows would have been screened. The ambient light levels would have been relatively low, and both the ambient temperature and humidity levels would have been relatively constant throughout the year. These are the conditions which need to be recreated to reduce deterioration of the structures and artwork. This suggests a programme of works to create temporary protection as quickly as possible. The capital costs of these barrier works would not be high, and much of it could be carried out by volunteers. The difficulty is not with works

*per se*. The difficulty is in providing safe working access and servicing all of the sites with power for tools, water, waste management and on site accommodation.

Once an overall action plan has been developed for this safeguarding stage, a command structure is obviously required, with some form of steering committee taking overall responsibility. A project leader then needs to be identified for each site, although it might be possible to group some of the smaller sites. These leaders will need to have a combination of technical, inter-personal and management skills, plus an understanding of the cultural and artistic framework of the site(s) they are seeking to protect. More specifically, they will have to spend extended periods on-site – the length of time will vary substantially between sites, and they will have to have practical construction skills, or have experience of managing construction sites, and have the motivational and technical skills to motivate and guide small teams of volunteers. This activity will be challenging. Such people may be difficult to find and identifying them may be one of the project's biggest challenges. However, some may be found in the pool of people already associated with them.

As safeguarding progresses, there will have to be a parallel development process, managed by the same overall committee, to prioritise the redevelopment of the various sites. However, there should be no interventions without understanding: the risk of damage by good intentions is always high. One option, which might be seriously considered, is to identify a small number of flagship, public access sites, to be made open to the general public, while others will be safeguarded, with necessary protection and rehabilitation, but will only be opened to visitors by exception. This would allow structures to be created at the public sites which will be attractive to paying visitors by the provision of storytelling, imagery and services. However, even here the watchword would be "look but don't touch". The general public must be distanced from the work to protect it. The art, or skill, will be to provide an experience whereby the visitors leave believing that they have become familiar with the lives of the monks, without actually having had any contact with fragile art or artefacts.

It might be thought that there should be a strong focal point to attract visitors and be a "one-stop-shop": whether it be a museum or visitor centre, to draw visitors in and educate them about all aspects of the monasteries: their history, their day-to-day life, their political and religious roles, and their rise and fall. However, even if this were to be located remote from any of the main sites, there would be a risk that such a museum would focus all the visitors' attention on a single site, and that the whole trip would be managed in a day trip from Tbilisi. This report would therefore propose a hub and spoke visitor experience. There would be a central hub, which might be at the David Gareji/Udabno site or, alternatively, at a location offering easy access to three or four of the main sites. This would provide an introduction to the monasteries and their history, but then each of the subsidiary centres would focus on particular aspects of the monastic life throughout the complexes' history. This approach is proposed for four reasons;

- i. While the obvious location for the hub centre would be the St David's Lavra, it must be remembered that this is a working monastery. For now, the clergy are welcoming towards the visitors arriving, but increasing visitor numbers into the hundreds per day would put pressure on the site, disrupting the life and work of the church in this location.
- ii. A single focal point would allow visitors to make a quick visit to the area, have lunch and then drive back to Tbilisi. This would mean them missing the scope, range and importance of the site, as well as missing out on the diversity of the sites, buildings and artwork.
- iii. A longer stay would allow visitors to gain a greater appreciation of the monasteries, artworks and their context. It would also allow them to be exposed to



- the Georgian countryside, to a range of sporting and leisure activities, the natural history of the area and their contribution to the life of the country.
- iv. Visitors would be encouraged to spend two or more days in the region, with all the economic benefits that would bring in terms of revenues, employment and increased economic activity. Increased demand for public services and utilities would have the knock-on effect of justifying infrastructural investments which would encourage development across the whole region, going beyond the monastic life.

An outline tourism development plan is presented in Appendix III.

**Organisation Short Term** - A core of skills and leadership is required, which may need to be paid, but the public facing arms of civil or military defence organisations usually have the resources to provide temporary accommodation, catering and waste management structures. They may also be able to offer artificers with the engineering skills needed to construct protective structures for the sites as part of a skills development programme for the officers, and social development between the military and civil society.

The principle of using volunteer labour, and the extension of using labour which is prepared to pay for the experience of working on natural or cultural heritage, is well established in some countries. An example is the “Unesco World Heritage Volunteers Project”, and in the UK the (English) National Trust has a similar programme for the maintenance and repair of mountain paths. It may be called heritage rescue or training in restoration techniques, but it can be a cost covering mechanism for maintaining or restoring natural or cultural heritage at risk. Assuming that free, basic accommodation could be found, then twenty trainee volunteers, or their parents, paying EUR 200 per week for the experience would cover the operating costs and the cost of the structural works in two seasons, assuming only a ten week season. It does require some experienced volunteer personnel to act as leaders, but suitably motivated, experienced individuals should be available. The critical criterion for leadership of these teams is that they have a sound understanding of what they are doing, and what the negative impact of their actions might be, because the risk of damage through well-meaning enthusiasm can be dramatic and irreparable.

**Organisation: Long Term** – As the above implies, the nature and scale of the proposed works and continuing economic activity takes it out of the scope of existing organisations. The Georgian Arts and Culture Centre, The Giorgi Chubinashvili National Research Centre for Georgian Art History and Heritage Preservation, the National Agency for Cultural Heritage Preservation of Georgia, Institute of Art History and Theory at Ivane Javakhishvili Tbilisi State University, Ilia State University, and other statal, parastatal and NGO organisations, e.g. the Gareji Studies Centre and the Fund of Science "Udabno", all have a role to play and contributions to make. However, beyond the first stage of site stabilisation, the project is comparable to a regional development exercise. Its responsibilities, structure, management, and funding needs would suggest the creation of a new body. This would be guided and informed by the existing expertise, but with a different skillset and with planning and infrastructural responsibilities which would normally be the role of local and regional governments. It would also have to have its own operational budget from regional or national resources, although a significant proportion of the capital expenditure would probably have to come from non-governmental sources.

## 7. Procurement

In the early stabilisation stages mentioned above, involving volunteer and, possibly, military personnel, the question of procurement best practices and legal procedures will not apply. However, as the stabilisation and protection stages advance, the technology and expertise to be applied will become more expensive and best practice would suggest that there will need to be greater control of project expenditure. Similarly, if external funding is to be sought from national and international agencies, the body responsible for organising the works and contract will need to follow both the procedures of the funding bodies and best international practice.

When setting up the governance of the body to oversee the development of the *lavras* and related structures, such as a museum complex, the organisation should be designed to incorporate best procurement practices from the outset. Support for this, either formal or informal, is likely to be available from international funding bodies, including the EU.

## 8. Environment, sustainability

Unless action is taken to preserve and conserve the artworks, they will fade away. Unless action is taken to stabilise the physical structures which contain the artwork, they will eventually crumble and fall. It is often thought that the pace of geological change is slow. However, in the case of the Gareji monasteries, the actions of the monks in carving out cavities in the rocks is akin to the effect of woodworm in timber. The whole structure is weakened and its strength and integrity is put at risk. The stabilisation works referred to in §6.0 may prevent immediate collapses. However, there will be cases where difficult decisions will have to be taken. Some of the artworks may need to be lost if stabilisation work is to be undertaken to save the sites. The reinforcing required to stabilise cliff faces will inevitably change the external appearance of the complexes. It may well be possible to recreate the facades of some complexes – and indeed this may become essential if total collapses are to be avoided. However, this will engender a debate about whether such works should replicate the original appearance, or whether they should be obviously different to avoid any possible criticisms about the works being a pastiche.

If the funds needed to carry out the rescue and repair work are going to be partly dependent on income derived from national and international tourism, then some form of access to the sites will be required. The problem is how to persuade visitors that they have experienced the monasteries and the artwork, without actually having been close enough to have a negative impact. As may be seen at historical and archaeological sites across Europe, and the rest of the world, while defensive barriers, glass screens, supporting stainless steel frames and reinforcing steelwork can have a neutral visual impact on historic sites, when poorly thought through they can have a negative impact and take away from the stories which the sites have to tell.

Tourist intrusion may also have a wider impact on the region. At present, the valley system is semi-arid, with limited vehicular access and traditional grazing patterns. One of the attractions to the founding fathers was the fact that there was nobody there. Driving new roads into such an area, bringing in potable water and waste-water treatment plants, providing electrical power, even if laid underground, will change the nature of the valley-system environment. However, it may be argued that external forces are already driving changes in the valleys, with irrigation systems being installed and non-indigenous crops and cropping patterns being planned. These changes may have an impact on the water table, and result in the creation of new micro-climates in some areas.

**Most of what remains of the sites can be saved if action is taken soon, but what can be saved will depend on two things: the priority between the art and the structure, and the priority between external appearance and structural integrity.**

## **9. Use, market and demand**

It may be thought that an archaeo-religious site like the Gareji monasteries can be considered as something apart from commerce and the market-place. However, the project will need to compete for funds being provided by government departments and regional bodies, individual and corporate donors: both national and international, and national and international funding agencies. The moral and intellectual support and influence which organisations like Europa Nostra can provide will help make contacts and build a public profile, but there needs to be a strong case for supporting this project against other deserving projects.

The Unique Selling Point of these *lavras* is that their importance lies in a number of quite separate spheres:

- They are troglodytic, but while there are other troglodytic structures in Christian and other faiths, the Georgian monasteries have a rare diversity, scope and scale;
- They date from the very early years of the spread and development of Christianity and they represent a bridge between the past and future;
- They were once a centre of pilgrimage, and could become so again;
- Although the individual complexes are quite small, the total number of monks and anchorites is such that the complex can be seen as a powerhouse of faith and belief;
- They contain a possibly unique set of artwork, showing the progression of religious and secular art across a millennium of artistic thought and technique;
- The monasteries, and linked hermitages, created a type of gravitational pull which drew in religious thinkers, philosophers and artists from across the wider Caucasus region;
- Although religious institutions, they had an influential role in the political and economic life of the region through the training and political discourse which they offered to the country's leaders over centuries;
- There may have been an ebb and flow in the population of the monasteries over the centuries, but they always recovered, in one form or another, and are in a growth phase today, despite existing in an increasingly atheistic world environment.

There is therefore a clear argument to be made for supporting the rehabilitation and, to the extent possible, the restoration of the David Gareji monasteries. However, while funding may be available for these works, for the monasteries, and by extension the lands in which they sit, there needs to be a future flow of funds which will allow them to be sustainable. Without an assured flow of future funds, their continued existence will always be at risk. Ideally the David Gareji monasteries, or at least an organisation which is wholly aligned to their needs, would have a future revenue stream which will allow the sites to be directly or indirectly self-sustaining. It could be that the Church could take on this role, but while there must be a strong connection between the Church and the archaeological and historic sites, maintaining archaeology is not the principal role of any Church. Alternative sources of revenue will be required. Tourism is often seen as a panacea for heritage sites which are at risk and its value may be overstated. However, in this case the sites' location means that there are very few alternative sources of income, and tourism, while imperfect, may be the best and only long term solution, if continuing funding by the state cannot be guaranteed. It may

also be that any support from the state is conditional on a balanced contribution by the sites supporters, in which case tourism may become the only realistic source of co-funding.

The Unique Selling Propositions (USPs) of the sites are listed above, so the question is who would want to visit the site. Five groups can be identified: the faithful, the national, the archaeophile, the curious and the adventurous. Each group will be made up of a number of sub-groups classified by specific interest on one axis, and economic value on another. This breakdown will be covered in more detail in Appendix III. Some groups will have a significant degree of overlap, e.g. the faithful and the national, but the needs, desires and expectations may be quite different across the groups. The question is how to optimise the return from these various groups, while minimising the impact on both the *lavras* themselves and the environment in which they sit. Considering each in turn:

The Curious – Many visitors who might be visiting countries for mainly hedonistic reasons, will sometimes visit historic sites, just for a change. They may not have a deep understanding of what they are looking at, but if an excursion breaks up their holiday routine, they may well be happy.

The National – Georgia has a long history as an independent country, despite various invasions over the centuries. For many, the Soviet presence for a few decades in the middle of the 20<sup>th</sup> century was just another temporary situation. Even those who are only nominally orthodox in their beliefs, recognise the historic links between church and state, and might see the revival of the monasteries as being an exemplar of Georgia's regional and international significance, and would support the stabilisation and redevelopment of the Gareji monasteries as being symbolic of the country's renewed role in the region.

The Faithful – Georgia, has a population of 3.9 million, almost 90% of are classed as being ethnically Georgian. The Georgian Orthodox Church, which is now recognised as an independent Orthodox Church, has a membership of 3.5 million, although this must obviously include a significant number of children. The exact definition of adherents may be questioned, but there is absolutely no doubt that the church plays a major part in the life of both the country and the everyday life of a large part of the population. With this in mind, and even allowing for the country's relatively low per capita income, there must be a presumption of willingness on a significant part of population to support the monasteries, even those which are not currently consecrated. In return, the faithful would reasonably expect to have access to the sites.

The Archaeophile– The statistics on visitors to countries with famous archaeological landmarks, show that most are not interested in visiting historic sites. However, although the absolute numbers of historic site visitors may be small, they can make a disproportionate contribution to the local economy. They wish to be immersed in the cultural/historical/ethnological/religious experience, and many have above average incomes.

The Adventurous – In some senses this group is the antithesis of "The Curious" covered above. The Adventurous are also seeking something beyond everyday life, but they are looking for their whole holiday to be made up of new experiences. For them, the nature of the place and the history of sites is important, along with the terrain for adventure sports and the presence of a different ecosystem. This group may not feel the need for high quality accommodation, but they will want a continuous supply of services and experiences to satisfy their need to be doing something new and different.

Georgia's tourism industry is growing at an above average rate, albeit from a relatively low base, and as proportion of GDP it represented less than 7% in 2017, compared to a world average of over 10%. Within that Georgian figure, more than half is made up of visits to friends and relatives. Only 2% of travel is specifically for religious purposes and only 8% of arrivals visit a religious site.

## 10. Investment cost and financing requirements

Only a small sample of the deserted *lavras* was visited during the site visits. It is therefore not possible to give indicative costs to stabilise the structures. However, some outline numbers can be suggested.

Site Surveillance System - The cost to install a simple CCTV system at all of the larger sites, with solar power, power banks and digital links to a central command could cost EUR 250,000 depending on specification.

Interior Space and Artwork Protection- Protecting sensitive interior spaces, e.g. those containing artwork, through simple wood framing sheeted with UV screening material, and with a passive ventilation system to control humidity, would be EUR 30 – 50 per opening, plus volunteer labour costs. However, this approach is a short term solution, and assumes safe access, which is not always the case. Once the sites are protected, consideration can be given to how visitor access can be created and controlled.

On-Site Access (i.e. not including vehicular access to the sites which the relevant local government authorities should be encouraged to provide, or at least manage) – Although the currently unfenced sites have a clear, clean appearance, some form of fencing would be desirable: to protect the carved spaces and any artwork. This would partly be protection from people – although CCTV would be a deterrent – and partly protection from other large animals and flocks of sheep and goats. With goodwill, this work could be self-liquidating. Summer camps for volunteers, including volunteers (or their parents) paying for the privilege of learning practical skills and working to protect the country's heritage.

Protecting the country's heritage need not be an expensive business. However, if there is a desire to exploit the country's heritage to generate funds for redevelopment works or to kickstart economic growth in what is a relatively deprived area in one of Europe's least wealthy countries, then significant capital will be required.

Potential Public Sector Investments. At present, the only physical, visitor/tourist-related structure is a small visitor centre at the St David's Monastery. This provides a basic information space, a shop space, car parking and toilets. If there is to be a significant increase in the number of visitors then there should be a facility to tell the story of both the monasteries and the *lavras*. At first sight, the obvious place to put this would be at the site of the current visitor centre. However, even the St David's Lavra is not a large site, and it is a working monastery. Large numbers of tourists arriving at a single monastery would almost certainly be disruptive. This report would like to suggest that there would be a risk of turning one of the most historically important monasteries in the Black Sea-Caspian Sea basin into a theme park. A separate, neutral location might be more desirable, possibly the township of Udabno. Wherever it is located, there should be a well-developed visitor centre and museum, possibly containing many of the significant artefacts and artworks currently located in Tbilisi. That proposal has its temptations: it would be ideal for: a) the economic development of the site, b) for the servicing of increasing tourist numbers, and possibly c) the minimisation of the impact of tourists on other sites. There should be development on the St David's Monastery site, including viable visitor access to the Udabno site (subject to prior inter-governmental agreement) but rather than being the hub of the development, it should be one of the three satellite centres.

Each satellite would focus on one or two particular aspect of life in the monasteries, e.g. architecture, theology, artwork, practical aspects of daily life, outreach, political developments, etc.

The main building should be large enough, and secure enough, physically and climatically, to allow many of the artefacts and pieces of art to be “brought home” from Tbilisi. The cost of each of the three satellites would be of the order of EUR 1 million, while the hub building would be EUR 2 million. However, these costings are for basic, functional facilities. There may be pressure for the hub to be a symbol of national pride and prestige, in which case the budget may need to be much, much higher.

On top of this would be annual operating costs of the order of EUR 600 000 for the basic building option. With an average entry ticket price of EUR 15, then 40 000 visitors would be required annually, probably with a peak daily number of 2 500. The question is therefore whether such a number is achievable, and the answer is possibly yes, depending on the infrastructure. For comparison, here are visitor numbers for a range of religious sites:

Site	Location	Travel time by road from nearest airport	Annual Visitors
Lindisfarne	North East England	One hour	650,000
Iona	Island, off an island, off the West coast of Scotland	4 hours (plus two ferries)	130,000
Santiago di Compostela	North West Spain	Local Airport	300,000
Sri Pada	Central Sri Lanka	4 hours to base plus 4 hours climbing	20,000

The real question is how popular and populist should the monasteries and *lavras* be allowed to become.

## 11. Financing possibilities

Georgia is not a wealthy country. It is rich in history, in its traditions, and in its art, but in pecuniary terms it is poor, or at least official statistics show it to be poor. Persuading people that they should pay taxes is never easy, but it would only take a small percentage increase in the percentage tax take for the David Gareji monasteries *lavras* to be restored, on-site museums constructed and a full range of tourism infrastructure installed within ten years.

Ownership of the designated sites appears to be in the hands of the Church, but the responsibility for the surrounding land and infrastructure is either in private hands or the responsibility of the government. However, the competent Ministry has limited resources: both human and financial.

International organisations are present, including the United Nations, World Bank and the European Commission, but their resources are also limited, particularly in terms of short term discretionary funding. Resources might be made available in the longer term, but they would need to be within the context of wider economic development.

## **12. Conclusion: Proposed Action Programme and recommendations**

The cluster of complexes established by Saint David Gareji and his brother Saints and Disciples may be in parlous state, but their importance in terms of development of the Eastern Orthodox church, the political life of mediaeval Georgia, the development of the Black Sea/Caspian Sea basin, and artistic and religious iconography cannot be overstated.

The region is currently sparsely populated, with little economic activity and no real sense of purpose. However, in its heyday it was a centre of religious thought, art, politics and hidden power. This barren region was home to hundreds of monks and probably hundreds more anchorites.

Although the interiors of the sites are well documented, it is difficult to prioritise the works required without a geo-structural analysis of the sites. This work is ongoing but the main threats appear to be reasonably well established. However, the Udabno site, which has recently suffered severe structural damage, is not only exposed to physical risks, but also a political risk. This is arguably one of the most important monasteries but it remains largely inaccessible. The site shows signs of stabilisation works carried out in soviet times, but the recent collapse of part of the refectory ceiling demonstrates (§4. Description) the physical risks to which the monastery is exposed. Unfortunately, access to Ubadno is limited, and access to the Bertubani site from Georgia would require the agreement of the Azerbaijan authorities. A high priority should therefore be given to negotiating a Free Area covering this site, in the first instance, but also the other sites which form part of the wider David Gareji complex, and which are currently on Azerbaijan territory.

Once a full analysis of the geo-structural risks has been completed – or even as soon as the results are known on a site-by-site basis – planning for the reinforcement of the structures both on a temporary and permanent basis should be started. Priority should obviously be given to sites at greatest risk, which means that prioritisation will have to be dynamic process as the risk levels are assessed. However, the means by which the artworks can be sheltered from harm should be put in place immediately, along with site control measures to prevent further man-made damage.

In parallel with the physical works to protect the sites, economic developments will need to be initiated to ensure the sites' perpetuity. In terms of distance, the sites are close to Tbilisi, but in terms of accessibility, the sites are a long way away. The valley system which contains the main sites used to support a population measured in thousands. Now, the only significant settlement is 10 kilometres from the site and has a population of a few hundred – and that was thanks to a resettlement programme from a dangerous mountain location.

Living monasteries and tourism is not always a comfortable relationship. Many international tourists fail to understand the sensitivities which surround small communities which are motivated by spiritual development rather than profitability. However, by concentrating on the development of the whole valley system, rather than just one aspect of it, it should be possible to develop a business model which will provide the funding needed to stabilise and possibly develop the Gareji sites – and those of the anchorites – and provide economic development for the wider resident population.

Report Prepared on Behalf of the European Investment Bank Institute for Europa Nostra

Campbell C. Thomson  
2019

15 March



A photograph of rolling hills under a clear sky. In the foreground, two people are standing on a grassy ridge. One person, wearing a dark suit, is looking towards the hills. The other person is operating a professional video camera mounted on a tripod. The hills are covered in dry, golden-brown grass and have a series of gentle, undulating slopes. The sky is a pale blue with some light clouds.

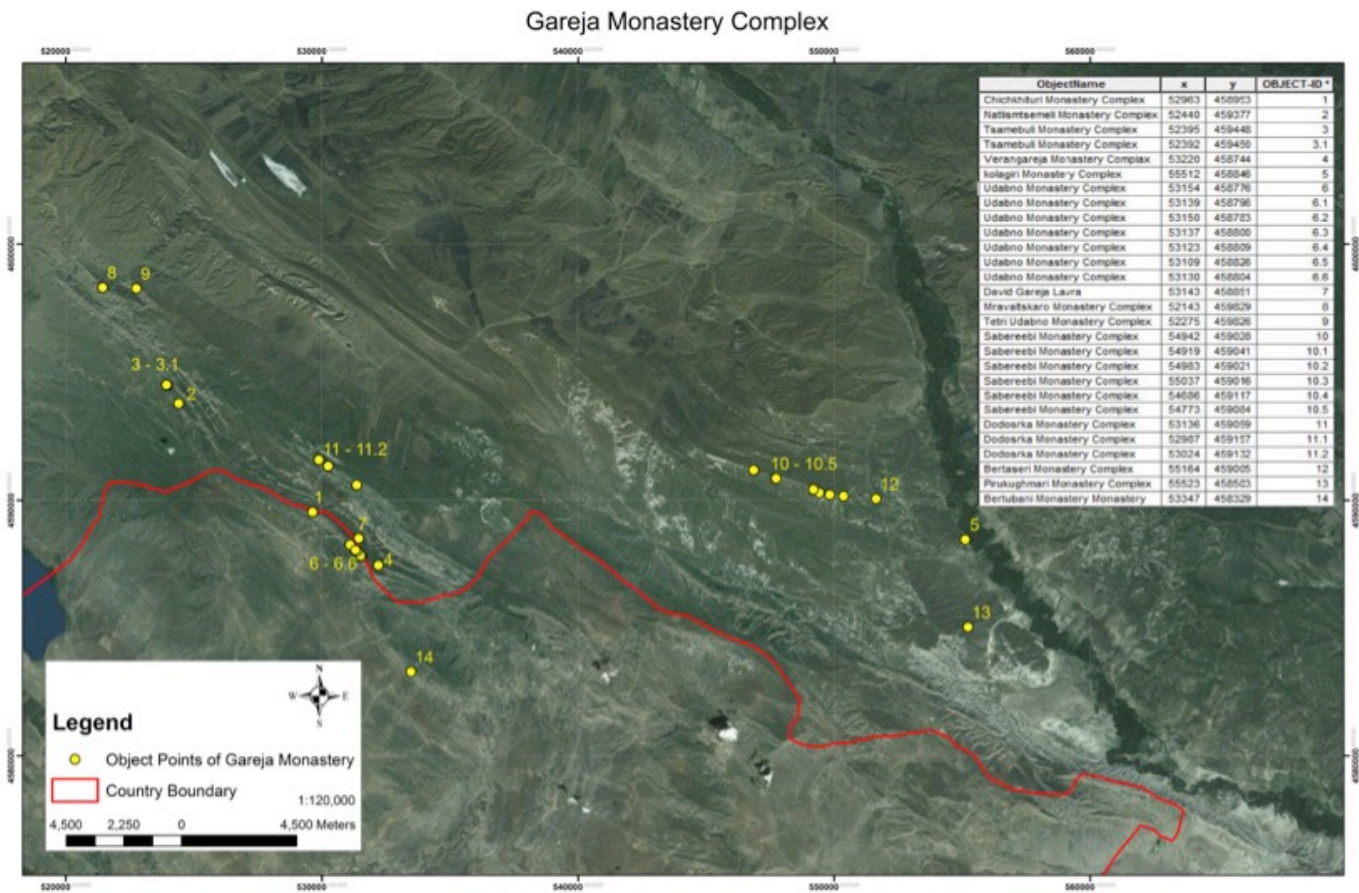
## Appendix I

### Supporting Photographs and Maps



# Appendix I

## Partial Map of Georgia





## Appendix II

### Archaeo-Historical Context



Gaianè Cașnati  
7ME Advisory panel member

## **Technical report**

### **Scope**

In 2018 the monasteries and hermitage of David Gareji<sup>1</sup> have been inserted in the list of the 7 Most endangered 2018 by Europa Nostra and the European Investment Bank Institute. On November 6<sup>th</sup>- 9<sup>th</sup>, 2018 the Georgian Arts and Culture Centre, nominator of the site, organized an expert mission on site to which, besides me, participated the vice president of Europa Nostra, Mr. Piet Jaspaert, and Mr. Campbell Thomson, consultant of the EIB Institute. This report had been devised following the mission. Its scope is to assess the characteristics and state of conservation of the site and to suggest step by step some actions to be taken for its safeguard and sustainable development.

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ANNEX 2 - Confrontation between old and recent images of the monasteries' interiors

ANNEX 3 - Maps

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<sup>1</sup> In this report we refer to the monasteries using the spelling adopted by international organizations. Therefore, we should mention that in Georgian the right spelling for "David" is DAVIT, while for the term *Gareji* (desert), some scholars do prefer the form GAREJA, although both are grammatically correct.



## 1. Acknowledgements

The drafting of the report has been possible thanks to the inputs of a number of passionate and knowledgeable experts that accompanied us during the mission and supported me in the collection of information on the sites. I thank for the precious collaboration:

- Nikoloz Antidze, General Director of the National Agency for Cultural Heritage Preservation of Georgia; Manana Vardzelashvili, head of the UNESCO and International Relations Unit Tamara Meliva, Senior Specialist, UNESCO and International Relations Unit; Giorgi Gagoshidze, head of the research unit; Giorgi Tcheishvili, head of Museums and Museum reserves educational department of the National Agency for Cultural Heritage Preservation of Georgia.
- Mariam (Maka) Dvalishvili, Founder and Executive Director, Tamuna Kiknadze, Programs Development manager, Marita Sakhltkhutsishvili, Programs assistant, Georgian Art and Culture Centre (GACC).
- Bishop Abba Alaverdeli (David Makharadze); Deputy Director at Architecture, Art and Preservation Center, Georgian Patriarchate
- Zaza Skhirtladze, head of Gareji Study Center (NGO), full Professor, Ivane Javakhishvili Tbilisi State University.
- Mzia Gabunia and Jentje van der Weide, Georgia's Protected Areas Program (GPAP).
- Marina Bulia and Mariam Didebulidze, both Senior Researcher at Giorgi Chubinashvili National Research Centre for Georgian Art History and Heritage Preservation, Department of Ancient and Medieval Art.
- Vladimer Mirianashvili, head of Fund of Science "Udabno".



I also would like to express a special thanks to the First Deputy Minister of Education, Science, Culture and Sport of Georgia Mikheil Giorgadze, that had the courtesy to warmly welcome the mission and offer all his support and to the municipality of Sagaredjo in the persons of:

Giorgi Erbotsonashvili, Mayor;

Alexi Gilashvili, First Deputy Mayor.

Paata Asratashvili, Second Deputy Mayor,

Nino Kaikhosroshvili, Second Category senior specialist at department of Education, Culture, Heritage Preservation, Sport and Youth Affairs.

## 2. Europa Nostra and EIB Institute mission outputs

Thanks to the professional organization by Georgian Arts and Culture Centre (GACC) and the National Agency for Culture Heritage Preservation, the mission has been very effective, the main stakeholders have been met and a two days visit has been paid to the site. Our goal was to

investigate the actual situation and identify the questions to which our expertise may try to give an answer. I am presenting here below the main outputs.

At the National Agency for Cultural Heritage Preservation of Georgia the main problems affecting the sites had been discussed, they concern: its physical condition, the big dimension of the area on which the monuments are scattered, the uncertainty of the borders with Azerbaijan. The director Nikoloz Antidze focused the attention on the difficulty of a correct preservation due to: the difficulties in accessing the sites, the state of abandonment of some of them and the necessity to regulate the use of the others by the monks. In conclusion, they are planning to start implementing the first actions in 2019 and so they need to devise a very clear masterplan for which they are expecting from the 7ME program some support in:

- 1 assessing the actual situation,
- 2 proposing step by step actions to be taken for the development of the complex,
- 3 supporting the legitimation of the planned/selected processes.

The Deputy Head of the EU DELEGATION, Mr. Carlo Natale, said that actually there are no programs that can be of use for David Gareji. Nevertheless, in his opinion Cultural Heritage has a great importance for Georgia as a driver for overcoming a number of difficulties. For this reason, he said, EU intends to try in the future to incorporate Culture in its programs.

An important meeting has been held with Karlo Tskitishvili, head of the Department of the Border Representation and Delimitation-Demarcation at Mia Border Police where a clear presentation of the problems connected to the border with Azerbaijan has been provided.

It is since their independence (1991) that Georgia and Azerbaijan are discussing the borders between the two (170 out of 310 km are disputed). Recently, an agreement has been reached regarding the majority of the issues, but still David Gareji with only few other issues are to be solved (their forecast is that 1/1 and a half years are still needed to reach a final agreement). Near to David Gareji, up until the early 20th century, the border with Azerbaijan was Kura river (lying to the South of current, disputed border), the actual border line runs along a hilltop ridge crossing Udabno<sup>2</sup> and Chichkhituri<sup>3</sup> monasteries and cutting out Bertubani.

The issue with the borders makes the control of the monasteries laying in Azerbaijan impossible. It is also a problem in relation to the tourist fruition. In fact, the accessibility to Udabno is uncertain both for tourists and experts, Chichkhituri is not reachable neither from Azerbaijan nor from Georgia and Bertubani is accessible only from Azerbaijan. The Border Police have a successful collaboration with the Agency for Monuments Preservation in trying at least to enter into an agreement with Azeri authorities for allowing the assessment of Bertubani monastery's technical conditions.

In 2006 the World Bank financed a report on the Development of Conservation Management Guidelines for a Proposed David Gareji Protected Landscape in the ambit of Protected Areas Development Project (GEF TF 023968). The report has been devised by a multidisciplinary group of experts<sup>4</sup> after a comprehensive research and included the Development of a Detailed Plan for

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<sup>2</sup> The upper structures are in Georgia while the lower ones lay in Azerbaijan and are reachable via a path that crosses Azerbaijan border.

<sup>3</sup> The tower of Chichkhituri is for the 90% in Georgia and for a little part in Azerbaijan while the rupestrian structures are all on the Azerbaijan side.

<sup>4</sup> The study has been coordinated by the NGO Georgia's Protected Areas Program (GPAP) and implemented by a team of experts from local Universities and NGOs, namely:

Marika Didebulidze, art historian, the G. Chubinashvili National Research Centre for Georgian Art History and Heritage Preservation, Technical manager, Mzia Gabunia, environmental planner, architect, GPAP.

Zaza Skhirtladze, team leader for Culture; Zurab Tvalchrelidze medieval art expert; Mamuka Kiknadze, architect. David Kikodze biologist" team leader for Nature; Tsitsiko Djanalidze, Physical Geographer, GPAP, Maia Tavartkioladze. Ioseb Natradze Zoologist, Giorgi Edisherashvili, Ornithologist, Teimuraz Muskhelishvili Herpetologist, institute of Zoology. Ana Rukhadze, Mamuka Danelia for social Economic aspects. Irakli

Biodiversity and Forest Conservation in the Central Caucasus Region and Corridor Conservation Planning in Eastern Georgia. That report constitutes a good basis for the analysis of David Gareji situation but it has been agreed with Mrs. Mercy Tembon (World Bank Regional Director for the South Caucasus) that an update of the report, the design of a site management plan and a tourism management plan would be necessary. She confirmed that some funding resources are available on condition the Georgian Government applies for them within a project

The World Bank had already implemented a few interventions aimed to promote tourism development in the region of Kaheti (in the framework of a Regional Development Programme 2011-16 directed by Mr. Tengiz Gogotishvili, Urban development Specialist) and in the area of David Gareji (the realization of a car park and info centre in Laura and the high voltage cables connecting the village of Udabno to the monastery of Laura). In general, they are interested in supporting projects in the field of culture and sustainable tourism with a clear understanding of the needs of the place. Therefore, their actions for 2019 and beyond should be planned before March and driven by urgency and/or by a precise request from Georgian Government.



The visitors centre built by the World Bank in Laura of David Gareji..

A wrap up meeting has been organized at the National Agency for Cultural Heritage Preservation with the presence of the group of experts coordinated by prof. Claudio Margottini<sup>5</sup> that were with us during some of the surveys. This group is committed in the field of “Cultural Geology”, experimenting new and sustainable ways of engineering geology for the conservation of Cultural Heritage. In Georgia they are active since 2011. After the implementation of preservation interventions aimed at the preservation of the site of Varzia, they are now working in Uplistsikhe. Starting from 2017 they have been involved also in the assessment of the situation in David Gareji, commissioned by the National Agency for Cultural Heritage Preservation of Georgia in the

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Zautashvili and Kakha Potskhishvili. GPAP for Environmental Planning. Jentje van der Weide, quality control and editing. Maps by the Institute of Geophysics: Zurab Javakhishvili, head of the department of regional seismology, team leader; Micheil Elashvili GIS expert.

<sup>5</sup> UNESCO CHAIR AT UNIFI With UNIBO Alma Mater Daniela Boldini UNIMIB G Crosta, P Frattini, R Castellanza, UNIFI N Casagi, G Gigi, W Frodella, ISPRA Daniele Spizzichino



ambit of a program co financed by Ilia State University.

Their focus is on the geologic situation and their task is to find solutions compatible with local experiences and traditions, minimizing the impact and providing training when needed. They also collected rock samples for implementing laboratory tests aimed to investigate mechanical parameters for the construction of the geological and geo-mechanical model. This understanding of the ongoing geological processes is crucial for the selection of the type of further monitoring needed and for the design of a masterplan but must be completed with a complete study of the mural paintings and an evaluation of the opportunity of implementing archaeological excavations.

The meeting with the First Deputy Minister of Education, Science, Culture and Sport of Georgia, Mr. Misha Giorgadze, has been very positive and ended with the 100% endorsement of EN approach, the promise of support (eventually also through the involvement of private donors), and the request of an action plan. As regards the problems with the monks inhabiting the monasteries, an active dialogue and friendly relationship with the patriarchate has been already experimented in Varzia and can be of help also in this case.

The creation of a protected area (eventually in collaboration with Azerbaijan) has been considered a not easy but still viable solution. The involvement of Europa Nostra has been considered as a good opportunity to support the solution of the border issue. The Deputy Minister also noted that the issues of monuments preservation may be addressed together with Azerbaijan's experts independently to the solution of the border definition.



Gareji hills – Photo ©Kakha Khimshiashvili

### 3. Site short description

David Gareji is a site of great charm and extreme fragility, included in the Tentative List of UNESCO World Heritage Sites<sup>6</sup>. It occupies a huge<sup>7</sup>, mountainous and deserted area in the South of Georgia, along a discussed border with Azerbaijan<sup>8</sup>.

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<sup>6</sup> Submitted by the Ministry of Culture, Monuments Protection and Sport of Georgia on 24/10/2007 under Criteria: (i)(ii)(iii)(iv)(v)(vi)(vii)(x) in Category: Mixed, see: <https://whc.unesco.org/en/tentativelists/5224/>.

<sup>7</sup> The area, 173.000 ha, 160x50 km wide (according to the World Bank report) includes the administrative districts of Segrejo, Gardabani, Signaghi and Dedoplistskaro.





It is about one-hour drive South East from Tbilisi. Geographically, it represents a particular type of steppe, unique in Georgia, and hosts several species of plants and animals, some of which are rare/facing extinction (i.e. some particular species of bats, snakes and herbs). Fossils found in different locations give insights on the vegetal and animal life in the area in the Pleistocene, confirming the hypothesis of a faunistic migration between Eurasia and Africa.



Archaeological evidence from different expeditions organized since the '60<sup>ies</sup> (some of which in partnership with German experts), demonstrates the intense use of those lands since very ancient times, starting from the lower Palaeolithic period (as in Chamdzvralikhevi, a site from 60<sup>th</sup>-30<sup>th</sup> millennia B.C.). The remains of various types of burial mounds from the Bronze Age have been found in Tetri Kvebi, Mravaltskali, Arkhashani, Chichkhrituri, Shavi Mitsa, Chamdzvrali, while the

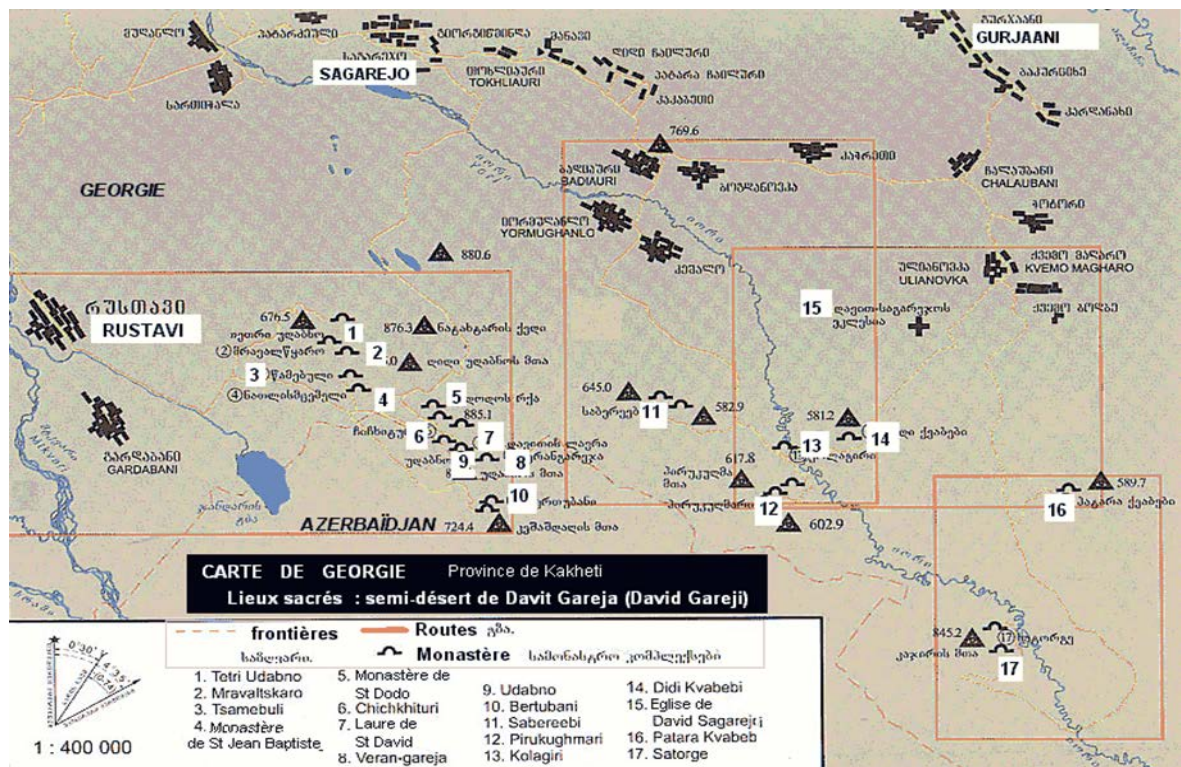


ruins of settlements found in Mravaltskali, Tsitsmatiani, Disjie, Dodos Rka, Natakhtari, Shua Gori, Naomari Gora, Takhtiperda, Nagomrebistavi can be referred to Acheulian, Mousterian, Kura-Araxes, Bedeni and Trialeti cultures of late Bronze-Early Iron Age. Of great importance are the sites of Udabno I, II and III, consisting of three large settlements dating back to the Iron Age (XI-X<sup>th</sup> cent. B.C.) that have been object of investigations and archaeological excavations realized during the first decade of the years 2000 by German, Georgian

<sup>8</sup> Since the independence of Georgia in 1991, the borders between Georgia and Azerbaijan are under discussion, 170 out of 310 km of border are still to be defined. 4 km is the length of the disputed border in David Gareji.



and Turkish<sup>9</sup> experts. The potential of all those sites both in term of scientific study and touristic valorization is huge and still unexploited.



Map of the monasteries of David Gareja annexed to the UNESCO WH list nomination<sup>10</sup>.

Starting from the 6<sup>th</sup> century<sup>11</sup>, the site's importance grew significantly and a number of monasteries<sup>12</sup> and hermitages, including around 5.000 rock hewn cells, have been carved in the rock. The site had been in fact chosen by one of the Syrian fathers, St. David, for its characteristics that, with its magical silence, suited very well to his spiritual inspiration. Furthermore, the fact that St. David brought a stone from Jerusalem<sup>13</sup> gave to the site a special significance making of it the destination for many pilgrims, not only orthodox, coming from different Countries.

The monasteries have been inhabited since the beginning and, over time, multiplied their number. Nevertheless, the pilgrims were visiting only the monasteries founded by St. David and his disciples (Laura, Udabno, Natlismtsemeli, Dodorka and Bertubani)<sup>14</sup> that are still the most important. Although the stone and the relics have been removed to be conserved in Tbilisi, the sanctity of the place have been somehow preserved.

We can distinguish different phases of construction: after the period of the foundation of the

<sup>9</sup> See: Yarma, Özgecan "UDABNO III-YAPI D ÜZERİNE MİMARİ VE REKONSTRÜKSİYON ÇALIŞMASI" Yüksek Lisans, Yerleşim Arkeolojisi Tez Yöneticisi: Yrd. Doç. Dr. Jan-K. BERTRAM Yardımcı Tez Yöneticisi: Yrd. Doç. Dr. Lale ÖZGENEL Aralık 2009.

<sup>10</sup> [https://web.archive.org/web/20110722103112if\\_/http://www.encyclopédie-universelle.com/images/georgie-carte-monasteres-david-gareji.gif](https://web.archive.org/web/20110722103112if_/http://www.encyclopédie-universelle.com/images/georgie-carte-monasteres-david-gareji.gif)

<sup>11</sup> The most ancient find is a stele of the 6<sup>th</sup>/7<sup>th</sup> century now deposited in the Georgian National Museum.

<sup>12</sup> 19 according to the UNESCO nomination, 21 in the list provided by GACC (Shavi Senakebi and Dipsizi are in that list but no info is available on their consistence as they are not accessible).

<sup>13</sup> In the "Vita of St. David" it is explained that when he went to Jerusalem for pilgrimage, he didn't feel worthy to enter the town and stopped in the hill of Mercy. Before leaving he took three stones from the Portal of Jerusalem. An angel appeared and declared that those stones were carrying the Grace of Jerusalem. The Patriarch allowed David to bring one of those stones to the desert of David Gareja. This stone, the Stone of Grace, has been one of the most venerated relics of the Georgian Christian Orthodox Church. See: Z. Skhirtladze (2017) "The Stone of Grace in Gareja Desert".

<sup>14</sup> See: D. Kldiashvili, "Gareja and Pilgrimage in the early Georgian sources".



monastic life (6<sup>th</sup>-7<sup>th</sup> cent.), the gradual modification of ascetic ideals promoted by St. Hilarion the Georgian resulted in the widening and beautification of the monasteries where architectural and mural decoration have been introduced since 9<sup>th</sup> century as means to express the monastic ideal<sup>15</sup>.



Angels depicted in the chapel of St. Demetrios in Dodorka, discovered in 2015.

Photo M. Bulia.

Between the 11<sup>th</sup> and 13<sup>th</sup> cent. the monastic life grew and Gareji became a major cultural and intellectual centre patronized by the Royal Court; it was in that period that the Gareji school of painting reached its peak both for the ability of the painters and for the quality of the materials that were used (i.e. lapis lazuli and gold leaf).



Mural paintings in Sabereebi. Photo M. Sakhltkhutsishvili.

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<sup>15</sup> See: A. Volskaia, "The formation of monastic painting in Gareja".

After hard times consequent to the Mongol campaigns (13<sup>th</sup>-14<sup>th</sup> cent.), in 1424 Gareji started to be administered by the Patriarchate which began a gradual process of restoration/enlargement that reached its apex under the abbot Onophre Machutadze (1690-1732).



Between the 18<sup>th</sup> and the early 20<sup>th</sup> cent. the monasteries lived another revival: the fortification systems of the monasteries of Laura of St. David and Natlismtsemeli (see picture on the left) were reconstructed and some domestic structures were built. After the Bolsheviks revolution the monasteries have been abandoned.

In recent years, monastic life has been revived in Laura, Natlismtsemeli, Dodorka and Udabno<sup>16</sup> where the monks implemented and are implementing rehabilitation works aimed not really to the preservation of ancient structures but rather to their adaptation to the needs of modern life.

We had the chance to visit 5 monasteries out of the 21 that are listed in the documentation available. It is useful to note that, according to the information we were provided:

- 2 monasteries are laying completely (Bertubani) or partially (Chichkhrituri) out of the border under discussion, in the side of Azerbaijan;
- 6 monasteries are accessible by car, out of which one is accessible only in winter; all the others are accessible by foot paths except for 1 that is declared completely inaccessible because of the condition of the rocks and one other that is considered accessible only by climbers with ropes.
- The majority of the monasteries should have been decorated by mural painting, therefore, we have been able to collect documentation only on the mural paintings of 10 monasteries (Laura, Udabno, Chichkhrituri, Natlismtsemeli, Dodorka, Sabereebi, Tetri Udabno, Kolagiri, Mavraltskaro and Bertubani) and the indication that in Tsamebuli only fragments of the mural paintings are preserved and in Berebis Seri only pale traces of murals are still visible;
- 5 monasteries (Laura, Udabno, Natlismtsemeli, Dodorka and Bertubani) have a greater religious significance and have been the destination of pilgrimages.
- All the monasteries need structural consolidation at different levels, urgent interventions to preserve the mural paintings and the implementation of safety measures prior to allowing an increase of the tourist flow.

Please see ANNEX 1 for a short description of each monastery and a selection of images.

#### 4. Technical aspects

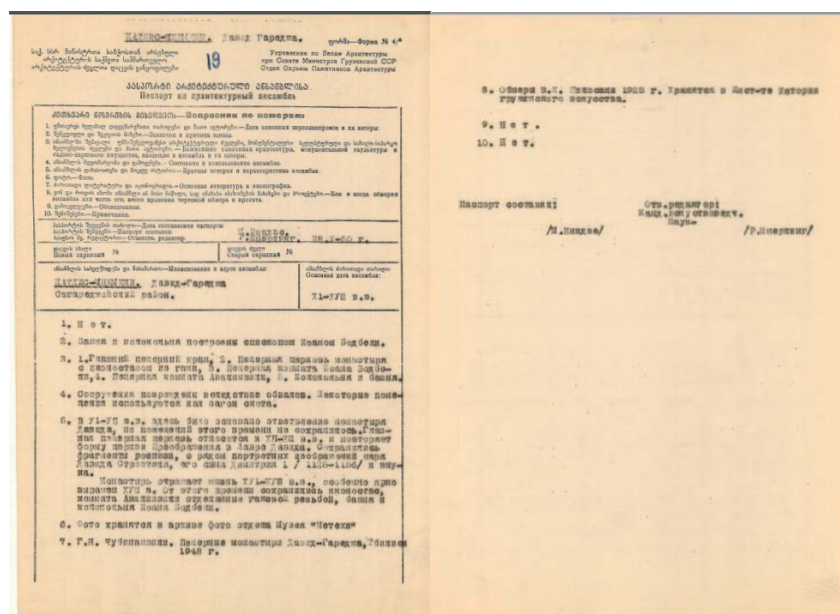
For the monasteries in Azerbaijan, the problem is political, Bertubani is completely inaccessible by Georgian scholars while Chichkhrituri is accessible under special conditions. All the monasteries laying in the Georgian side are property of the Georgian Patriarchy while the responsibility for their proper preservation is of the Ministry of Education, Science, Culture and Sport of Georgia, through the National Agency for Cultural Heritage Preservation. The latter is starting to devote a greater attention to the sites although for different reasons it couldn't until present address the problems of conservation of David Gareji desert in a comprehensive way.

In the Georgian system, each monument worth protection is registered with a document named *passport* in which all the available info is collected (including historical information, some images, drawings, a map, eventually also data regarding the area of the zone to be protected around the monument). In case of David Gareji monasteries, only 9 passports are available in Georgian

<sup>16</sup> The monks staid in Udabno only a short span of time, as the life conditions there were too hard.



and/or Russian language and contain some synthetic Soviet time documentation. The experts of the Agency refer that the passports have not been updated yet<sup>17</sup>; although they are planning to do it.



An example of passport

The published information on the sites is still scarce, at least in European languages, for a few monasteries it hasn't been possible to collect neither information nor images; we should therefore mention that the experts we met referred to some studies implemented including a survey cave by cave that has been published time by time. In the report written for the World Bank and in few articles, there is mention of some conservation work implemented in different moments during the last 50 years, mainly aimed to preserve the frescoes in a number of monasteries. In fact, visiting the sites, the results of those interventions were on sight, therefore a comprehensive set of technical information (i.e. the materials used for preservation) was not easily available.

*The collection and organization of comprehensive information related to the consistence and state of conservation of the heritage in Gareji desert should be considered as a priority.*

Given their particular nature of monuments carved in the rocks, the assessment of the geologic/structural/hydrogeologic condition is crucial both for designing a study/preservation/maintenance plan and for drafting a management plan and a tourism development strategy. The Agency for Preservation of Monuments is conscious of that and, as mentioned above, it is already collaborating with a group of Italian experts that will deliver a first report soon. For this reason in this report there will be no specific mention of the geological/structural problem if not to recall the importance of having a multidisciplinary approach and avoiding the design or implementation of structural intervention without considering also the issues related to: the eventual opportunity of implementing archaeological studies/excavations, the preservation of mural paintings, the needs of the monks who are living in the premises, the eventual necessities connected to the promotion of tourism development.

We would instead focus the attention on the preservation of the mural paintings. We read that most of the caves are plastered with gypsum<sup>18</sup>, in some cases the artists may have used a technique widespread in Georgia for the preparatory layers of plaster (*gadji*); always the paintings

<sup>17</sup> The National Agency for Cultural Heritage Preservation is renovating the catalogue of Georgian monuments and publishing it in part (<http://memkvidreoba.gov.ge/> is the web-site with public access, and <http://dataherita.ge/?lang=geo> is the link to check the materials of NACHP Archives; both web-sites are in progress).

<sup>18</sup> See: M. Buchukuri, "The restoration of the Gareja Murals".

are realized with a dry technique. In some articles the use of some specific pigments has been named and shortly described. Nevertheless, the most interesting studies on the mural paintings are focused on iconography and a comprehensive mapping of the materials used is unavailable.

Both materials, gypsum and *gadji* are very different from the classic natural lime mortar known and used in western Europe for which the techniques of preservation are well established and tested effectively throughout the years. For the restoration of plasters in gypsum a satisfying solution is still to be identified. Therefore, we should mention that some tests have been implemented<sup>19</sup> in Armenia on the frescoes of the church of Aruch (VII<sup>th</sup> cent.) and a very interesting report<sup>20</sup> has been devised regarding the consolidation of the plasters of the church of Ateni St. Sion in Georgia, which can be a starting point for reflection, even if the environmental situations are not comparable.

*David Gareji may constitute a very interesting case study for experimenting innovative methodologies in the field of preservation of mortars in gypsum.*

In all the monasteries visited the mural paintings were in a state of advanced deterioration. In general, the main problems encountered affecting the mural paintings are:

- the collapse of some plasters that leaves visible the rock support in areas that in some cases are wide (on the left Kolagiri and on the right Bertubani);



- the detachment of wide surfaces of the plasters from the rock support with risk of collapse;



during the visit this was evident through implementing the simple test of softly beating the surface. This problem is in some cases present also where the plasters had been restored in recent years due to the fact that the mechanisms of rock deterioration are still ongoing);

Plasters in Sabereebi

<sup>19</sup> By the restorer Anna Lucchini in the ambit of the Preservation Training project in Armenia co-financed by the Italian Ministry of Foreign Affairs and the Politecnico di Milano.

<sup>20</sup> Dr. Taso Gvantsa Potskhishvili, Development of a site specific injection grout for gypsum based plaster in the Ateni Sion church in Georgia, Master of Arts in Conservation and Restoration, AA. 2015-2016, Supervisors Proff. F. Piqué and A. Jornet, SUPSI DACD; Co-supervisor PhD Candidate C. Pasia, Courtauld Institute of Art, SUPSI (University of Applied Sciences of Italian-speaking Switzerland).



- The cancellation of the faces of the saints and the presence of graffiti that in some cases, as in Bertubani and Sabereebi, cover all the paintings without any respect for their artistic and cultural values.



- the fading of the paints that in many cases are not easily readable anymore as in Udabno;



- the deteriorations of the colour of the pigments that in some cases appear very different from how they were originally (sadly some of these processes are not reversible);





the presence of superficial deposits such as dirt, black smoke, powders, salt concretions, etc..



In some cases, the eventual intervention is complicated by the presence of two different layers of painting from two different epochs that cannot be separated.



Udabno, ph. S. Tomekovich



- the presence of cracks and the percolation of a solution of water and mud. The main causes of deterioration for the mural paintings are strictly related to the context in which they are inserted: the instability of the rocks, during time, lead to cracks, collapses and water penetration and to the opening of some spaces that used to be closed thus exposing the



Dodorka, chapel of S. Demetrios, photo M. Bulia

paintings to the sunlight and, in some cases, also to meteoric precipitations. Also the history played an important role, as all the monasteries, in different times, suffered from deliberate destruction or from abandonment and it is still actual the problem of people entering and drawing graffiti of all kind<sup>21</sup>, often scratching the surface with irreversible damage. Georgian authorities are taking care of the problem that is made complex due to the logistic and to the state of abandonment of some of the monasteries.



The access to the monasteries should be controlled and visits allowed only through licensed guided tours that would guarantee the respect of the cultural and natural assets.

The preservation interventions realized in the past have been crucial for the safeguard of the paintings and had an important role in their preservation. Nearly all the paintings in all the monasteries had been cleaned and fixed and their

edges closed. From a confrontation between old and recent pictures we see that, in general, the interventions were able to stop, or, at least slow down deterioration processes. In fact, from what it is possible to see by confronting images, in the last 20 years were not registered significant collapses of the mortars as, at the contrary, happened before the works (see ANNEX 2).

<sup>21</sup> See <https://www.georgianjournal.ge/culture/34509-centuries-old-frescoes-of-georgias-davit-gareji-complex-damaged-again.html>.

But the works implemented are still not sufficient as they were concentrated only on the plasters and paintings without intervening on the structural consolidation and on the control of humidity and water flows and therefore the processes of deterioration haven't been stopped.

It must be noted that in all the monasteries we visited the structural instability of the rocks has been evident (they are moving, cracking, in some cases collapsing, water penetrates between the rock and the plasters or percolate over the paintings, in some cases bringing with it a solution of mud. Both in Udabno and in Sabereebi we could testify recent collapses of some external layer of the rocks with serious consequences also on the paintings that are becoming more exposed to deterioration factors.



*For a successful restoration and for its duration in time it is essential that the paintings and plasters, once restored, are no longer subject to the deterioration factors, thus the stabilization of the rocks but also the study of the water flows to prevent their interaction with the paintings and the design of systems of protection from the daylight are a must.*

## 5. Recommendations

The more a site is fragile, as is the case of David Gareji, the more it is important to guarantee the highest quality in the design and implementation of preservation measures. This can be obtained through the knowledge of conservation principles and standards and through the application of scientific research and intervention methodologies at all the stages, from conception to completion, of a project.

The European Commission, in the framework of the European Year for Cultural Heritage, launched the initiative "Cherishing heritage", aimed at the definition of European Quality Principles for Cultural Heritage Interventions. A workshop has been held with experts and decision makers in Paris, in May 2018, when examples have been presented to point out success factors and bottlenecks in interventions on cultural heritage; after that, the expert group set up by ICOMOS, under the mandate of the European Commission (EC), presented a document in Venice on November 2018 and launched the public debate on this issue.

Although the final document is still under preparation, already the document presented in Venice<sup>22</sup> gives a comprehensive overview on key concepts, international charters, European conventions and standards and changes in understanding and practice of heritage conservation.

The following table, taken from that document, presents a clear and easy to use summary of ICOMOS ethical and technical guidance on the subject of quality. Therefore, we suggest to make reference to it and, eventually, to use it as a checklist for all the steps to be taken for designing any intervention.

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<sup>22</sup> <https://agcult.it/wp-content/uploads/2018/11/For-Venice-Quality-Documents-14-11-18.pdf>

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| <ol style="list-style-type: none"> <li>a. Understanding of and respect for cultural heritage and its significance: it is paramount that uses of - and interventions on - cultural heritage respect and keep the character of the place and its values.</li> <li>b. Adequacy of feasibility studies and detailed conservation plans: analysis and diagnosis of the cultural asset are requisite for any intervention.</li> <li>c. Precaution in designing: “be prudent, especially if knowledge/information is insufficient or unaffordable”.</li> <li>d. Authenticity and integrity: essential.</li> <li>e. Reversibility of the interventions: recommended.</li> <li>f. Efficacy: the desired results have to be formulated and agreed upon in advance</li> <li>g. Preventive care: “it is always better than subsequent traumatic interventions”.</li> <li>h. Minimum intervention: “do as much as necessary and as little as possible”.</li> <li>i. Compatibility of design solutions: “use adequate materials, techniques and detailing” in regard to material and physical-chemical-mechanical interactions between the new and the existing.</li> <li>j. Multidisciplinary: “call upon skill and experience” from a range of relevant disciplines</li> <li>k. Use of the cultural asset and regular programmed maintenance: necessary to extend life of the cultural asset.</li> </ol> |
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## 6. Some additional notes for research and intervention on the mural paintings

After consultation with expert restorers<sup>23</sup>, the following set of recommendations for the study and preservation of the mural paintings in David Gareji have been drafted, making reference to what stated in the table above.

### 6.1 Understanding and respect (a)<sup>24</sup>

The in-depth knowledge of the characteristics of a cultural good is the most important mean for guaranteeing its safeguard. In this case, given the dimension of the site, a *complete mapping* of:

- the geology of the site (kind of rock and deterioration mechanisms)<sup>25</sup>,
- the presence of mural paintings and of their characteristics (materials of the support, pigments used, deterioration phenomena),
- the hydrogeology (presence of water and water paths).

should be considered a priority as it also allows the necessary prioritization of the interventions, crucial in a situation where the heritage to be protected is so wide and the resources are scarce. A monitoring of the meteo and the measurement of the temperatures and relative humidity both internal and external for at least one year and a half should complete the data assessment.

That done, the mural paintings deserve further research including:

- Historical-artistic analysis and documentary archival research complemented by the study of previous maintenance / restoration interventions.
- Drafting a record card for each artefact (precise location, owner, measurements, author if known, presumed execution date, subject, technique/s adopted, materials utilized, typology of the mortars and of the rock support, risks identification, previous restorations, etc.).
- Detailed survey (photo/orthophoto when appropriate/laser scanner if available/XR and UV photo where needed).
- Mapping of the deterioration phenomena observed<sup>26</sup> and of the points identified for

<sup>23</sup> A warm thank to Silvia Simeti and Stefano Volta, restorers of stone and paintings with many years of experience earned working on outstanding cultural heritage in Italy and abroad (i.e. Armenia, Georgia, Jordan, Tunisia, Turkey, ...).

<sup>24</sup> The letters make reference to the ICOMOS statements in the table above.

<sup>25</sup> It is important also to consider that the whole area was once covered by the sea, for this reason the presence of salts is very diffuse and very dangerous for the paintings.

<sup>26</sup> See the ICOMOS Illustrated glossary on stone deterioration patterns, available also in Georgian ( [- iscs.icomos.org/pdf-files/georgian\\_glossary.pdf](https://www.icomos.org/pdf/files/georgian_glossary.pdf)).



sampling (a preliminary plan of the investigations to be implemented allows to control the costs reducing to the minimum the analysis to be implemented and increasing their efficacy).

*Add on – The realization of a 3D model through a complete laser scanner survey can be considered a form of preservation as it allows the transmission of all the visual information about the actual state of the paintings to future generations.*

#### 6.2. Analysis and diagnosis (b)

Only a correct investigation of the characteristics and causes of deterioration allows the design of effective interventions. In this case the following analysis are considered important:

- Stability of the rock.
- Water flows.
- Climatic parameters, internal and external.
- Identification and characterization of the materials (spectrographic survey, chemical and physical analysis).
- Investigation of the state of deterioration and of the causes of decay.
- Eventual testing of materials and restoration techniques.

#### 6.3. Multidisciplinary (j) - precaution in design (c)

It is of the foremost importance to guarantee a *holistic approach to the solution of the problems*: no intervention can be performed without taking in consideration all the aspects involved (stability of the rock, presence of water and water flows, condition of the mural paintings, accessibility, use of the spaces, ...). *A selected professional (usually a restorer architect) should coordinate a multidisciplinary group* including, but not limited to: a geologist, a hydraulic engineer<sup>27</sup>, a restorer, an architect, an art historian, ...).

*No intervention should be implemented on the mural paintings prior to addressing structural problems.*

While implementing structural consolidation, *a professional restorer must supervise each intervention* to promptly evaluate any eventual improper solicitation on the paintings and to provide effective and rapid solutions to keep them safe. The eventual need of designing physical protection systems to prevent further deterioration of the paintings due to the exposure to atmospheric precipitation, wind or direct solar irradiation should be discussed in team and the solutions should consider the geological and hydrogeological characteristics, the stability and the aesthetic impact. A maintenance and management plan should be devised to guarantee the correct supervision (control / protection) and maintenance of all the sites.

#### 6.4. Restoration intervention, preserving authenticity, efficacy and minimum intervention (d, e, h)

A typical intervention on the mural paintings should follow the structural consolidation and the *solution of all the problems connected to water penetration and water flow*. The pre-consolidation/consolidation of the stone behind the plasters (through manual injections in fissures/detachments) is also crucial for the effectiveness of the subsequent intervention of restoring the adhesion of the plasters<sup>28</sup>.

The preservation work on the mural paintings should include the following operations:

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<sup>27</sup> The correct channeling of meteoric water is in this case very important as water may constitute one of the major causes of deterioration both for the rock and for the mural paintings.

<sup>28</sup> The plasters must be reattached onto a cohesive, compact and stable surface, vice versa the injections would only add unnecessarily weight and cause an increase of the risk of collapse.

- Application of a biocide specific for the devitalization of biodeteriogens selected through specific diagnostic investigations (time needed min. 20 days at no less than 10 ° C).
- Removal of incoherent surface deposits of atmospheric/soil particles (by gently dusting the surfaces with soft bristle brushes and simultaneous dust extraction with low pressure vacuum cleaners, to avoid aerobic circulation and re-deposit). After completion of the biocide action.
- Desalination of the entire surface of the paintings and of the plasters - Cleaning of the surfaces and removal of inconsistent powders (only in case there are not decohesion and/or disintegrated and/or pulverized paint surfaces).

For the cleaning of the pictorial surfaces the most suitable methodologies should be selected on the basis of appropriate cleaning tests, aimed to the identification of the most suitable and compatible materials and to define the final result to be obtained in terms of preservation of the patina.

*A great attention must be paid to avoid the presence of salts, while working on the paintings, but also for the preparation of the mortars, only deionized water should be used.*

- Eventual reparation of possible cohesion defects of the pigments and adhesion of the paint film by applying a suitable stabilizing solution (methods of application and identification of the most appropriate products must be determined through the implementation of diagnostic investigations).

*The use of synthetic resins that modify the permeability of the stone must be avoided, as they seem immediately effective but can cause irreversible deterioration after a long time.*

- Restoration of the cohesion of the plasters through impregnation with a specific consolidating product in case they show signs of disintegration/pulverization (methods of application and identification of the most appropriate product must be determined through specific diagnostic investigations).
- The compensation of defects of the plasters' adhesion to the stone support should be addressed through injections of a suitable consolidating mortar after setting up temporary props in the case of unsafe portions (for example on the vaults) and/or the adhesion of a protective layer (Japanese paper / non-woven fabric of suitable weight, gauze, etc.).

*The plasters must be reattached onto a cohesive, compact and stable surface, vice versa the injections would only add unnecessarily weight and cause an increase of the risk of collapse.*

- In some cases (portions of wall paints already almost completely detached from the support, presence of percolations of soil or water that cannot be stopped, ...) it is possible to evaluate the possibility of detaching the interested portions, affixing them to alveolar panels physically and chemically inert and stable, and reposition them in situ, after the realization of an appropriate drainage that will address the problems of water or soil percolation.
- The grouting of cracks and gaps should be performed using materials compatible with the original materials, after the implementation of a specific study, particularly needed due to the specificity of the materials used in Gareji (gypsum/gadji).
- It is important, while restoring the mural paintings, also to recreate a continuous surface that may increase the stability of the building. Thus, the mortars applied for closing some gaps should be perfectly integrated with the original ones and have the same characteristics. When applying a mortar thicker than 0.5 cm it is necessary to lay it in several layers the first of which, in contact with the support, should have a greater granulometry. The binder of the mixture must be identified on the basis of the results of the diagnostic investigations for the characterization of the original mortars.
- A specific approach must be evaluated case by case, in consultation with the officers of the Agency for Monuments Preservation, in relation to the eventuality to preserve or

remove some of the numerous graffiti, signatures, inscriptions that have different historical-documentary relevance in this context.

- The pictorial reintegration of abrasions, falls of pictorial film, cracks, gaps should be kept at the minimum and realized by lowering the "neutral" tone of the support using watercolour coherently with the colours of the surrounding paintings, in order to reduce the perceptual interference and to restore the chromatic reading of the original decoration, avoiding the mimetic repetition of the lost and not reproducible original.



*An example of pictorial reintegration of abrasions and falls of pictorial film realized by lowering the "neutral" tone of the support. Above before the intervention and below after the intervention.*





- The preservation intervention on the paintings should be preceded by the solution of structural and water penetration/percolation problems and by the design of measures to prevent an excessive exposure of the paintings to the sun light and other deterioration factors and by the organization of the infrastructures needed to allow the visit to the site in a way to be safe both for the visitors and for the cultural assets.
- The interventions on the paintings should be designed together with a maintenance plan with a clear definition of the actions to be implemented and their cadence over time (cleaning, climatic parameters monitoring, etc.).

#### *To be noted*

To implement the works for the preservation of the mural paintings it would be necessary to have access to water and electricity in quantity. In fact, *the use of distilled/deionized water is essential* to avoid the introduction of salts on the pictorial surface, creating serious damage. Due to the high quantity of water needed, it is advisable to deionize it on the field with deionizer boilers. For working on the pictorial surface with the due precision it is necessary for the restorers to have at hands a sufficient number of lamps.

### **7. Inputs for the monks**

The presence of the monks in some of the sites should be considered as an exceptional opportunity for the monasteries to be preserved and revitalized. Therefore, we had the chance to note that in some cases their actions resulted in interventions not fully respectful of the historical and artistic values of the monuments. As the monks are actively working to make their monasteries more adapt to be inhabited and in some cases their eye is not enough educated, action is urgently needed to address this problem and help them in finding in a cooperative way viable solutions for the design of the next interventions.

The correct protection of an asset is guaranteed only by the respect of some constraints which at times may seem to hinder its comfortable use. However, *careful study and a holistic approach* can almost always lead to satisfactory solutions from the point of view of the conservation and of



the use of the asset. Some indications may be useful to promote a sustainable use of the ancient structures by the monks. These indications can have the form of a *manual of good practices* for what concerns the rehabilitation of cells carved in the rock and the form of a detailed project for the restoration of the churches and other valuable/painted buildings.

In many different situations, positive results have been obtained through the realization of such kind of manuals that provide examples of bad and good practices<sup>29</sup>. In some cases, the best solution to respect the historic values is also the safest for the ancient structures and

for whom is going to live there. As an example, the use of framing in wood is not only more compatible with the ancient structures but also is more efficient in terms of control of climatic

<sup>29</sup> See: Raluca Monteau (2017), *Wooden Churches Guide for Common Maintenance and Repairs*, published by Pro Patrimoni in Bucharest with the support of EN and the EIBI; Mariacristina Giambruno, Sonia Pistidda, *edited by* (2015), *The walled city of Multan Guidelines for maintenance, conservation and reuse works, Quaderni della collana Pristina Servare – Collana di Restauro Architettonico / 01.*

parameters while the framing in PVC or steel prevents any passage of air and keeps the humidity inside the structures creating serious damage on the long run.

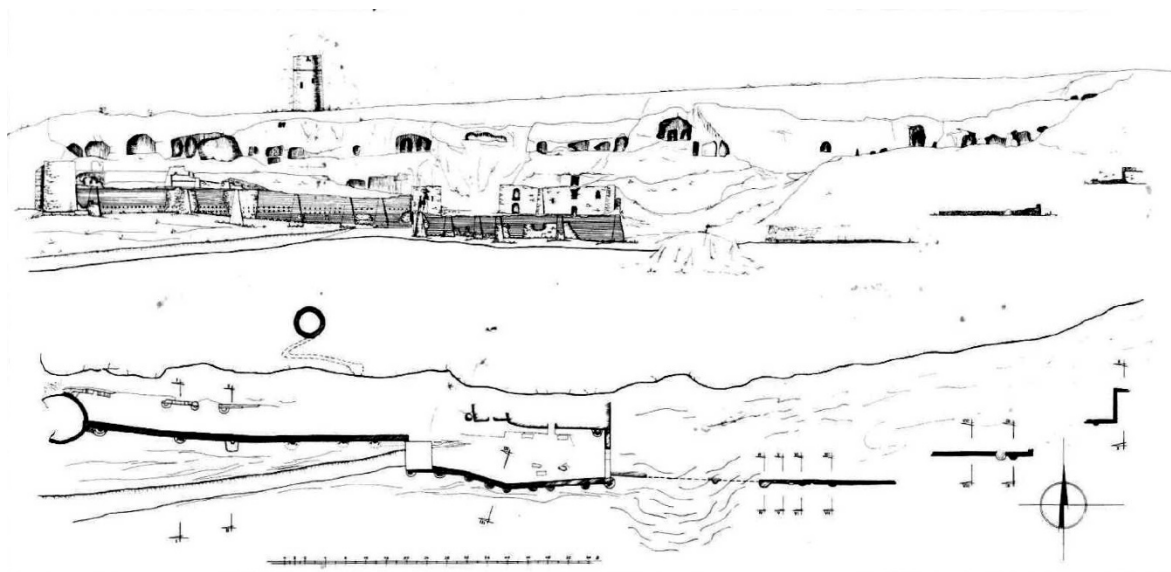
According to what referred by the Deputy Minister of Culture, the dialogue with the Patriarchy is open. During our visit some of the monks, interviewed by the mission team, affirmed they would accept to be guided by experts in the rehabilitation work. To lower the costs of this operation, the Universities, under the guidance of the Agency for Monuments Preservation, may be involved in the organization of workshops at the monasteries aimed to the participatory design of proper solutions for the rehabilitation of the monks' cells and of other monasteries spaces.

The opening to tourists' visits of the monasteries in use is another issue that should be discussed with the Patriarchy and the monks. In fact, besides Laura of St. David where the tourists are welcome, in other monasteries, as for instance Natlimtsemeli, where the spaces are narrower, eventual visitors may disturb the monastic life and therefore their access should be regulated in agreement between all the stakeholders.

## 8. Other inputs

In case of presence of mural paintings *the stabilization cannot be implemented without addressing the problem of safeguarding the mural paintings*: restoration of mural paintings without the stabilization of the rocks and the solution of the problems connected to the flows of water/presence of humidity is useless as deterioration processes would only be slowed down but not stopped (as happened with the restoration implemented so far). From the other side, *stabilization without proper restoration of the mortars and paintings seriously endangers the survival of the paintings themselves* as the process of stabilization involve the drilling of the rocks with vibration and the drawing of water into the stone. With the same principle, *archaeological excavation must be planned and conducted in coordination with the geologists* that are in charge of the site's stabilization and with a restorer on place in case of presence of mural paintings.

A concrete example may be the slope with the path of access to Natlismtsemeli eastern section that hides some unexplored caves/cells, the investigation of those cells may be implemented only in a context where all the issues are addressed (access to the monastery, rock stabilization, safety, preservation of the historic assets, ...).



General Plan and front of Natlismtsemeli monastery by G. Bagrationi and D. Kandelaki



Only once a complete set of data would be available it will be possible to interpolate data related to importance of the site and level of risk and to devise a correct prioritization of the interventions and a plan for their opening to the public that takes in consideration their fragility, their importance and the costs to be covered for granting safety and accessibility. A big distinguish should be done between the monasteries that are inhabited and the others. In fact, the level of rehabilitation to be achieved is different as it is aimed not only to the safekeeping of the site but also to its adaptation to everyday life's necessities and it has to be considered that the monks are already committed in rehabilitation works. Therefore, in those cases, the effort (and investment) from the other stakeholders should be concentrated on the design of proper interventions to address their action more than on the implementation of any work itself.



To promote the interest of potential visitors to the sites, the presentation and interpretation of the cultural assets should be an integral element of any intervention. My personal opinion is that one of the first steps for promoting a rapid tourism growth in the area minimizing its potentially negative impact on the sites is the creation of a museum of David Gareji desert. Although the best option would be to make things big and call an international tender to design a high-class museum with a beautiful building well harmonized in the landscape, some initial step can be taken also with low budget by using some of the many abandoned buildings in Udabno. I would imagine it as a living museum, hosting information about the sites but also laboratories, facilities for training guides and other stakeholders (i.e. the local administration, the monks, the

universities, etc.) and for the experts that study the sites (a lab for archaeological findings cleaning and study, a library for the study of mural paintings, some rooms for hosting experts and artists, the space for temporary and permanent exhibitions (information about the archaeological sites and the monasteries in David Gareji, including maps and pictures, tips for the visit, some fragments of the mural paintings that eventually may need to be taken away from their venue for preservation purposes, documenting/visualising the restoration works and the management plan, relics of the Saints and other religious objects, a *virtual theatre*<sup>30</sup> where the visitors may have the experience of virtually visiting the monasteries). To do this properly it may require a huge investment. Nevertheless, I deem it may be feasible through the involvement of some private investor, the World Bank and/or European funds for Regional Development, provided that the Georgian Government would endorse the idea and incorporate it in a Regional Development Plan. It has to be considered also that a well realized virtual reconstruction<sup>31</sup> of the cells and churches holding mural paintings is an extraordinary tool not only for allowing the visit of fragile and inaccessible sites, but also for preserving the memory of their actual condition and for enhancing their perception to better study their characteristics<sup>32</sup> in view of a restoration project.

An increased number of visitors should be made sustainable by addressing also other important issues as for instance the cleaning and waste management. During our visit we noticed the lack of a proper organization of these issues, no system for the waste collection has been encountered in any of the visited sites and, near to the village we stayed overnight, an open air waste dump was spoiling the landscape and allowing plastic bags to fly away with the wind in the surrounding area. To improve the enjoyability of the villages, the burying of the gas pipes and the demolition of obsolete and abandoned buildings as well as taking care of a better road infrastructure, would make a big difference.

Due to the characteristics of the David Gareji landscape whose charm is given by its being desert and characterized by wide open horizons, each new intervention should be properly planned and controlled as its impact may be significant. Investments in agriculture development should be as well pondered with the due attention as they are inevitably to change the place and its fragile equilibrium. The creation of one or more *protected area* would help in the creation of the more suitable framework of norms and regulations to allow a sustainable development of the whole site and the promotion of an improved wellbeing of local inhabitants.



<sup>30</sup> As an example of it please see: <http://www.etruscologia.unimi.it/index.php/progetti/80-progetti/127-etruscanexpo-project>.

<sup>31</sup> For an analysis of the potential and disadvantages of systems for the virtual exploitation of an entire site see: M. Rao - D. Gadia - S. Valtolina - G. Bagnasco Gianni - M. Marzullo (2012) *Designing Virtual Reality Reconstructions of Etruscan Painted Tombs*, in *Multimedia for Cultural Heritage Communications* in Computer and Information Science 247, pp. 154-165.

<sup>32</sup> See: D. Gadia - C. Bonanomi - M. Marzullo - A. Rizzi, (September–October 2016) *Perceptual enhancement of degraded Etruscan wall paintings*, in *Journal of Cultural Heritage* 21, pp. 904-909.



## 9. Conclusions

David Gareji desert and its monuments constitute a very fragile ensemble that must be treated as a whole. In many cases urgent intervention is needed to allow the survival of the heritage and, as the needs are surely bigger than the resources available, it should be taken in due consideration the necessity of mapping and prioritization based on an in depth and multidisciplinary assessment of the assets (consistence, characteristics, state of conservation, ...). The use of the area should be regulated by a site management plan and a set of regulations supported by trainings and by the creation of guidelines/good practice manuals and other tools in the context of a protected area regulation and better road infrastructures and signages.

The potential for tourism development is high but the impact of tourist visits on the sites may be harmful, therefore it should be properly taken in consideration and strictly regulated both to guarantee safety for the visitors and to guarantee the preservation of the sites. For this reason, it appears reasonable to differentiate between the sites the level of opening to tourists and to create an alternative point of attraction as a museum/visitor's centre can be. The eventual offer of itineraries differentiated for pilgrims and tourists should also be taken in due consideration.

The whole approach must be multi and interdisciplinary, no archaeological excavation or mural painting preservation should be implemented without addressing the geological problems. No structural consolidation should be implemented without a previous planning of mural paintings preservation and tourism exploitation infrastructure. Heritage conservation and socio-economic development should be balanced through integrated management strategies and the involvement of civil society in decision making. Heritage-led regeneration aimed to increase the attractiveness and competitiveness of David Gareji area should be integrated in the regional economic policy.

Seen the dimension of the sites and the huge conservation problems that affect them all, this report may represent a sort of "cry for help" (now or never) and, hopefully, also the starting point for finding some solutions and ignite the process of conservation and enhancement of the monasteries and hermitages of Davit Gareji, so precious for Georgian's but also for the European and broader international community.



Kolagiri, ph. Maka Bulia

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## ANNEX 1

Summary of available information on each monastery/hermitage



This document has been prepared by Gaianè Casnati and Andrea Oliverio by organizing the information collected and provided by the Georgian Arts and Culture Center and by Maka Bulia, Tamar Meliva, Vladimer Mirianashviliy and Zaza Skhirtladze before, during and after the mission organized by Europa Nostra in November 2018.

It is conceived as a handy tool for having a first acquaintance of the sites until a more complete set of information is gathered and organized by the Georgian Institutions in charge of the sites preservation.

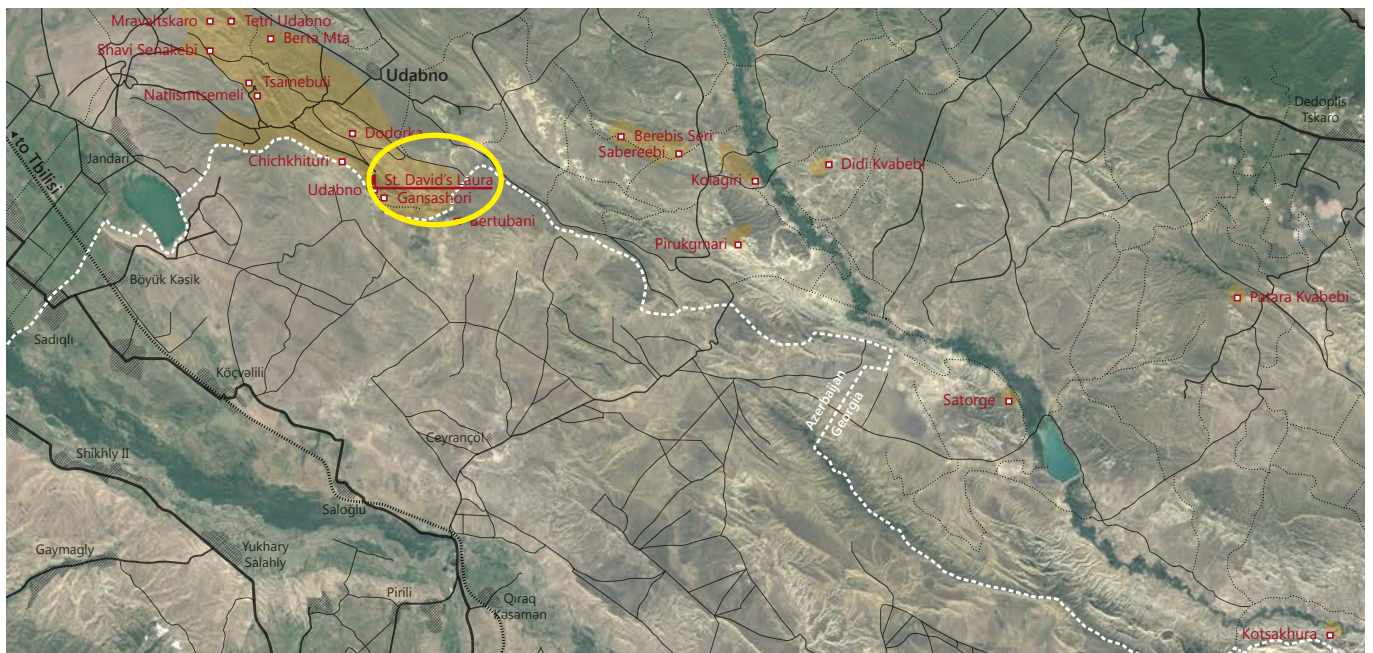
**Credits for the images:**

The names of the authors of the pictures are mentioned next to the picture.

Where there is no mention of the author it means the pictures have been taken during the mission, by Gaianè Casnati or Marita Sakhltkhutsishvili (GACC)



# 1 - St. David's Laura - Georgia



**Date/s of construction:** 6<sup>th</sup> c., 9<sup>th</sup> c., 11-13<sup>th</sup> c., 17<sup>th</sup> c.

**In use / not in use:** in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** roads Udabno-Gareji and Udabno-Sagaredjo rehabilitated in 2017 (by Sagaredjo municipality).

St. David's Laura is the most important monastery of the Gareji desert, being also one of the largest monastic and cultural centers of the Caucasus. Founded by the Syrian Father St. David with his disciple St. Lukiane in the 6<sup>th</sup> century, it had different construction phases (9<sup>th</sup> c., 11-13<sup>th</sup> c., 17<sup>th</sup> c.) and has been inhabited without interruption until 1921 and then again since 1990, actually a dozen of monks live there.

The monastic complex includes both rupestrian cells and churches carved in the rock and imposing masonry buildings with defensive walls. The most important rupestrian spaces are: the church of Transfiguration, the caves of St. David and St. Lukiane, the cell and church of Hillarion Kartveli, the church of the Dormition, the church of John the Evangelist, the refectory, the cell of King Giorgi XII. Among the masonry buildings it is worth mentioning: the Tower of King Alexander, the churches of St. Nicholas.

The report devised by the World Bank mentions that several preservation interventions have been carried out, namely: during the '60<sup>ies</sup> (restored a number of caves and structures); in the '90<sup>ies</sup> (cleaning and rehabilitation of few cells and buildings to allow the revival of monastic life), in 2001-2002 (restoration works on the terraces over the Transfiguration church and the refectory and reconstruction of the dwelling tower by the Fund for the Preservation of the Cultural Heritage of Georgia) and in 2015-2017 (restoration of monks cells and water system by the World Bank). In the same years the World Bank realized also some infrastructural rehabilitation work, including the realization of a little info-center/souvenir shop, toilets for visitors and a parking lot. Probably in connection with that, in 2016 Laura and Udabno had been connected with a high voltage cable. Some other rehabilitation works are still ongoing.

The site presents diffused instability (mainly in the NW sector) and is characterized by high landslide hazard; on the SE sector the geologists identified also areas of possible planar failures. Despite the interventions previously mentioned, still it is necessary to plan significant interventions: the stabilization of the rocks (a group of Italian experts has already been involved in the design of the needed measures) the preservation of both the towers, the caves in the upper tiers of the southern rock-massif, the cell of St. Hillarion Kartveli. The Church devoted to St. John the Theologian, half collapsed, deserves particular attention. Besides the interventions aimed to the safekeeping and preservation of the monastic structures, some rehabilitation works should be designed in detail and in agreement with the monks to allow the comfortable use of the structure by the monks in the full respect of historic structures.





Ph. G. Chubinashvili, National Research Centre for Georgian Art History and Heritage Preservation



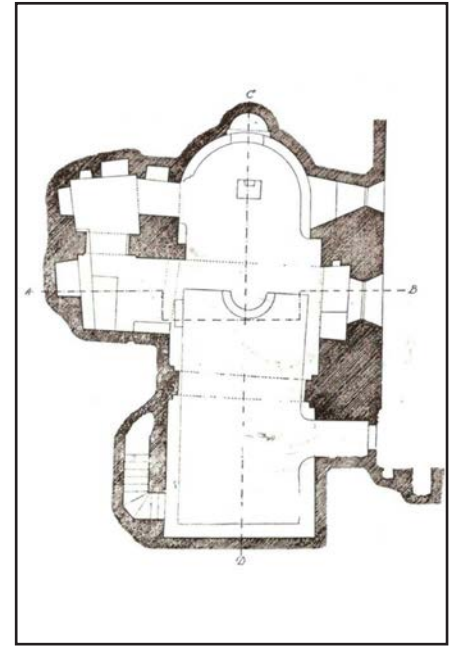
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Plan by V. Tsilosani



Ph. O. Moro 2012



Cross section by V. Tsilosani

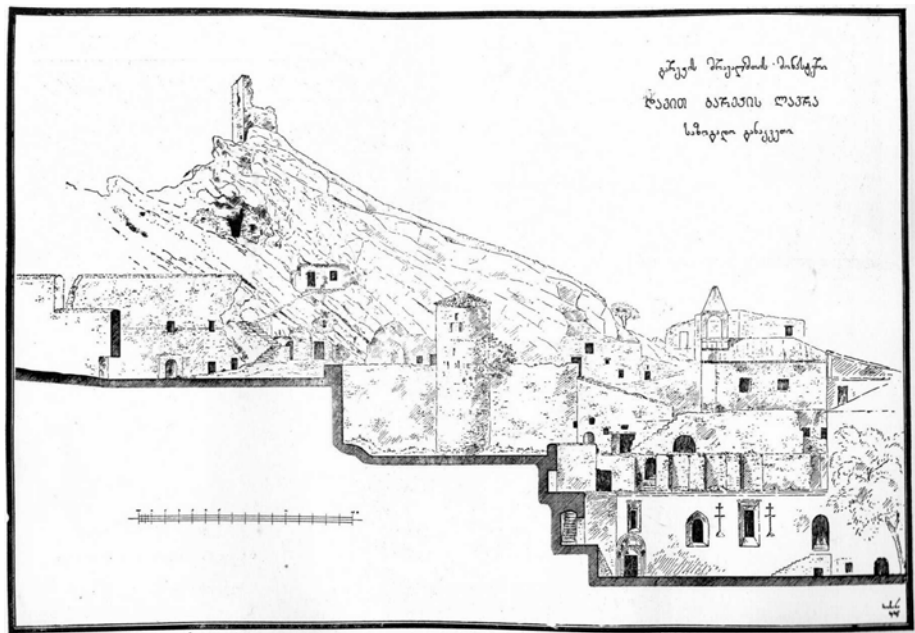


Ph. O. Moro 2012

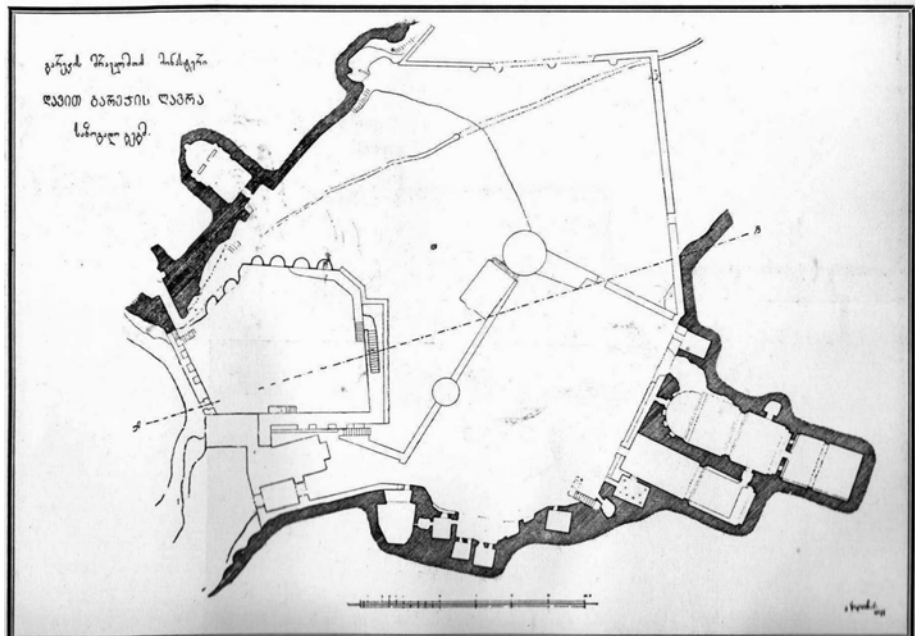


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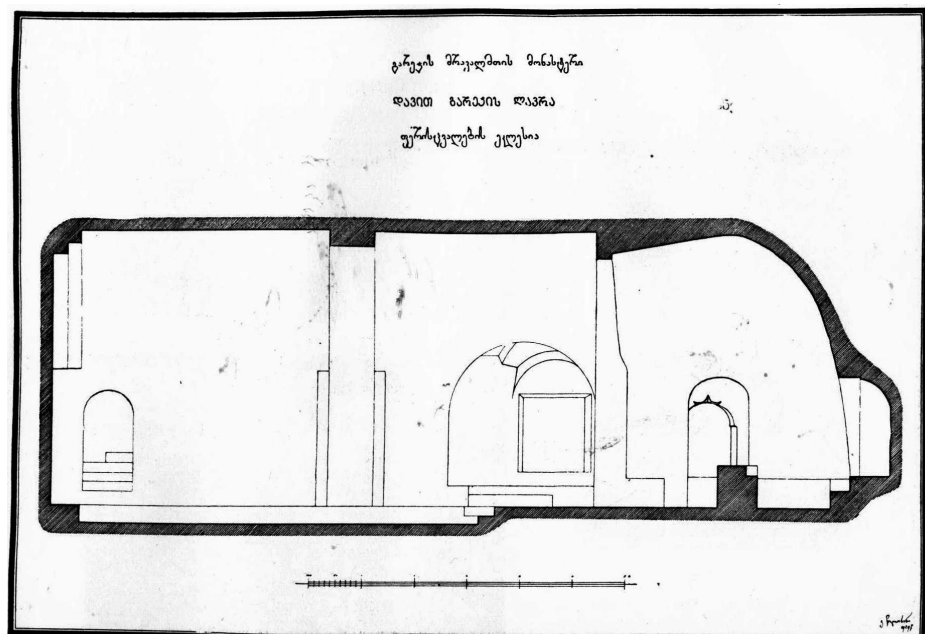




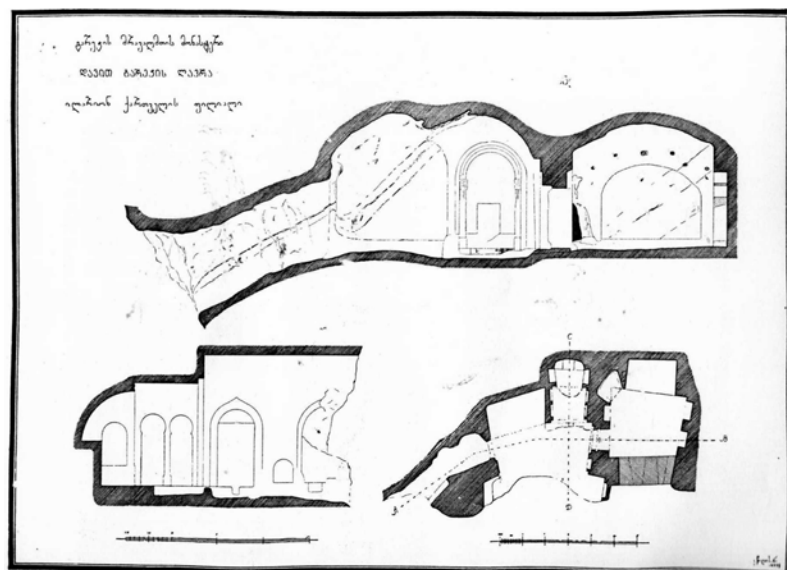
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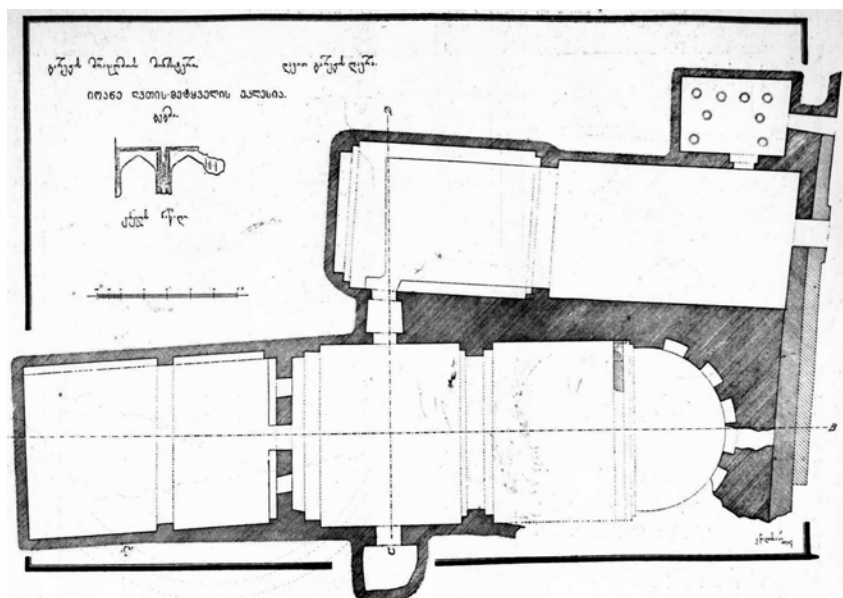
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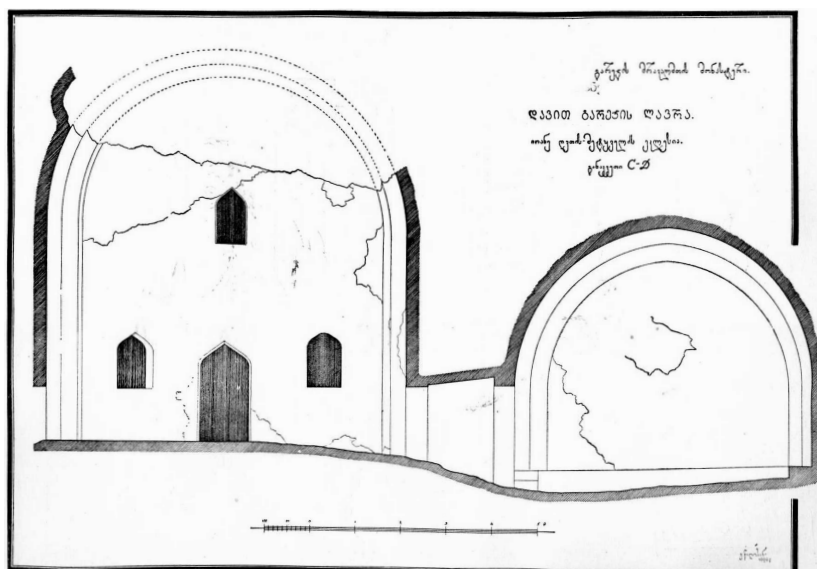
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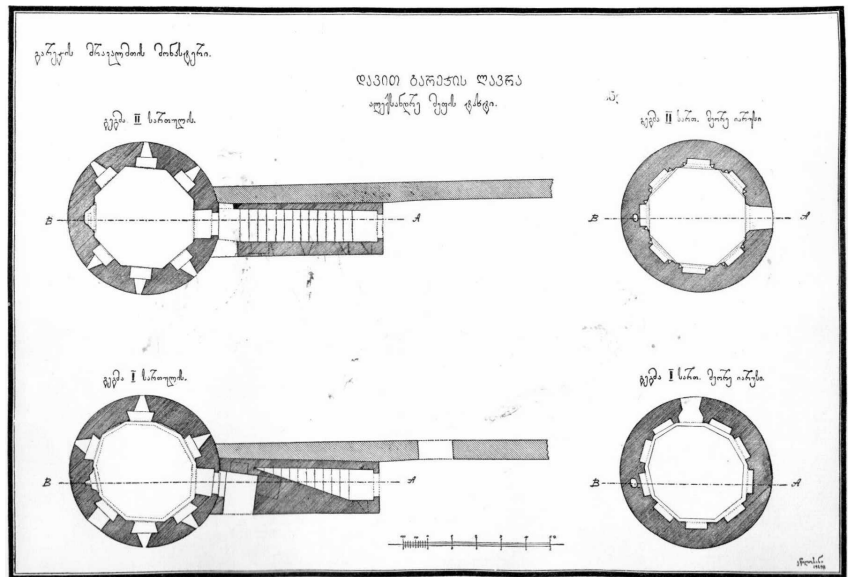
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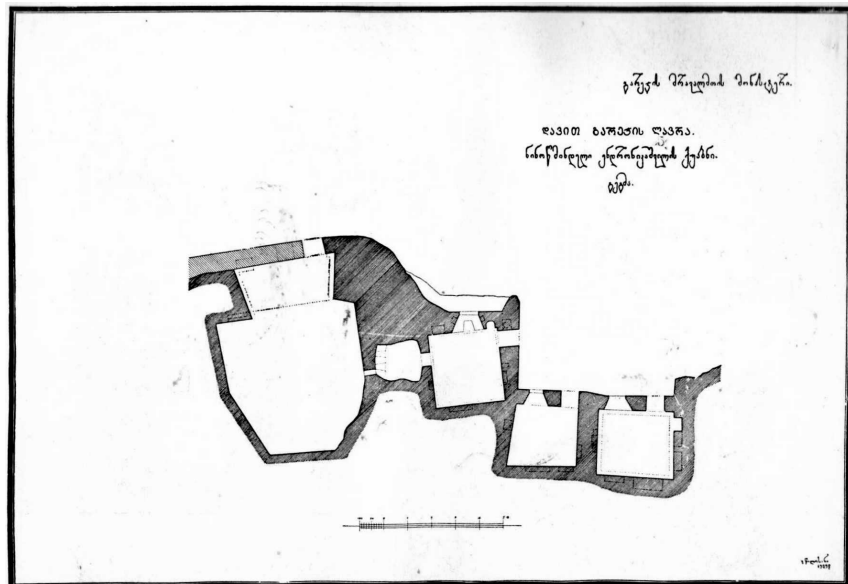
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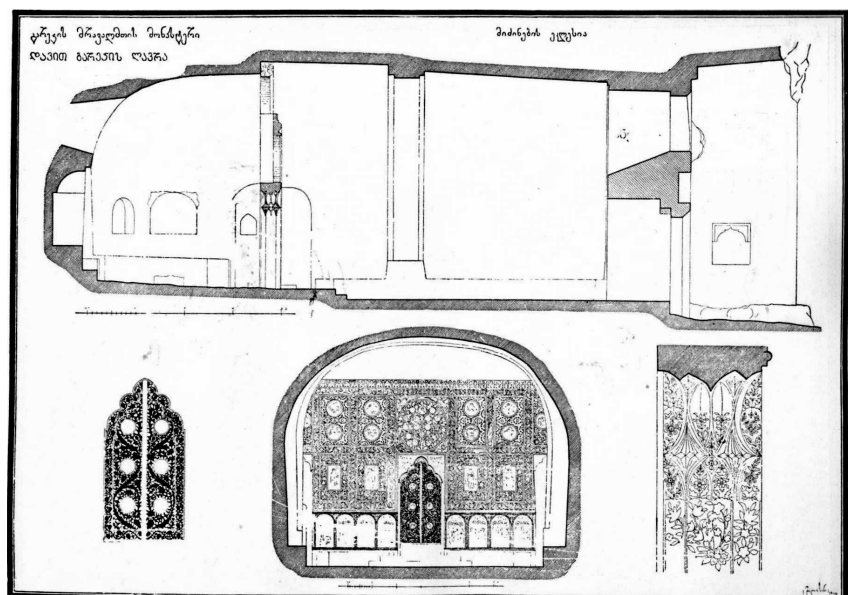
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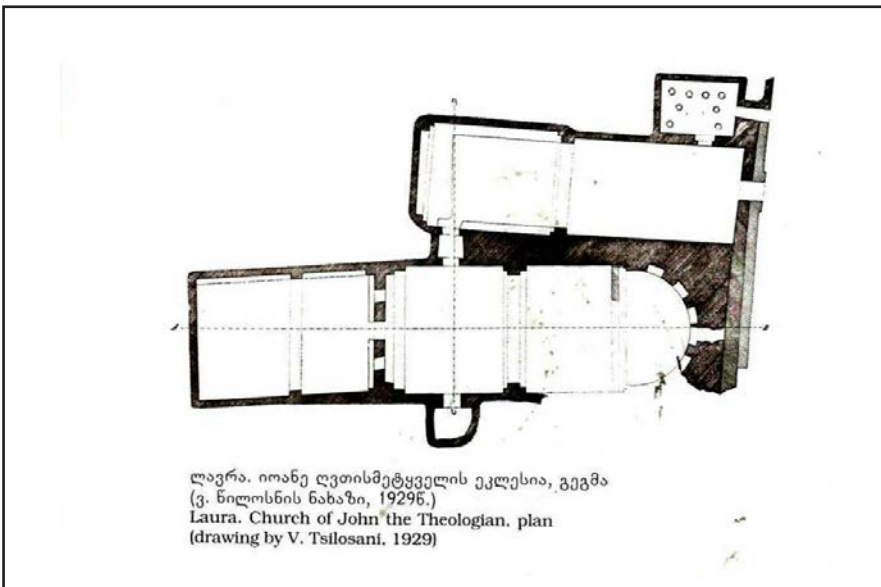


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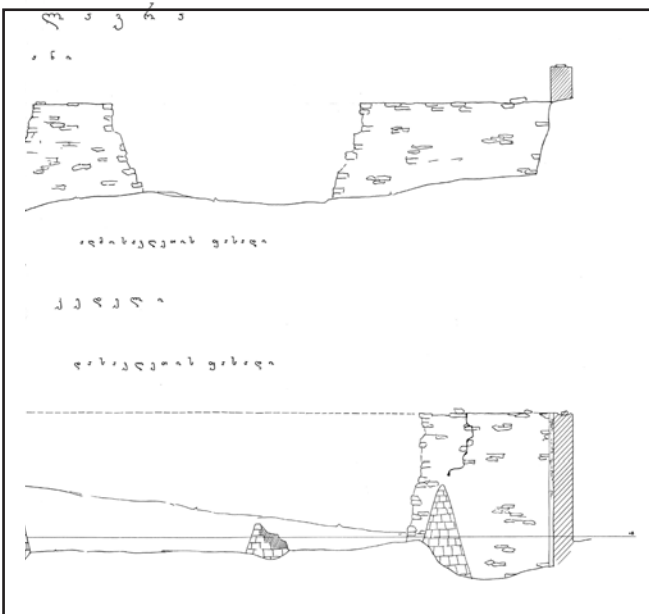




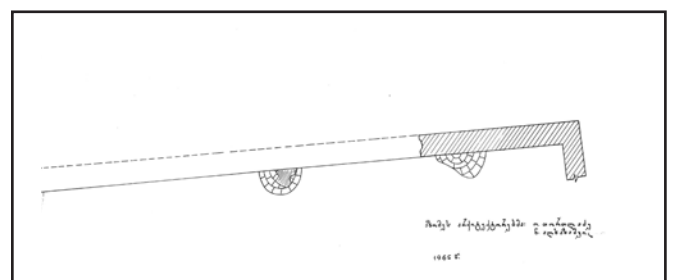
Drawings by V. Tsilosani



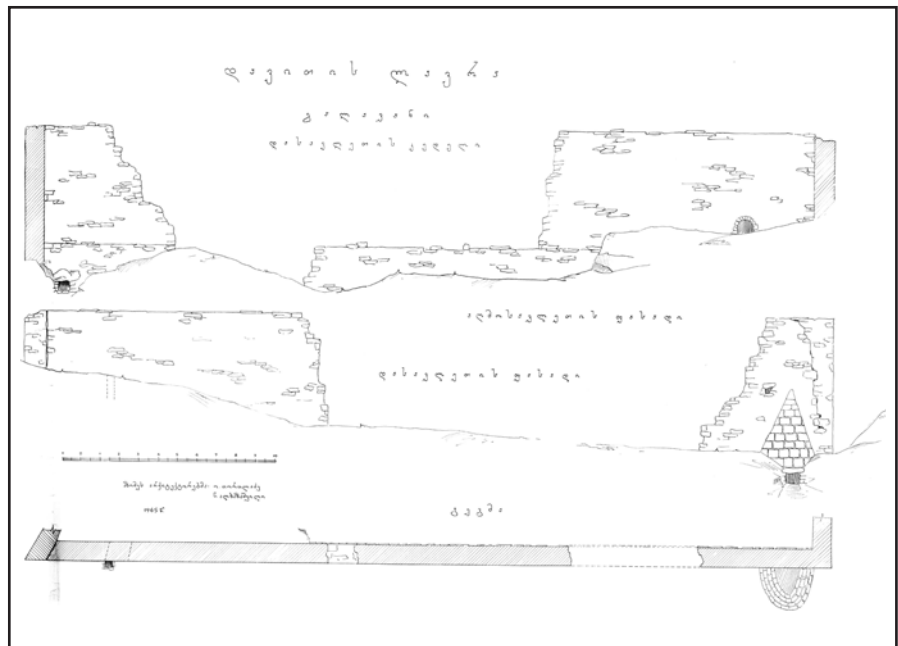
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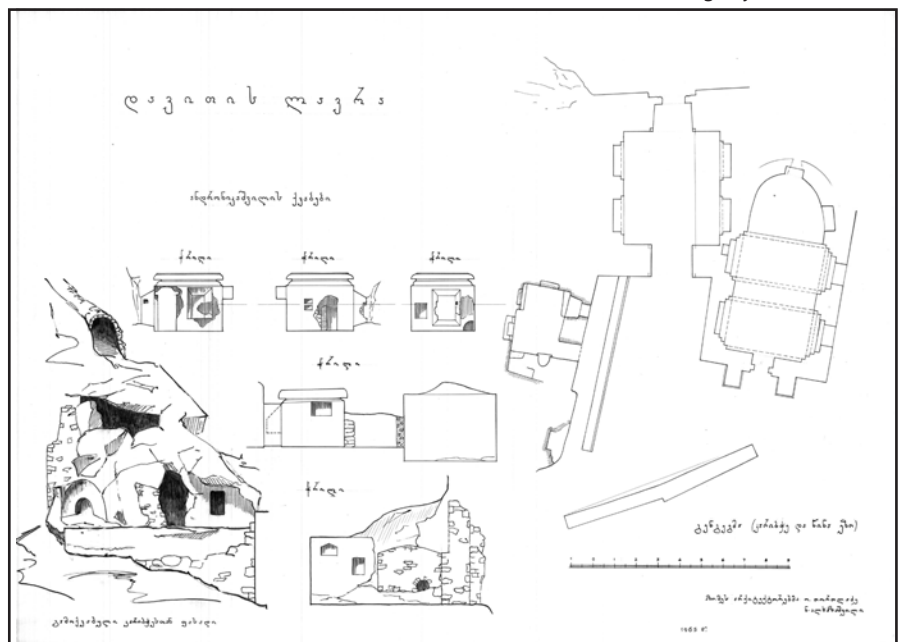
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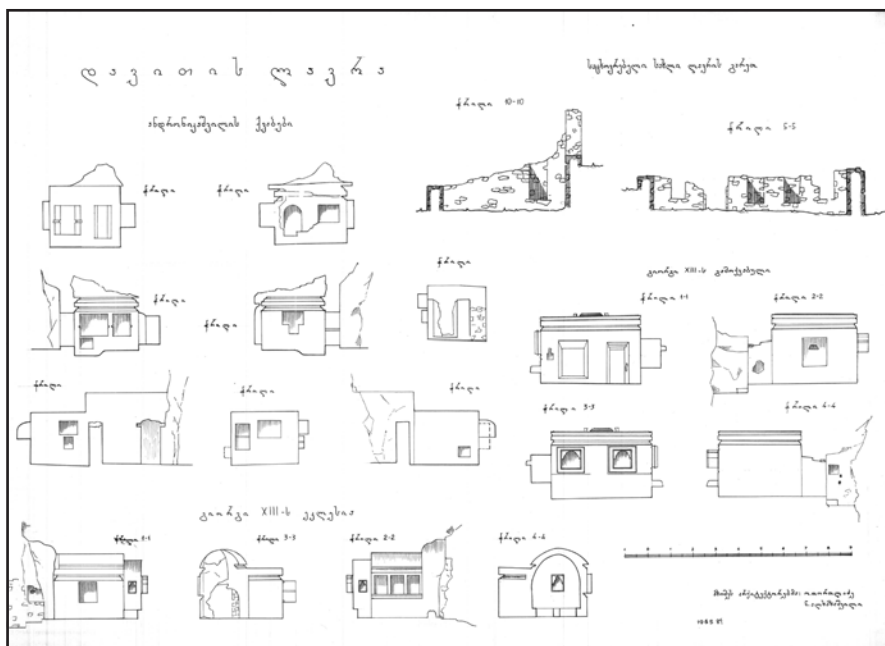
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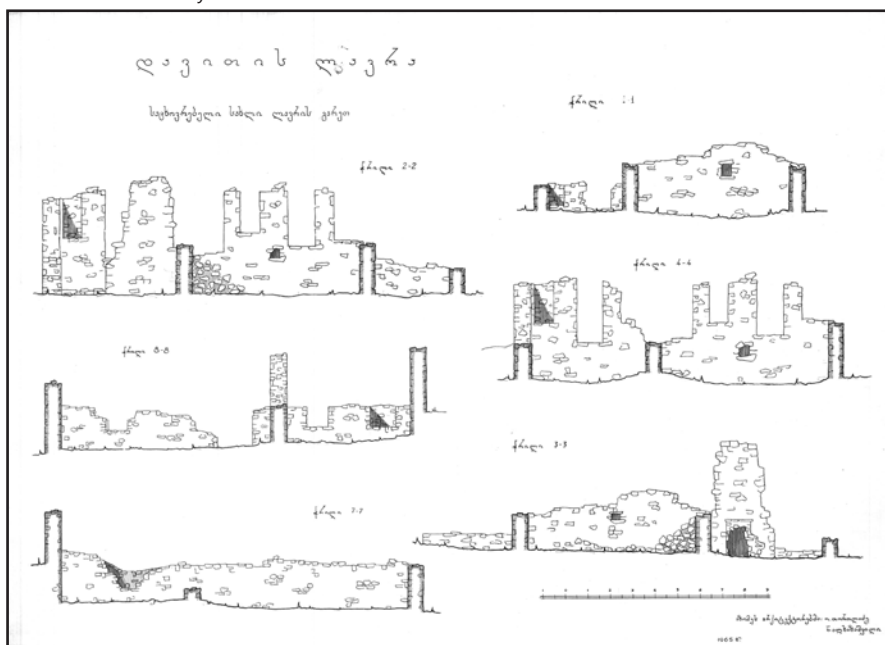
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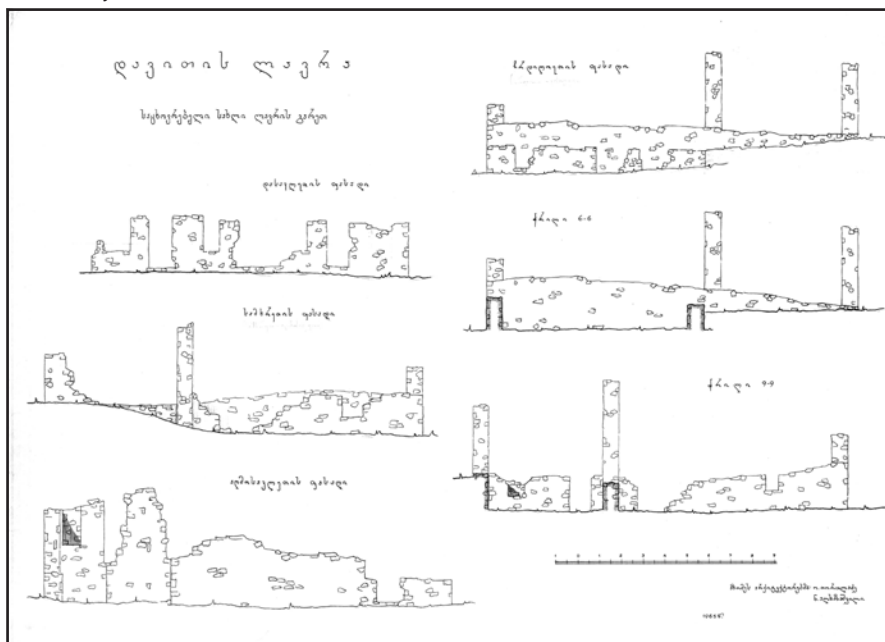
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Plans and sections by A. Alkhazishvili

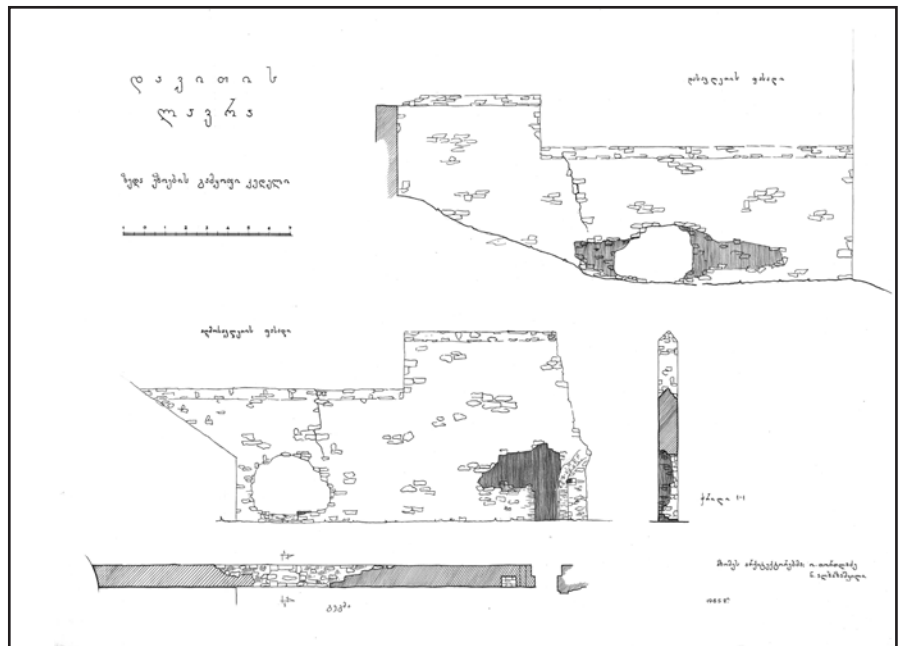


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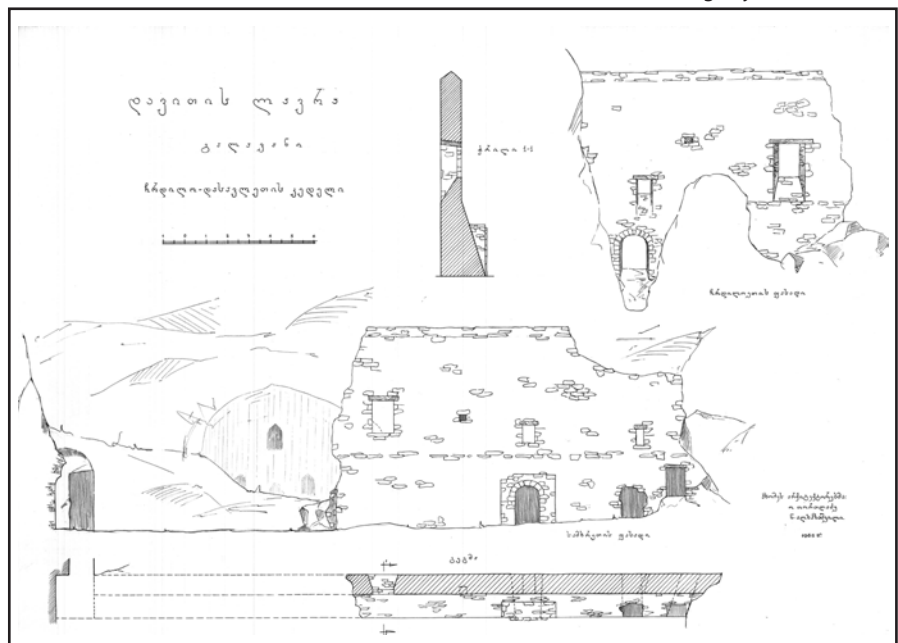


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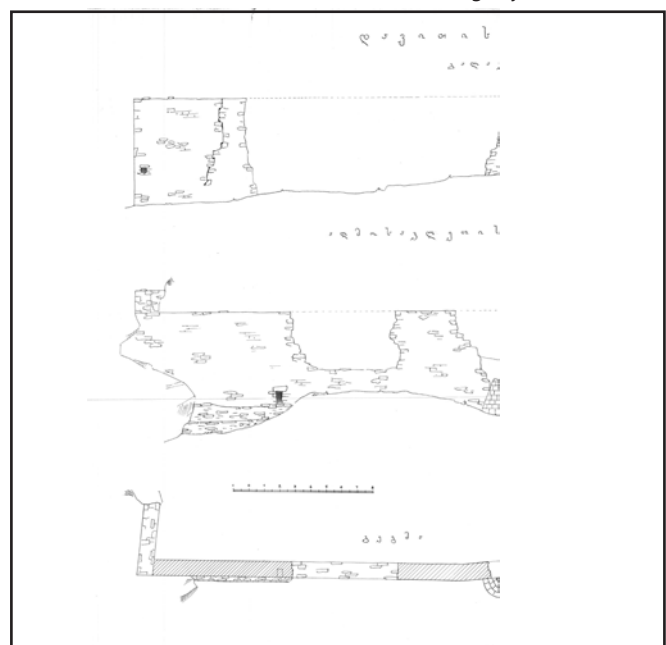




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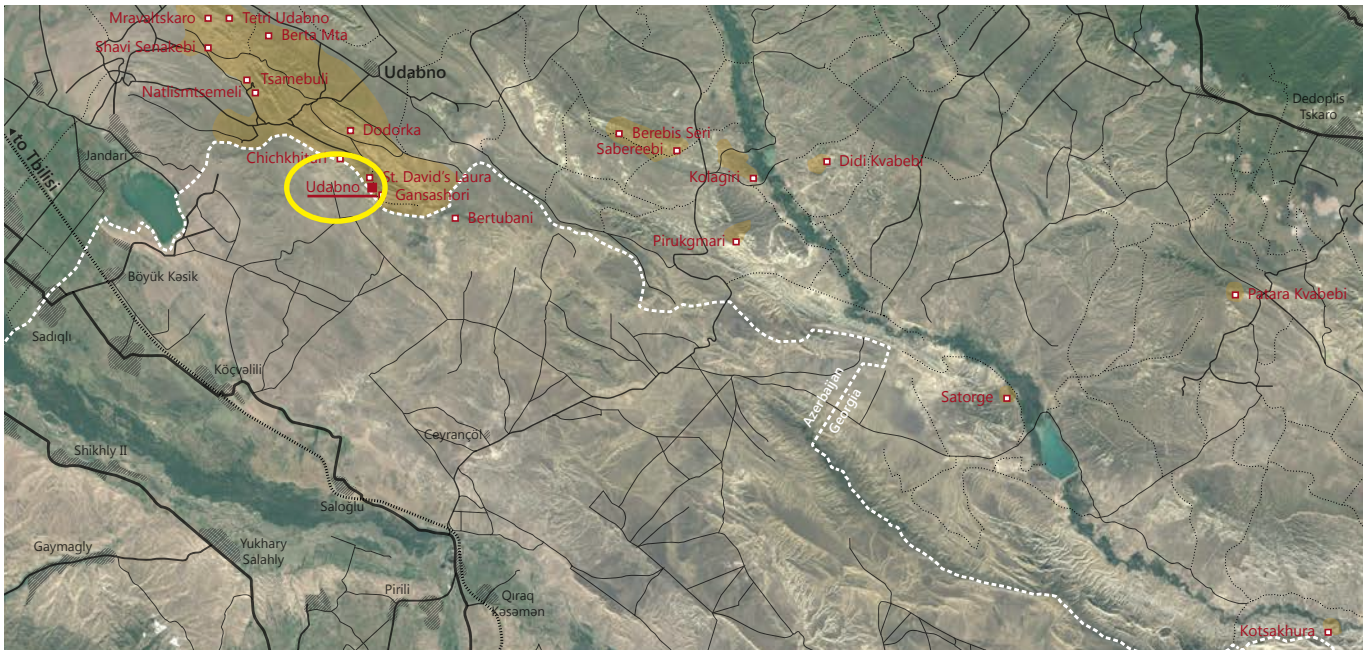


Drawings by A. Alkhazishvili



Fronts by A. Alkhazishvili

## 2 - Udabno - Georgia



**Date/s of construction:** 8<sup>th</sup>-9<sup>th</sup> c., 10<sup>th</sup>-11<sup>th</sup> c., 12<sup>th</sup>-13<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN - the monastery lays just on the edge of the Azerbaijan's border on the Georgian side.

**Accessibility:** Udabno is accessible only through a steep footpath from Laura or through a walking trail that skirts the monastery of Chichkhuri and crosses the border under discussion with Azerbaijan. Usually, the transit of tourists is tolerated but not the access with some equipment for implementing research or preservation.

Udabno rupestrian monastic complex is located at a distance of about five hundred meters from the main monastery of Laura to which it is connected via a steep pathway. It has been founded in the 8<sup>th</sup>-9<sup>th</sup> century and underwent different stages of development, each one marked by the addition of a new space, namely: the church of the Resurrection (8<sup>th</sup>-9<sup>th</sup> c.), the main church (10<sup>th</sup> c.), the old refectory (10<sup>th</sup>-11<sup>th</sup> c.), the martyrion 'Mostameta' (12<sup>th</sup> c.), the churches of St. Nicholas and St. George (12<sup>th</sup>-13<sup>th</sup> c.), the churches of Annunciation and Ascension (late 13<sup>th</sup> c.). The monastic life ceased in the 14<sup>th</sup> century due to the destructions provoked by the Mongol invasions. Recently, a few monks decided to live there but they left after a short time period due to the difficulty of living so far from any facility.

A great part of the structures are seriously damaged due to diffuse rock instability: their front parts are collapsed, the walls and vaults are cracked and the mural paintings, remained exposed to the air, are gradually deteriorating. This process is still active as it is demonstrated by the recent collapse of a big portion of the upper front part of the refectory.

A significant number of the most important Garejian wall paintings are located in this monastery (i.e. interesting representations of stylites monks on the walls of the refectory). The murals have been restored 20 years ago and are now in urgent need of another intervention, although the previous works have proved to be effective. The main problems reside in the instability of the rocks that allows water penetration and the exposure to sunlight and atmospheric precipitations. Part of the plasters (e.g., in the main church, in the Ascension church, in the small chapels in the lower tier) have already fallen down. Further damage is due to uncontrolled access (there are still people that use to carve graffiti on the walls and on the paintings themselves).

The Georgian Patriarchate and Gareja Studies Center, in 2005-2006, implemented the restoration of the three small masonry churches, namely the Church of Resurrection, St. Elijah and Motsameta.

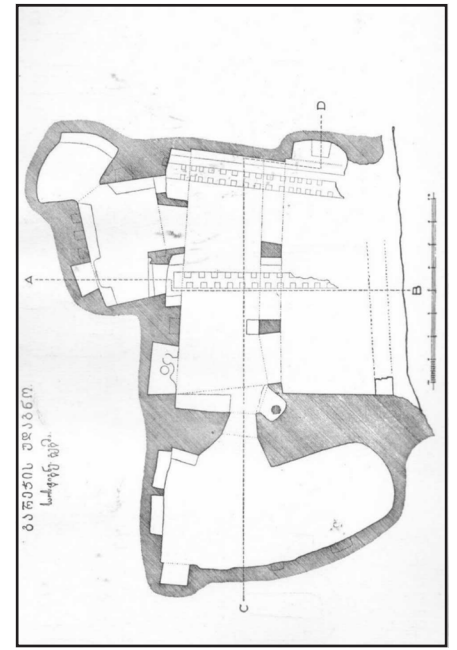
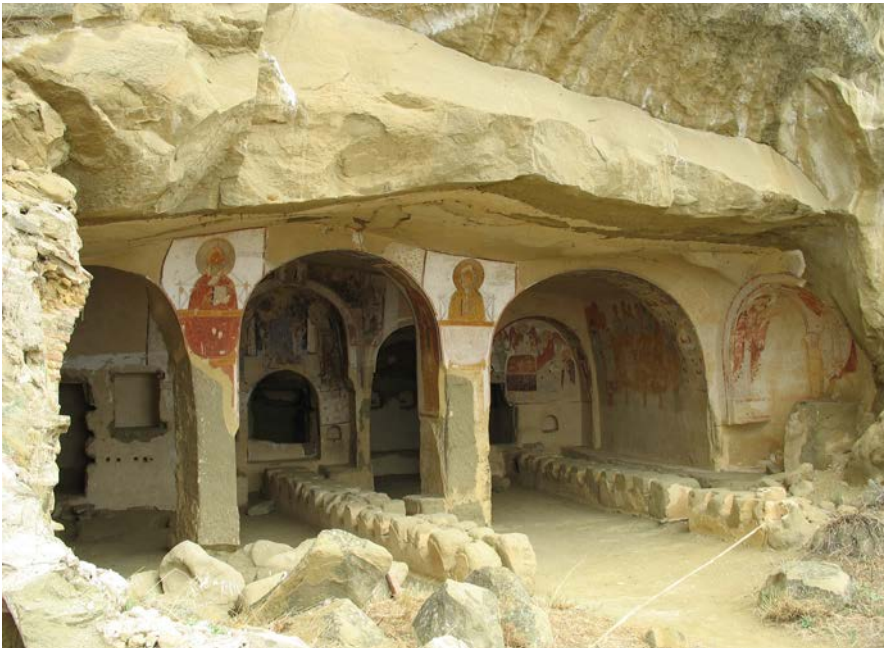




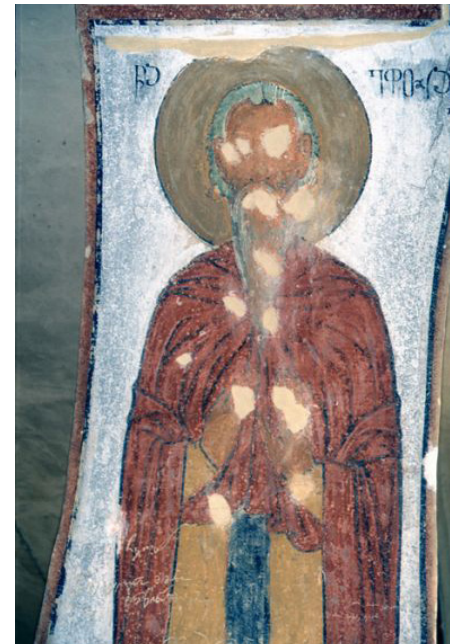
Both the pictures above are by G. Chubinashvili, National Research Centre for Georgian Art History and Heritage Preservation







Plan by V. Tsilosani



Ph. S. Tomekovic







Ph. G. Chubinashvili, National Research Centre for Georgian Art History and Heritage Preservation



Ph. S. Tomekovic



Both the pictures above are by Ph. G. Chubinashvili, National Research Centre for Georgian Art History and Heritage Preservation

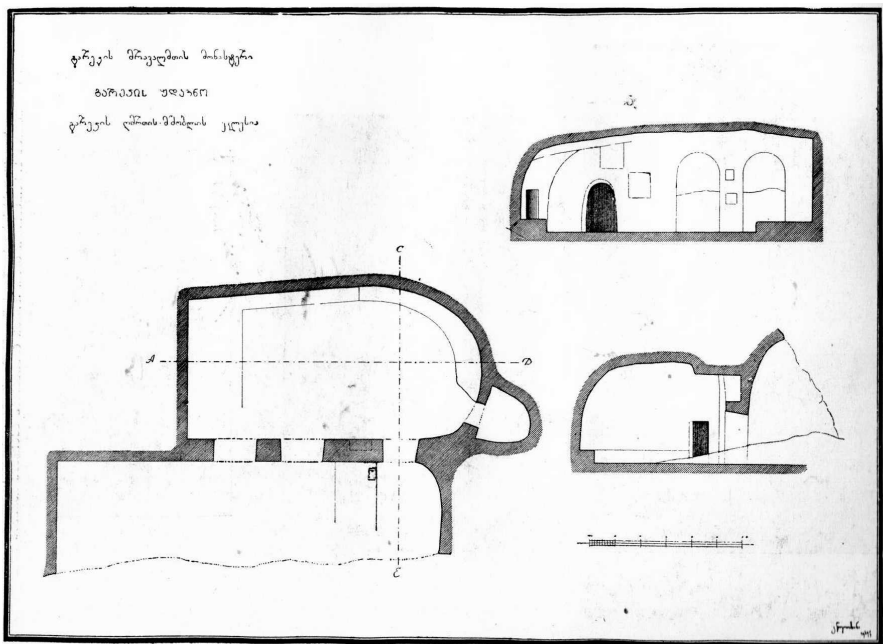


Ph. S. Tomekovic

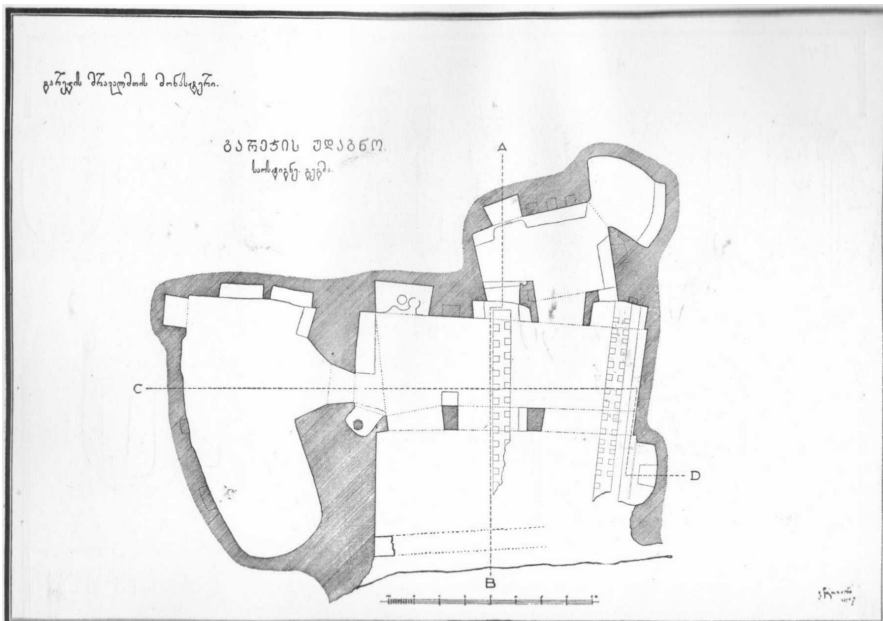


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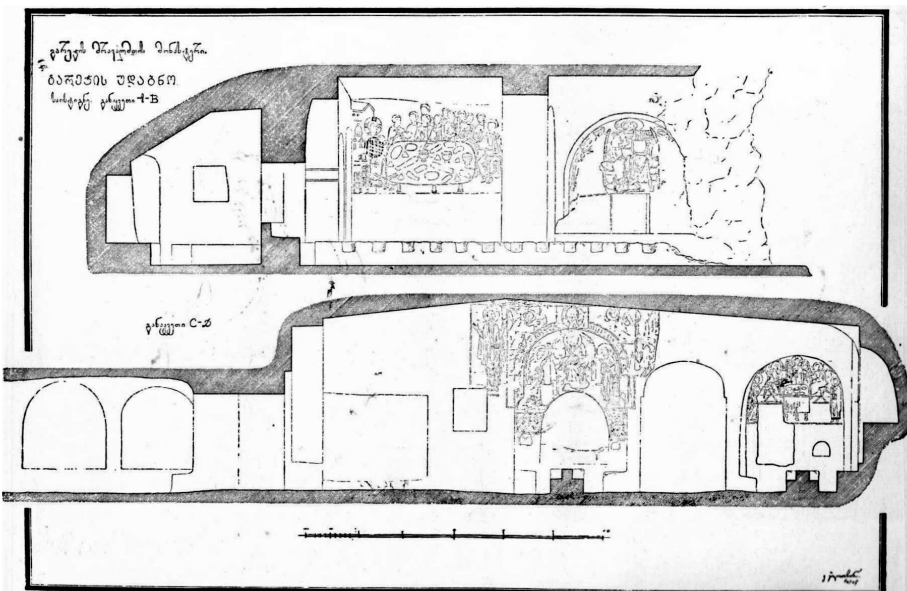




Plan and sections by V. Tsilosani

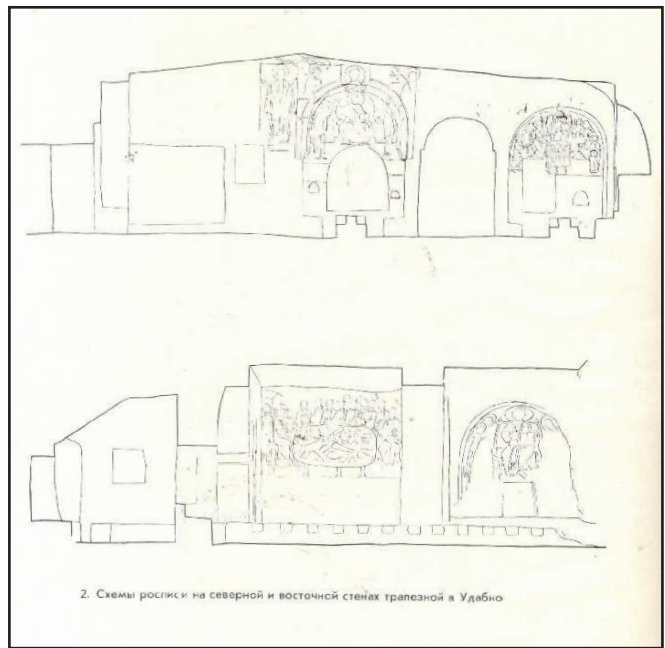


Plan by V. Tsilosani

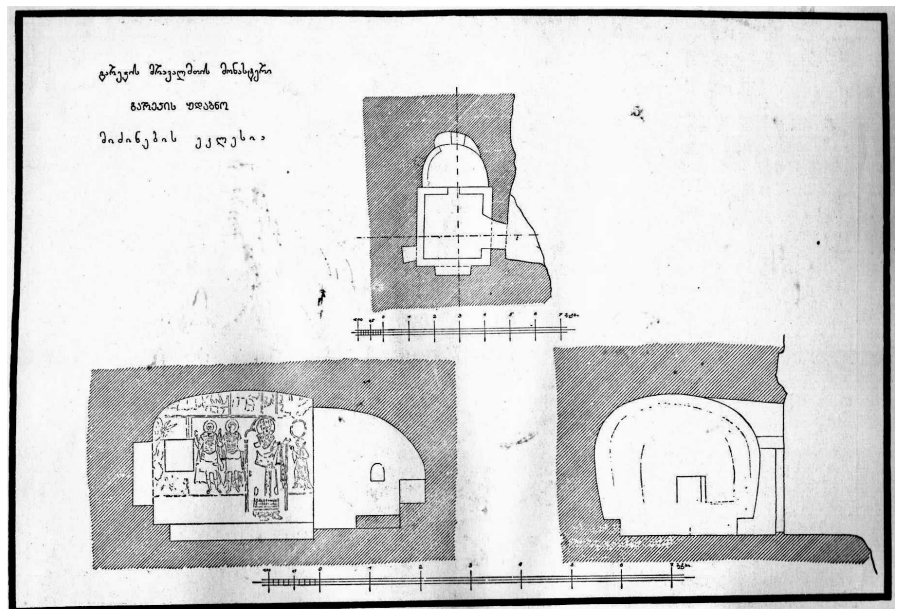


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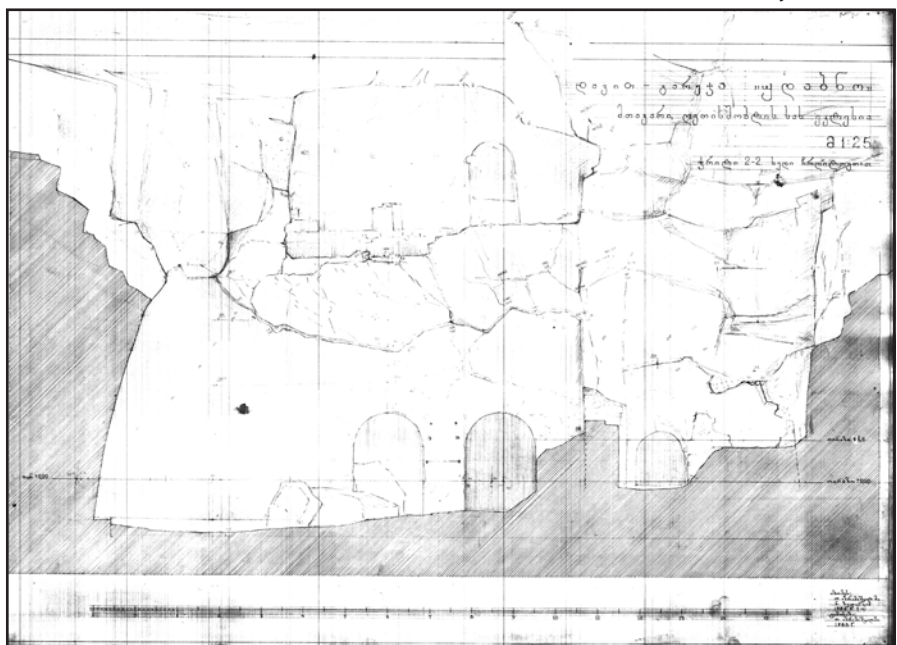




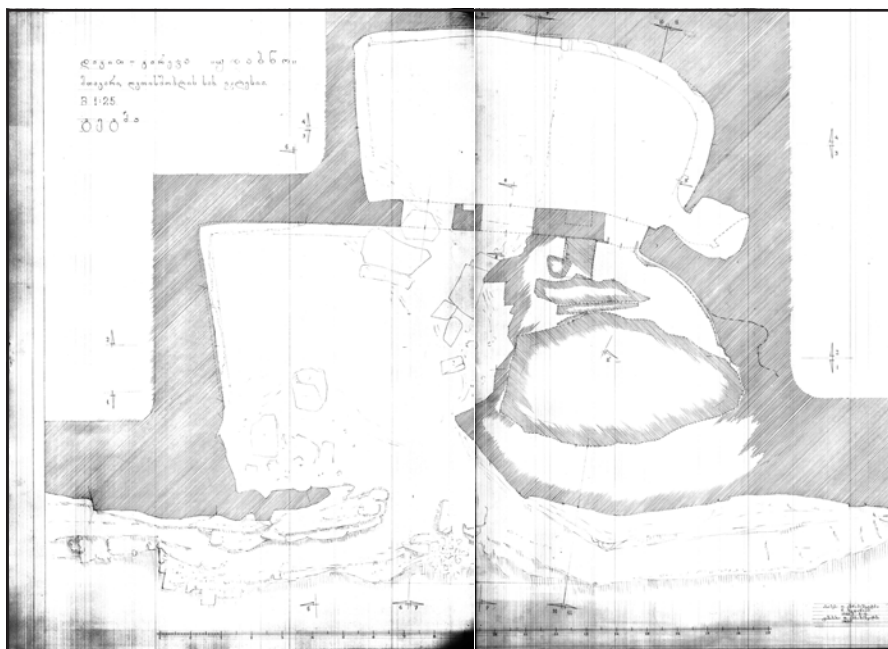
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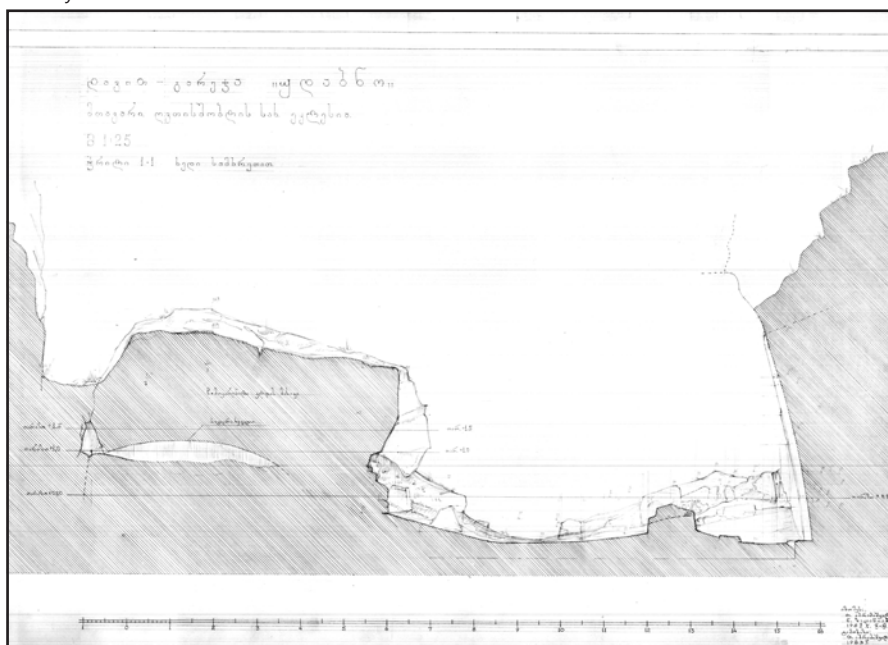
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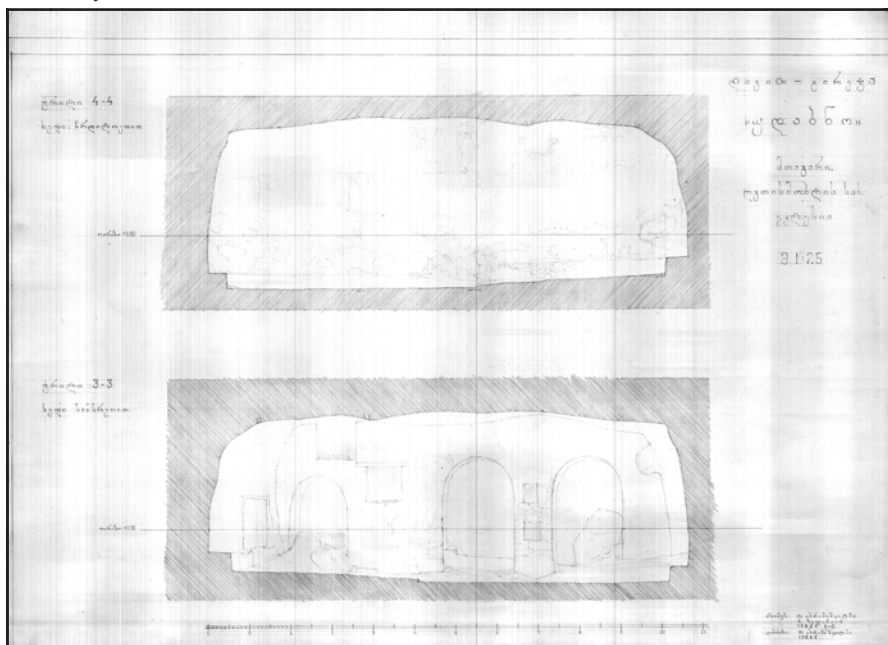
2 - Udbno



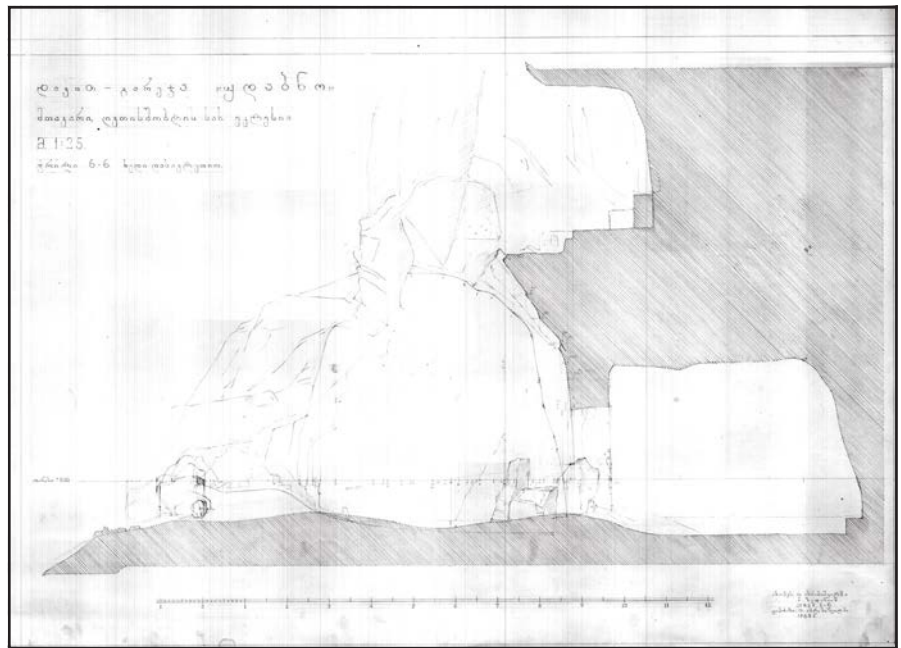
Plan by T. Abramishvili and N. Zedania



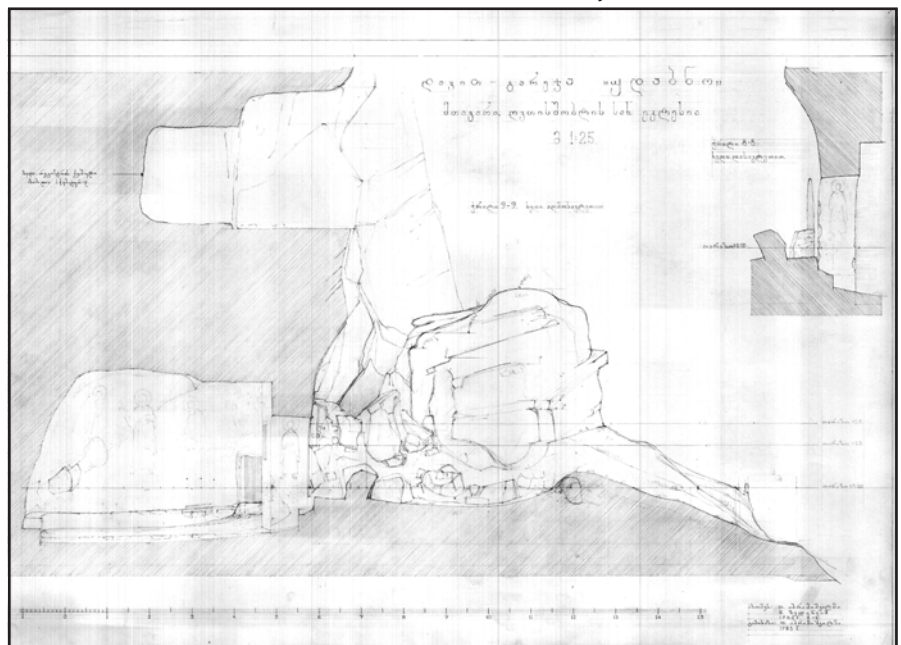
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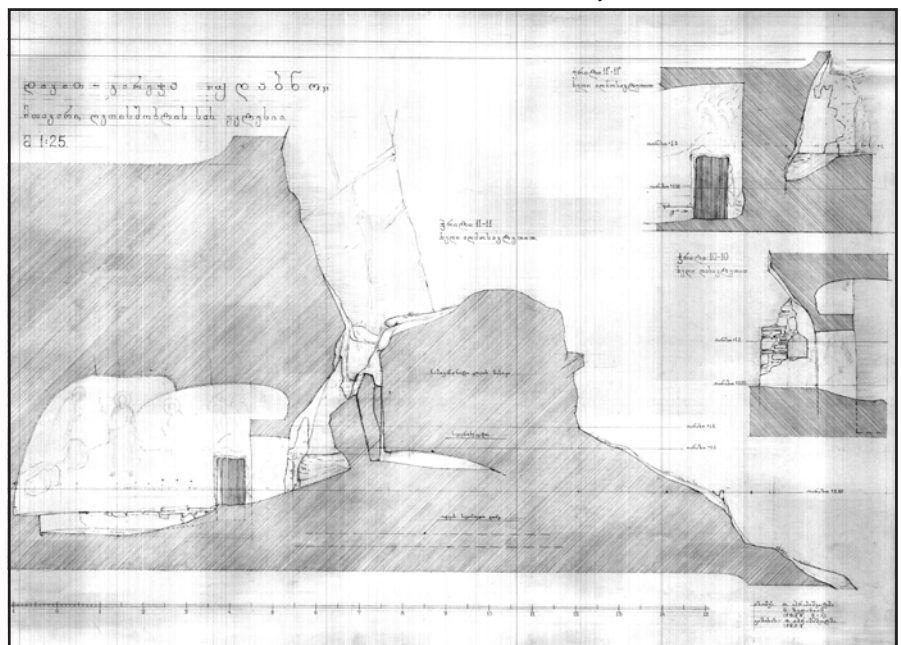
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Section by T. Abramishvili and N. Zedania



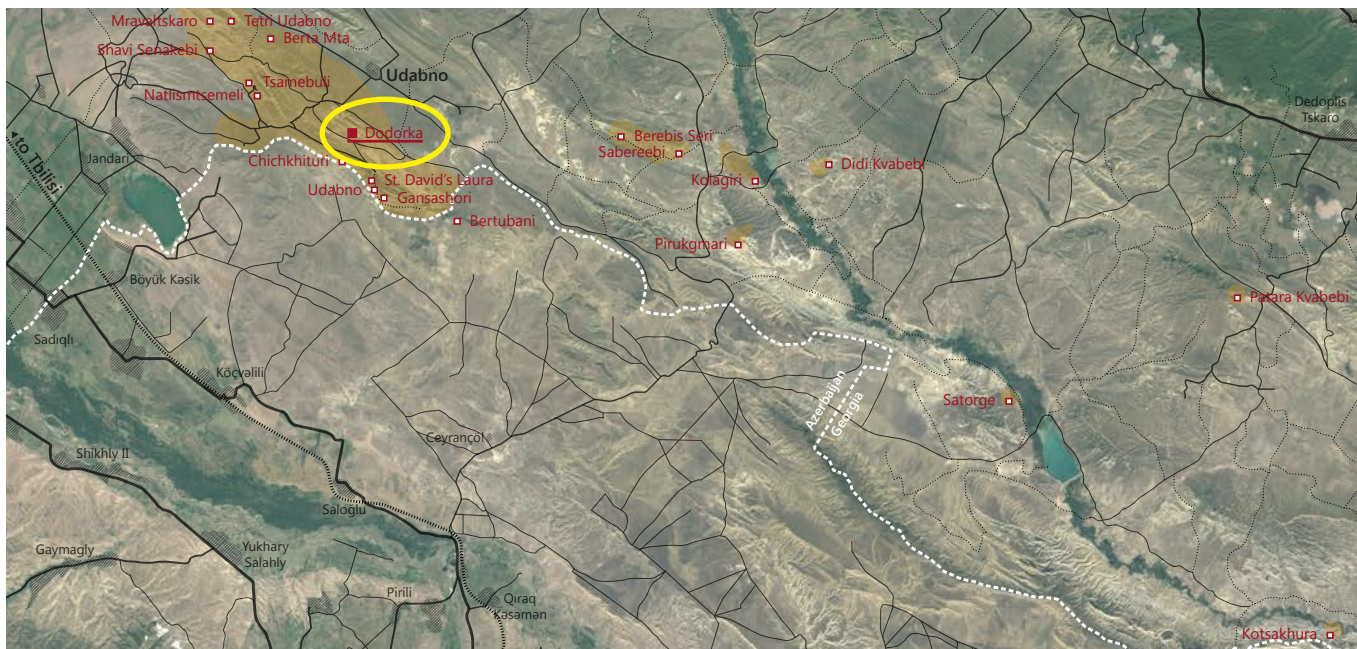
Sections by T. Abramishvili and N. Zedania



Sections by T. Abramishvili and N. Zedania



### 3 - Monastery of st. Dodo (Dodorka) - Georgia



**Date/s of construction:** 9<sup>th</sup>-10<sup>th</sup> c., 12-13<sup>th</sup> c., 17<sup>th</sup> c.

**In use / not in use:** In use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** The Monastery of st. Dodo is accessible via a dirt road connected to the main roads Udabno-Gareji and Udabno-Sagaredjo.

The Monastery of st. Dodo, together with Laura and Natlismtsemeli, belongs to the first phase of the propagation of monastic life in the Gareji desert. In fact, the monastery was founded in the mid 6<sup>th</sup> century by St. Dodo, and continued to be one of the main spiritual centers of the Gareji Deserts up to the 18<sup>th</sup> century.

The monastery is developed on a very long rock front and comprises a huge number of cells carved in the rock (more than 200), a large hall church (12<sup>th</sup>-13<sup>th</sup> c.) and two domed churches (9<sup>th</sup>-10<sup>th</sup> c.) in one of which are still preserved beautiful wall paintings; an old refectory (9<sup>th</sup>-10<sup>th</sup> c.) and a later period refectory (17<sup>th</sup> c.). The monastery has been abandoned in the late 18<sup>th</sup> century and since then it has been exposed to deterioration. Already at the end of the 19<sup>th</sup> century, part of the caves was filled with earth, some other caves may still lay under the actual access road that is unstable and should be redesigned and reshaped.

At present, the monastery is permanently inhabited by a few monks but most of the caves are still unstable and unsafe. The monks are step by step restoring some of the caves and some of the external spaces without a detailed design and without the attention that would be needed to address all the complex issues to be fronted (rock instability, water penetration, respect for the ancient structures,). They need timely and professional support for guaranteeing their own safety (i.e. the refectory is in a very unstable area with rock-slides and topples, selected erosion) and the correct safeguard of the historic and artistic values of the site.

The mural paintings of the chancel and higher part of the northern arm are dated 9<sup>th</sup> century, while in the lower parts in the small domed church paintings are dated 16<sup>th</sup>-17<sup>th</sup> c.. The iconostasis of the main church was created in the 16<sup>th</sup> century with the same type of iconostasis created by certain Giorgi in the small domed church. The paintings are really endangered by the rock instability and by percolation of water and lime, a significant part of them is already lost as it is the case of the paintings that surmounted the tomb of Dodo. In that case the materials had been preserved thanks to D. Gordeev, who described them in 1920.

In 1986, the 9<sup>th</sup> century wall paintings of the small domed church were strengthened. In January 2015 a chapel dedicated to St. Dimitris and Nestor has been discovered by local monks, its mural paintings have been provisionally consolidated but are still in need of a comprehensive preservation that should start from the structural consolidation of the rock; its external walls have been restored/rebuilt. A metallic propping realized to support a collapsing rock should be substituted with a less visible and more effective structural consolidation (stitching).





Ph. Sh. Lejava



3 - Monastery of st. Dodo





Ph. Sh. Lejava



Ph. Sh. Lejava



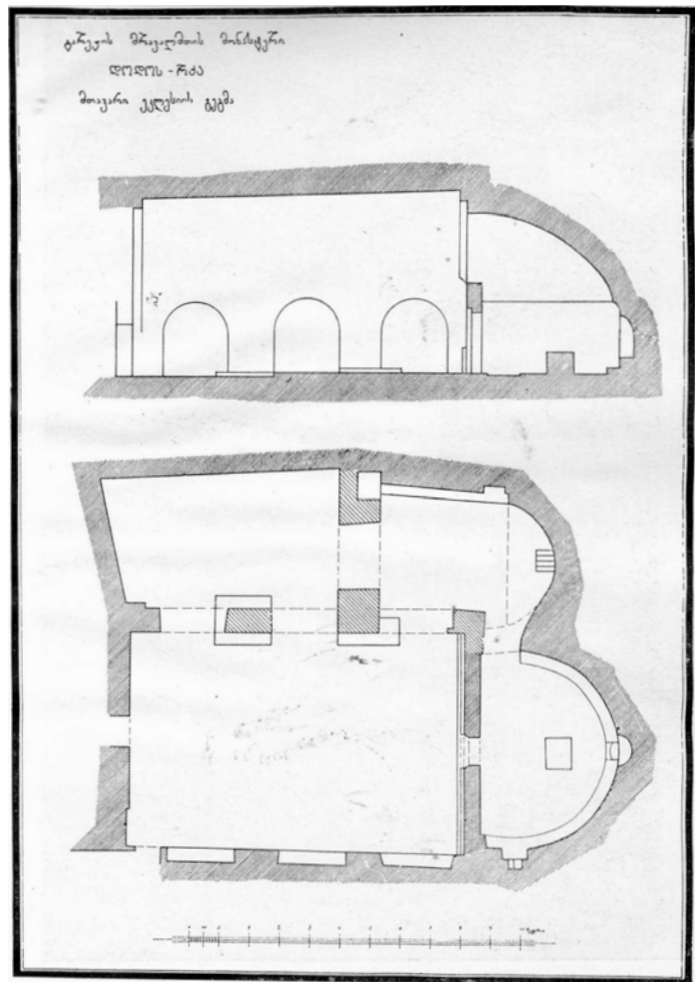
### 3 - Monastery of st. Dodo



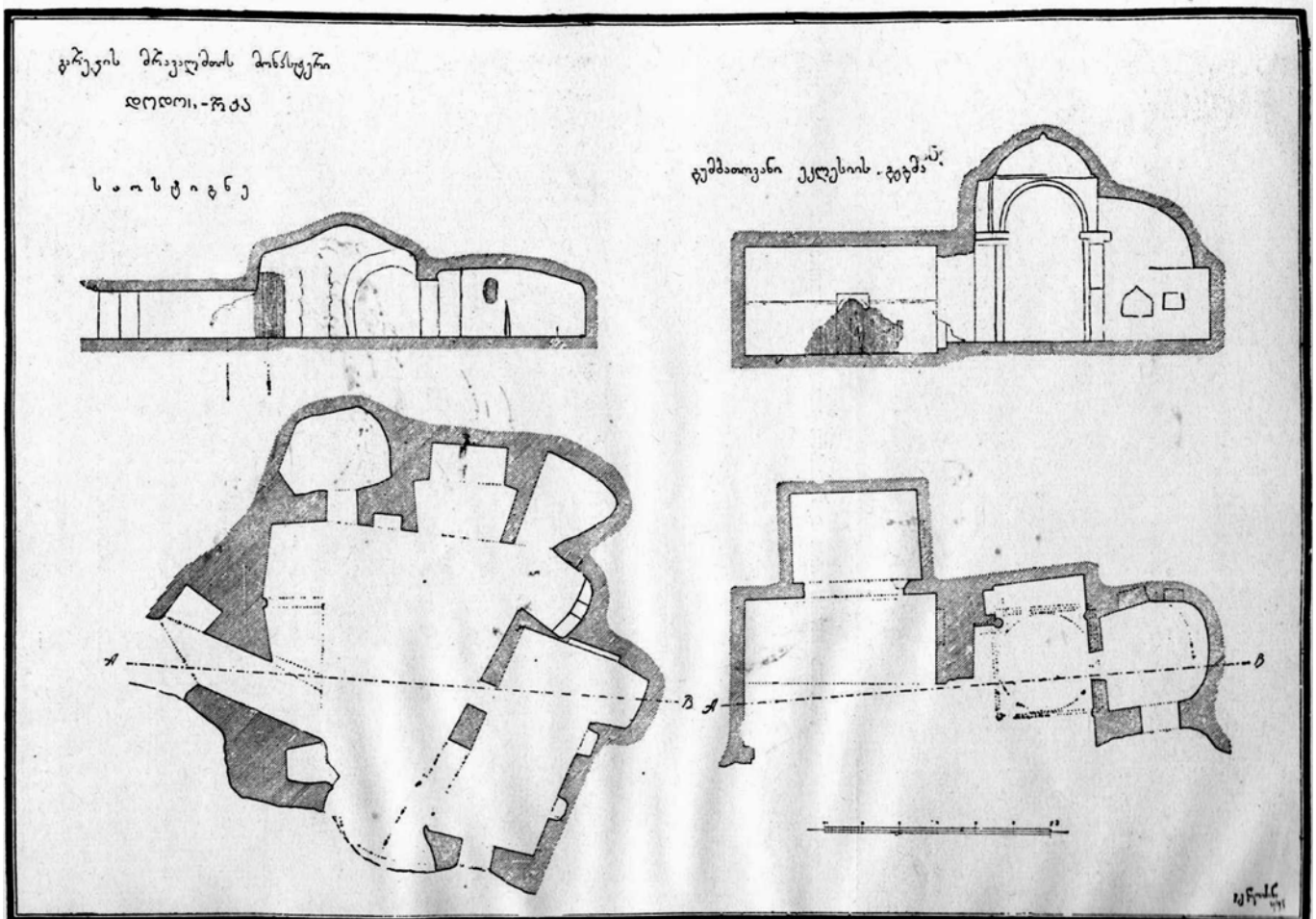
Ph. Sh. Lejava





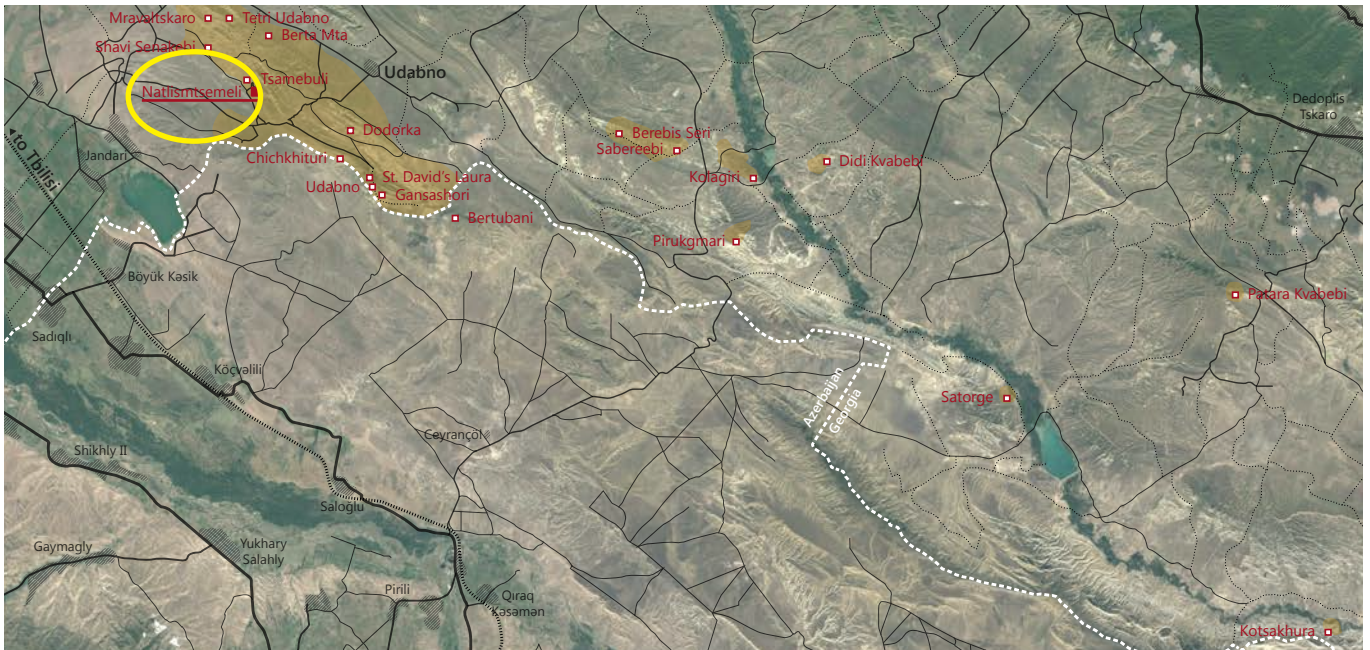


Plan and section by V. Tsilosani



3 - Monastery of st. Dodo

## 4 - Natlismtsemeli - Georgia



**Date/s of construction:** 6<sup>th</sup>-7<sup>th</sup> c., 9<sup>th</sup> c., 10<sup>th</sup>-11<sup>th</sup> c., 12<sup>th</sup> c.

**In use / not in use:** In use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** Natlismtsemeli is accessible via a dirt road connected to the road Rustavi-Jandara.

Natlismtsemeli monastery has been built during the first phase of the propagation of monastic life in Gareji deserts. The earliest cave-chapels (6<sup>th</sup>-7<sup>th</sup> c.) are located in the Eastern part of the monastery.

The main church was built in the 9<sup>th</sup> century, and then enlarged and newly decorated during the 12<sup>th</sup> century when, with the patronage of the Royal Court, Gareji turned into a major cultural and intellectual center. The wall pictorial cycle representing royal portraits belongs to this period. T

The Western part of the monastery is constituted by a set of late medieval cells. Other wall paintings are preserved in the small hall churches: in the East of the monastery (11<sup>th</sup> c.), in the chapel of Ioane Mamaskhlisi (10<sup>th</sup>-11<sup>th</sup> c.), and in the hall church next to it (12<sup>th</sup> c.).

The caves in the East and West edges are abandoned while the central part of the monastery is being restored to host the monks. Part of the structures, mainly in the Eastern area, are seriously damaged because of the progressive cracking and collapsing of the rocks which have filled up them partially or even completely. Some others, in the Western area, were seriously damaged or destroyed (walls are scratched, molded details destroyed, ...) during the period in which the area was used as a shooting range.

The first restoration work, carried out during the '80<sup>ies</sup>, provided the consolidation of the fortification walls and the cleaning of the murals inside the main church. The works were interrupted shortly thereafter.

In 2003, Gareji Research Centre designed a project for the conservation-restoration of the complex aiming to the adaptation of the church and of the other structures to the needs of a functioning monastery.

The hostel outside the monastery has been rebuilt according to the project of the restorer T. Abramishvili; other projects have been implemented such as: the restoration of the cells in the upper tier; the conservation of the old wall and the arrangement of the churchyard. The annexes of the main church have been cleaned and a new wooden iconostasis has been installed in the interior.





Ph. M. Bulia



4 - Natlismtsemeli





Ph. M. Bulia



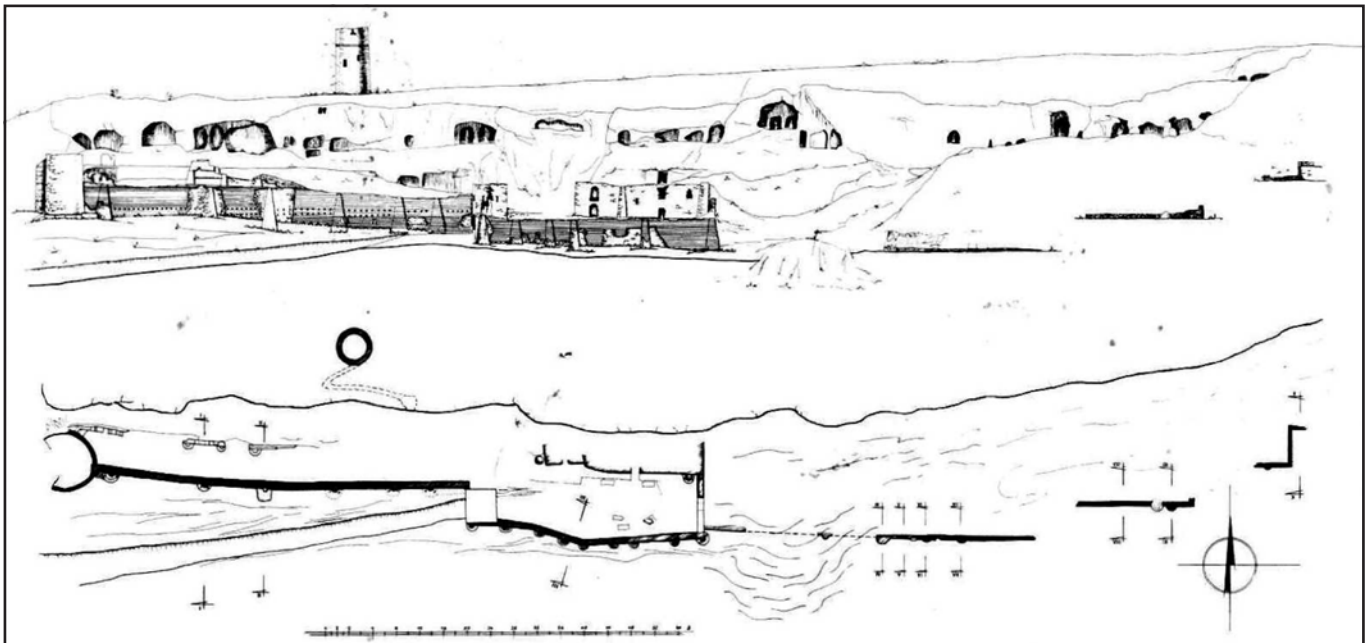
Ph. M. Bulia



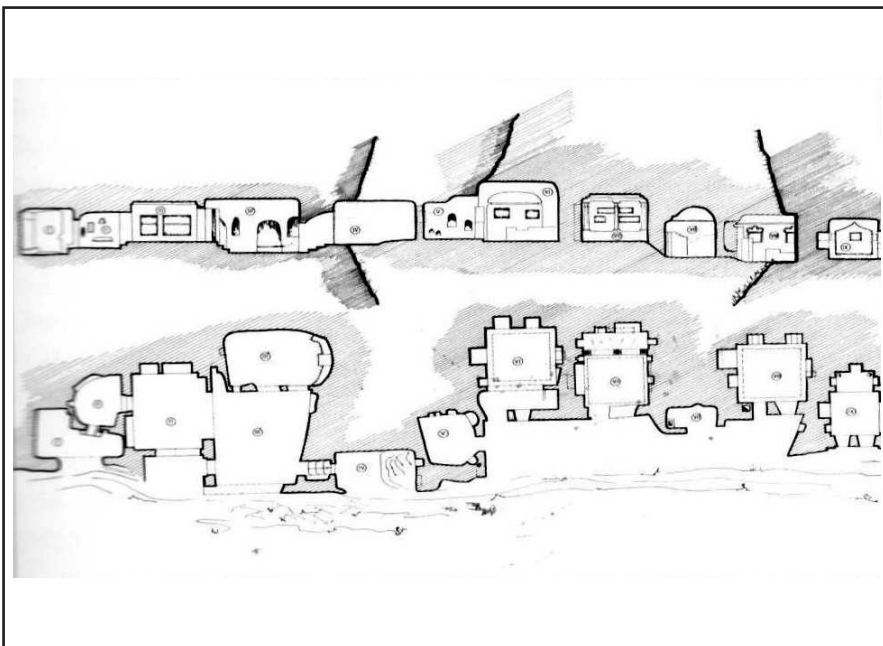




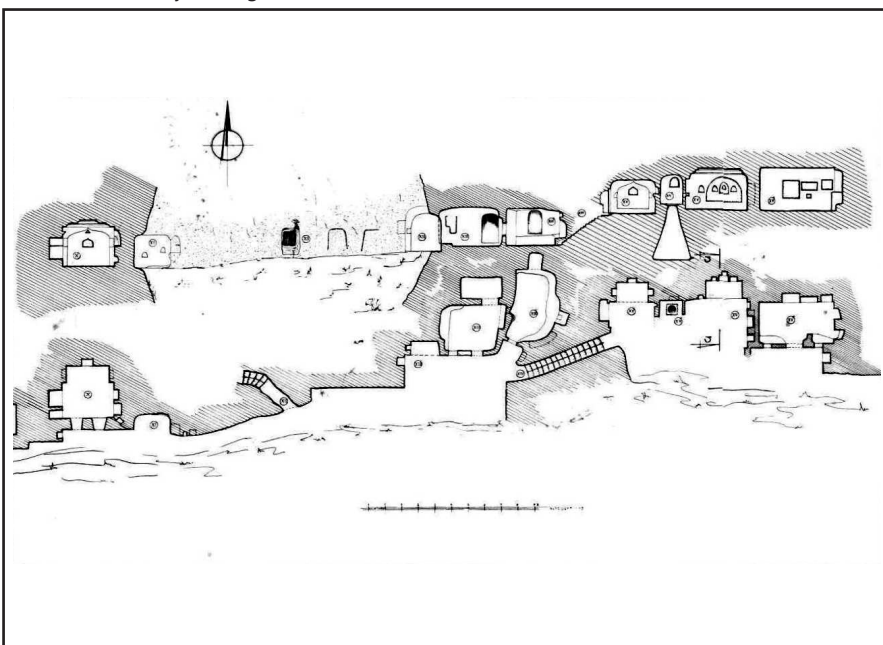
Ph. M. Bulia



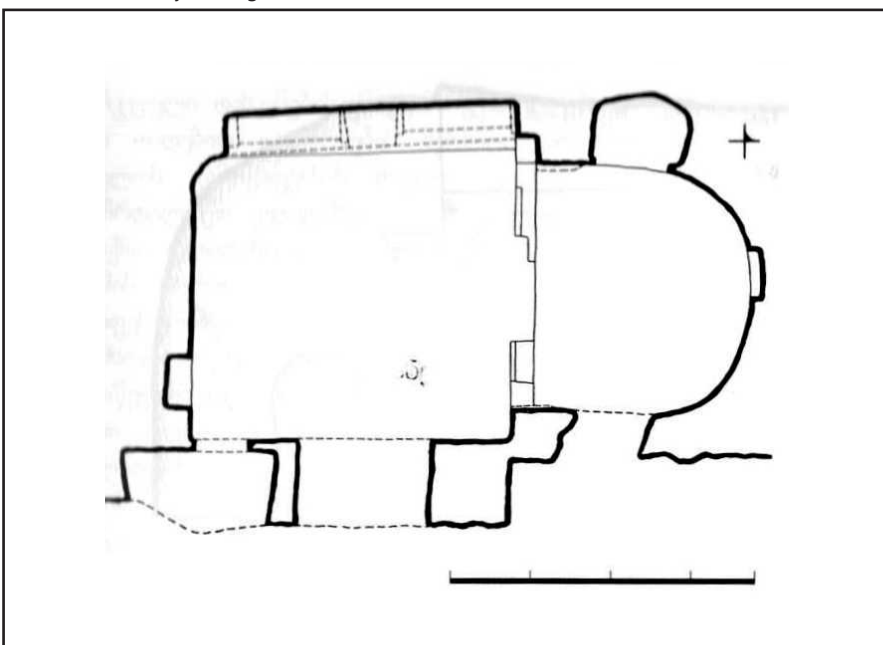
4 - Natismtsemeli



Plan and section by G. Bragatoni and D. Kandelaki

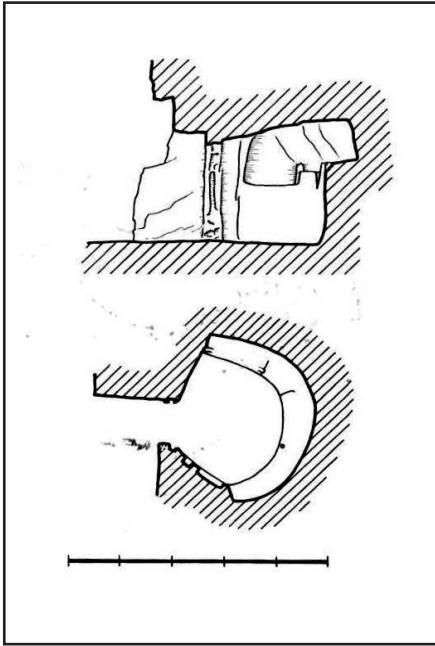


Plan and section by G. Bragatoni and D. Kandelaki

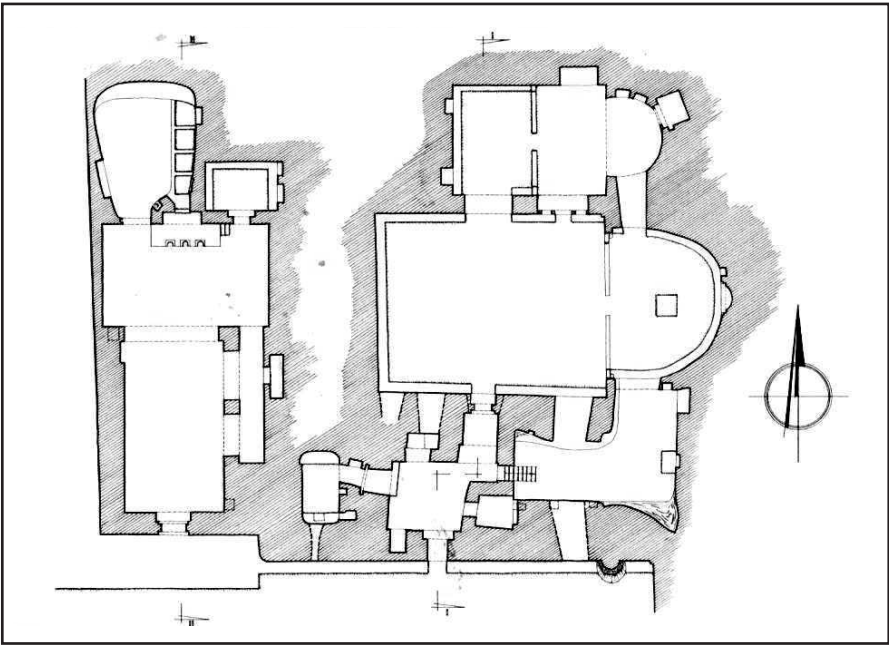


Plan by Z. Skhirtladze

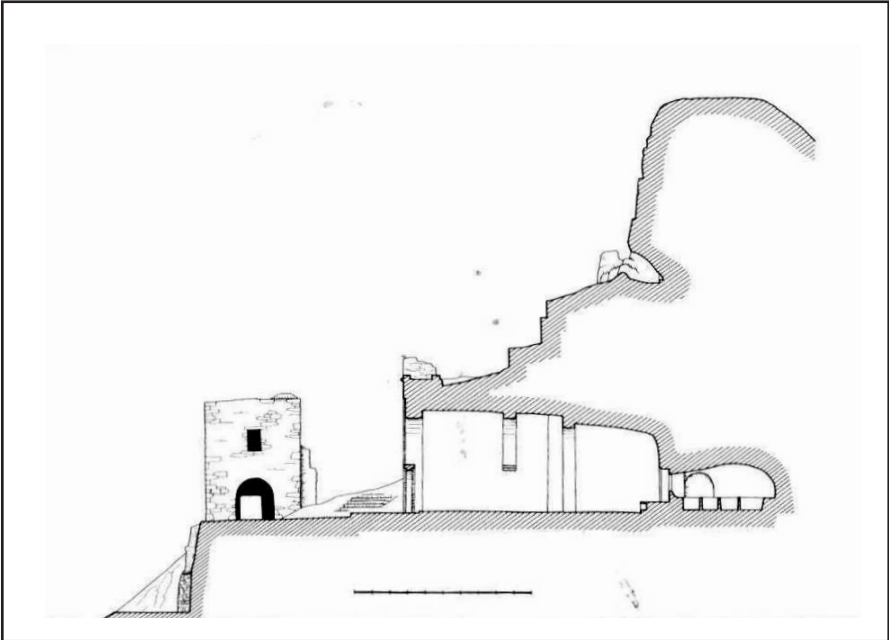




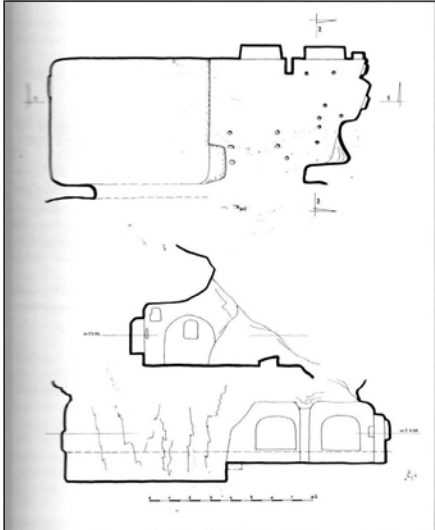
Plan and section by G. Bragatoni and D. Kandelaki



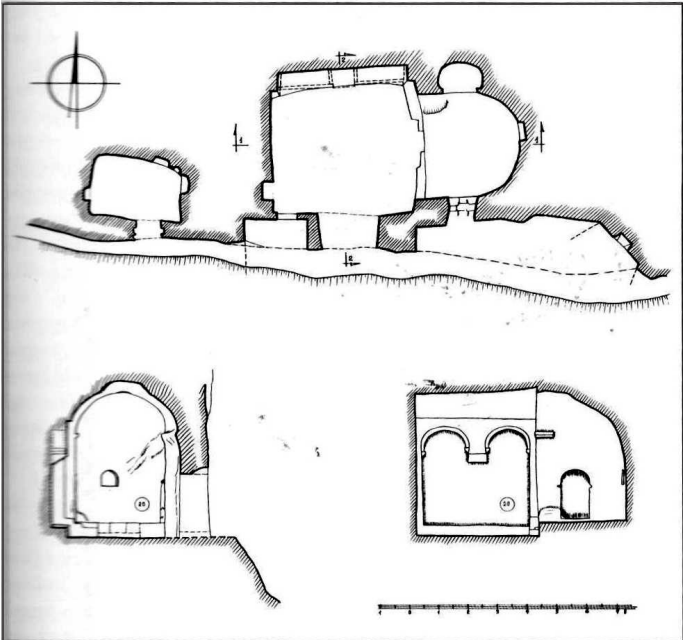
Plan by G. Bragatoni and D. Kandelaki



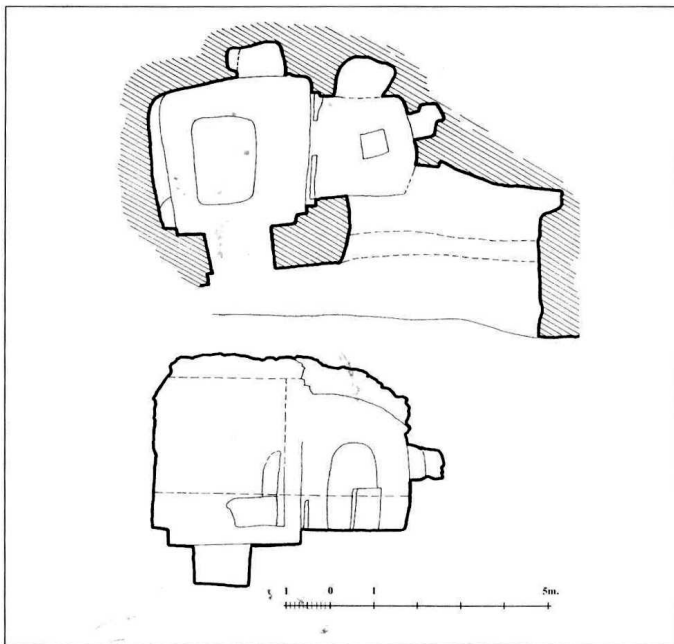
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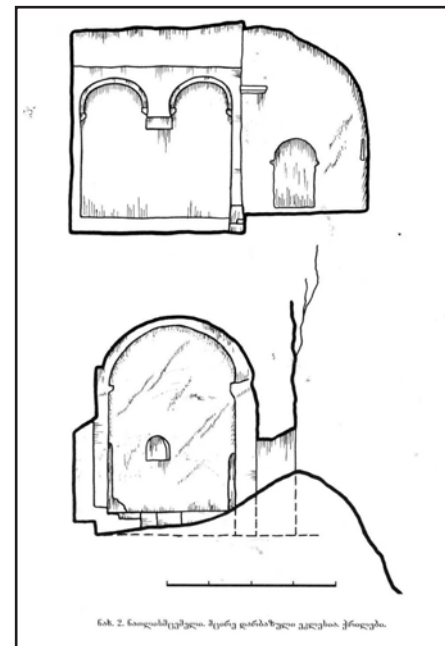
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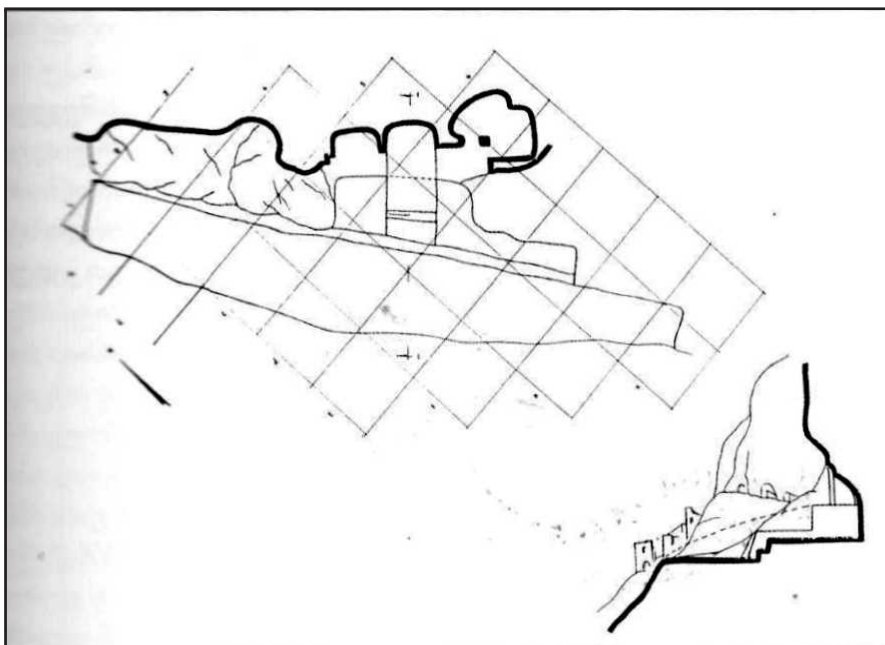
Plan and sections by Z. Skhirtladze



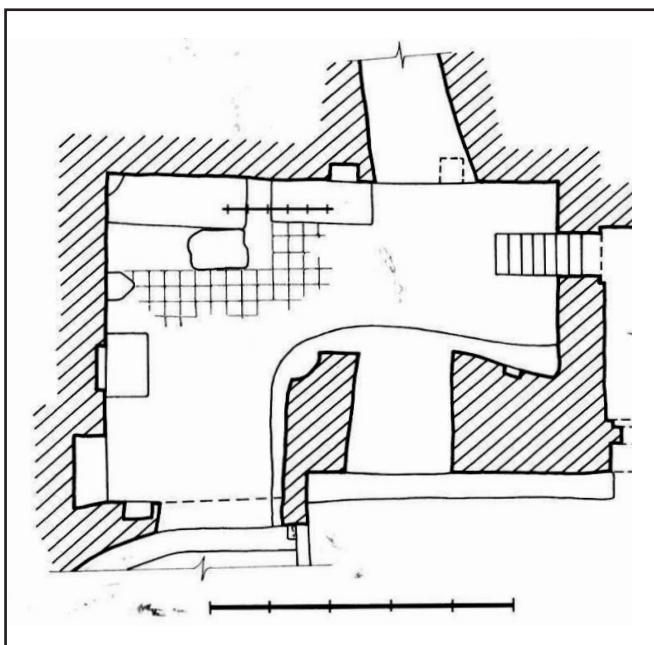
Plan and section by G. Grapindashvili



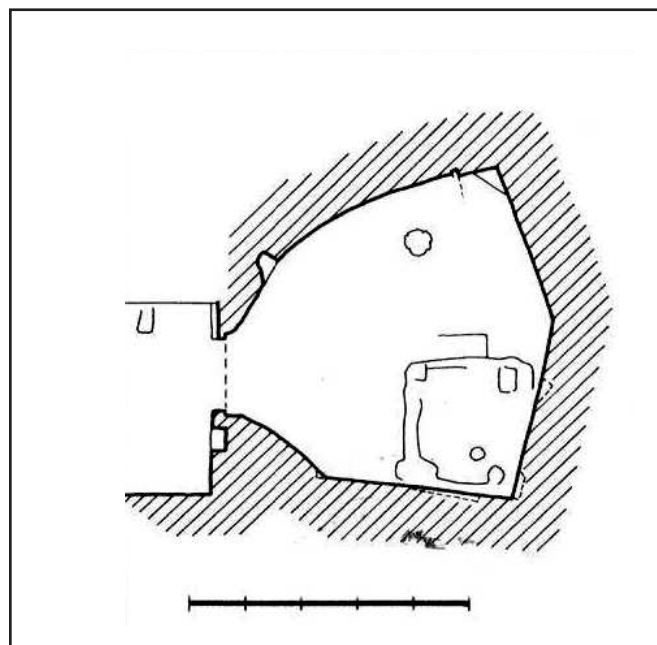
Section by Z. Skhirtladze



Plan and section by G. Bragationi and D. Kandelaki

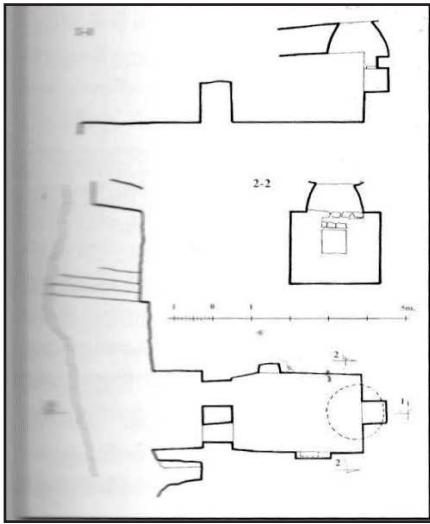


Plan by G. Bragationi and D. Kandelaki

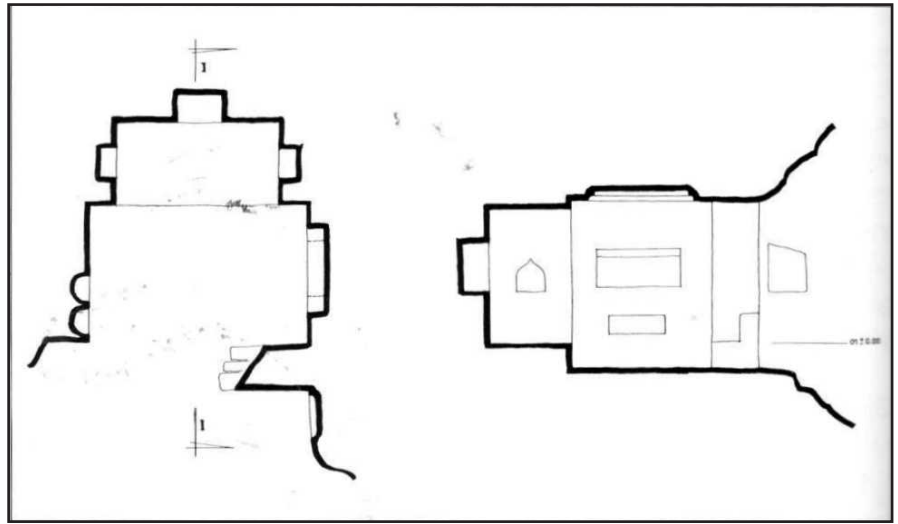


Plan by G. Bragationi and D. Kandelaki

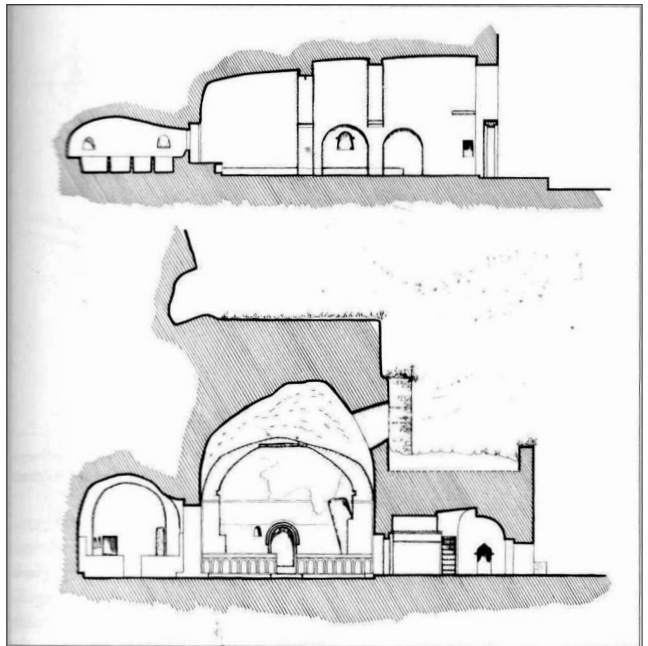




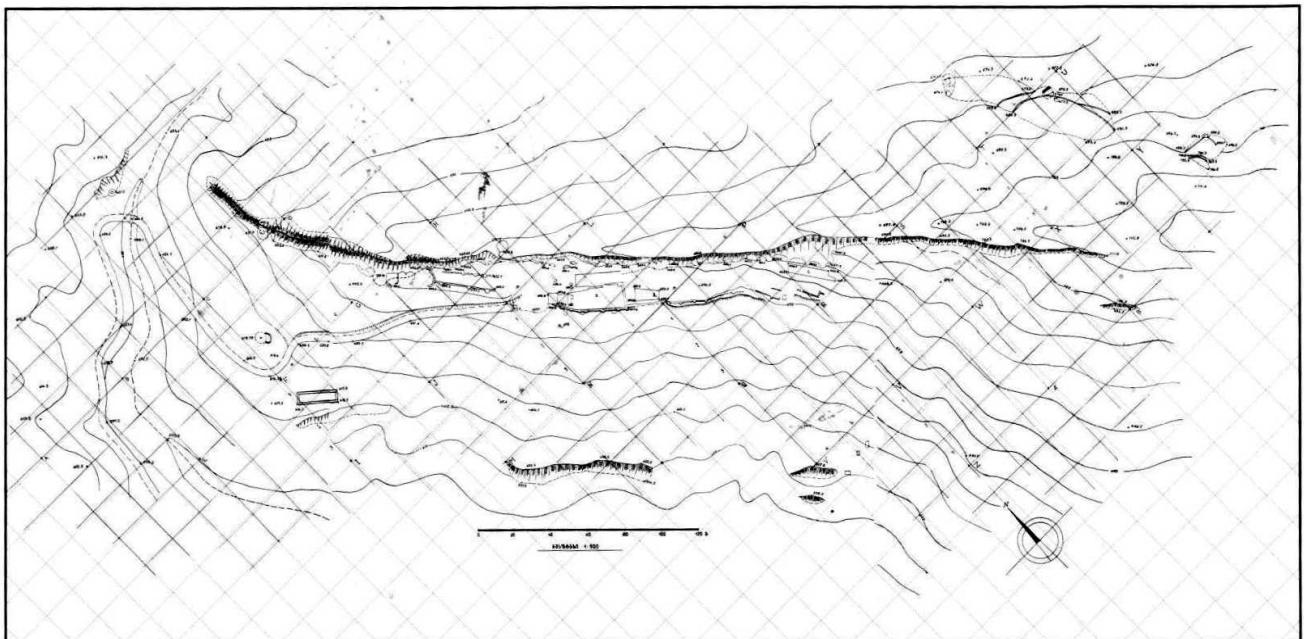
Plan and section by G. Bragatoni and D. Kandelaki



Plan and section by G. Bragatoni and D. Kandelaki

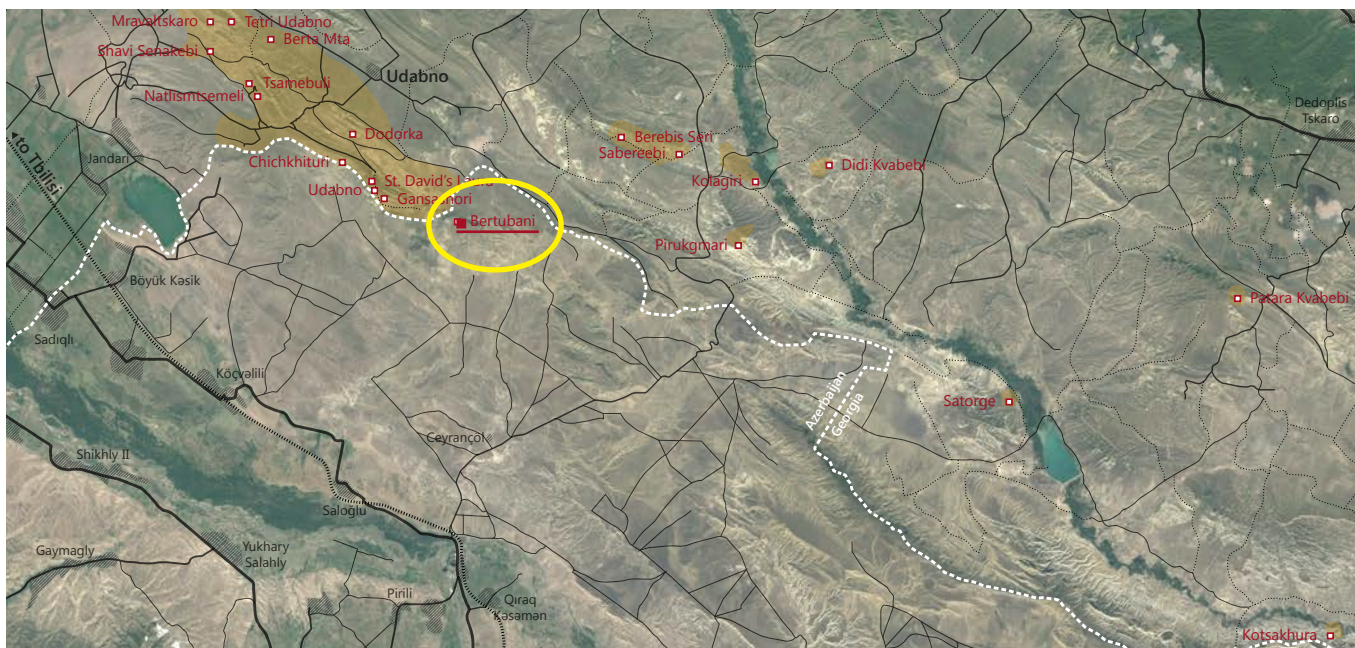


Sections by G. Bragatoni and D. Kandelaki



General plan by G. Bragatoni and D. Kandelaki

## 5 - Bertubani - Azerbaijan



**Date/s of construction:** 10<sup>th</sup> c., 12-13<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** OUT

**Accessibility:** Bertubani is accessible only from the Azerbaijan side via a walking trail which arrives up to St. David's Laura.

Bertubani monastery is located on the territory of Azerbaijan, close to the border with Georgia.

The primitive nucleus, including the martyrium, dates back to the early stages of development of the Gareji Deserts. It is adorned with wall paintings, presumably dating from the 10<sup>th</sup> century.

The bigger part of the monastery was created in the 12<sup>th</sup> and 13<sup>th</sup> century together with the decoration of the refectory and of the main church. The mural paintings, including a portrait of the ruling Queen Tamar and her son Giorgi-Lasha, have been realized, as in Natlismtsemeli, by employing rich pigments including gold leaf and lapis lazuli.

This monastery has suffered huge damage during the Soviet period ('50<sup>ies</sup>) when it has been used as a military shooting range. Due to the direct shooting (even with missiles), half of the main church has been destroyed and the wall paintings have been severely damaged.

The most important paintings (the portraits of Queen Tamar and her son Giorgi Lasha) have been detached from the wall and stored in the State Museum of Art in Tbilisi, together with some other fragments of paintings, removed from the walls in later years. In the '80<sup>ies</sup>, Georgian authorities started some conservation works of the murals that were still preserved in situ but the works had been stopped by local Azerbaijan's authorities.

Actually it is not possible to reach the site and the available pictures are quite old.





Ph. M. Bulia



Ph. S. Tomekovic



Ph. Giorgi Chubinashvili, National Research Centre for Georgian Art History and Heritage Preservation



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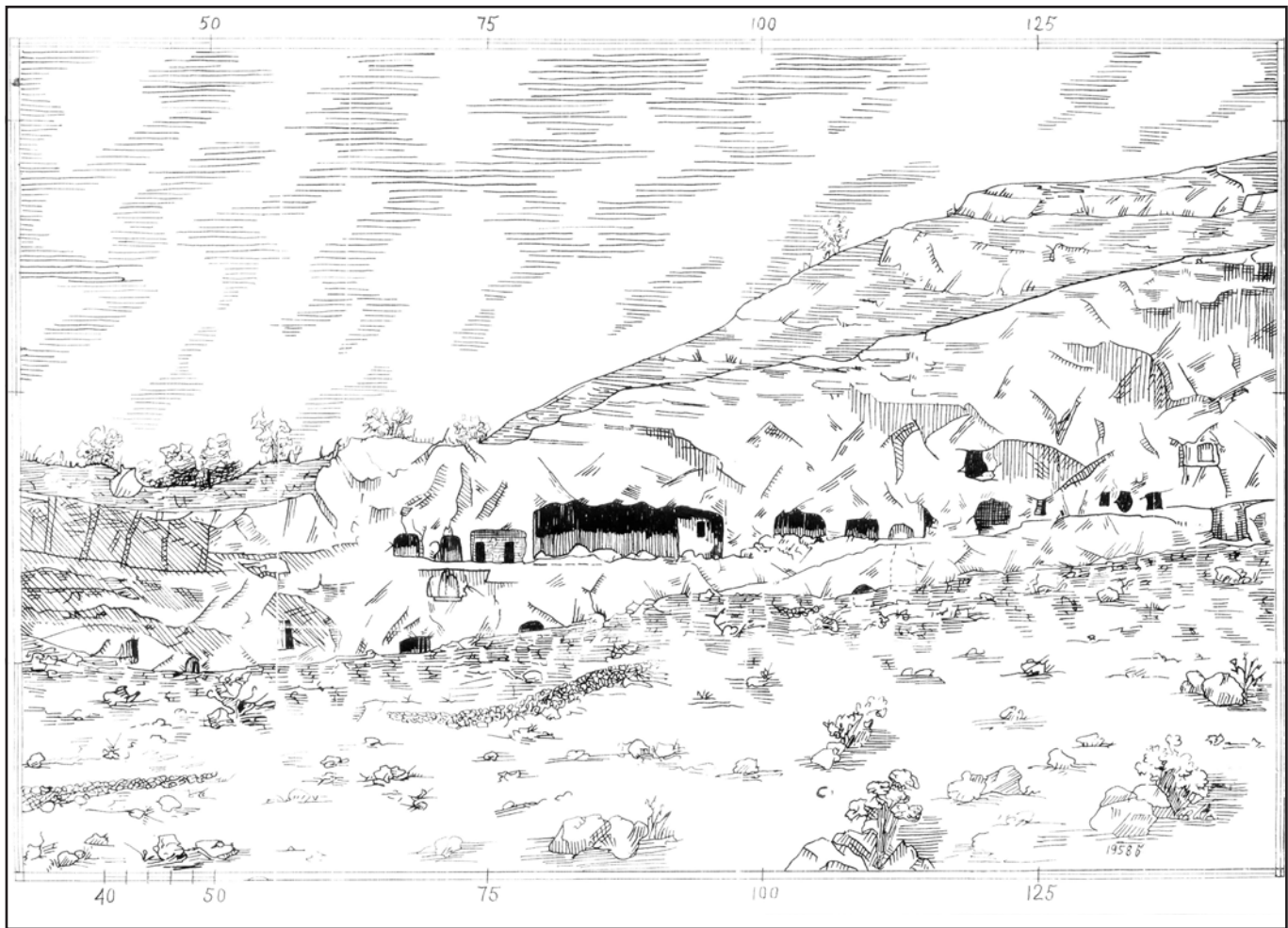


Ph. S. Tomekovic

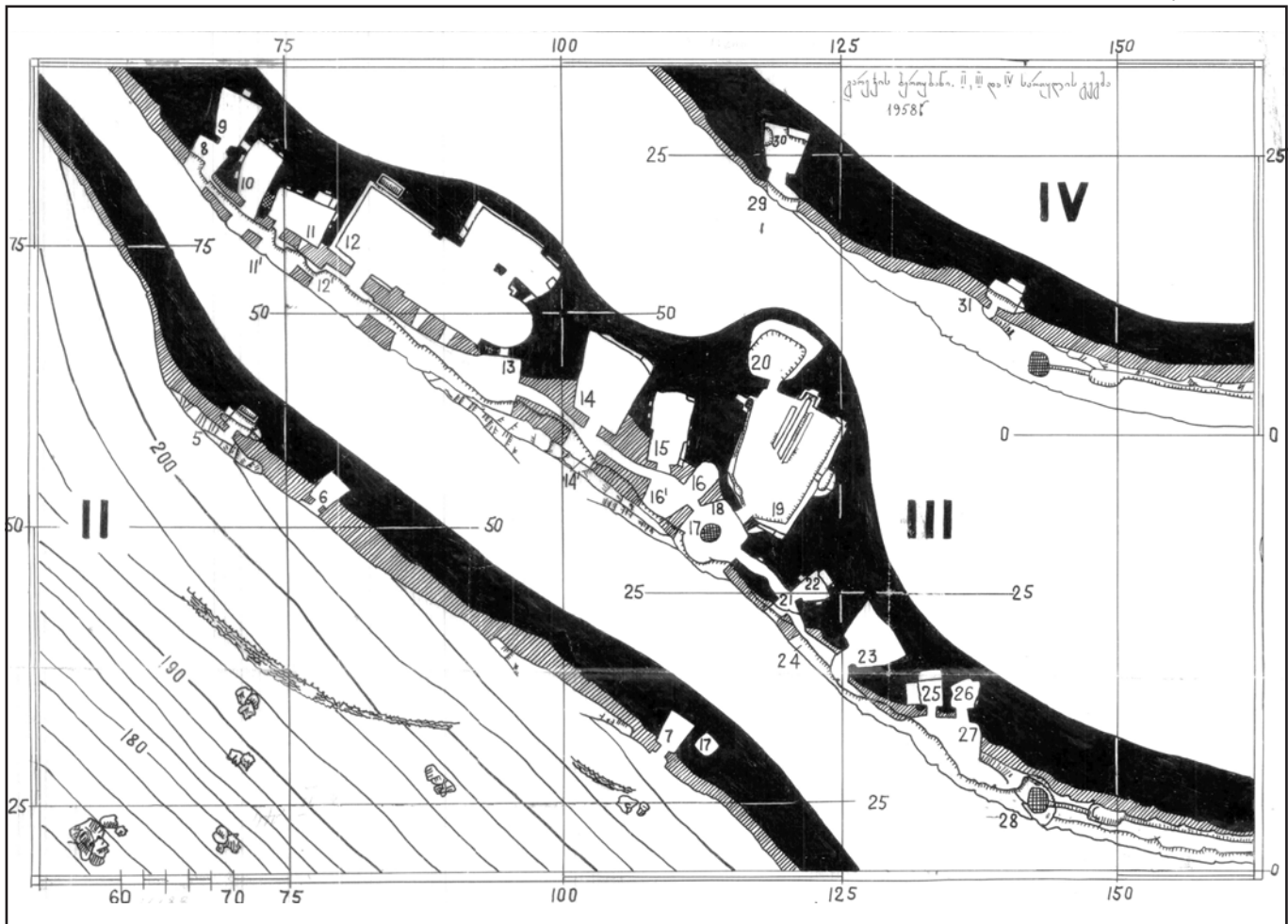


Ph. S. Tomekovic

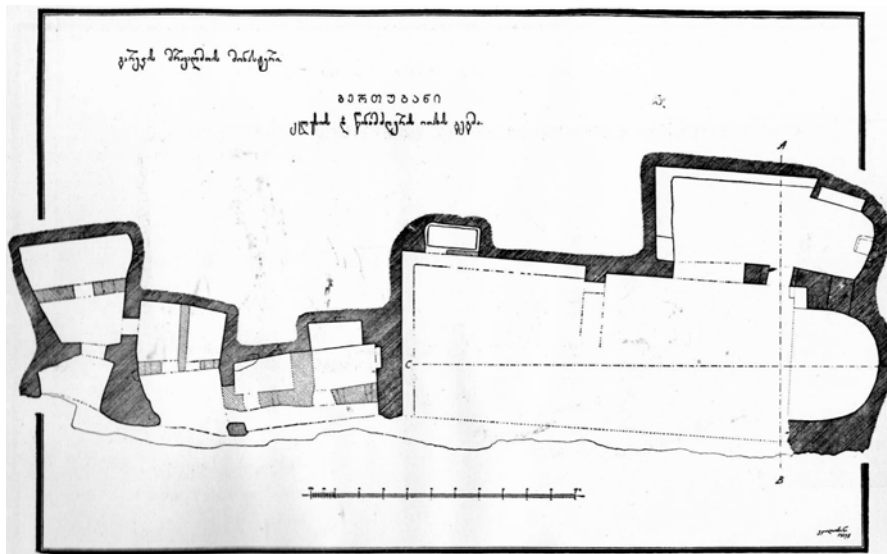




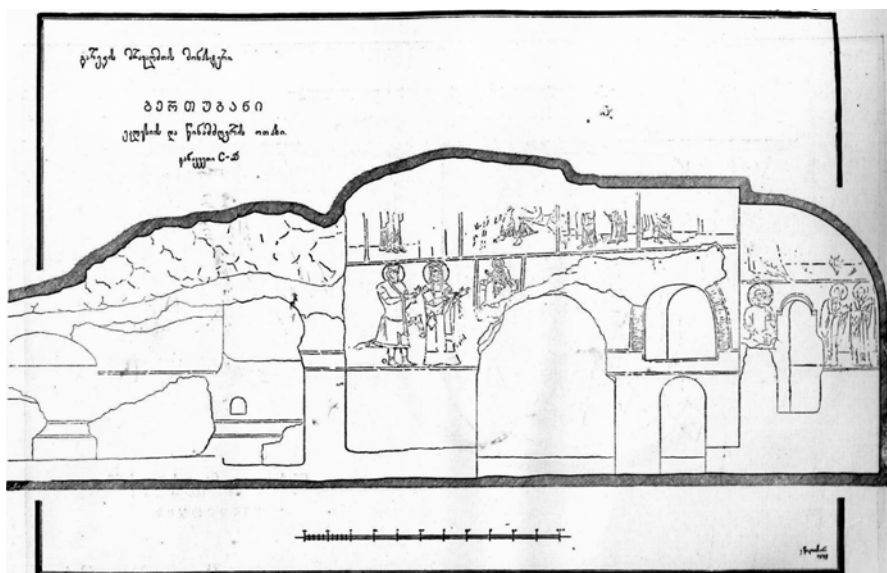
Front by K. Melitauri



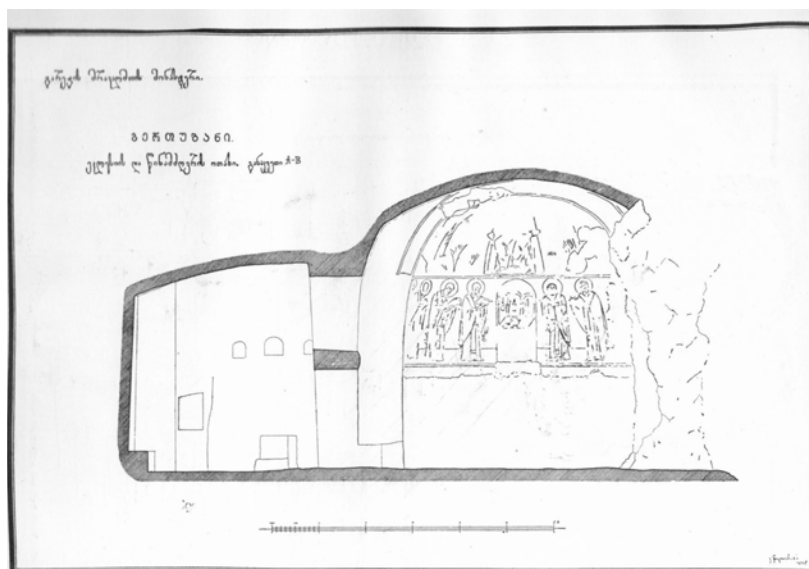
5 - Bertubani



Plan by V. Tsilosani

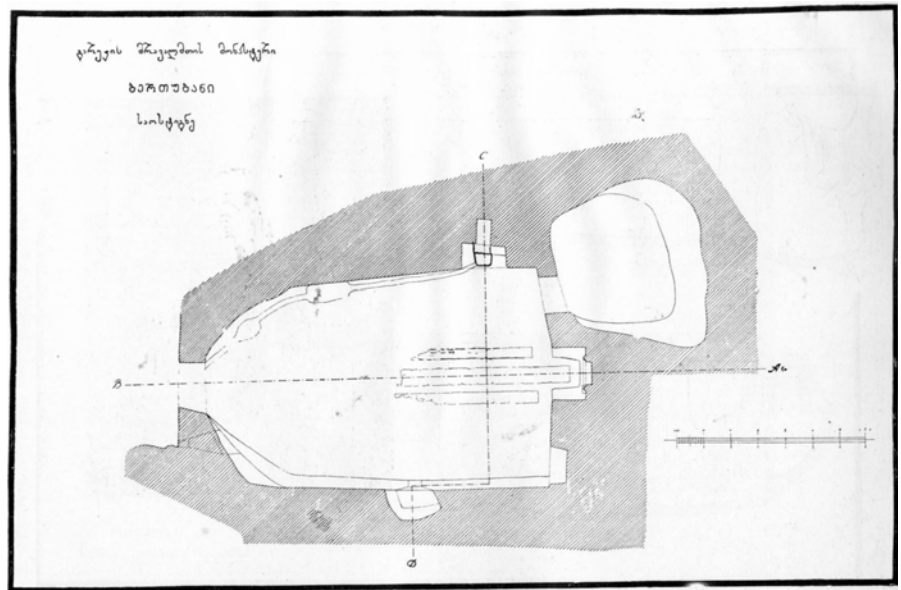


Section by V. Tsilosani

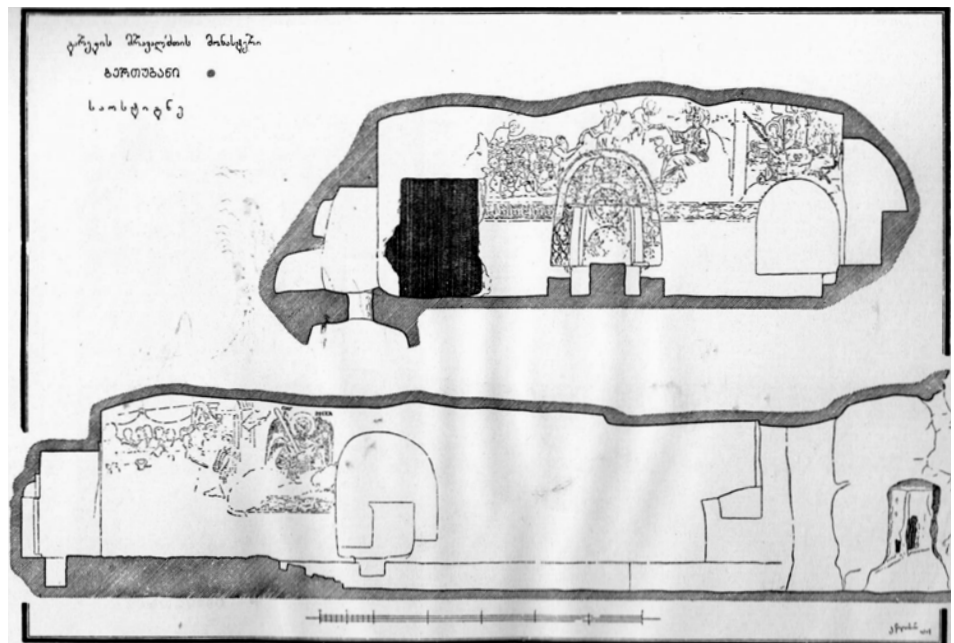


Section by V. Tsilosani

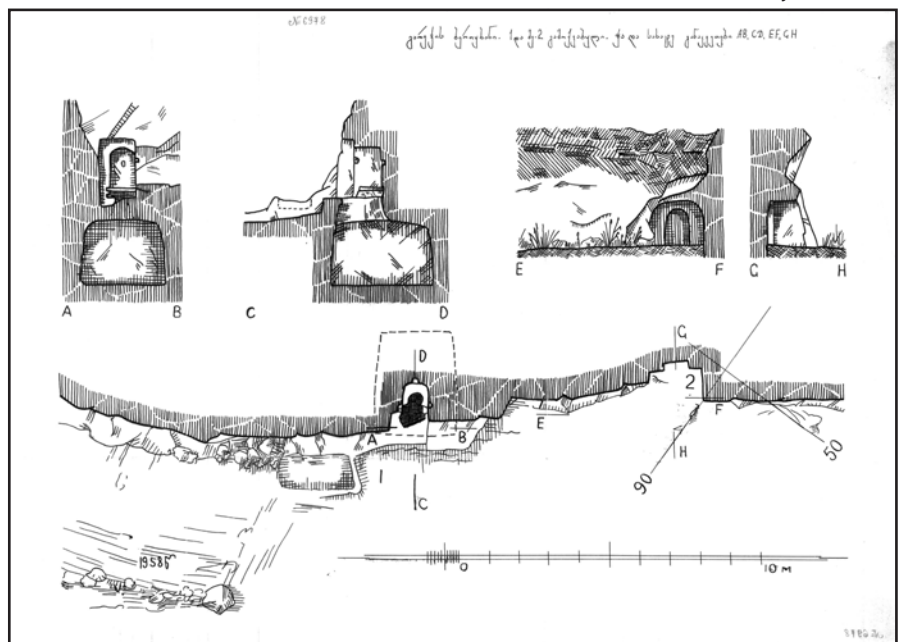




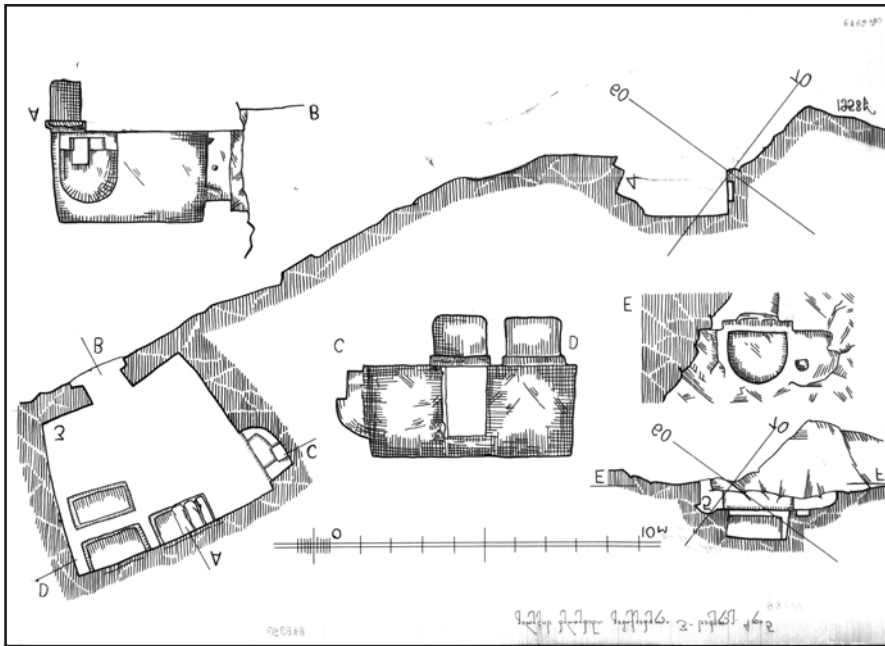
Plan by V. Tsilosani



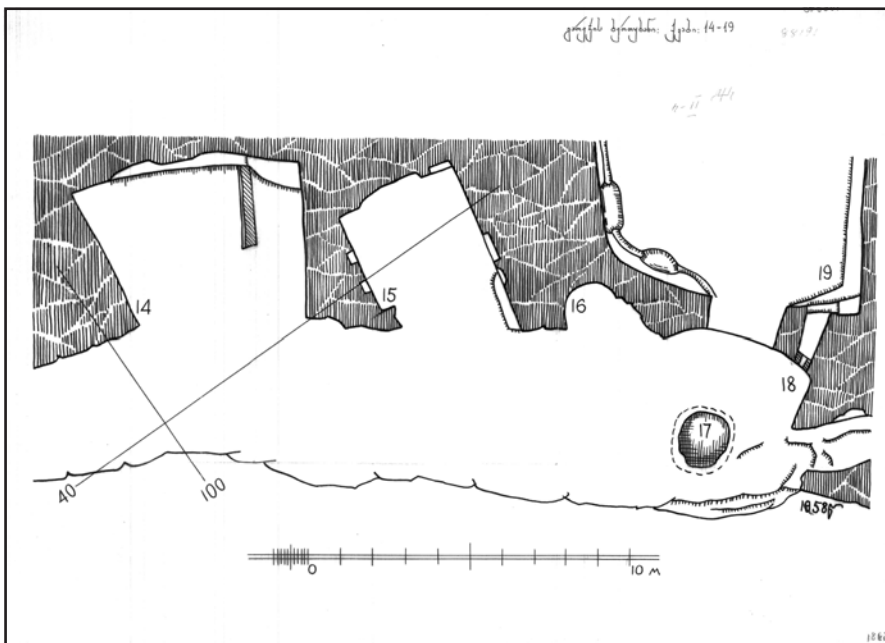
Sections by V. Tsilosani



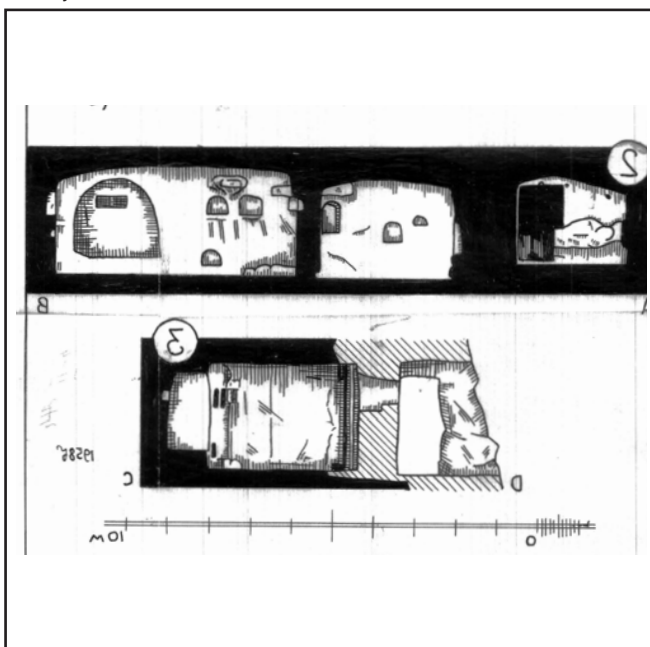
5 - Bertubani



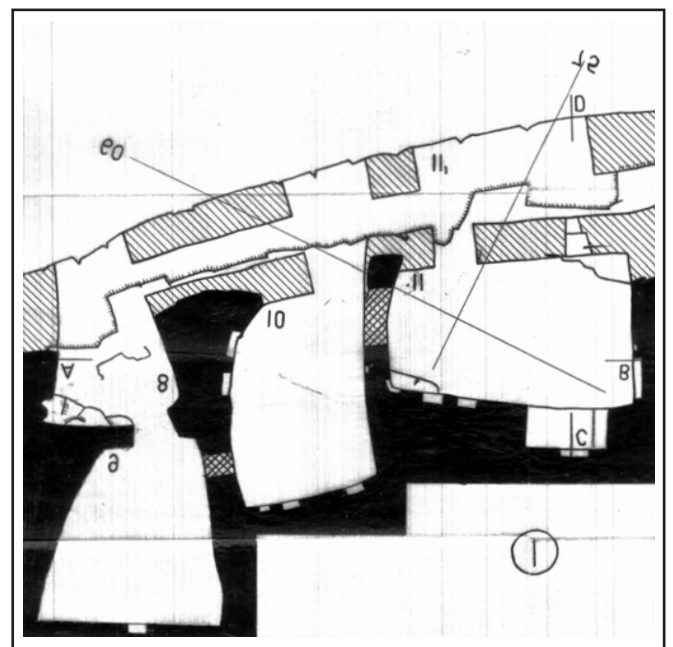
Drawings by K. Melitauri



Plan by K. Melitauri

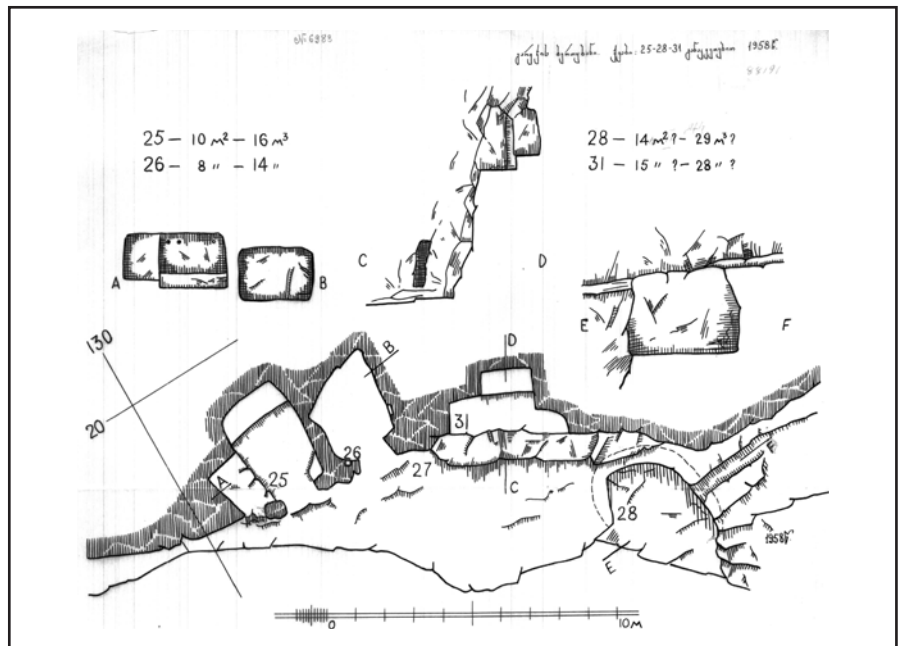


Sections by K. Melitauri

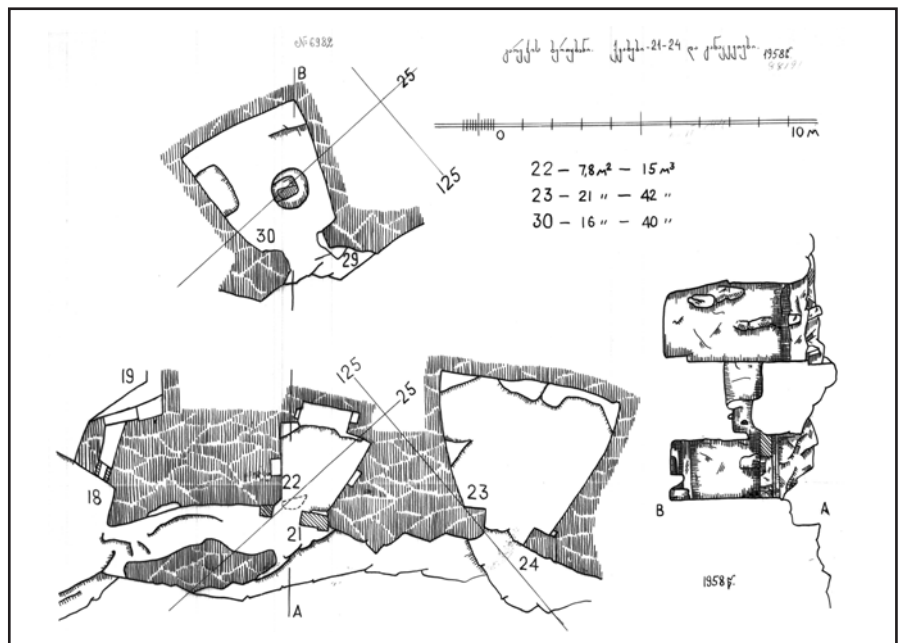


Plan by K. Melitauri

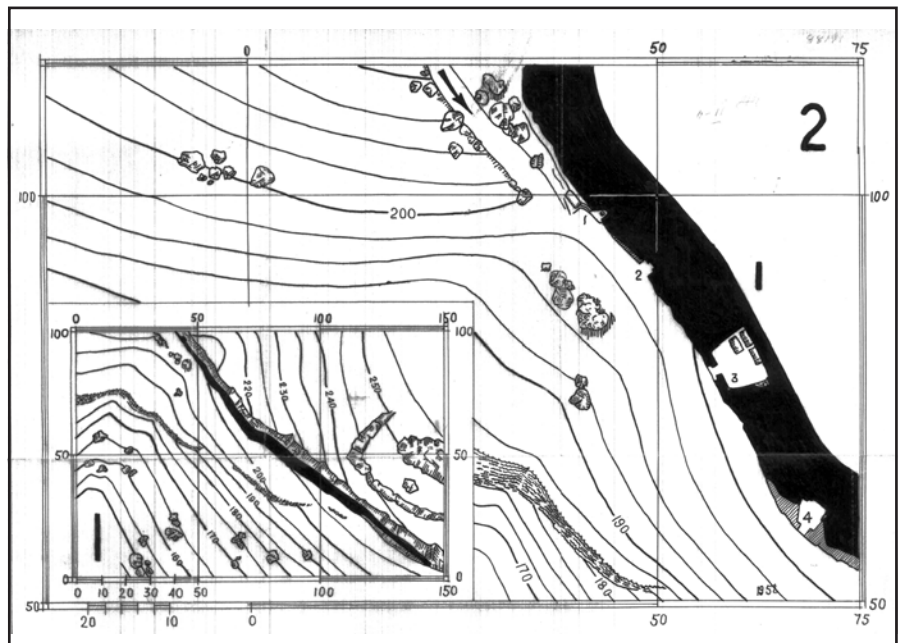




Plan and sections by K. Melitauri

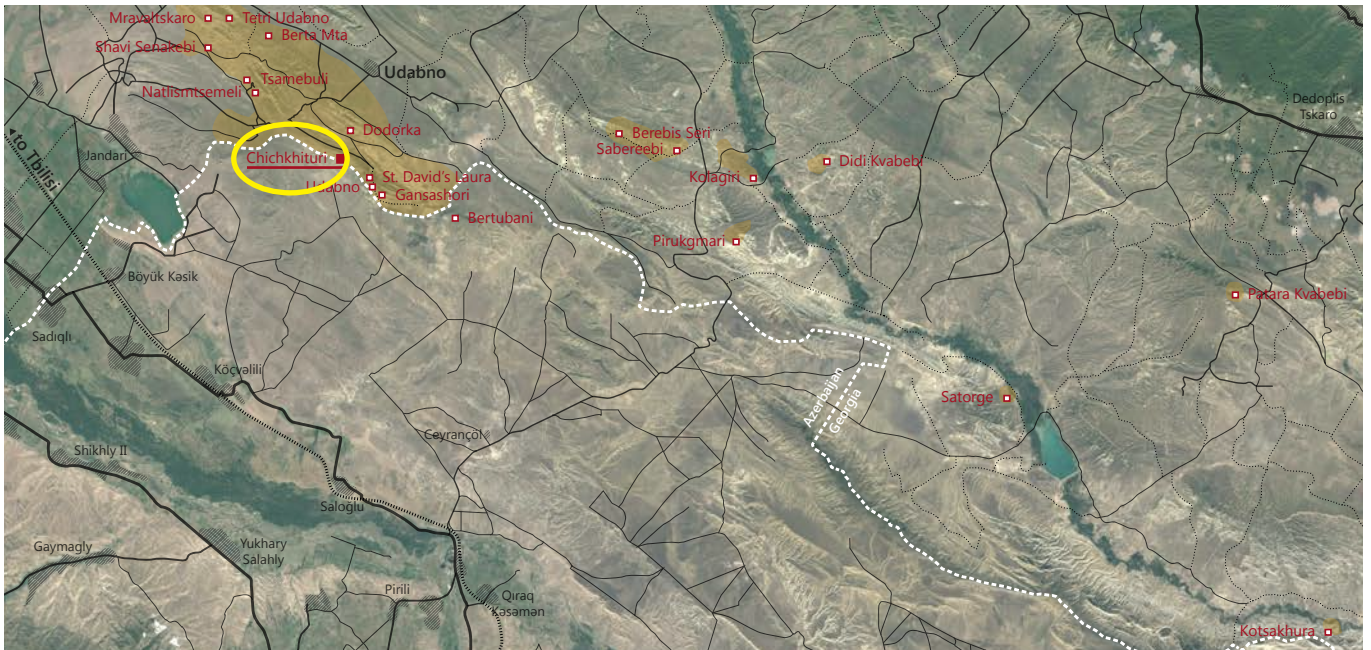


Plans and section by K. Melitauri



General plan by K. Melitauri

## 6 - Chichkhituri - Georgia/Azerbaijan



**Date/s of construction:** 13<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN and OUT in different percentages, the tower lays 90% in the Georgian territory while the rock hewn structures are accessible only from the Azerbaijan side.

**Accessibility:** Chichkhituri is accessible through a walking trail running along the border under discussion between Georgia and Azerbaijan and connecting also to Udabno and Laura.

Chichkhituri monastery is located just on the discussed area between Georgia and Azerbaijan (part of the tower lays in Georgia and the rupestrian cells are on the Azerbaijan's side). The monastic complex consists in hermits' cells, a church (in the upper zone) decorated with murals from the 13<sup>th</sup> century, a large whole church on the northern slope and a three storeys late medieval tower on the southern slope.

The caves in the lower tier are more damaged as their front parts are gradually crumbling.

Several years ago it was still possible to enter the cave church but nowadays it is inaccessible both because it lays in Azerbaijan and because of the situation of the rocks (the help of a rock climber would be needed to reach the site).

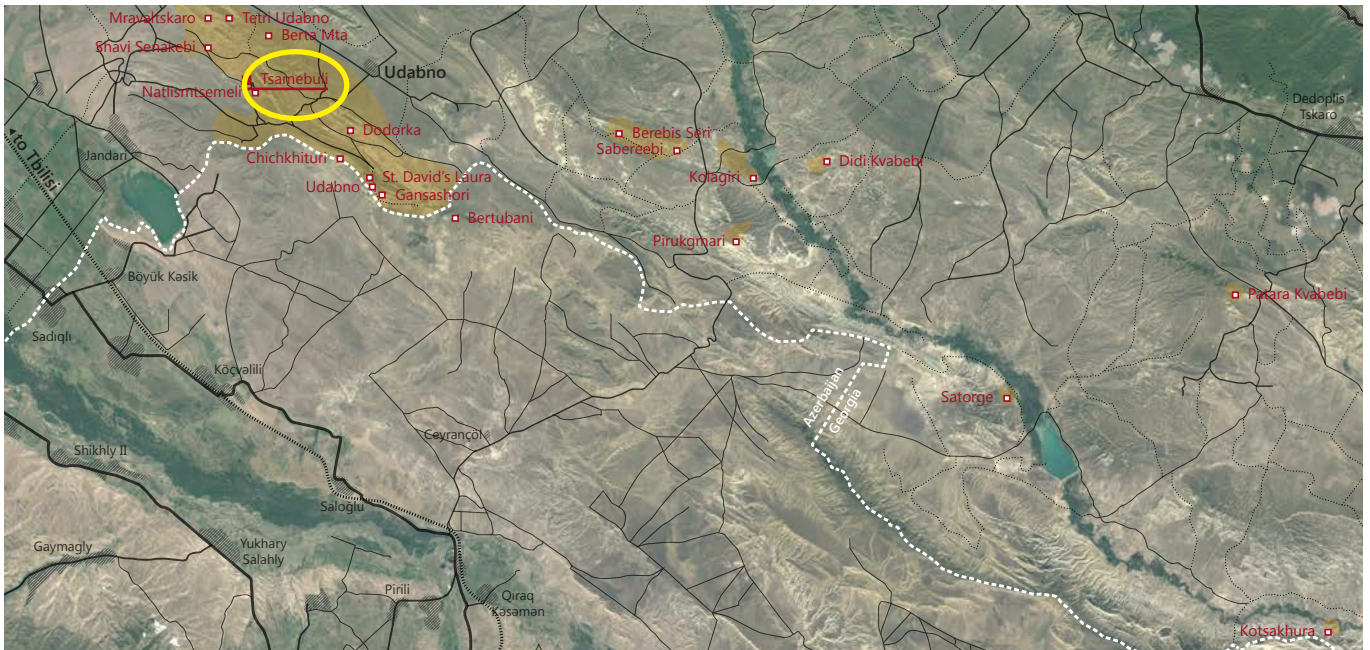
The mural paintings have been restored during the '80<sup>ies</sup>, nevertheless, a further intervention would be surely needed as already in 2006 when the report was written for the World Bank, the experts referred that the South part of the monastery was gradually eroding and collapsing.





Ph. Jaba 1977, 2012

## 7 - Tsamebuli - Georgia



**Date/s of construction:** 6<sup>th</sup> c., 10<sup>th</sup>-11<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** Tsamebuli lies close to Natlismtsemeli monastery and, as we may understand from the maps, is reachable through a dirt road.

The presumable period of the foundation of Tsamebuli monastery goes back to the 6<sup>th</sup> century. Although, the majority of the structures are from the 10<sup>th</sup>-11<sup>th</sup> century when the complex had been considerably expanded as testified by the clear signs of a later reconstruction that some of the caves bear.

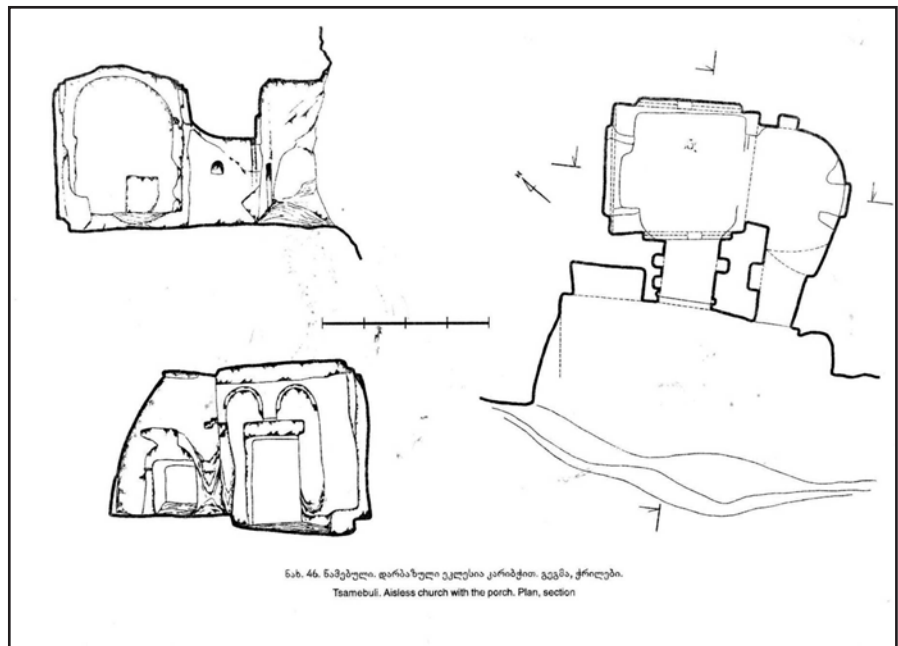
The monastery is composed by nearly 20 caves arranged in two tiers; most of them are small sized hall churches. Among the remains of the earlier period of the monastery there is a cave chapel called *martyrium*, located in the Western part of the first tier, which is described as one of the most important monuments of the complex.

Nowadays the monastery is abandoned, and the larger part of the caves and chapels are gradually collapsing due to cracking and crumbling of the rock. Most of them (except for the so-called *cave of Khariton* and a few small caves in the upper tier) are easily accessible and this increases the risk of deliberate damages. In fact, at the times of the visit by the experts working on the World Bank report, fresh scratches were visible on the 10<sup>th</sup> century paintings located in the small hall church, restored in the '80<sup>ies</sup>.

One cave church in the Eastern part of the monastery, holding paintings from the 10<sup>th</sup>-11<sup>th</sup> century, was filled with deposits of earth.

Excavation works have been carried on in 1997-1999 by the archaeological expedition of the State Museum of Georgia and by the Gareja Studies Centre. They fully revealed the interior of the martyrium that was at that times half-filled with earth and gravel. Human bones as well as flagstones were found during the excavation. The roof of the cave still carried large fragments of preserved plaster. The martyrium is completely open from the South; while the Eastern part of the aperture was found partially walled in with rubble in 2006. Its actual condition is not known. The experts refer that the interior used to be plastered with a lime mortar with the floor coated with a lime solution.

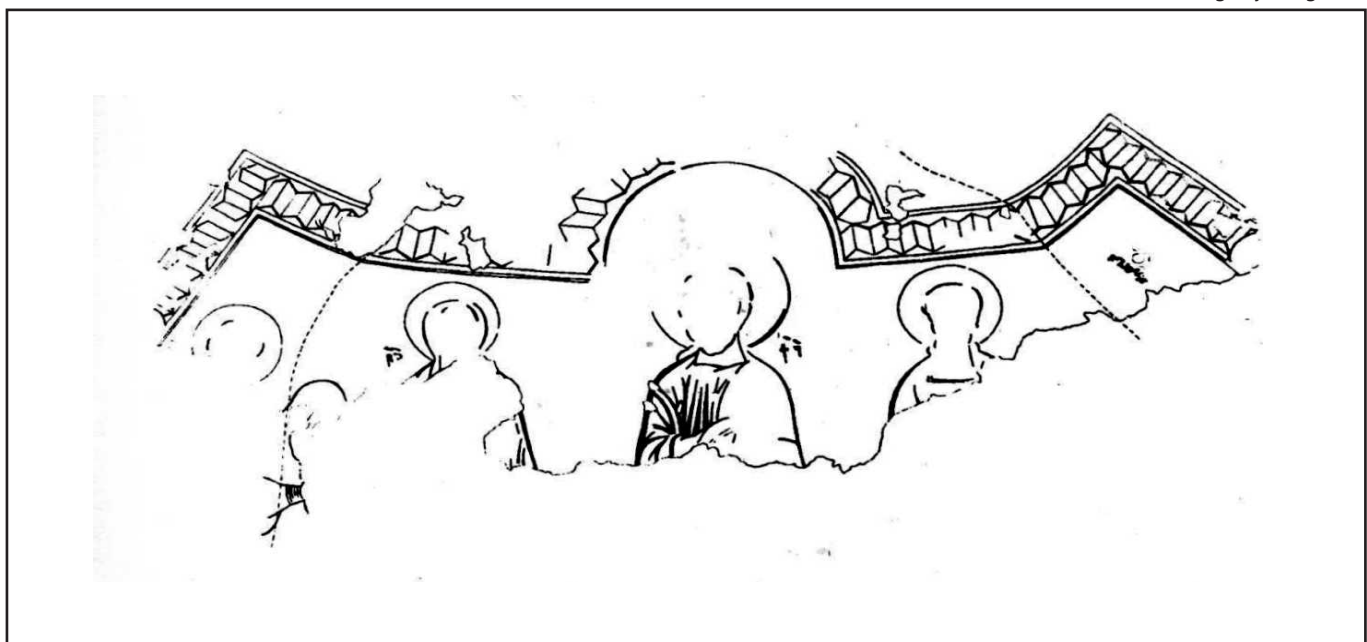




Drawings by T. Ugulava

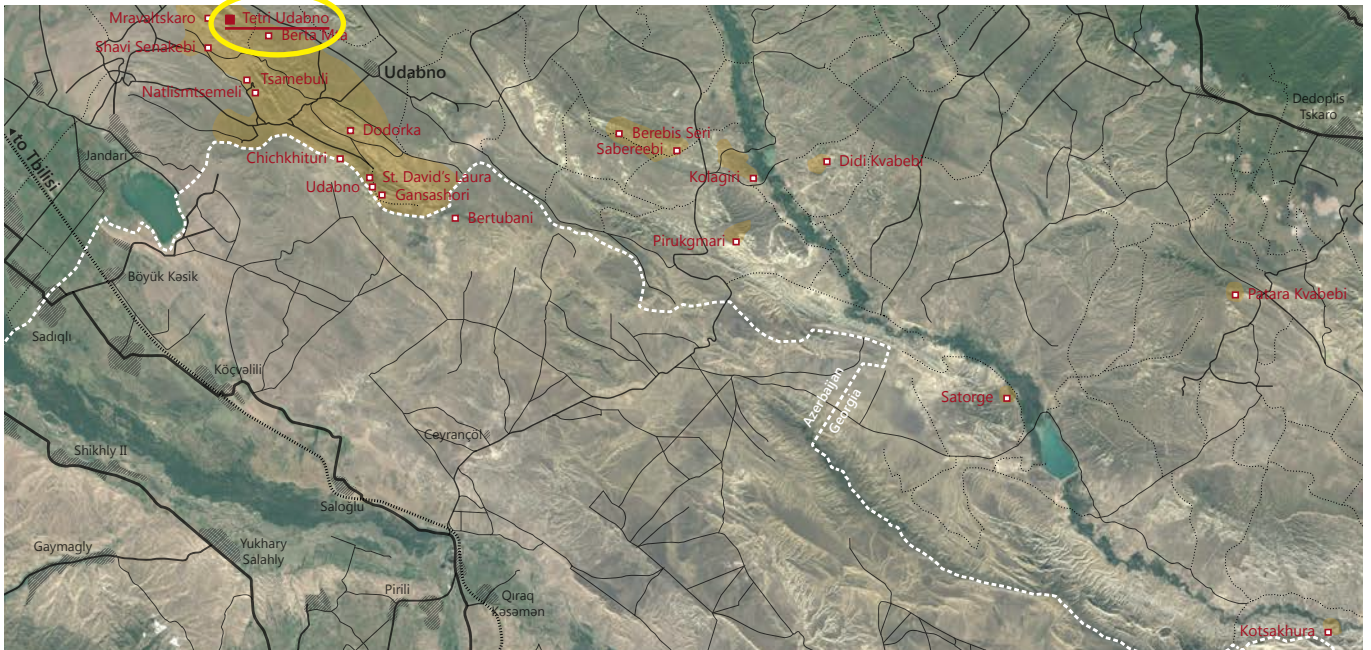


Drawings by T. Ugulava



7 - Tsamebuli

## 8 - Tetri Udabno - Georgia



**Date/s of construction:** 7<sup>th</sup>-8<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** No road of access.

The mural paintings in the apse of the main church are the earliest paintings preserved in Gareji (not all the scholars agree on the dating but some of them hypothesize the 7<sup>th</sup>-8<sup>th</sup> century, based on the iconography).

What remained (two churches and several cells) is just a small part of the once large monastery that was hewn in the upper part of the rock massif. The geological layer consists of granular sandstone which is very soft in this area and crumbles even with a slight touch.

Before the monastery was discovered (November, 1996), a large rock massif from the right part collapsed and covered the South-Western part of the North annex of the church.

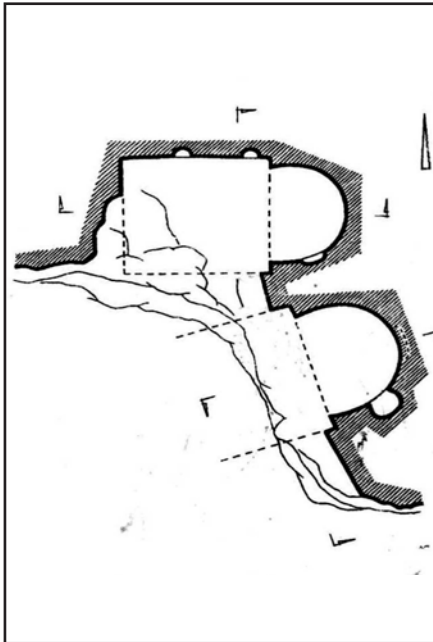
The church suffered the same destruction: only the painted apse has been preserved, although crossed by a deep vertical crack that endangers its preservation.

In 1998 conservation works of the paintings were carried out. The preliminary studies implemented led the experts to the conclusion that, due to the critical geologic situation, the only solution for preserving the paintings was to remove them and store them in a museum. In 1999 the paintings have been detached and transferred to Tbilisi.





Ph. M. Bulia



Plan by M. Kiknadze



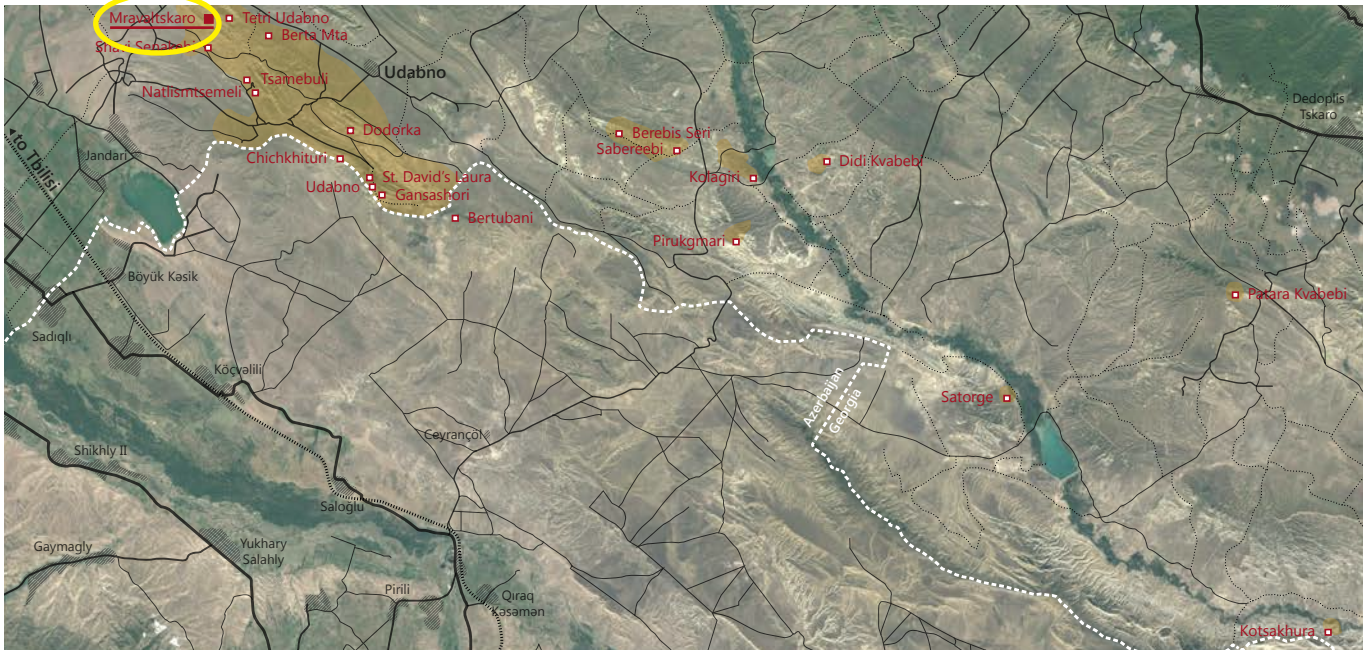
Ph. Z. Skhirtladze



Ph. M. Bulia



## 9 - Mravaltskaro - Georgia



**Date/s of construction:** 9<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** There is no road to access to Mravaltskaro.

The foundation of Mravaltskaro Monastery is conventionally attributed to the 9<sup>th</sup> century. It consists in three domed churches, three hall churches, a refectory and a small number of cells.

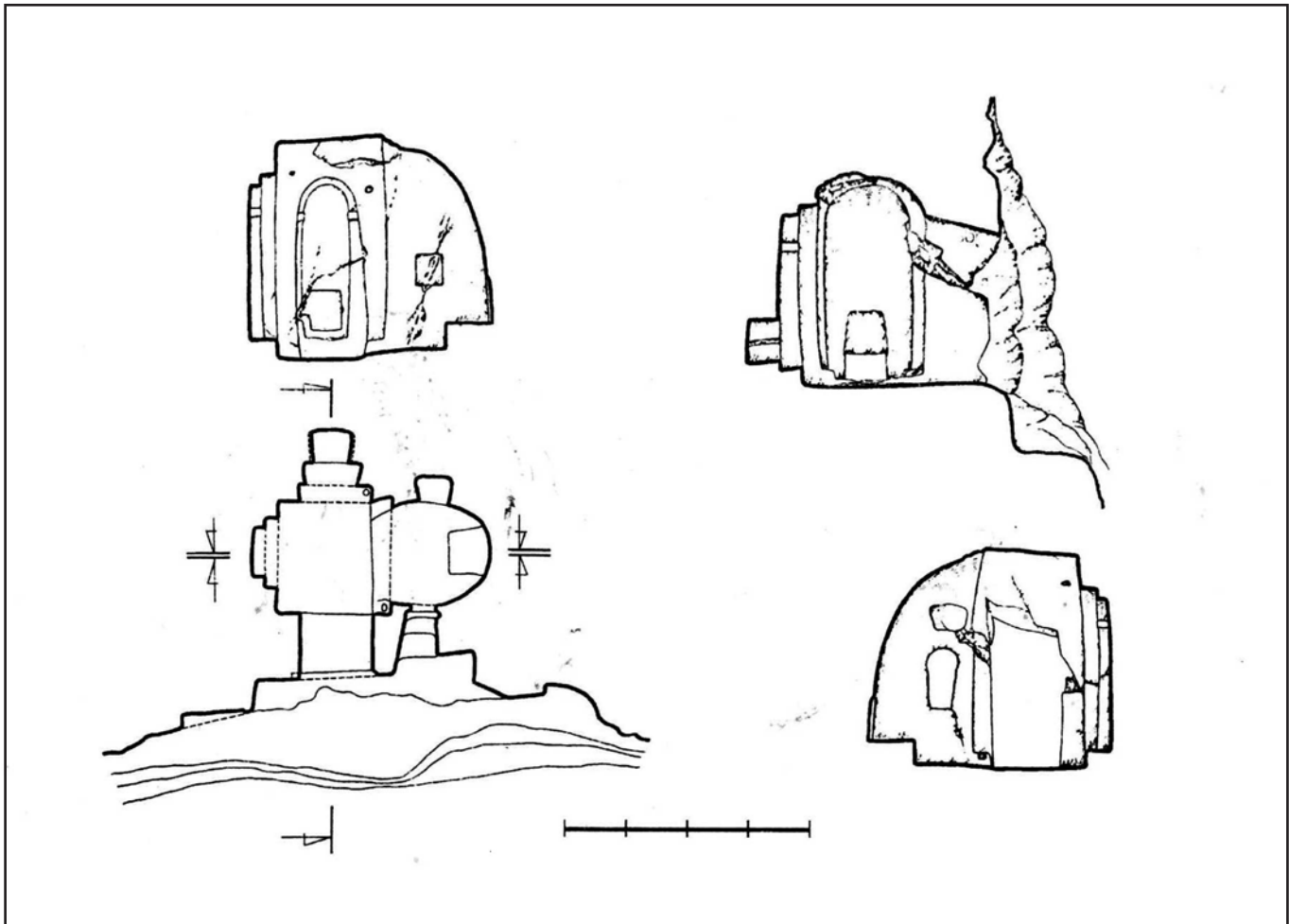
The walls of the small hall church in the Eastern part of the monastery are adorned with mural paintings.

One of the domed churches is a quite unique example among the Eastern Christian rock-hewn churches as it consists of three superimposed cylindrical forms.

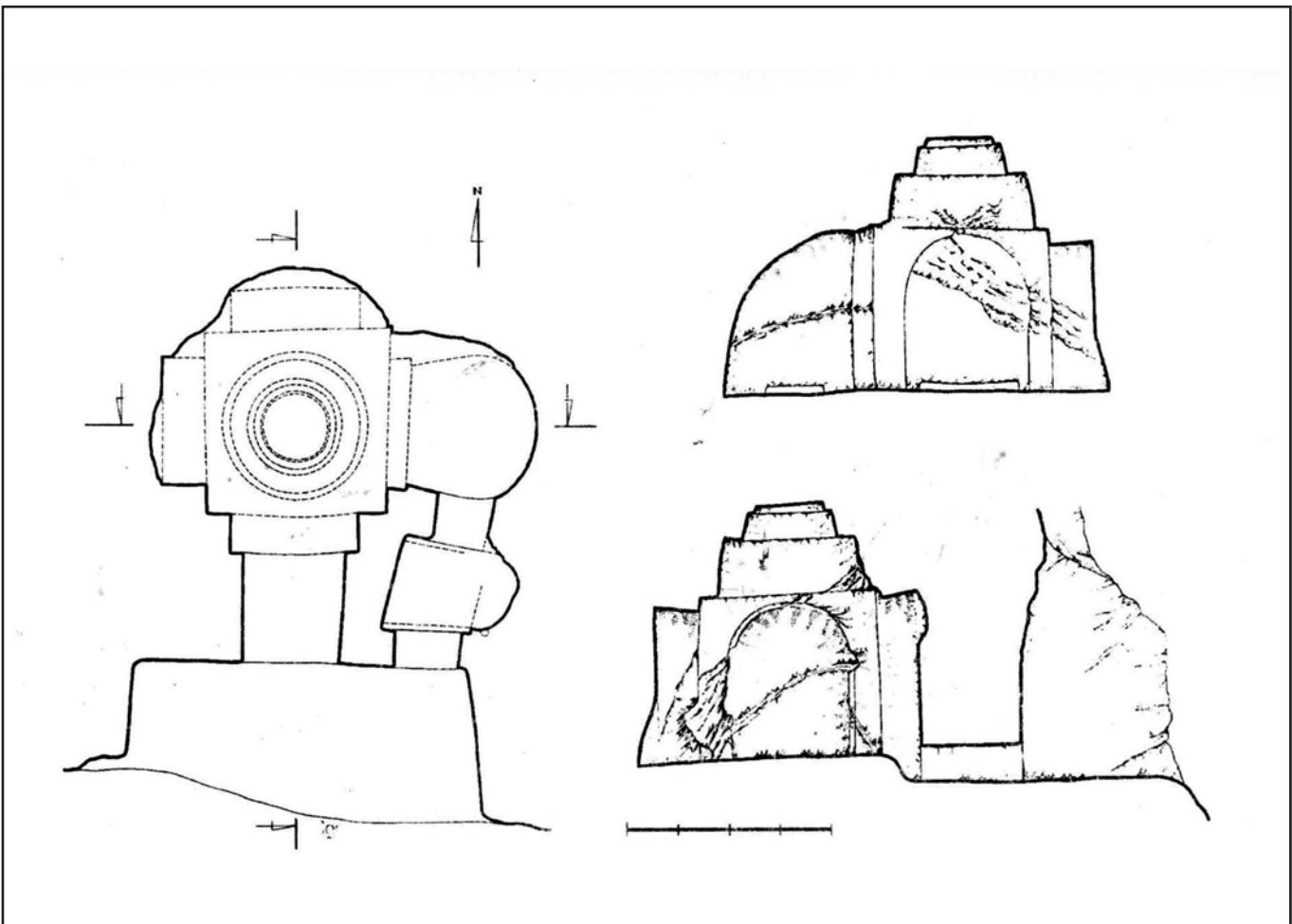
Most of the caves are filled with earth.

The wall paintings of the small church in the Eastern part of the monastery have been conserved in year 1999.

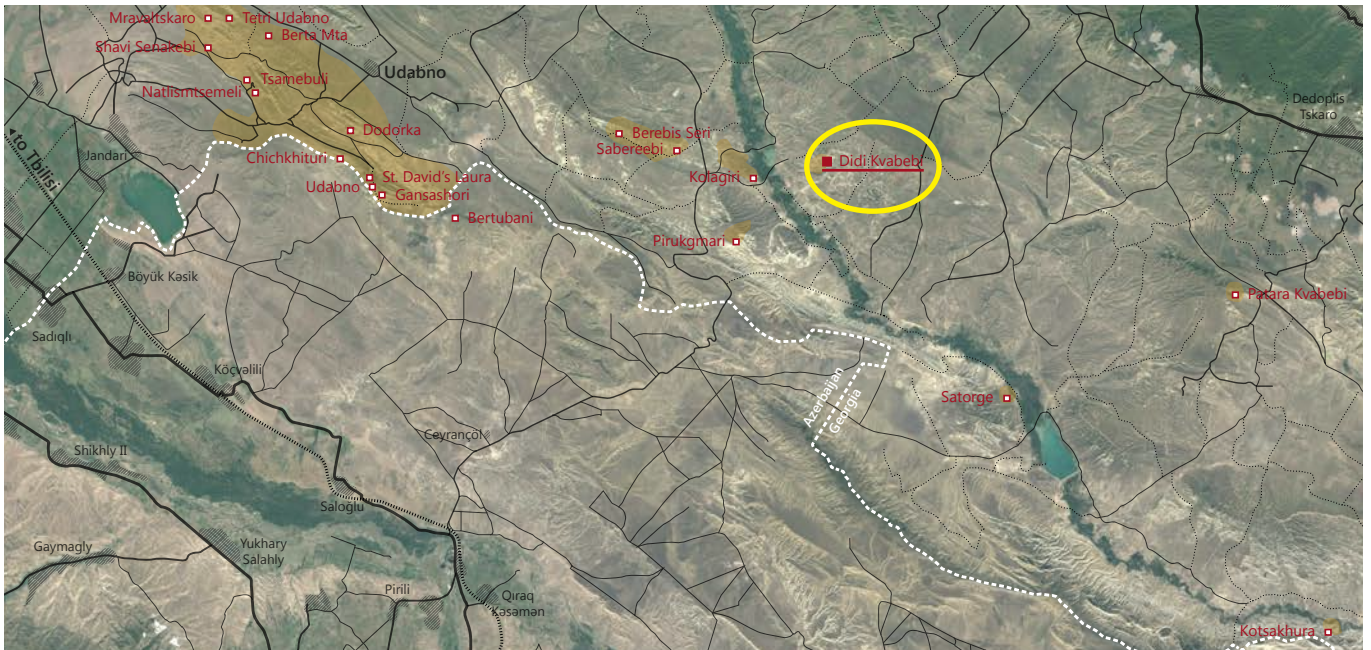




Plan and sections by M. Kiknadze



## 10 - Didi Kvabebi - Georgia



**Date/s of construction:** 9<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** The site is not accessible by car.

This unique cave monastery is disposed in eight tiers with the remnants of the settlement at the base.

Most of the caves are inaccessible as the frontal part is collapsed.

It is possible to enter only the caves of the lower tier that include cells and a small refectory (10<sup>th</sup> c.), a small domed church (9<sup>th</sup> -10<sup>th</sup> c.) still preserved on the northern part of the massive.

Several caves in the lower levels are partly filled with earth.

In some of the higher caves eagles have built their nests.





Ph. Levan Japoshvili, 2015



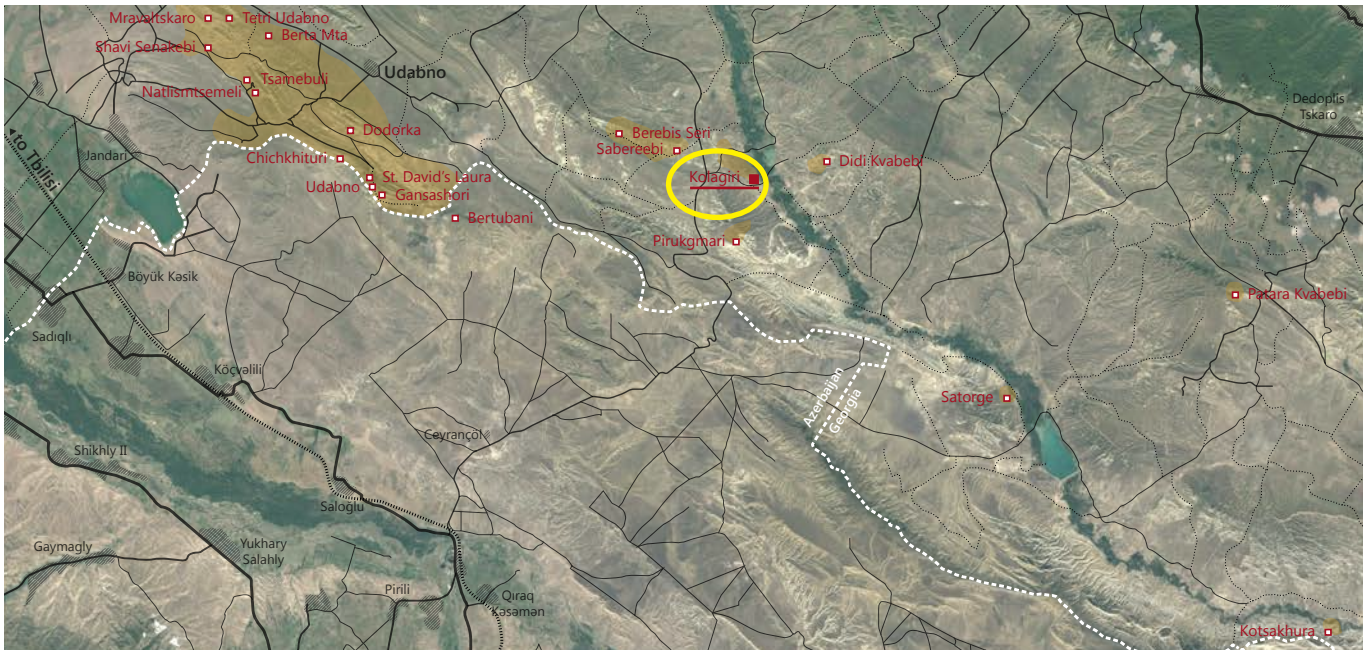
Ph. Levan Japoshvili, 2015



Ph. Levan Japoshvili, 2015



## 11 - Kolagiri - Georgia



**Date/s of construction:** 9<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border: IN**

**Accessibility:** Kolagiri is accessible via a walking trail.

Kolagiri monastery was founded in the late 12<sup>th</sup> century. It is composed by a church, a refectory and several rupestrian cells. The church and the refectory were decorated with murals that have been dated to the 12<sup>th</sup>-13<sup>th</sup> century.

The complex is hewn in a pudding stone and because of that it is very fragile.

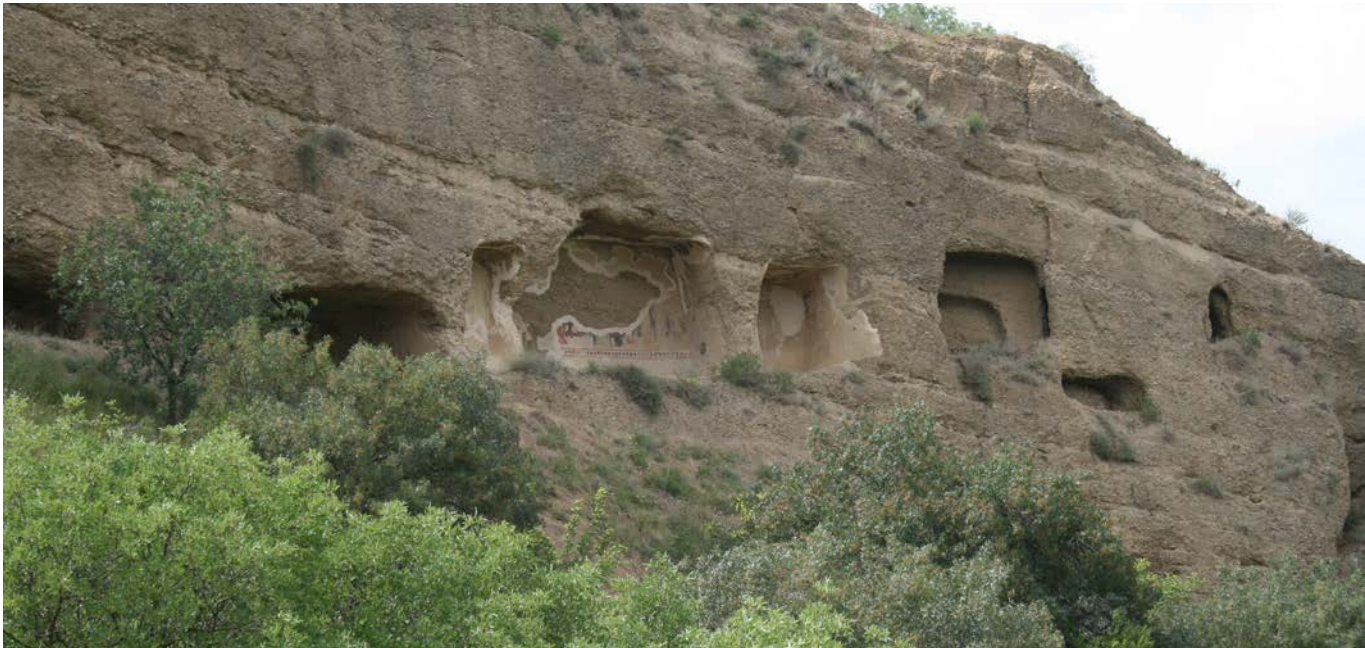
During the implementation of restoration works the scholars understood that the monastery was destroyed soon after its foundation due to a natural disaster (earthquake?). The Eastern part has totally collapsed and only the Western part with the chapels is preserved.

Due to the characteristics of the rock, the process of destruction of the caves continues.

In year 2000 the conservation of the murals has been carried out in the main church of the monastery and in the refectory. The paintings were fixed on the spot and the entire surfaces were cleaned with a solution of distilled water and alcohol, as well as mechanically with a lancet. The plaster was fixed with gypsum, and the layer of paint consolidated with a 3-5% Primal solution.

In 2006 it has been calculated that almost the 70% of the caves of the monastery were in ruin.





Ph. M. Bulia



Ph. M. Bulia



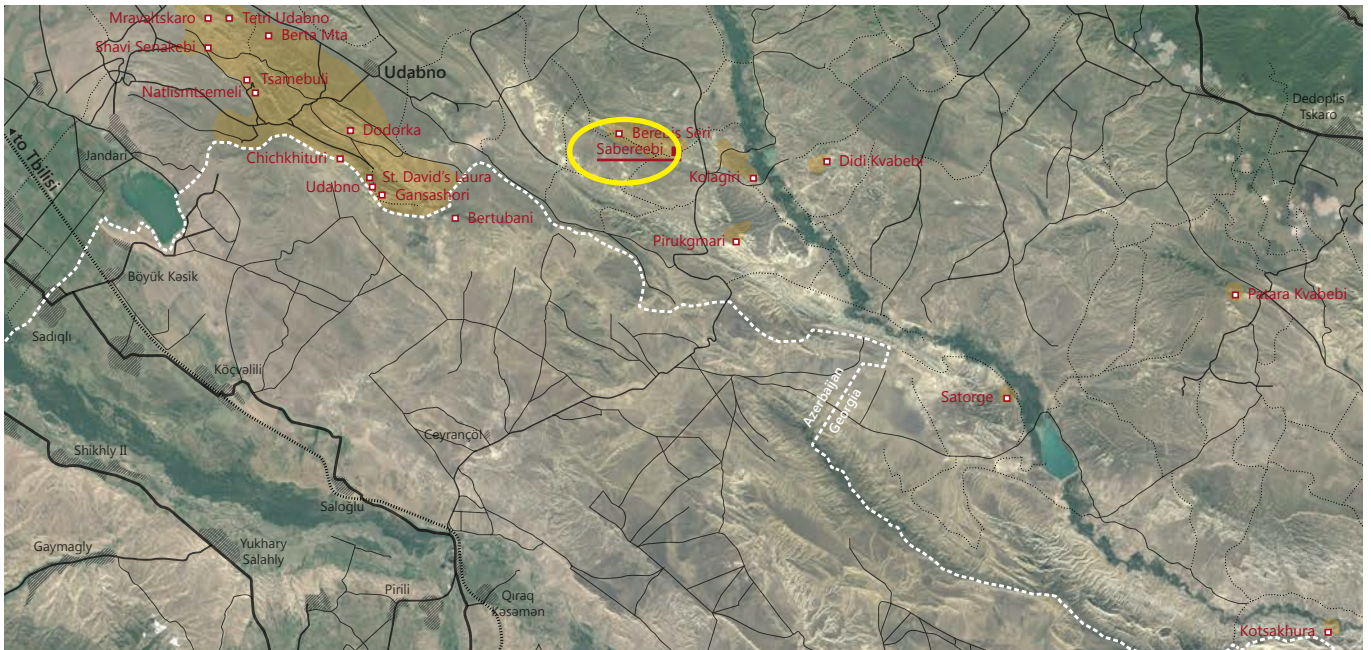
Ph. M. Bulia



Ph. M. Bulia



## 12 - Sabereebi - Georgia



**Date/s of construction:** 9<sup>th</sup>-10<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** Sabereebi is easily reachable by car but then accessible by foot with some difficulty because of the instability of the rock and the steepness of the tallus you need to climb for reaching the rooms.

The monastery is located on the Southern slopes of a low plateau. Its Western part is entirely hewn in conglomerate; the central and Eastern parts in a sandstone layer with conglomerate covering.

There are ten churches, among them two are hall churches, the others of domed type. Four churches are decorated with murals (9<sup>th</sup>-10<sup>th</sup> c.), three of them have decorated annexes as well.

The rocky materials forming the plateau (coarse-grained sandstone and conglomerate) are easily disintegrating. There is a large longitudinal crack crossing longitudinally all the monastery, it is visible both from the interior of the churches and from above. In many internal ambients we found the traces of water and mud percolation on the surface of the stone and of the paintings. The front part of the rock is partially destroyed and subject to local collapses. During the visit we witnessed the traces of a very recent collapse about 2 mt large.

The murals that adorn the churches #5, #6, #7, #8 and their annexes are damaged: the plaster is detached from the walls, the painting layer is flaking; the images have been deliberately scratched in a distant past. In the church #7 some traces of bullets are clearly visible.

In 1996 the wall paintings underwent a restoration intervention that prevented further collapse but they are still in need of a comprehensive intervention as the plasters are detached from the rock substrate.

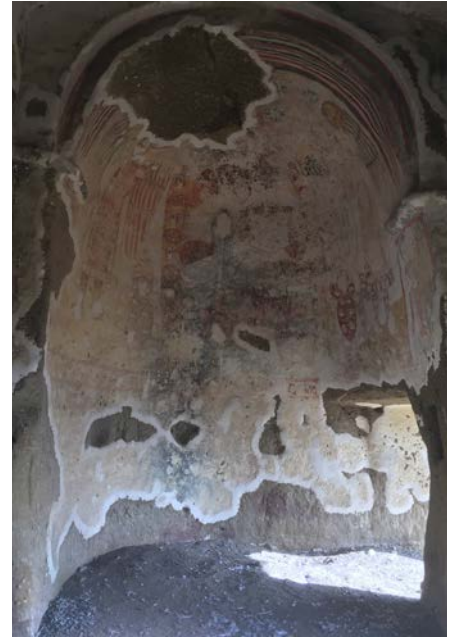
In year 2000 the front part of the cell located above the refectory in the central part collapsed. The cave-churches in the Western part have been gradually filled with earth brought by precipitations. The Southern slope of the hill (tallus) is eroding.





12 - Sabereebi



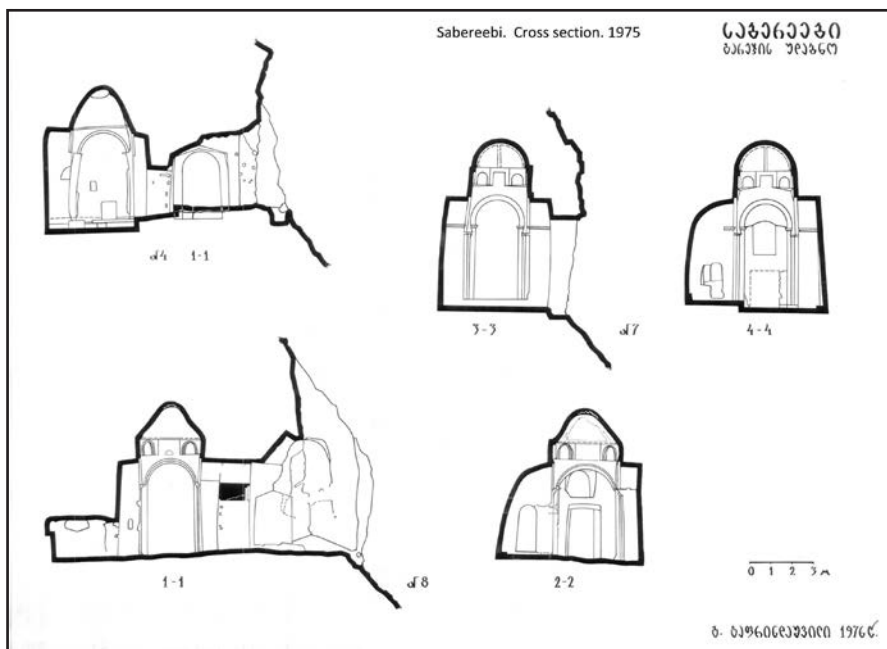




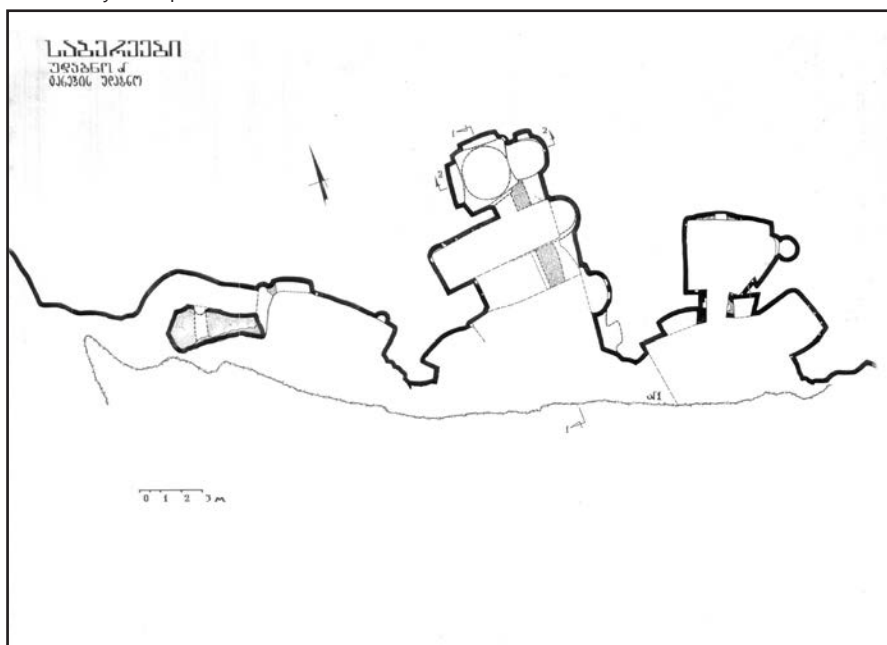


12 - Sabereebi

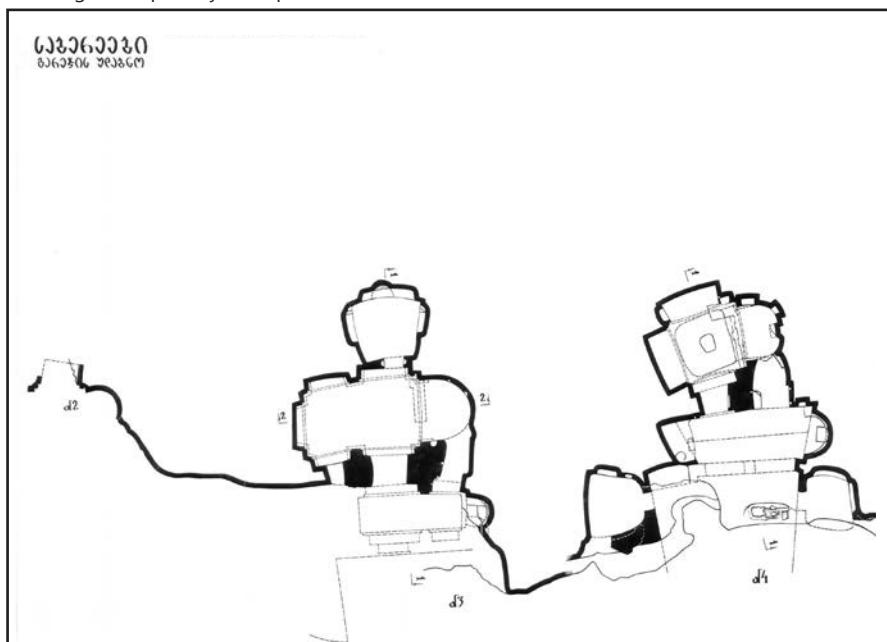




Sections by G. Gaprindashvili



Part of general plan by G. Gaprindashvili

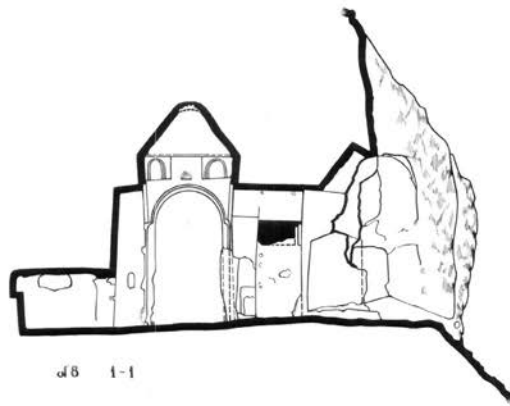


Part of general plan by G. Gaprindashvili

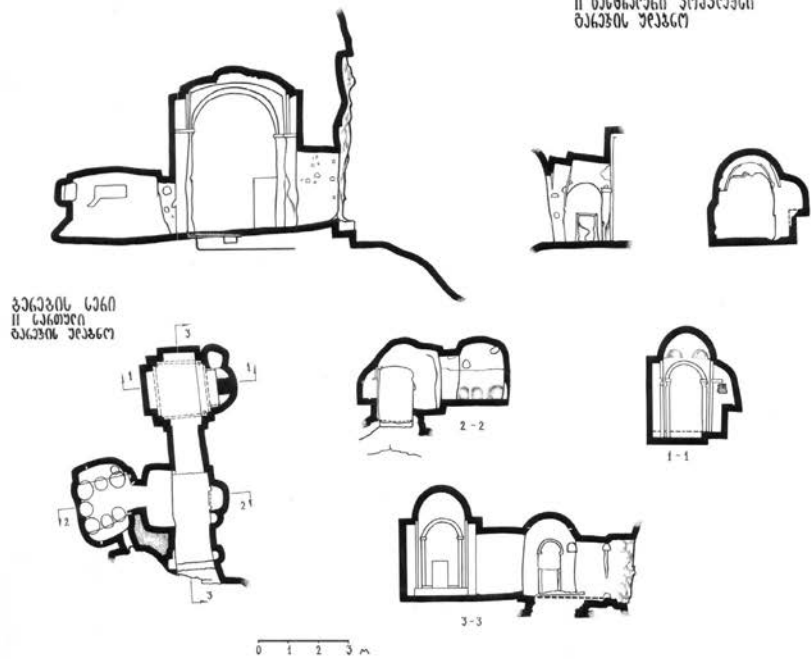


Sabereebi. Cross section. 1975

საბერძნეთი  
ბერძენი მეფე



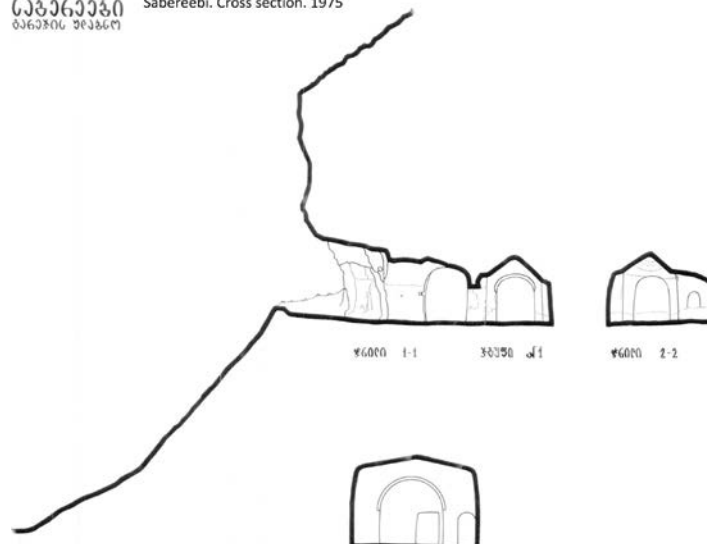
საგარეო  
II თანხმობის კომისიის  
შედეგის შესახებ



Ծ. ԾԱՅՈՒՆԵՐԱՅՈՒՆ 1975 Շ.

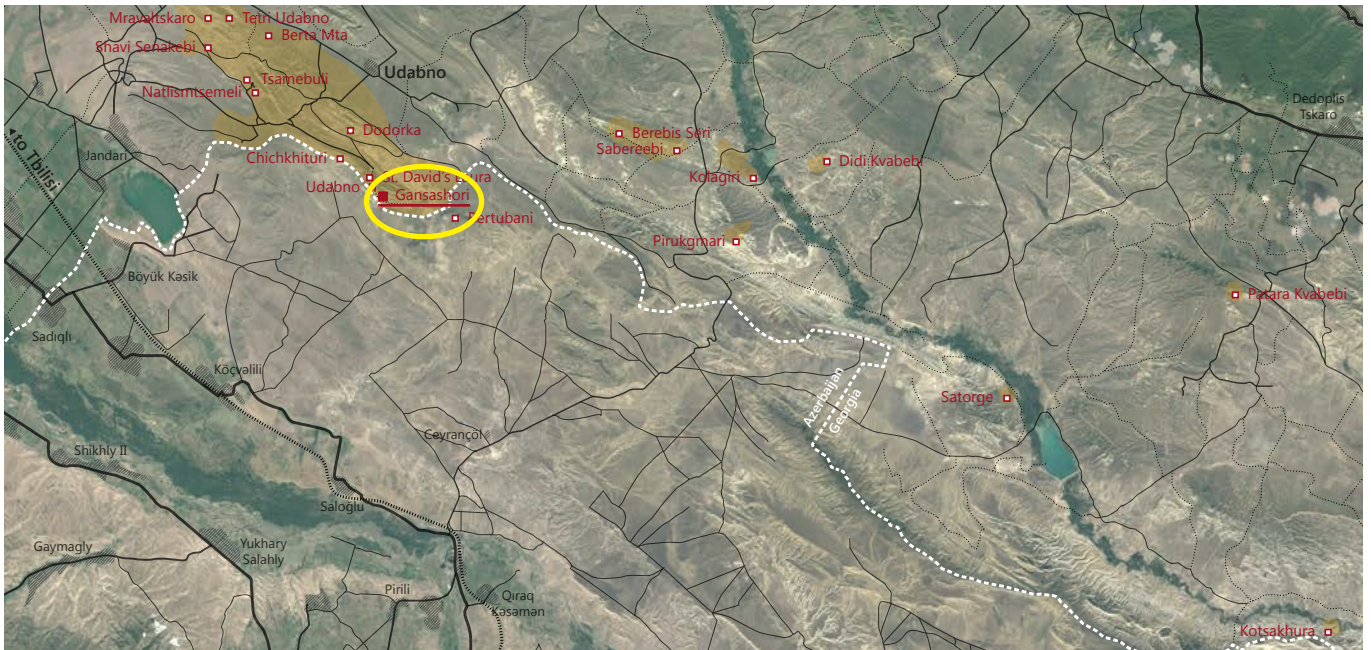
Plan and sections by G. Gaprindashvili

საბრეები. Cross section. 1975



Ծ. ՆԱԽԱՐԱՀԱՅԵՐ 1976 Վ.

## 13 - Gansashori (Verangareja) - Georgia



**Date/s of construction:** 13<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** Gansashori is reachable by walking trail.

Gansashori monastery (also known as Verangareja) is located in close proximity of the border with Azerbaijan.

In this complex, that was intended to be used by the hermits, there is a domed church (10<sup>th</sup>-11<sup>th</sup> cc.) and a painted niche in one of the caves.

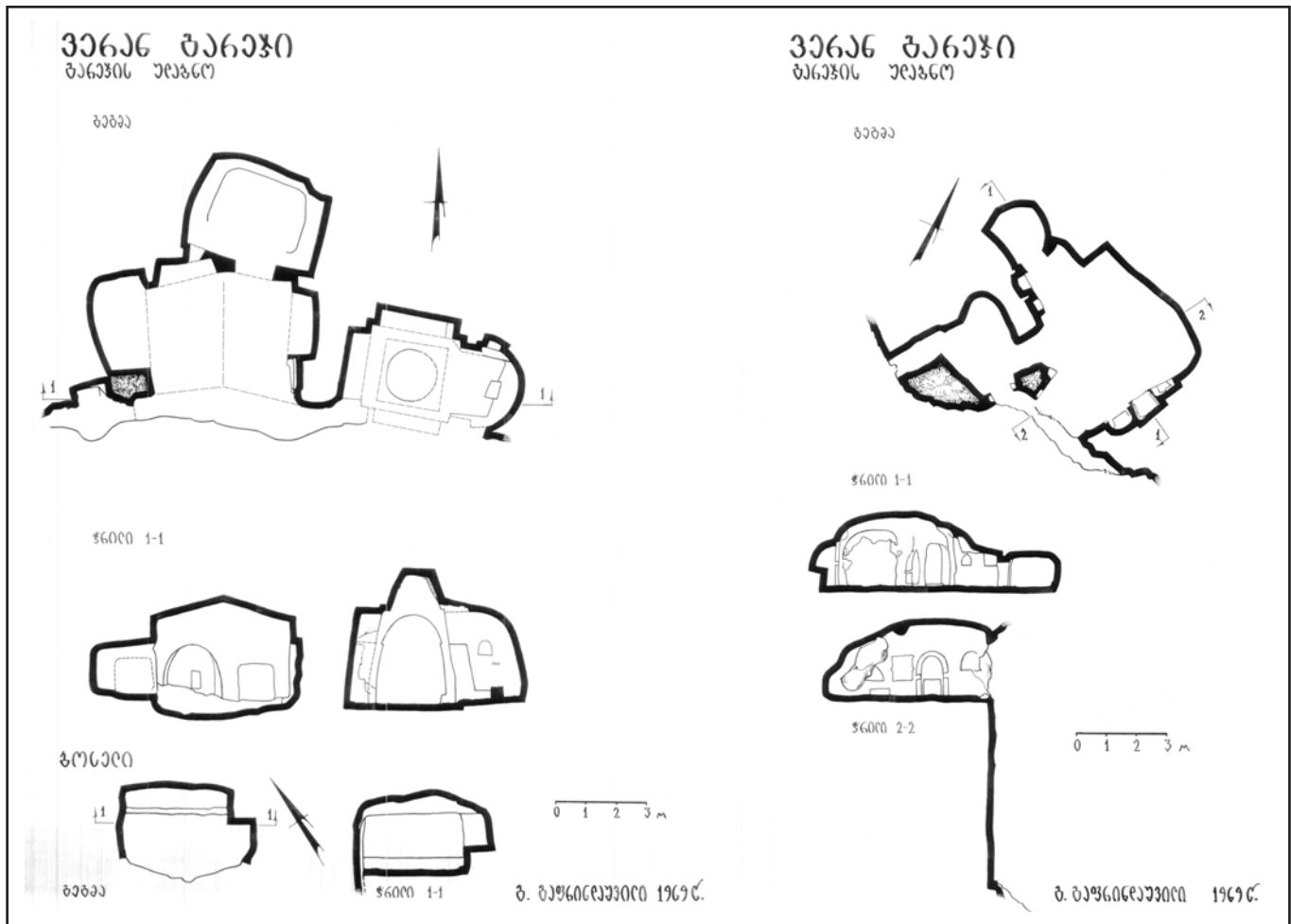
Due to its remote and hard-to-reach location, the monastery is completely abandoned.

No conservation or cleaning have ever been implemented here and the structures are gradually deteriorating.

The domed church which was in good state until some 30-40 years ago, completely collapsed (only parts of the sanctuary, the apse and the North wall are still preserved).

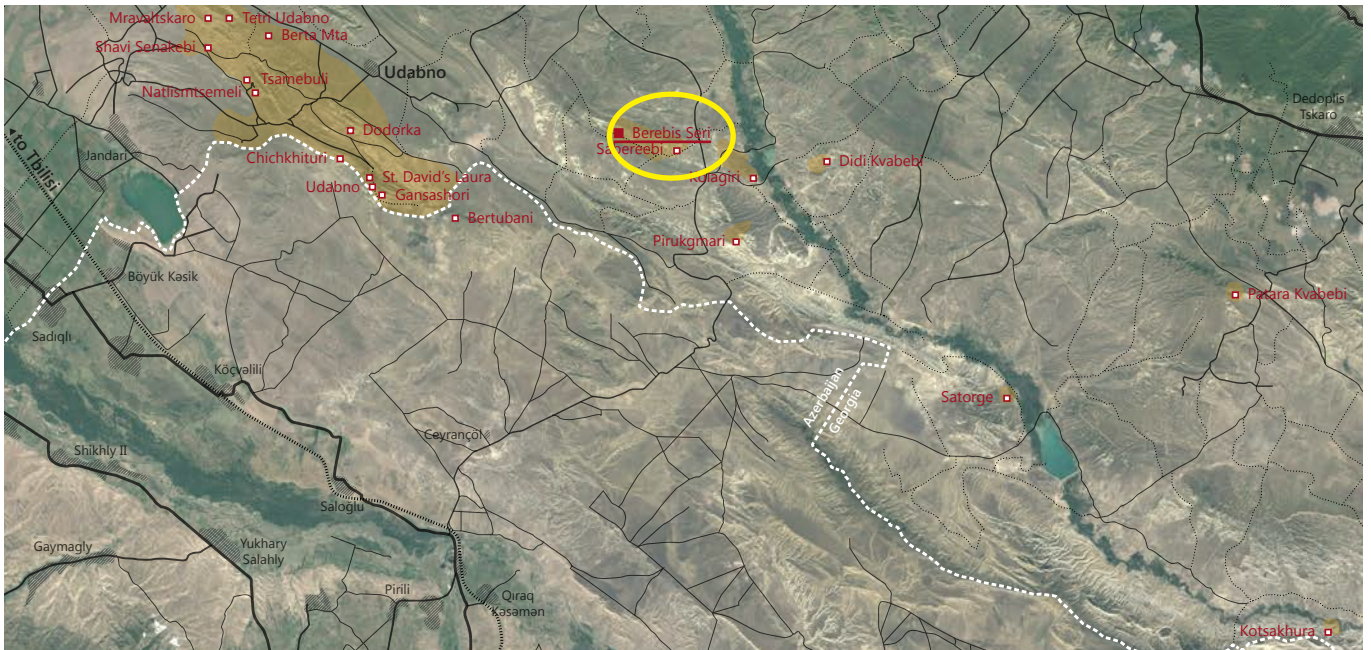
The rock massif is completely cracked and there is a real threat of total destruction.





Plans and sections by G. Gaprindashvili

## 14 - Berebis Seri - Georgia



**Date/s of construction:** 9<sup>th</sup>-10<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** Berebis Seri is accessible via walking trails.

Berebis Seri monastery is composed by a series of small complexes, each one consisting of a church and several cells. They have been built presumably during the 9<sup>th</sup>-10<sup>th</sup> century.

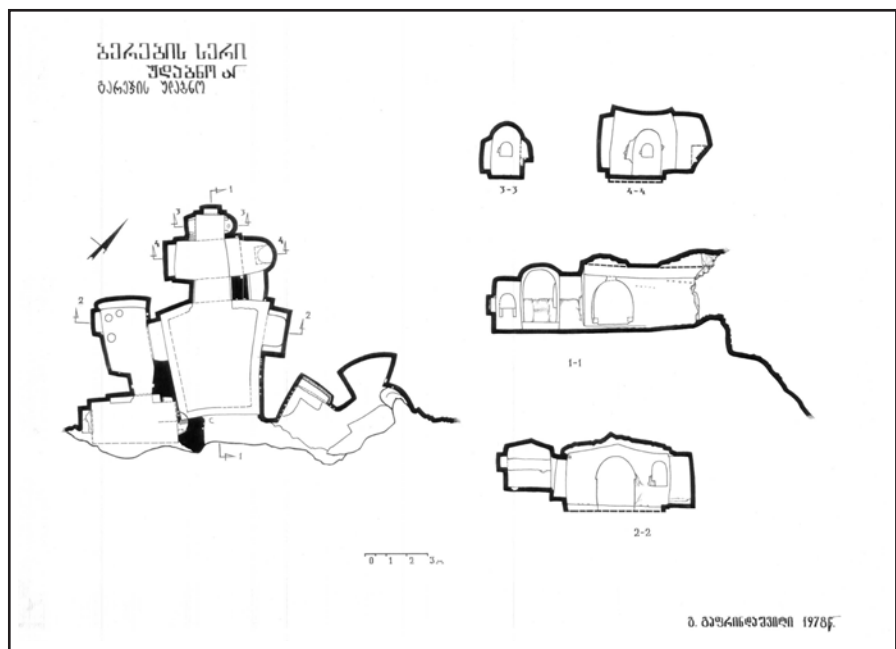
In Berebis Seri #1 there is a dome church of particular interest, the front part of the entire complex has collapsed but the interiors are in relatively good state.

In Berebis Seri #2 the church and the large hall in the North part are hewn in a volcanic clay layer which is fragile.

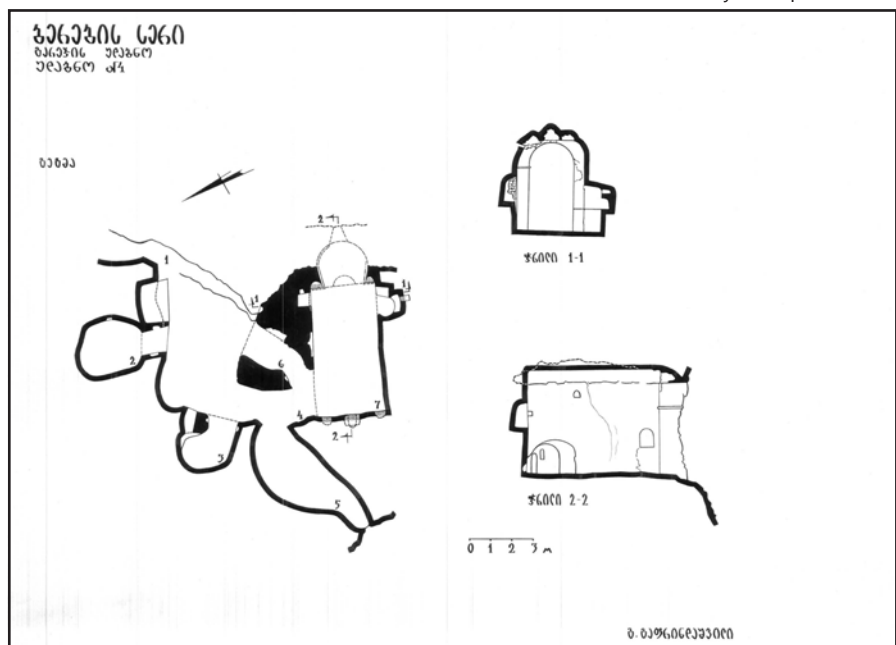
Berebis Seri #3 the hall church is hewn in conglomerate and the apse of the church has collapsed. Pale traces of the wall paintings can still be seen on the North wall.

In Berebis Seri #4 the corridor and the hall are preserved.

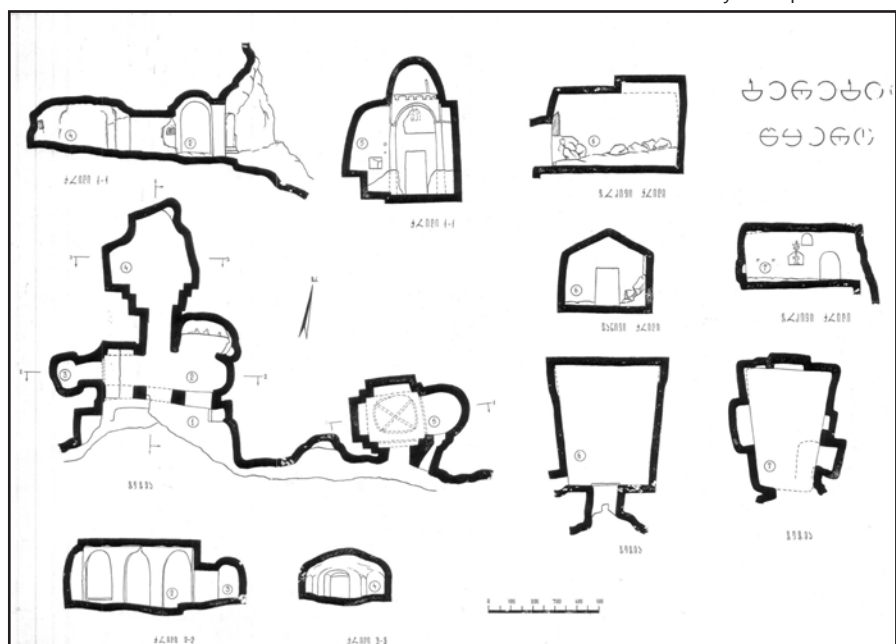




Plan and sections by G. Gaprindashvili

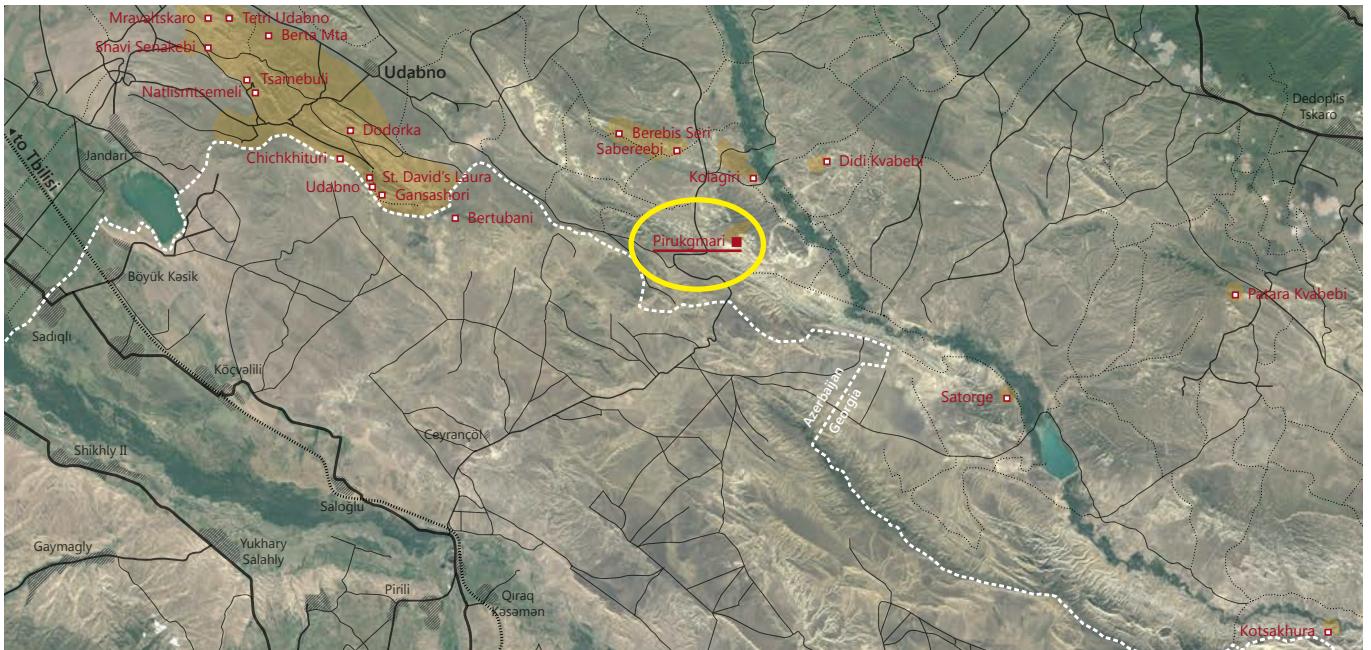


Plan and sections by G. Gaprindashvili



Plan and sections by G. Gaprindashvili

## 15 - Pirukgmari (Shavi Mindori) - Georgia



**Date/s of construction:** 8<sup>th</sup>-9<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** Pirukgmari #1 is easily accessible while Pirukgmari #2 is not accessible.

Two complexes had been erected next to each other.

Pirukgmari #1 – is hewn in conglomerate, and dates back to the early medieval period. It has been widened in the 8<sup>th</sup>-9<sup>th</sup> century (the hall church had been built in that epoch) and later abandoned (probably during the 10<sup>th</sup>-11<sup>th</sup> c.).

The caves of this monastery were arranged in two tiers. The main is the upper tier, that consists at present of 9 caves.

The most of the cave cells are easily accessible, and therefore exposed to anthropic damage.

Pirukgmari #2 – is not accessible. The caves are also hewn in conglomerate along a vertical cliff. The monastery in its whole is relatively well preserved but the front part has collapsed.

The caves in the Eastern part are damaged with cracks in their walls.

There are griffin's nests in the caves.

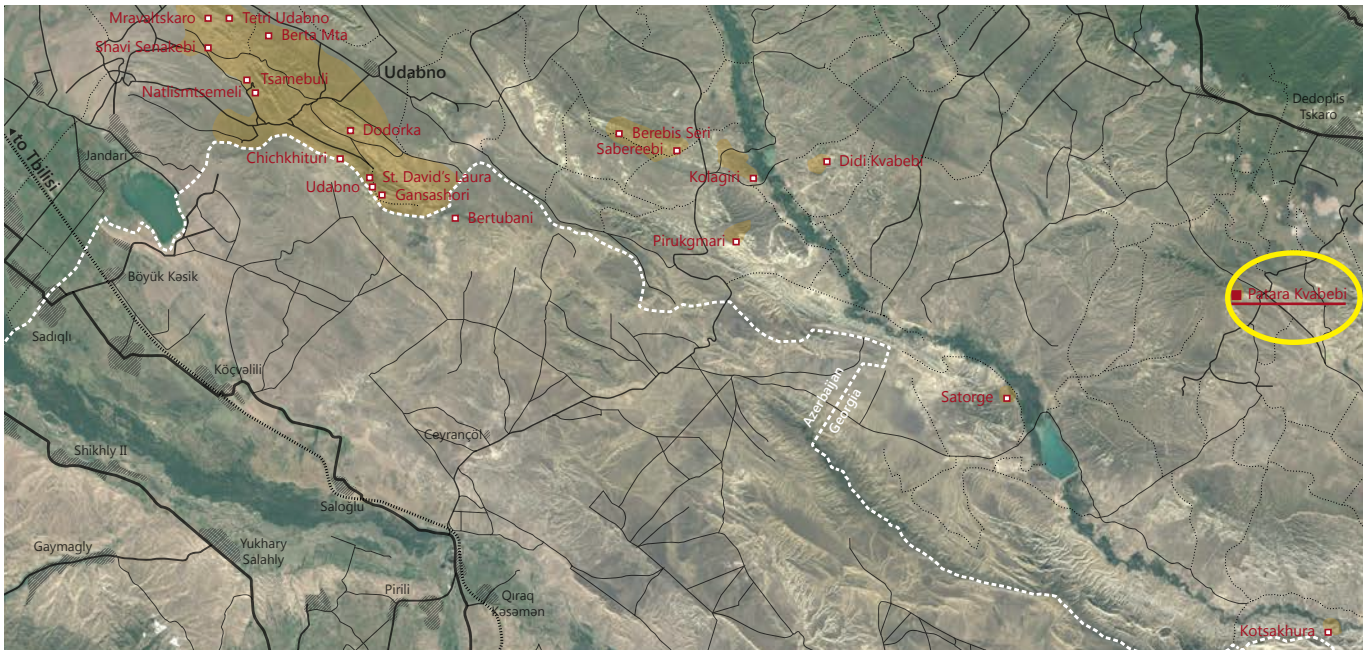




Ph. Levan Japoshvili, 2015



## 16 - Patara Kvabebi - Georgia



**Date/s of construction:** 9<sup>th</sup>-10<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** Patara Kvabebi is reachable via a walking trail that is not accessible during winters.

Patara Kvabebi is a 9<sup>th</sup>-10<sup>th</sup> century monastery consisting mainly in three adjacent premises: a domed church, a refectory and a large cell. In the surroundings there are some remnants of other cells.

While the church is relatively well preserved, the frontal part of the refectory is destroyed and it has huge cracks in the walls.

The cave on the West is partly filled with earth.





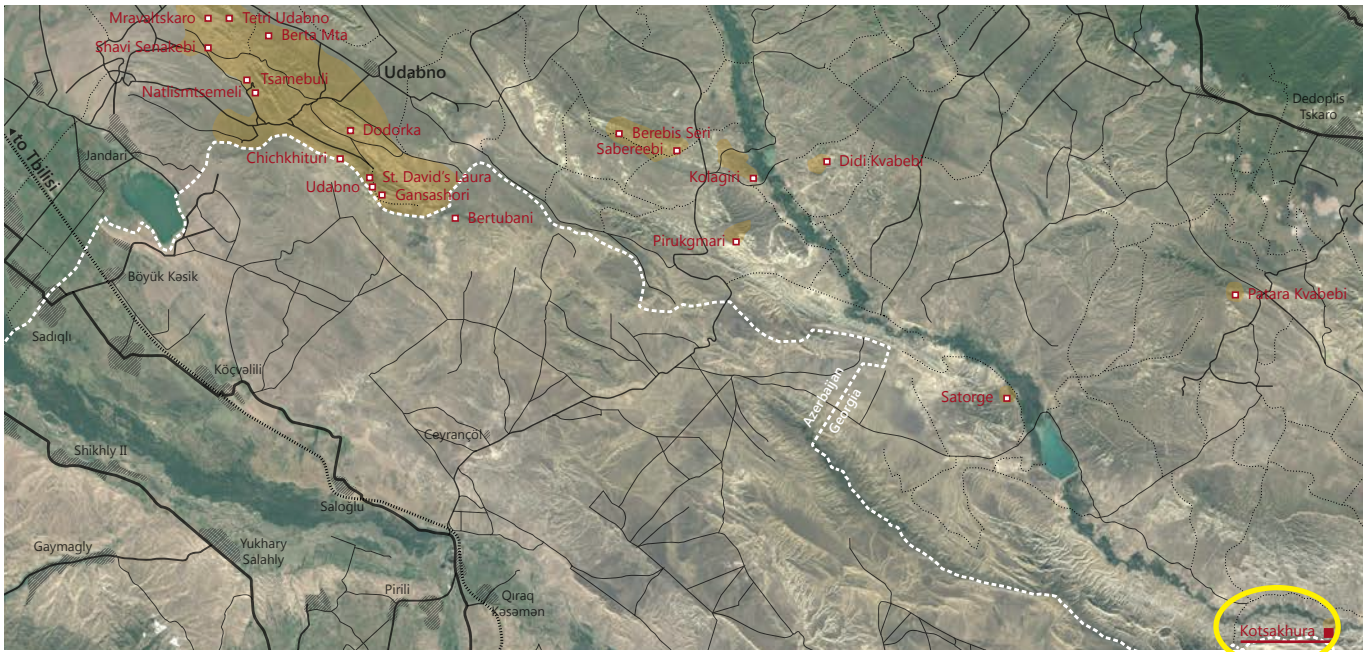
Ph. Levan Japoshvili, 2015



Ph. Levan Japoshvili, 2015



## 17 - Kotsakhura - Georgia



**Date/s of construction:** 9<sup>th</sup>-10<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

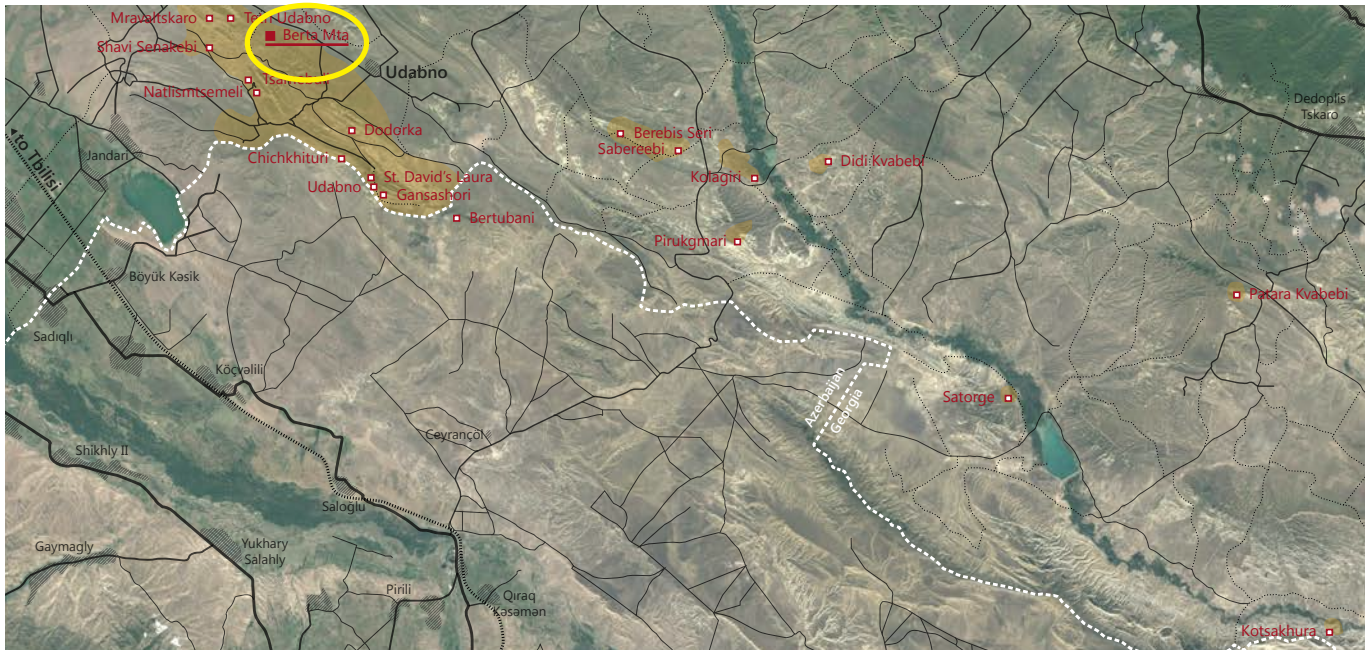
**In or out of the border:** IN

**Accessibility:** We have no information regarding the accessibility but it is clear that it is not connected with a driveway.

Kotsakhura hermitage is composed by a number of cave cells and a domed church probably dating back to the 9<sup>th</sup>-10<sup>th</sup> c.



## 18 - Berta Mta - Georgia



**Date/s of construction:** Not known

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

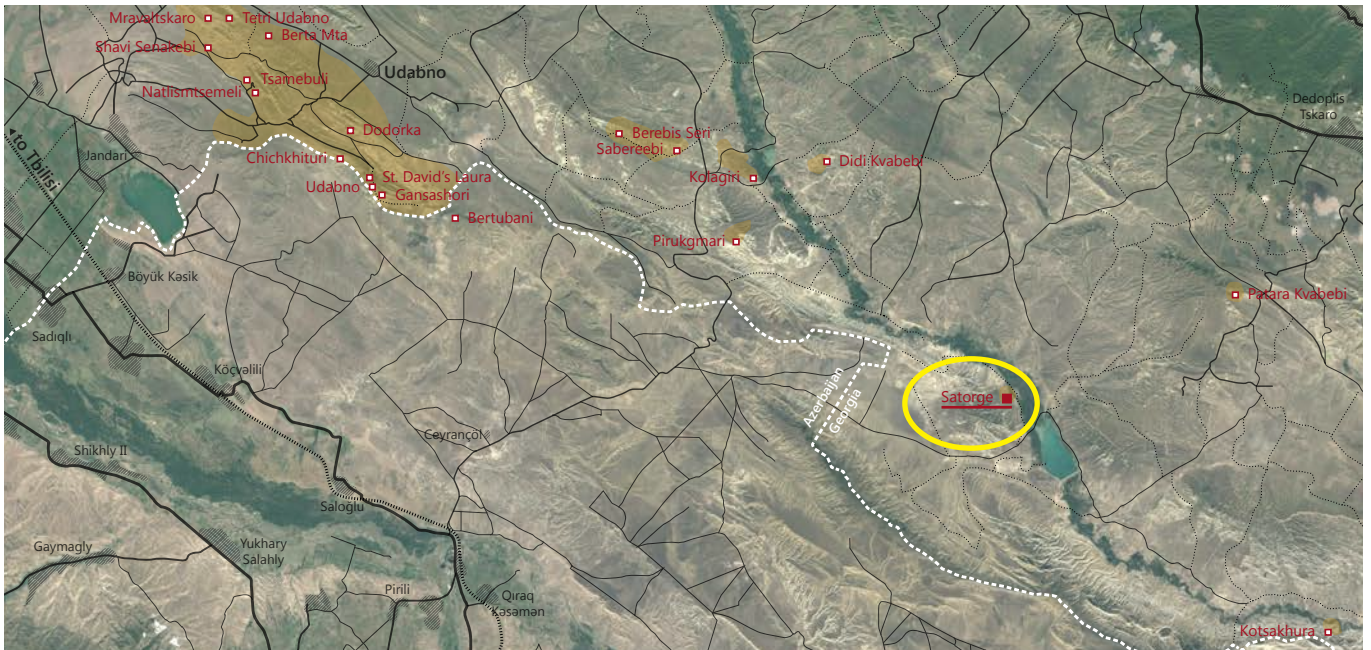
**Accessibility:** There is not an access road but even not a clearly defined trail leading to Berta Mta.

From the archaic shapes of the church we can suppose that Berta Mta monastery should have been founded in the early stage of development of the Gareji Desert (6<sup>th</sup> c.). The presence of vertical wells over the caves supports this hypothesis.

While two wells with the cells in the bottom are relatively well preserved, the Southern part of the church is totally collapsed.

Berta Mta hermitage is abandoned since many years, for this reason it attracted the attention of some treasure-hunters, that have dug out the earth deposits and cobbles until reaching the floor of the cells and even broke the rock (traces of the crow-bar are still visible on the walls of the church).

## 19 - Satorge - Georgia



**Date/s of construction:** 10<sup>th</sup>-11<sup>th</sup> c.

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** Satorge is accessible via a walking trail.

Satorge monastery is located on terraces made of pelitic rock. It includes cave-chapels, as well as different domestic premises, dwellings, etc.

There is a large 10<sup>th</sup>-11<sup>th</sup> century inscribed cross church with a small annex hall type to the North.

The scholars suppose that the monastery has already been abandoned since the late 13<sup>th</sup> century.

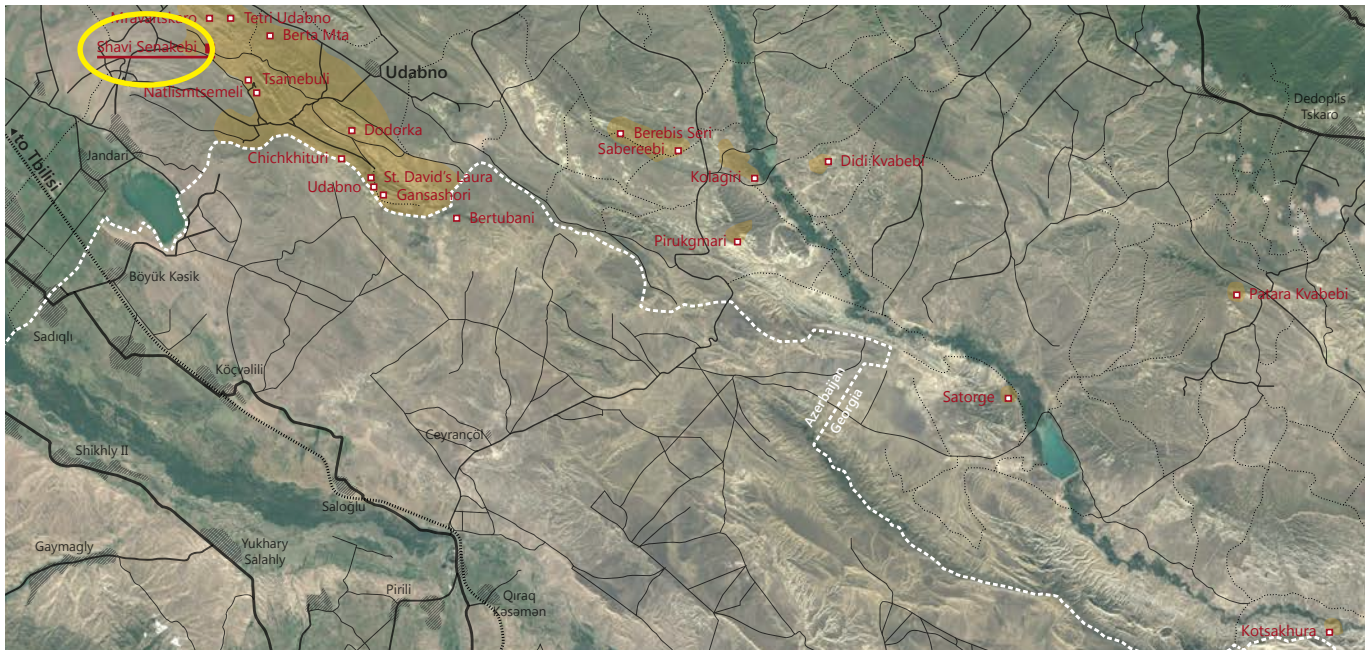
Because of the geologic nature of the rock in which they are hewn, the structures soon deteriorated and only the domed church is still preserved although in poor conditions and partly filled with earth.

Most of the caves are so eroded that only their general forms can be identified.

The refectory of the monastery is partly covered with earth.



## 20 - Shavi Senakebi - Georgia



**Date/s of construction:** -

**In use / not in use:** Not in use

**Ownership:** Georgian Patriarchy, Min ESCS of Georgia

**In or out of the border:** IN

**Accessibility:** Shavi Senakebi is not accessible.

Shavi Senakebi monastery is located along the Western massif of Gareji deserts (away from the road to St. Baptist's church).

The small rupestrian complex is abandoned and in need of being studied and preserved.

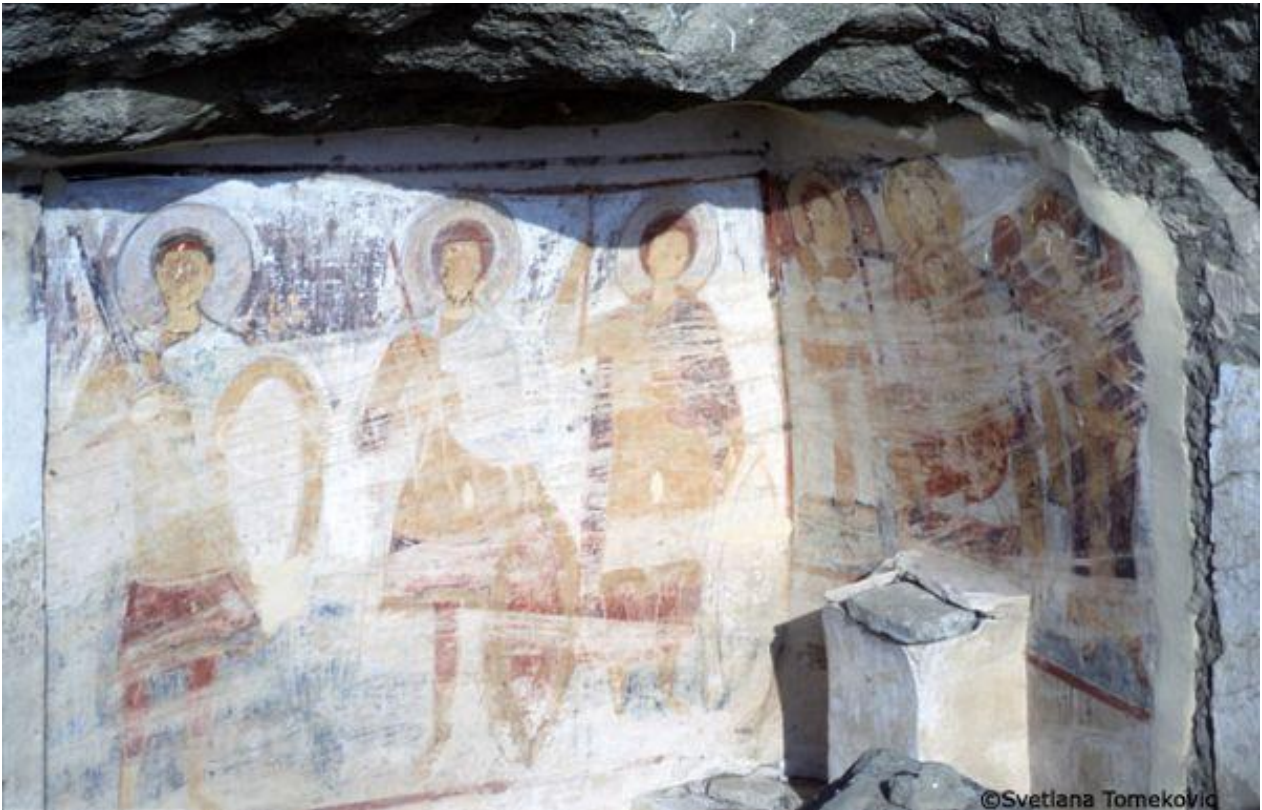




## ANNEX 2

Confrontation between old and recent images of the monasteries' interiors





Ph. Tomekovic, before 1994 - S. Nicholas, Udabno

Ph. Casnati, 2018 - S. Nicholas, Udabno





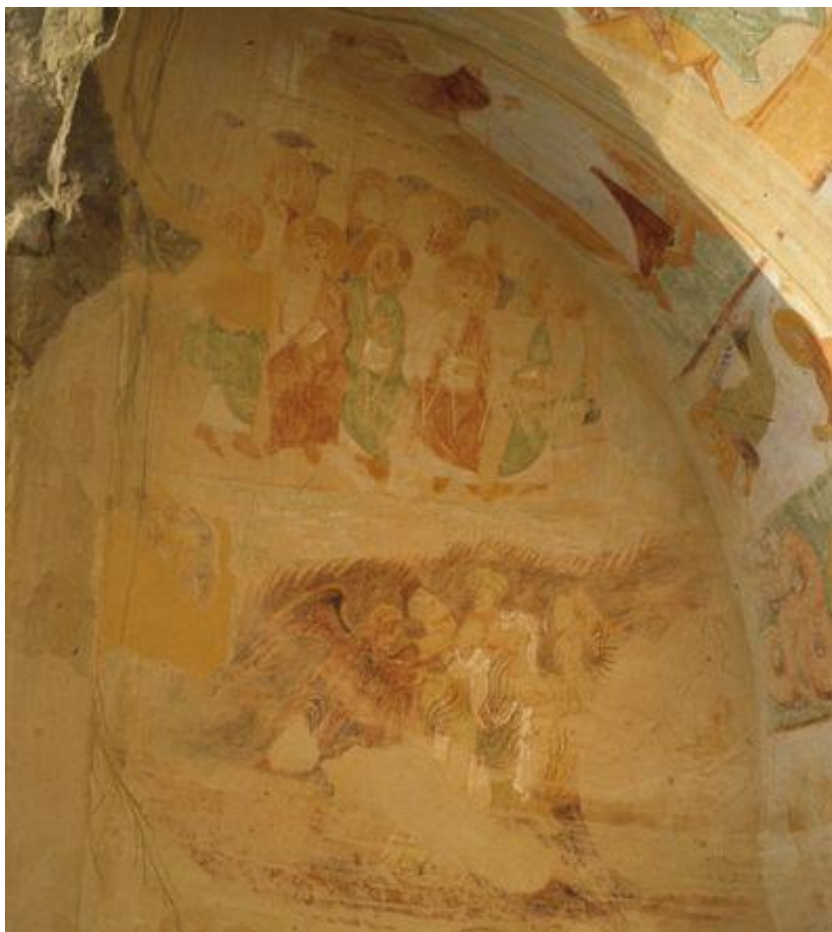


Ph. Mirianashvili, 2005, Udabno

Ph. Mirianashvili, 2011 (a few days after the collapse), Udabno







Ph. Tomekovic, before 1994 - S. Nicholas, Udabno

Ph. Casnati, 2018 - S. Nicholas, Udabno







Nd, 1940 - Udabno

Mirianashvili, 1999 - Udabno







Ph. Tomekovic, before 1994 - Refectory, Udabno

Ph. Casnati, 2018 - Refectory, Udabno







Ph. Tomekovic, before 1994 - Udabno

Ph. Bulia, 2018 - Udabno







Ph. Ermakov, 1880 – Church of Transfiguration, Laura

Ph. Bulia







Fig. 6. Natlismtsemeli. Main church. General view of apse painting.

Ph. Eastmond, Before 2001 - Natlismtsemeli

Ph. Bulia - Natlismtsemeli







Ph. Tomekovic, before 1994 - Bertubani

Ph. Eastmond, before 2001 - Bertubani



Fig. 5. Bertubani. Main church. Apse: Theotokos and Child.





Ph. Tomekovic, before 1994 - Bertubani

Ph. Giorgi Chubinashvili National Research Centre for Georgian Art History and Heritage Preservation (G. Chubinashvili Centre), - Bertubani







Ph. Tomekovic, before 1994 - Refectory at Bertubani

Ph. Giorgi Chubinashvili National Research Centre for Georgian Art History and Heritage Preservation (G. Chubinashvili Centre), Recent - Refectory at Bertubani







Ph. Bulia - Kolagiri

Google maps 2018 - Kolagiri







Ph. Bulia - Kolagiri

Google maps 2018 - Kolagiri



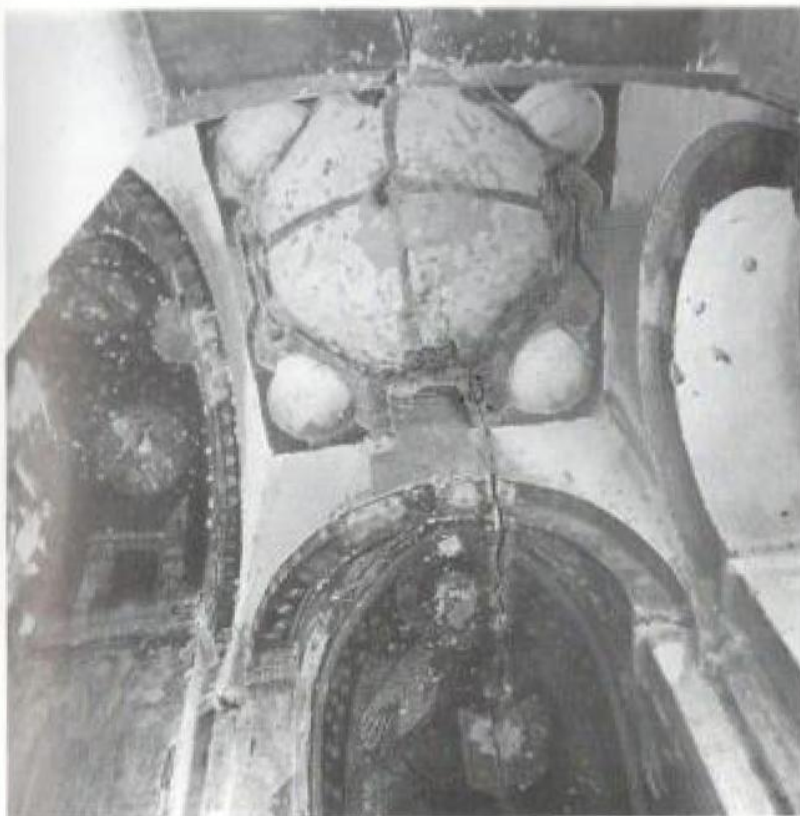


Fig. 1. Sabereebi n°7. Vue générale vers l'est.

Thierry before 2001 - Sabeerebi

Casnati 2018 - Sabeerebi n. 7





## ANNEX 3

### Maps

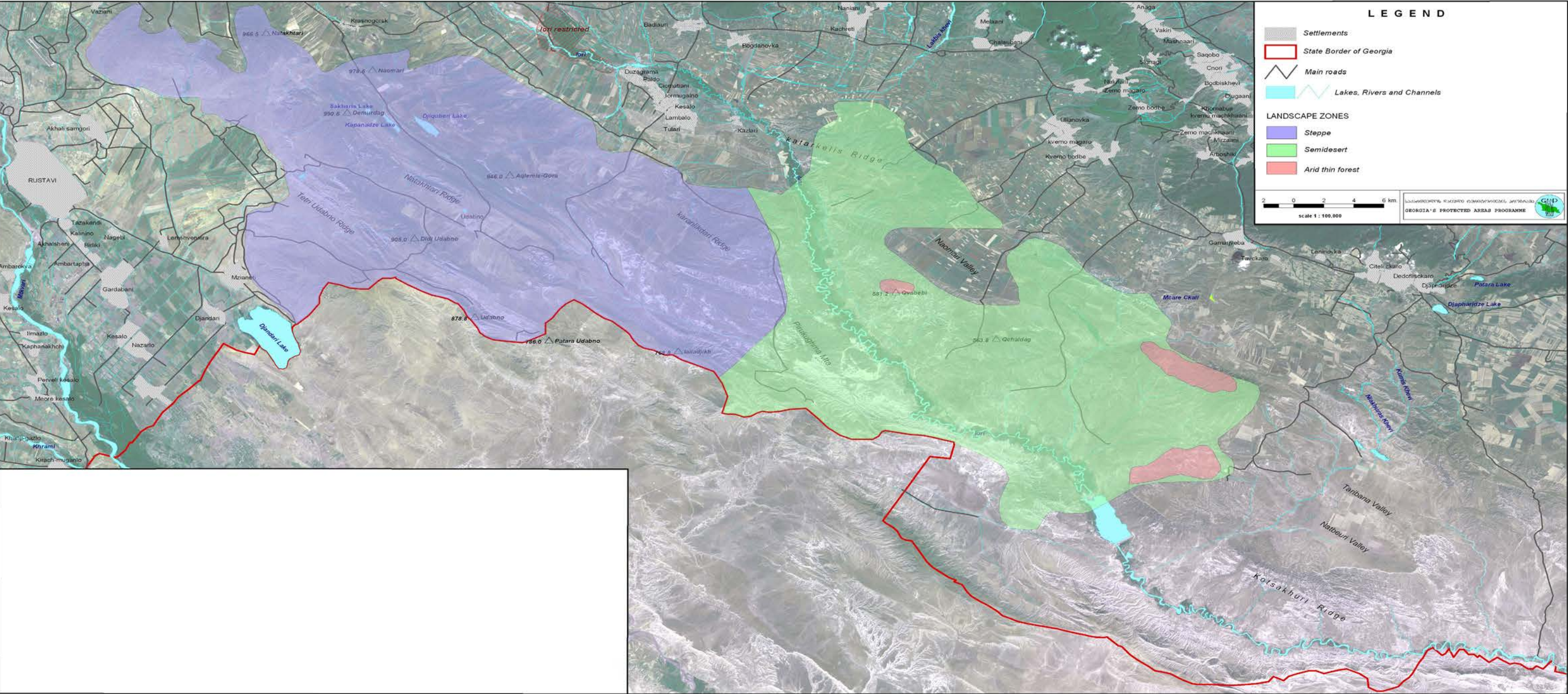


The following maps have been realized by:

- Pag. 1 to 8, Institute of Geophysics: Zurab Javakhishvili, head of the department of regional seismology, team leader; Micheil Elashvili, GIS expert.
- Page 9, Andrea Oliverio.



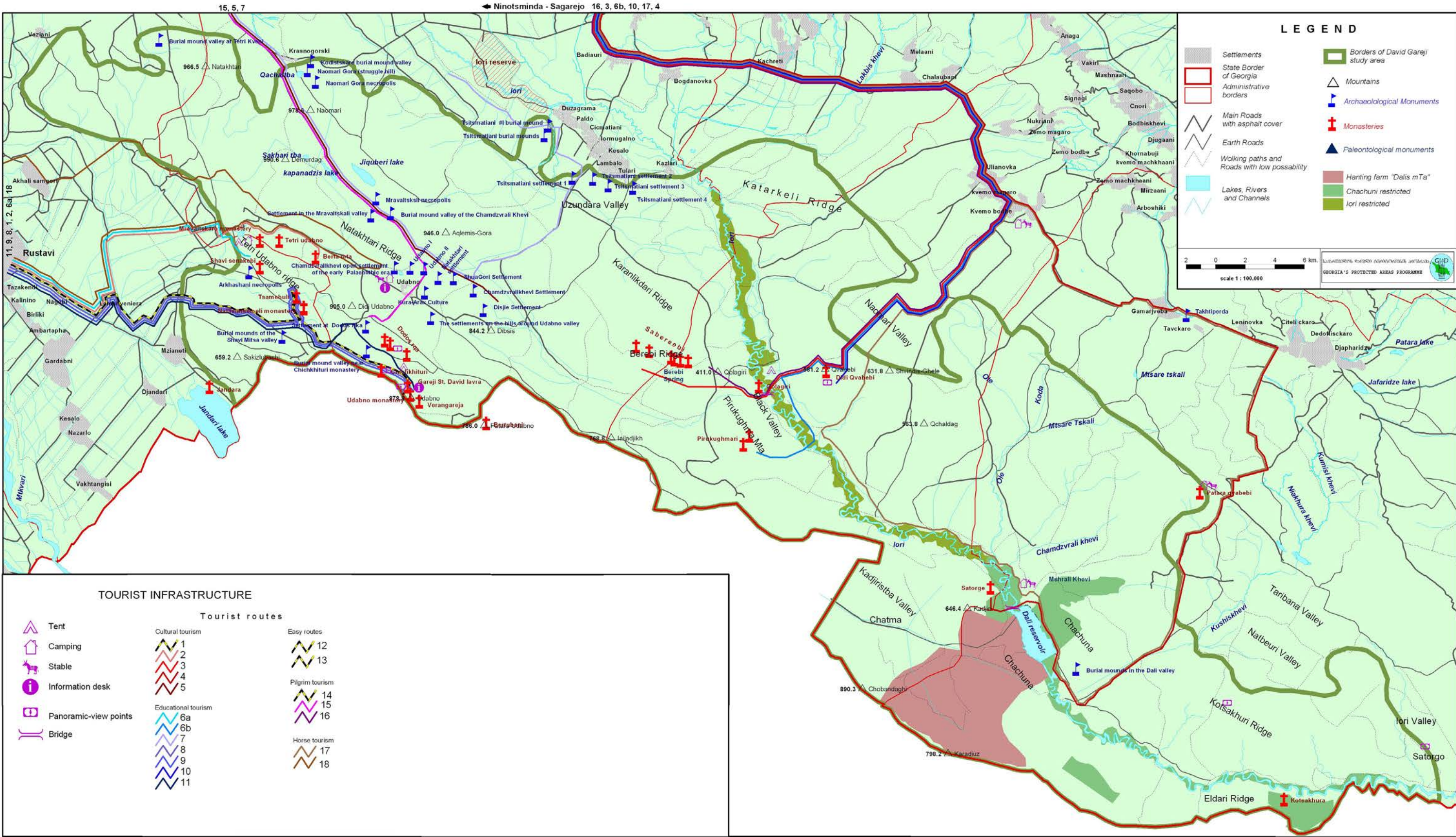
DAVID GAREJI Principal Vegetation zones





DAVID GAREJI PROTECTED LANDSCAPE

Tourist Infrastructure

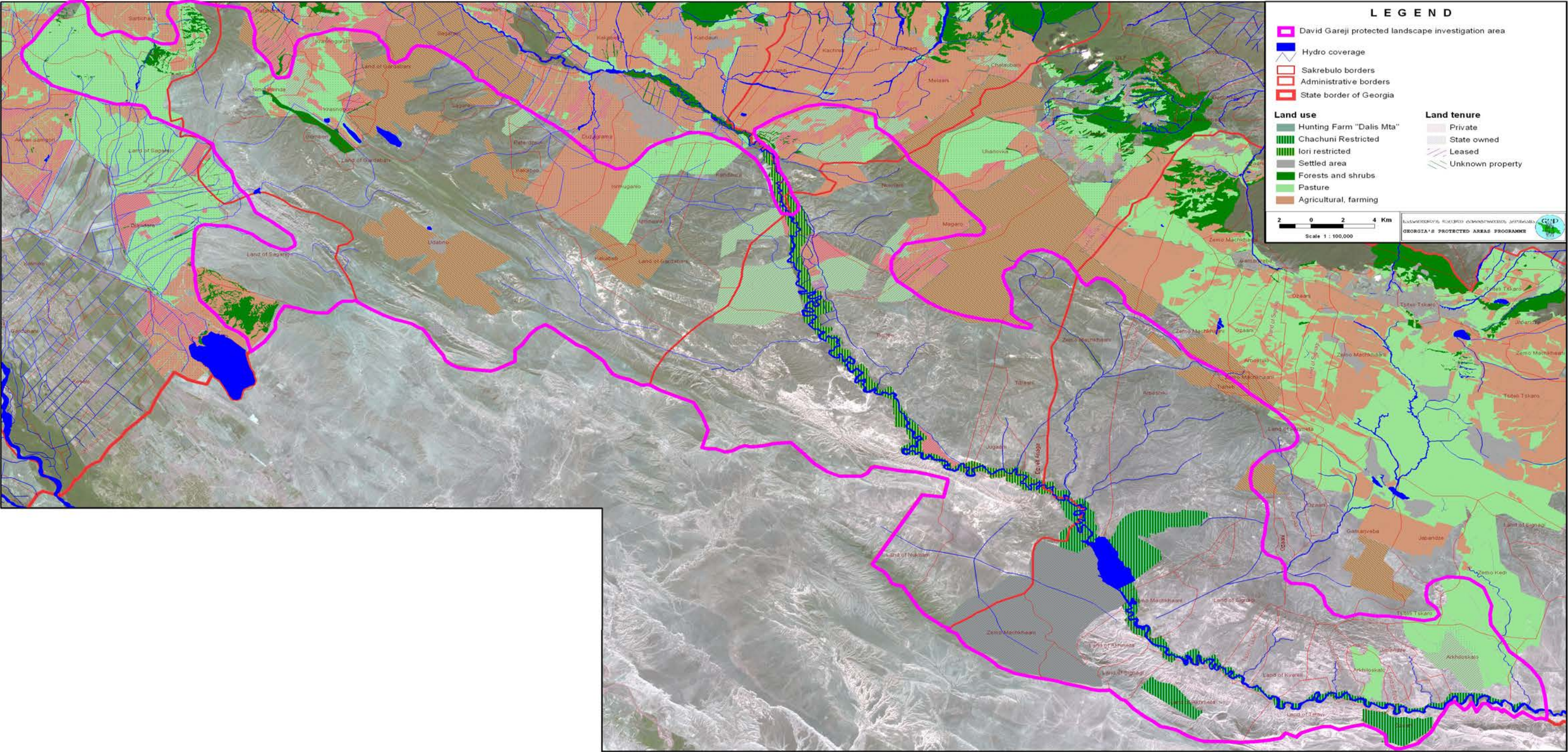




[illegible]

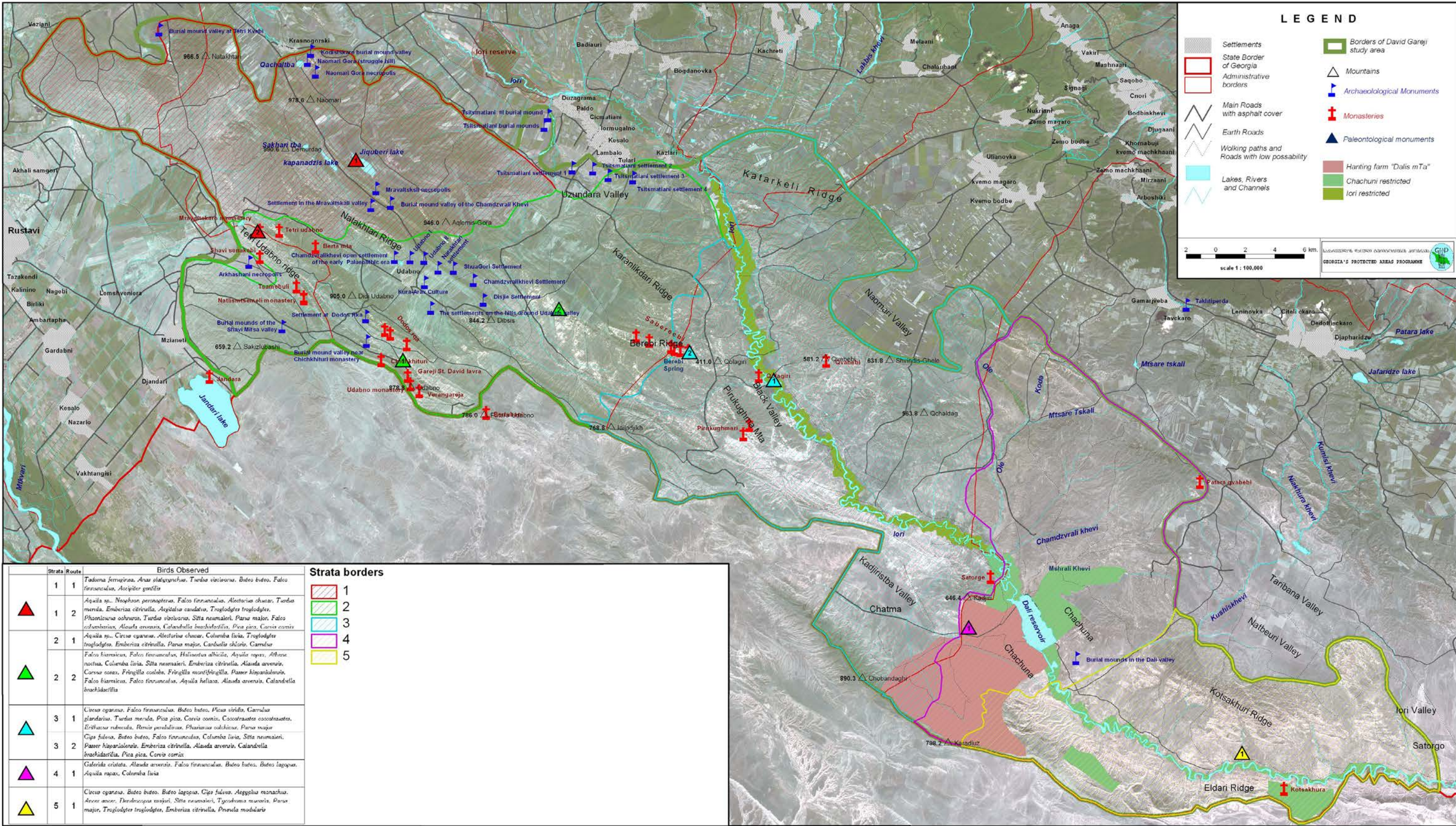


DAVID GAREJI PROTECTED LANDSCAPE Land-use and Land-tenure Map



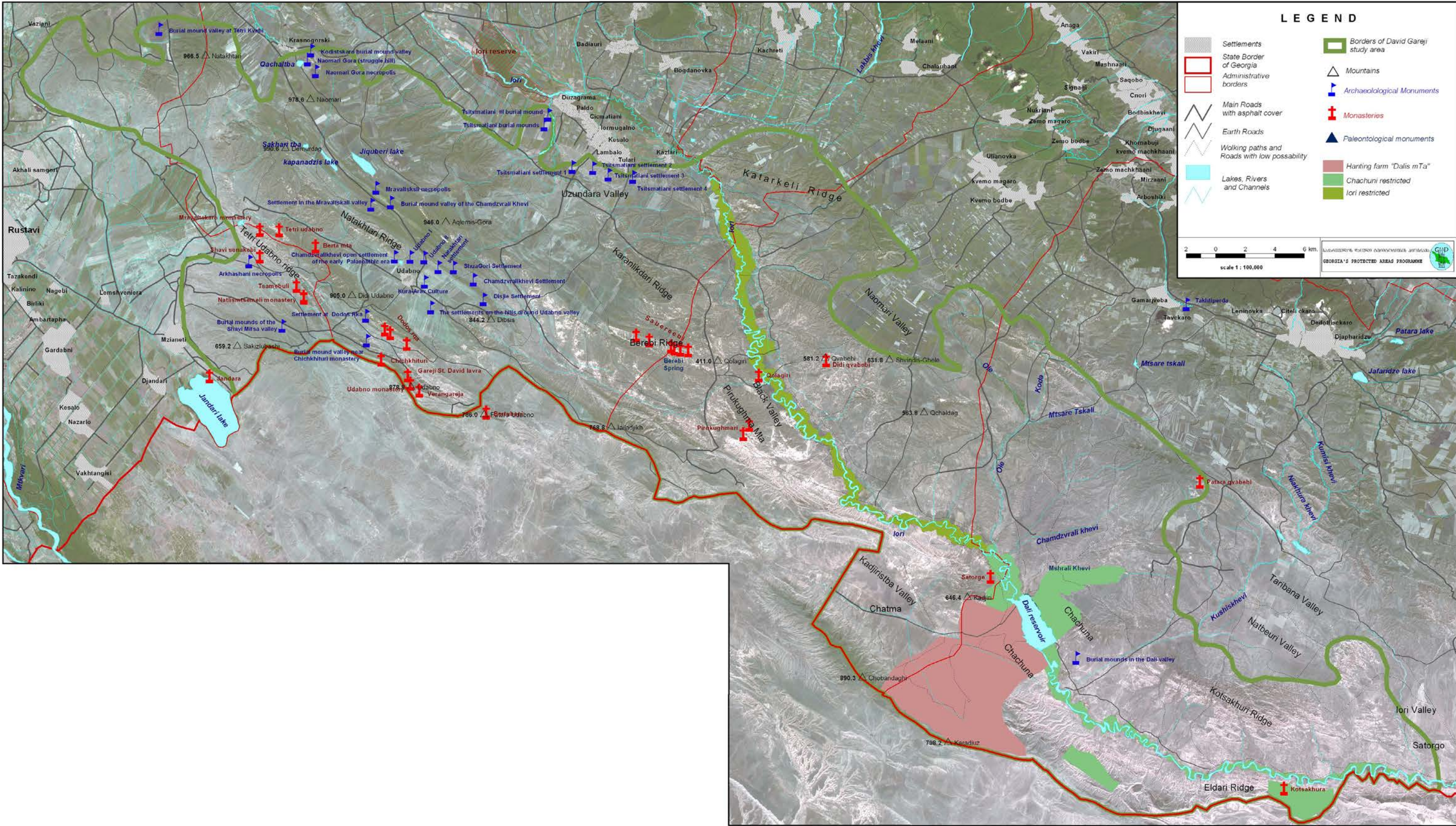


DAVID GAREJI PROTECTED LANDSCAPE Ornithological Map Based on Field Observations



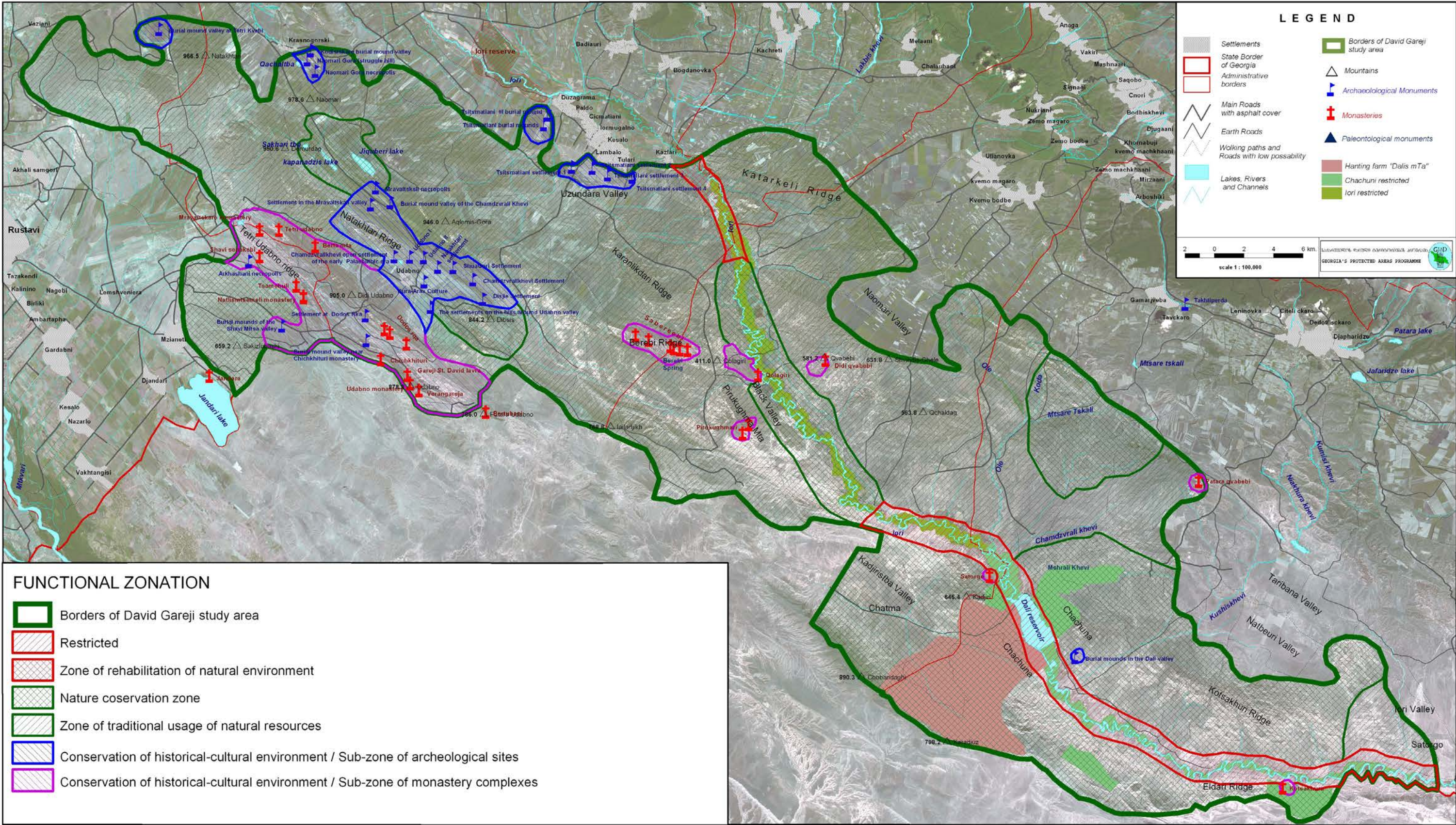


DAVID GAREJI PROTECTED LANDSCAPE Physical-geographic map (based on satellite images of 2002)



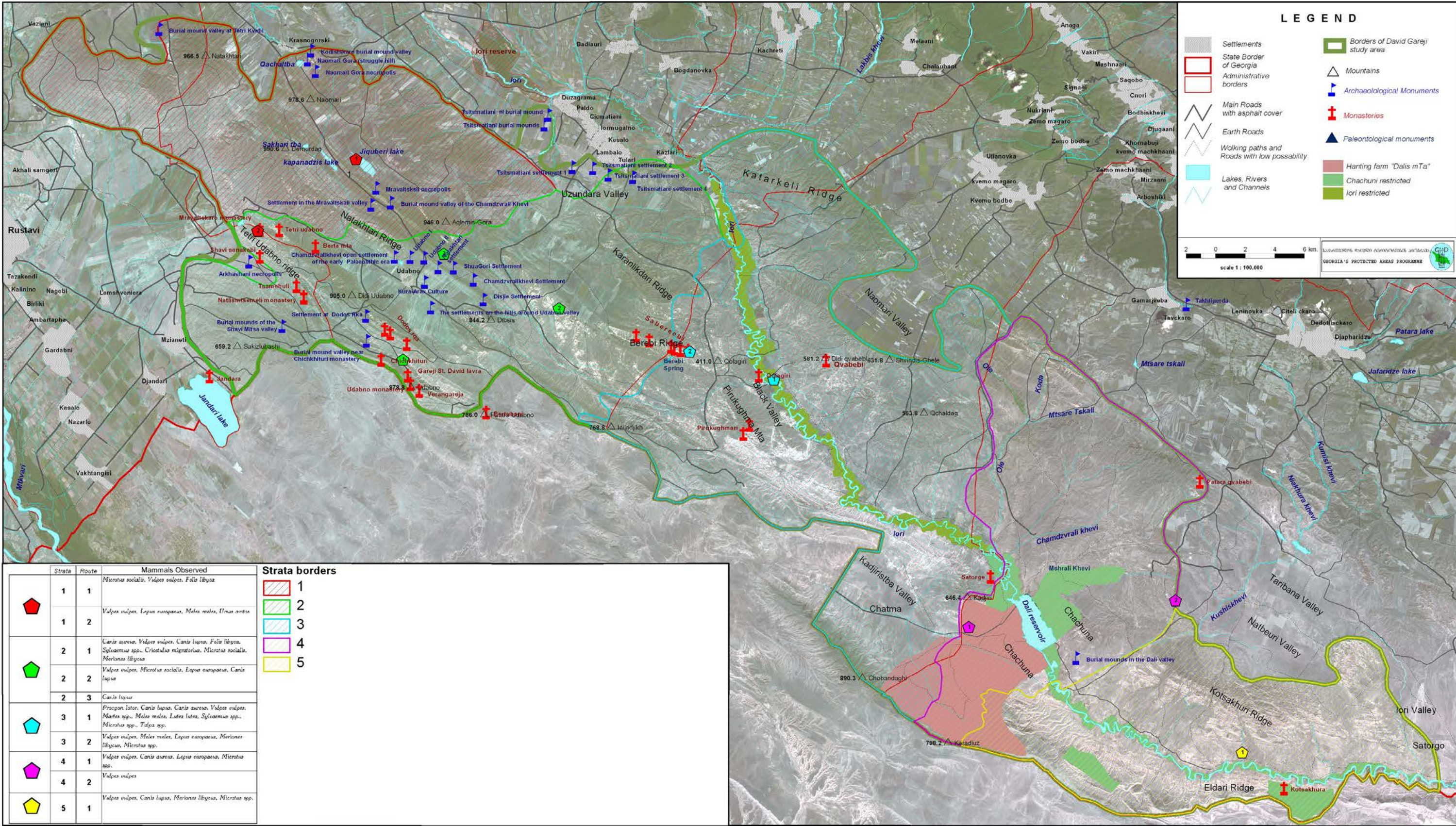


DAVID GAREJI PROTECTED LANDSCAPE Territorial-functional zonation

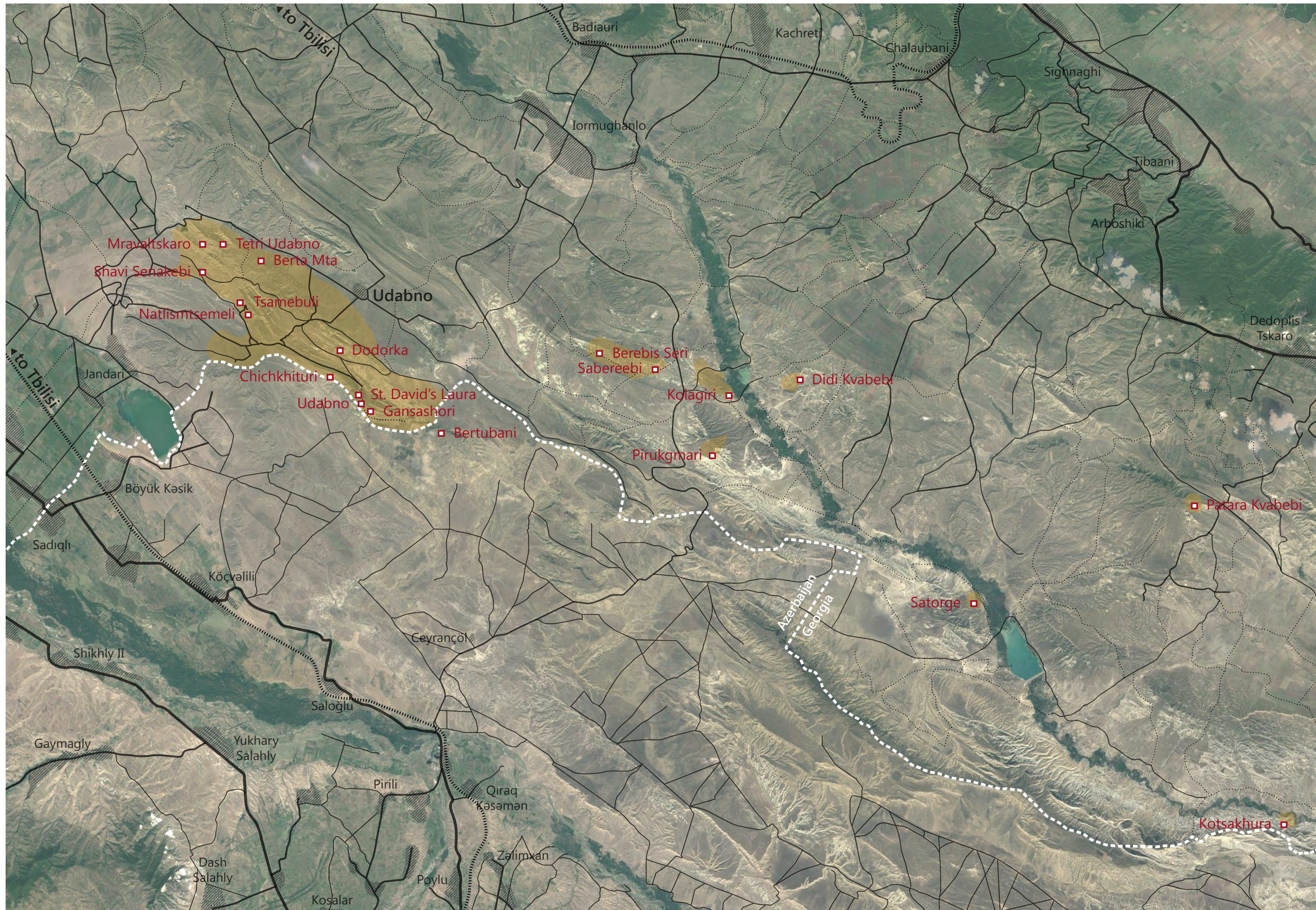




DAVID GAREJI PROTECTED LANDSCAPE Zoological Map Based on Field Observations









## ANNEX 4

### Some examples of good practices





**MUSEO DI ALTAMIRA - A CENTRE DESIGNED TO ALLOW EXPERIENCING THE VISIT OF A PROTECTED SITE WITHOUT ENTERING INTO IT**

<http://www.culturaydeporte.gob.es/mnaltamira/home.html>

<http://proescen.com/es/portfolio-item/museo-y-replica-de-la-cueva-de-altamira/>









**TIPPET RISE ART CENTRE – AN EXAMPLE OF ENHANCEMENT OF THE CHARACTERISTICS OF A TERRITORY TO INTEGRATE IT IN A FORM OF ART**

<https://www.archdaily.com/791453/tippet-rise-art-center-combines-architecture-art-music-and-mountains-in-montana/578909b9e58ece2b2200002e-tippet-rise-art-center-combines-architecture-art-music-and-mountains-in-montana-photo>





## SOME BUILDINGS WELL INTEGRATED IN THE SURROUNDING ENVIRONMENT

### CANTINA ANTINORI

<http://www.archea.it/cantina-antinori/>





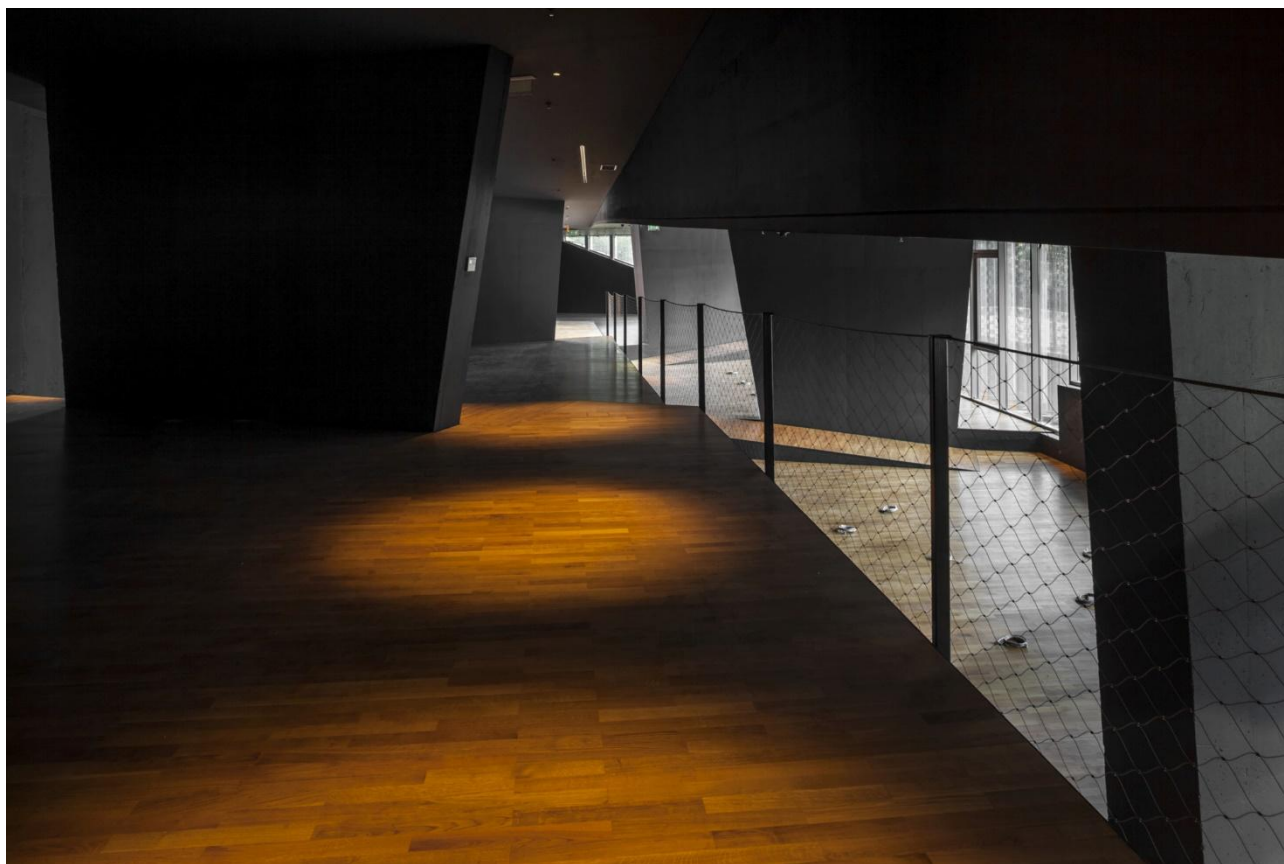
MUSEALIZATION OF THE S. JORGE CASTLE "PRAÇA NOVA" ARCHEOLOGICAL SITE | LISBON | PORTUGAL

<http://www.gap.pt/castelo.html>



## VUCEDOL ARCHAEOLOGICAL MUSEUM

<https://www.archdaily.com/447003/vucedol-archaeological-museum-radionica-arhitekture>





## PAVILHAO DO VULCANISMO

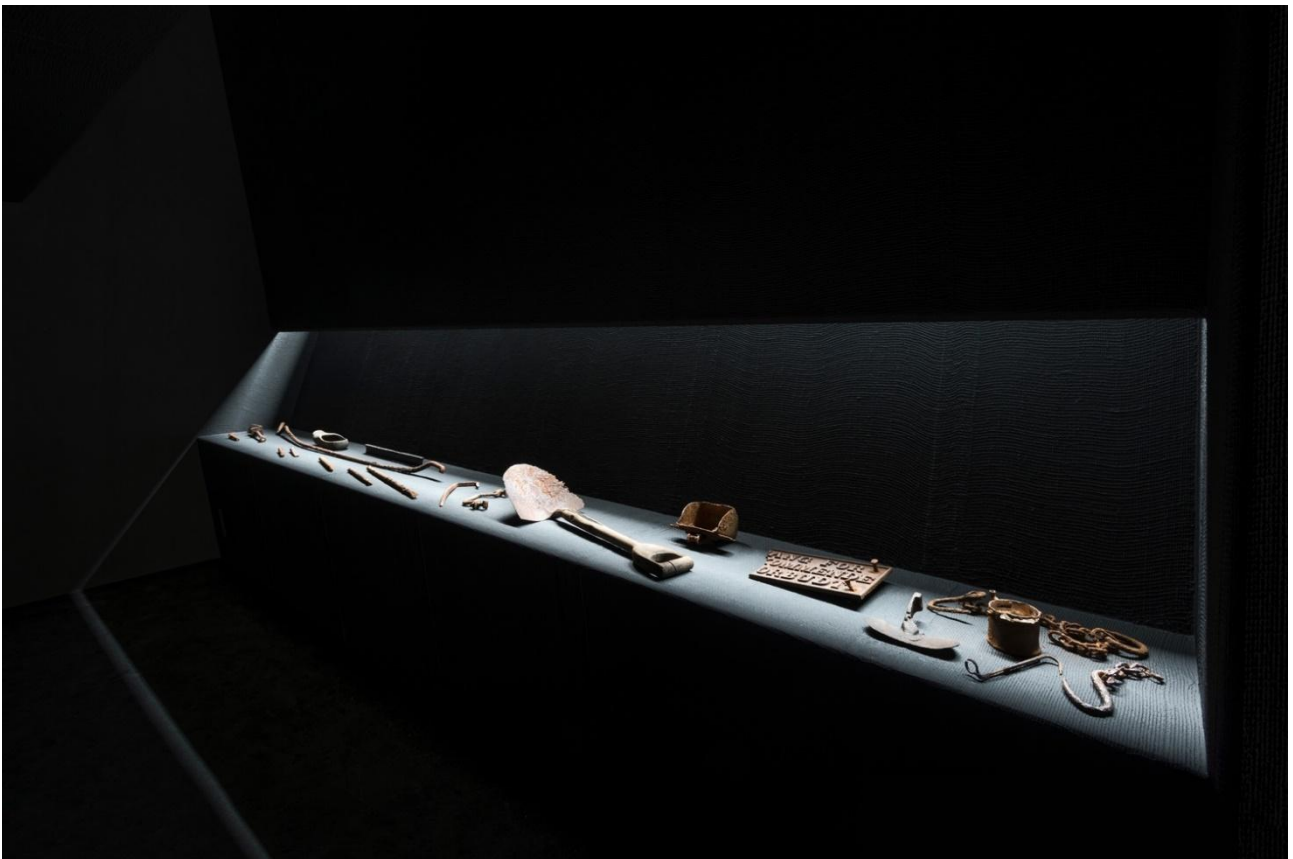
<http://www.gap.pt/vulcanismo.html>





## ZINC MINE MUSEUM

[https://www.archdaily.com/796345/allmannajuvet-zinc-mine-museum-peter-zumthor?ad\\_medium=widget&ad\\_name=more-from-office-article-show](https://www.archdaily.com/796345/allmannajuvet-zinc-mine-museum-peter-zumthor?ad_medium=widget&ad_name=more-from-office-article-show)





## SOME DISCUSSION ABOUT VIRTUAL RECONSTRUCTION OF AN HISTORIC ENVIRONMENTS PUT IN PRACTICE FOR THE RECONSTRUCTION OF ETRUSCAN TOMBS

1 - For good practices and methodologies for the management of archaeological sites at a territorial level, see: *G. Bagnasco Gianni - S. Bortolotto - N. Cattaneo - P. Favino - A. Garzulino - F. Guzzetti - M. Marzullo - R. Simonelli, Dalla conoscenza alla conservazione: il Pianoro della Civita di Tarquinia, in Atti della 15° Conferenza Nazionale ed EXPO 2011 ASITA, Federazione italiana delle Associazioni Scientifiche per le Informazioni Territoriali e Ambientali (15-18 Novembre 2011), Parma 2011, pp. 165-174.*

2 - For an analysis of the potential and disadvantages of systems for the virtual exploitation of an entire site see: *M. Rao - D. Gadia - S. Valtolina - G. Bagnasco Gianni - M. Marzullo, Designing Virtual Reality Reconstructions of Etruscan Painted Tombs, in Multimedia for Cultural Heritage Communications in Computer and Information Science 247, 2012, pp. 154-165.*

3 - For methods of 3D reconstruction of ancient environments and on the use of LIDAR to study and enhance archaeological sites, see: *B.R. Barricelli - D. Gadia - A. Garzulino - M. Marzullo - C. Piazzzi - S. Valtolina, Participatory Action Design Research in Archaeological Context, in J. Abdelnour Nocera - B.R. Barricelli - A. Lopes - P. Campos - T. Clemmensen (a cura di), Human Work Interaction Design. Work Analysis and Interaction Design Methods for Pervasive and Smart Workplaces, series IFIP Advances in Information and Communication Technology 468, London, Springer International Publishing, 2015, pp. 192-211.*

4 - For methods of research and communication to a wide public of the research, see: *D. Gadia - M. Marzullo - S. Valtolina, Virtual Reality visualization of the Etruscan Necropolis of Tarquinia, Proceedings from the conference Traitement et Analyse de l'Information Méthodes et Applications conference (Hammamet, 11-16 may 2015), Hammamet 2015, pp. 217-223.*

5 - For non invasive systems for studying deteriorated paintings, see: *D. Gadia - C. Bonanomi - M. Marzullo - A. Rizzi, Perceptual enhancement of degraded Etruscan wall paintings, in Journal of Cultural Heritage 21 (September–October 2016), pp. 904-909.*

On the rendering of the results of archaeological investigation, see: *A. Garzulino - G. Zenoni, Recreate the ancient urban landscape. Multimedia e interactive tools to improve accessibility and enhancement of the archaeological heritage of Milan, in ISPRS International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, Vol. XLII-2/W9 [<http://www.isprs.org/publications/archives.aspx>] (dal 6 febbraio 2019)]*

A 3d of an Etruscan tumb in its actual state of conservation:

Tomba Lerici 5513: [http://159.149.130.120/video\\_tarchna/Video\\_5513.mp4](http://159.149.130.120/video_tarchna/Video_5513.mp4)-

A 3d reconstruction of a tomb no longer existing. Architecture virtually reconstructed from what is still preserved today and paintings relocated on the basis of the information derived from reproductions drawn in the last century: - **Tomba dell'Orco I**: [http://159.149.130.120/video\\_tarchna/Video\\_Orco%20I.mp4](http://159.149.130.120/video_tarchna/Video_Orco%20I.mp4)

A 3d reconstruction of the actual situation with a study of the original lighting:

- **Tomba degli Scudi**: [http://159.149.130.120/video\\_tarchna/Video\\_Scudi.mp4](http://159.149.130.120/video_tarchna/Video_Scudi.mp4)

A virtual reconstruction of the descent along the access stairway to study the perception they had in ancient times while accessing the tomb:

- **Tomba del Tifone**: [http://159.149.130.120/video\\_tarchna/Video\\_Tifone\\_StudioDiscesa.exe](http://159.149.130.120/video_tarchna/Video_Tifone_StudioDiscesa.exe)

An application that allows you to see the current situation of the tomb and to compare all the ancient reproductions of the paintings, to observe lost details and previous states of conservation of the paintings.

- **Tomba della Caccia e della Pesca**: [http://159.149.130.120/video\\_tarchna/App\\_Caccia%20e%20Pesca.exe](http://159.149.130.120/video_tarchna/App_Caccia%20e%20Pesca.exe)

An **application** that allows to surf the 3d of the tombs, zoom in to the smallest detail of the paintings and click on special points on the walls to access further content, see:

<https://www.youtube.com/watch?v=VCBzWMn98sU>

<http://www.etruscologia.unimi.it/index.php/progetti/80-progetti/127-etruscanexpo-project>,

<http://159.149.130.120/etruscanexpo/web/index.php?lang=en>



Appendix III  
Strategic tourism framework





## Appendix III

### Strategic tourism framework

#### Introduction

Tourism has been identified as one of the areas of strategic development which would allow the Udabno complex of *lavras* (monasteries) to be largely self-sustaining. It has also been suggested that tourism might be a significant contributor to the cost of the rescue, stabilisation and potentially reconstruction the multifarious<sup>6</sup> sites. This text will accept the first of these as a valid proposition, but the second is perhaps unrealistic. However, the prospect of economic development through tourism is sound argument for the use of national and international public funds to support the required works.

#### Religious Sites as Destinations

There are many religious sites across the world which are leading tourist attractions, but these largely fall into two categories: “Consecrated and Active” and “Unconsecrated and Inactive”. In the first category are major European cathedrals like Notre Dame in Paris (13 million visitors per year), the Vatican City in Rome (5 million) and the Sagrada Familia in Barcelona (3 million). In the second category are the Temples of Angkor Watt in Cambodia (1.3 million) and Stonehenge<sup>7</sup> in the UK (1.0 million). Clearly the first category are all in the centre of cities which are, themselves, major tourist destinations, and are therefore more likely to be popular. However, the second category are all either remote in absolute terms or at some distance from other main tourism centres.

In the case of the Udabno monasteries, they have the appearance of remoteness, but they are more diverse and closer to Tbilisi, in terms of both time and distance, than the single-site attraction of Stonehenge is to London.

The principle of the monasteries being able to act as a tourist attraction may therefore be accepted: and there would appear to be a significant, but unaudited, number of casual visitors already. This begs a number of questions:

1. Who would visit the site and why;
2. What would be the number of visitors per annum;
3. What would they want to see or experience at the site;
4. How long would they stay at the site;
5. What would they be prepared to pay for the experience;
6. What would encourage them to spend longer in the region of the site?

These questions will form the structure of this Framework

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<sup>6</sup> This term is used here to reflect the diversity of sites. Although they are all *lavras*/monasteries, there are substantial differences between them.

<sup>7</sup> Although Stonehenge is not consecrated in the generally understood sense of the term, Druid ceremonies are still performed there at the Summer Solstice.

### Who Would Visit the Site?

**The Curious** – The published data<sup>8</sup> for Georgian tourism indicates that only 6% of leisure tourists are primarily interested in sightseeing and 8% are interested in religious sites. Apart from visiting friends and relatives (65%) the most popular tourism activities are shopping (54%) and food and drink (37%). The average length of stay is four days, and most “international” visitors, which may include temporarily returning Georgian citizens, are from the immediate region. The most significant non-regional originating country is Poland, ranked 8<sup>th</sup>.

**The National** – Georgia has a long history as an independent country, despite various invasions over the centuries. For many, the Soviet presence for a few decades in the middle of the 20<sup>th</sup> century was just another temporary situation. Even those who are only nominally Orthodox Christian in their beliefs, recognise the historic links between church and state. They might therefore see the revival of the *lavras*/monasteries as being an exemplar of Georgia’s regional and international significance, and would support the stabilisation and redevelopment of the monasteries as being symbolic of the country’s renewed role in the region.

**The Faithful** – Georgia, has a population of 3.9 million, almost 90% of whom are classed as being ethnically Georgian. The Georgian Orthodox Church plays a major part in the life of both the country and the every-day life of a large part of the population. With this in mind, and even allowing for the country’s relatively low per capita income, there must be a presumption of willingness for a large part of population to support the monasteries: including sites which are not currently consecrated. In return, the faithful would reasonably expect to have access to the sites.

**The Archaeophile** – The statistics on visitors to countries with famous archaeological landmarks such as Egypt, show that most are not interested in visiting historic sites. However, although the absolute numbers of historic site visitors may be small, they can make a disproportionate contribution to the local economy. They wish to be immersed in the cultural/historical/ethnological/religious experience, and often have above average incomes.

**The Adventurous** – In some senses this group is the antithesis of “The Curious” covered above. The Adventurous are also seeking something beyond everyday life, but they are looking for their whole holiday to be made up of new experiences. The numbers of such tourists in Georgia is believed to very low – too low for national reporting. However, if Georgia follows the pattern of other countries, then the growth rate is likely to be high.

### What would be the number of visitors per annum?

Based on current visitor numbers, and assuming that suitable tourism services, including accommodation, transport and restauration, were to be available, international tourism numbers might be estimated to be 50,000 in the fifth year (1% of international tourism) and national tourism would be 75,000 (2% of the population). These numbers might appear low, bearing in mind the rate of tourism growth, but over a four month tourist season, that would still mean 1000 visitors a day. If international visitors were to stay in the area for two nights, and 50% of national tourists were to stay for one night, that would mean an accommodation need of some 1,100 tourist beds.

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<sup>8</sup> Georgian Tourism in Figures 2017, published by the Georgian National Tourism Administration and The Ministry of Sustainable Development of Georgia



### What would they want to see or experience at the site?

It would be reasonable to expect almost all visitors to want to see the actual sites, and probably more than one. Transport to a range of different sites for more than 1000 tourists will require good roads and a well-developed transport system. While it might be possible for individuals to use their own vehicles, this should be discouraged for traffic management and site conservancy reasons.

The extent to which the monks and monasteries want to engage with tourism and tourists should be clarified at an early stage.

### How long would they stay at the site?

As suggested above, including travel to and from Tbilisi and the time taken to travel between sites and participate in additional activities, a two night stay might be the basis for any visit packages that would be developed.

### What would they be prepared to pay for the experience?

There are four components to the costs to tourists of visiting the monastery region, excluding site entry fees:

- Travel to the jumping off point for visits the sites. For non-regional tourists, the *per capita* airfares would start at +/- EUR 450. The tourist will probably spend 10 – 14 days in the country, of which three would be attributable to the Monasteries. The cost proportion for the monasteries is therefore in the region of EUR 100. Regional tourists tend to spend less time in the country, averaging four days, and they almost exclusively arrive by car. They are therefore likely to be spending a similar amount on travel to the sites as international travellers.
- Accommodation costs – two nights' accommodation will be in the range EUR 40 – 100 per person.
- Food and beverages for the same period will be similar, i.e. EUR 40 – 100 per person.
- Travel within the site region using controlled vehicles could be EUR 20 per person

The per capita cost of the "Monastery Experience" would therefore be in excess of EUR 250. On that basis a Monastery Experience entry fee of EUR 25 for a two-day pass would represent less than 10% of their total costs. For comparison: Vatican City single entry EUR 15, Sagrada Familia single entry EUR 17, Stonehenge single entry EUR 23.

### What would encourage them to spend longer in the region of the site?

It would be economically desirable for the people to spend their time doing more than simply visiting monasteries. The following list would be options for additional revenue generating activities:

- Nature walks – the region has some distinctive fauna, particularly birds;
- Mountain biking, including downhill biking;
- Hands on archaeological conservation work;
- Hands-on nature conservation work;
- Geology trails;
- Cultural events – of the type already available;
- Retreats, guided by local monks.

Assuming a 50% discount would be given to members of the Georgian Orthodox Church, annual revenues would be in excess of EUR 2 million.

### Comments

The fees payable within the region only need to cover the direct cost of managing the tourists. The economic value of the tourist activity to the local region would be of the order of EUR 15 – 30 Million.

### **Economic Analysis**

At this stage, and with the available data, a full economic analysis is unrealistic. However, the type of analysis which international funding bodies would wish to carry out, or wish to see carried out would be along the following lines:

#### Introduction

As defined by the UN World Tourism Organisation (UNWTO), tourism typically represents some 10% of Gross Domestic Product (GDP), more in the case of countries such as Greece and Morocco which are dependent on leisure tourism.

Supporting tourism are a range of other economic activities, e.g. transport and infrastructure, water and waste, energy and construction, which will be covered by others. The analysis presented here will focus on activities falling directly under the tourism heading, including:

- Hotels and other forms of tourist accommodation;
- Services which target tourists: spas and wellness centres, theme parks, water parks, restaurants and cafés, etc.;
- Venues: stadia, arenas, theatres, concert halls, etc.;
- Tourism infrastructure, e.g. cycleways, information systems, signposting, public museums.

For convenience, these may be divided into three categories:

- **Pure Private:** Revenue generating with a profit maximisation objective, e.g. hotels, private spas, theme parks, privately owned venues. Projects in this category are the object of a Cost Benefit Analysis (CBA).
- **Hybrid:** Revenue generating without a profit maximisation objective: e.g. publicly owned venues and museums, public therapeutic spas. Such projects are first checked for financial viability and, using this as a proxy, may be able to demonstrate economic viability on a CBA basis. However, more typically, an Impact Analysis is the more appropriate approach, albeit incorporating some elements generated via the financial analysis.
- **Pure Public:** Non-revenue generating activities; tourist offices, cycleways, etc. These may only realistically be assessed through an Impact Assessment.

There will always be exceptions, such as tourism offices which charge listing fees, and non-profit seeking privately owned facilities. However, these can be handled on a case-by-case basis.

### Economic Objectives, Approaches and Criteria

#### **Pure Private**

For international funding organisations in general, and tourism projects in particular, the economic analysis of investment projects takes the form a differential Cost Benefit Analysis on a "with" and "without" basis. In the case of tourism, the without case means the absence of tourist numbers and their related expenditure at the destination and on their way to and from it. Private sector investments, or investments by the public sector when operating on a purely commercial basis, have the advantage of a clear and simply proxy for the economic profitability: the financial profitability, as measured by the Financial Internal Rate of Return (FIRR) calculated in real terms, in line with the organisation's standard methodology. It should be noted that target returns for private



investors in tourism are significantly higher than historical Economic Rate of Return (ERR) benchmarks, which may lie between 5% and 10%. The FIRR may then be adjusted to arrive at a quantified ERR by taking into account externalities: positive and negative, shadow prices, etc.

It is very rare for tourism project to have negative externalities. International funding bodies will not usually finance projects with, for example, significant negative environmental or social impacts. At the same time, their eligibility criteria mean that most tourism related are based in developing countries, and the investment and continuing business activities are additional to the economy. Significant activities which are not captured by the FIRR approach include:

- Supply Chain The provision of goods, mainly fresh foodstuffs, and services to the hotel . Tourism projects are typically in areas where the shadow price of labour is low and the economic benefits for the economies in question can therefore be substantial
- Tourist Spend additional tourist expenditure may support additional formal and informal business activities, ranging from fishing trips, to taxis drivers, to souvenir production and sale, to restaurant meals. The marginal net benefit from this expenditure may be included in the ERR.

These additional benefits are relatively easy to quantify. However, there is another class which is equally valid but more difficult to quantify. A target for tourism lending is often the rehabilitation and upgrading of existing facilities. The alternative is the downgrading, first of the hotel in question, and then of the resort area, and even the country. A failure to invest would have a wider negative impact which the funding body's project can avoid. This, plus the creation of flagship hotels have positive, but difficult to quantify, economic impacts.

### Hybrid Projects

Projects in this category are almost always public sector driven, often as part of a wider urban or rural renewal programme, or the preservation of historic buildings. The public authority also often believes that they will be financially profitable. In practice they rarely are, and the larger the proportion of public/social activity they are required to undertake, the less financially viable they are. To avoid such investments becoming a drain on the taxpayer, a very simple test should be applied. Accepting that the investment represents a sunk cost on completion, a project must be capable of covering its current costs: employment, energy, routine and regular maintenance, etc., out of its commercial revenues for it to be considered for funding. Like "pure private" projects, the project financial profitability is used as a starting point for an Impact Analysis. Normally the FIRR of these projects is negative, and externalities must be quantified which will justify the use of financial resources.

It should be noted that not all international funding organisations have their own specific Impact Assessment methodology in this sector, but rely instead on Promoters providing an analysis, normally by a competent third party, based on an internal standard methodology such as that of the European Commission. In such cases, the role of the funding body is to review the assumptions included in the Promoter's analysis, based on the (usually more conservative) assumptions it retained for the financial analysis, paying particular attention to the claimed positive impacts to be achieved and the proportion of costs attributed. It will then carry out a simplified analysis to confirm the project's suitability for funding. Each project is different, but the same externalities may be identified and quantified which apply to many of them, including the net benefit from:

- Visitor/Spectator overnight accommodation – with numbers and expenditure depending on the nature of the event<sup>9</sup>;
- Visitor/Participant accommodation for the period of the event in question – lower numbers but often spending more,
- Visitor spending on meals, parking, memorabilia, etc.

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<sup>9</sup> "Events" can include regular sports meetings, one-off international sporting events, exhibitions, congresses, conferences, religious festivals, concerts, arts festivals, weddings, funerals, political meetings, etc., etc,

Other conventional benefits may also be applied to the project:

- Net economic benefits from employment and physical inputs during construction;
- Non-recoverable taxes and personal taxes payable during the construction phase,
- Personal taxes paid by special event staff,
- Personal taxes paid by other third party providers of services to the investment,
- Corporate taxes paid by contractors during implementation and operation – it may assumed that the investment itself will not generate any tax income.

For completeness, negative externalities during the operational phase should also be taken into account, but these can be more difficult to identify and quantify. However, they could include: Increased congestion during events, displacement of normal economic activities during events, costs of additional policing for events<sup>10</sup>.

### **Pure Public**

Typically, such projects have no, or minimal, revenues and rely on an impact assessment to justify their existence. The approach taken follows the externalities considerations in the "Hybrid" section, but normally has to be both predictive and marginal, i.e. the number of additional cyclists which might come to an area following the construction of, say, a long-distance cycleway. Quantification of the benefits is complicated by the need for parallel investments to be made, usually by the private sector, in services to the investment, e.g. cafés and bicycle repair shops along the cycleway.

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<sup>10</sup> Depending on ownership and budget responsibility, this last point could equally be a positive externality.



## Appendix IV Counterparts and Contacts



## Appendix IV

### Counterparts and Contacts

Non-Exhaustive List of Contacts Made during the Site Visits

<b>Name</b>	<b>Attribution</b>
<b>Mikheil Giorgadze,</b>	<u>First Deputy Minister</u> , Ministry of Education, Science, Culture and Sport of Georgia
<b>Bishop Abba Alaverdeli (David Makharadze)</b>	<u>Deputy Director</u> , Georgian patriarchate Architecture, Art and Preservation Centre
<b>Nikoloz Antidze</b>	<u>General Director</u> , National Agency for Cultural Heritage Preservation of Georgia
<b>Mercy Tembon</b>	<u>Regional Director</u> , World Bank: South Caucuses, Europe and Central Asia Region
<b>Carlo Natale</b>	<u>Deputy Head of Delegation</u> , Delegation of the European Union to Georgia
<b>Manana Vardzelashvili</b>	<u>Head</u> , UNESCO Office and International Relations Unit
<b>Tamar Meliva</b>	<u>Senior Specialist</u> , UNESCO and International Relations Unit
<b>Giorgi Gagoshidze</b>	<u>Head of research unit</u> ;
<b>Giorgi Tcheishvili</b>	<u>Head of museums and museum reserves</u> , Educational Department
<b>Marina Bulia</b>	<u>Senior Researcher</u> , Giorgi Chubinashvili National Research Centre for Georgian Art History and Heritage
<b>Mariam Didebulidze</b>	<u>Senior Researcher</u> , Giorgi Chubinashvili National Research Centre for Georgian Art History and Heritage
<b>Zaza Skhirtladze</b>	<u>Senior Researcher</u> , Gareji Study Centre and Tbilisi State University, Faculty of Humanities, <u>Head</u> , Institute of History and Theory of Art
<b>Mzia Gabunia</b>	Georgia's Protected Areas Programme (GPAP)
<b>Jentje van der Weide</b>	Georgia's Protected Areas Programme (GPAP)
<b>Vladimer Mirianashvili</b>	<u>Head</u> , Fund of Science "Udabno"
<b>Mariam Dvalishvili (Maka)</b>	<u>Founder and Executive Director</u> , Georgian Arts and Culture Centre (GACC), Country Representative of Europa Nostra
<b>Tamuna Kiknadze</b>	<u>Programme Development Manager</u> , Georgian Arts and Culture Centre (GACC)
<b>Marita Sakhltkhutsishvili</b>	<u>Programme Assistant</u> , Georgian Arts and Culture Centre (GACC)
<b>Giorgi Erbotsonashvili</b>	<u>Mayor</u> , Sagarejo Municipality, Department of Education, Culture, Heritage Preservation, Sport and Youth Affairs
<b>Alexi Gilashvili,</b>	<u>First Deputy Mayor</u> , Sagarejo Municipality, Department of Education, Culture, Heritage Preservation, Sport and Youth Affairs
<b>Paata Asratashvili</b>	<u>Second Deputy Mayor</u> , Sagarejo Municipality, Department of Education, Culture, Heritage Preservation, Sport and Youth Affairs



<b>Nino Kaikhosroshvili</b>	<u>Second Category Senior Specialist</u> , Sagarejo Municipality, Department of Education, Culture, Heritage Preservation, Sport and Youth Affairs
<b>Karlo Tskitishvili</b>	<u>Head of Department</u> , Border Representation and Delimitation- Demarcation