SARMIZEGETUSA REGIA BETWEEN AN ARCHAEOLOGICAL SITE AND A NATURAL PROTECTED AREA. CULTURAL LANDSCAPE AS THE MISSING LINK

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Abstract

The present paper, based on the first extensive landscape and biodiversity study lead in Romania on an archaeological site, tackles the main problems generated by the double protection of the site of Sarmizegetusa Regia in Orăștie Mountains, the most iconic archaeological site of the Dacian period. Both part of the chain of Dacian fortresses enlisted on the UNESCO World Heritage List and part of the Natural Park Grădiştea Muncelului - Cioclovina (IUCN category V), the site of Sarmizegetusa Regia is facing serious management issues due to this dual strict protections systems. The paper will present a detailed analysis concerning the problems generated by the lack of harmonisation between the two management plans issued from two different types of protection, but also by the lack of a specific category of heritage and its specific protection instruments: the cultural landscape. The article aims to find, based on the site analysis, a series of landscape-based solutions for a coherent management plan, based on landscape values and methods, in order to respond to the present and urgent problems that the Dacian site is facing to day.

Key words: Sarmizegetusa, UNESCO archaeological site, Natural Park, cultural landscape, protection systems.

INTRODUCTION

Sarmizegetusa Regia represents one of the most important archaeological sites of Romania, being registered in the National Archaeological Repertory with the RAN code: 90397.01 and classified as a historical monument - LMI code HD-I-s-A-03190. Its importance also led to the inclusion in the World Heritage List -UNESCO - 906/1999/C, Dacian fortresses in the Orăștiei Mountains, being declared by OMCC 2483/2006 area of priority archaeological interest. The statute of historical monument also led to the establishment of the protection area of the actual archaeological site (18.3 ha), this occupying 66 ha. An additional protection area, which includes the part of the Dacian fortress that was not thoroughly explored and properly valorised, occupies 281.2 ha (Figure 1).

Simultaneously, Sarmizegetusa Regia is an integral part of the Grădiștea Muncelului-Cioclovina Natural Park (PNGM-C), established at the county level in 1979 by Decision no. 452 of the Executive Committee of the People's Council of Hunedoara County and reconfirmed in 1997 by the Decision of the County Council no. 13.



Figure 1. The limits of the Sarmizegetusa Regia protection area. Source: INP - Heritage National Institute

By Law no. 5/2000, PNGM-C it is declared a natural protected area of national interest, being classified, according to OUG (Government Emergency Ordinance) no. 57/2007, approved with modifications and addenda by Law no. 49/2011, with the subsequent modifications and

addenda, in the category of natural parks, which corresponds to category V IUCN -"Protected landscape: protected area managed mainly for landscape conservation and recreation". The purpose of the establishment of this natural park is to preserve a series of landscape ensembles where the interaction of human activities with nature has created over time a distinctive area, with significant landscape and / or cultural value, often with a biological diversity. Grădistea great Muncelului-Cioclovina Natural Park covers an area of 39818 ha, its limits being established by HG (Government Decision) no. 230/2003.

In addition, the PINMATRA/2001/018 project, finalized in 2002, integrated the area of Sarmizegetusa Regia within the surfaces with virgin and quasi-virgin forests. With a high degree of naturalness, these forests were included in the areas of integral protection. In such forests, their protection status being equivalent to the IUCN I categories - areas intended for the protection of "wilderness". where no active human intervention is allowed. In this context of double protection - as a historical monument included in the list of UNESCO world heritage (cultural heritage) and as an integral part of PNGM-C (natural heritage), it would have been expected that Sarmizegetusa Regia would enjoy not only upon a special attention from the public and local and central administration but also on a number of suitable management and protection measures. However, the onsite reality is far from an ideal one.

The incorporation of Sarmizegetusa Regia, as well as a whole series of Dacian fortresses within PNGM-C as well as within the virgin and quasi-virgin forests (Dacian beech forests) led to a series of conflicts between the policies for natural heritage protection and those of protection and valorisation of the cultural heritage. Thus, the Management Plan of PNGM-C initially included Sarmizegetusa Regia in the areas with complete protection, which subsequently led to the impossibility of interventions to manage the arboreal vegetation within the archaeological site. This fact led in time to the degradation of the historical monument, degradation caused, among others, by the collapse of the trees over the ruins of the Dacian fortress. Only in 2016, with the revision

of the management plan of PNGM-C, the archaeological site, with an area of 18.3 ha, was included in the areas of sustainable management, which generated the initiation of projects and intervention plans for the protection and the valorisation of the Dacian fortress. On the other hand, the rest of the archaeological site remains in the area of integral management, which keeps on the major difficulties regarding the protection and the valorisation of the archaeological site. This recent registration of the archaeological site within the sustainable management area finally allows tree maintenance and management interventions as well as conservation works and forestry treatments that promote the natural regeneration of the forest: the treatment of transformation cuts toward gardening, the treatment of gardening and quasi-gardening cuts

MATERIALS AND METHODS

Sarmizegetusa Regia archaeological site and its relation with the landscape

The first aim of the study was to understand the landscape in a past-present relation both at large and detailed scale. Thus. our understanding of the landscape was based on historical and archaeological data and on in situ reading of the ancient landscape. An important aspect was to understand the relation with the natural landscape within the Dacian culture. Looking at the larger scale we have to understand Sarmizegetusa Regia as part of a (military) system that generated a specific landscape (Olteanu, 2007). The fortifications in Orăștie area are built using stone walls: Costești, Blidaru, Vârful lui Hulpe, Bănița, Luncani-Piatra Rosie and the linear fortification at Cioclovina-Ponorici. There are also discovered a series of civil settlements in Costesti, Fata Cetei, Fetele Albe. Sarmizegetusa Regia or scattered households in Rudele, Tâmpu and Meleia (the latter being apparently related to the iron exploitation). The development of the Dacian settlements in this area occupied by forests involved the massive deforestation of the territory, both to allow land shaping (the setup of the terraces on which it was being built) and in order to get the wood that represented the main building material and that was also used for the exploitation of the iron ore (Neamtu et al., 2016; Oltean, 2007). A number of researchers. following С. Daicoviciu, have advanced the hypothesis that these fortifications had a system of communication with each other (using signal fires) but this seems unlikely given the structure of the relief that prevents a visual connection between them. However, conform to our topographical analysis made in AutoCad, such communication was possible through a possible "relay" placed on Muncel or Godeanu Peaks that could have visual communication with the cities in the area (Figure 2). In this respect, the presence of today's forests is cancelling these potential visual relations that are difficult to understand in the current landscape.



Figure 2. The visual-territorial relations between the settlements within Orăștie Mountains area. Source: Tudora, 2018, p. 37

From the excavations carried out at Sarmizegetusa Regia it results that the households grouping was made on a series of flat terraces, forming true neighbourhoods located to the west and east of the fortification and the sacred area (Glodariu, 1983; Oleanu, 2007). The civil settlement of Sarmizegetusa is not accessible to the public and archaeological research has revealed only a part of the habitable terraces. The terraces occupied by the housing within the ensemble are difficult to read in the landscape due to the presence of the dense forests (Figure 3). So far, the households groping model and their relation with the urban structure (public space?) has not been analysed. At Sarmizegetusa Regia the largest households as well as the ones with the most important artefact inventory are clustered near the fortress, this fact determining renowned historian and archaeologist C. Daicoviciu to this "the aristocratic name area neighbourhood".

Other annex constructions discovered in the residential areas are the workshops, in Dacian antiquity the production of the objects and utensils necessary for the daily activity being made either within the household (pottery, weaving, leather processing) or by craftsmen who worked in specialized workspaces (Neamțu et al., 2016)



Figure 3. Area archaeologically researched (2017) within the space of the western neighbourhoods of Sarmizegetusa. Source: personal archives (2018)

A settlement of such dimensions as it was Sarmizegetusa Regia, or better said the surface where discoveries have already been made, extends over 6 km, most of these sites not being valorised and being actually covered by forests- also presumes the development of specific infrastructures with traces legible in the landscape.

The roads from Dacia were, for the most part, natural, following without special setups the water courses or the ridges. Often the route of the ancient roads is perfectly visible on long sections to this day, for example in Căpâlna, Costesti and Sarmizegetusa. Some of these roads, described by C. Daicoviciu and H. Daicoviciu (1960), are no longer visible due to their coverage with vegetal layers and dry leaves. There were also paved roads such as the one from Sarmizegetusa Regia between the western civil neighbourhood, the fortification and the sacred area (Glodariu, 1983). Within the current visit route, the present arboreal vegetation has a positive effect on the perception of the ancient road due to the filtering of the images of the lower terraces, which unfold as a surprise during the site's visit, and create a vegetal arch along the route (Figures 4 and 5).

The most extensive works to adapt at the landscape were represented by the setup of the terraces. these representing the basic infrastructures on which the buildings were erected. These were usually bricked up on the lateral sides and towards the hill, being open to the valley (usually toward south) but there are also simple terraces, without supporting walls, including at Sarmizegetusa. The width of the terraces ranged from 20-30 m to hundreds of Ground levelling meters. in variable proportions is found everywhere in the settlements located on slopes (Glodariu, 1983). Even now, part of the households in the area are organized on landscaped terraces, whereas terraces developed in the past being still legible in the landscape.



Figure 4. The axial perspective along the paved road made more dynamic by the rhythm of the trees



Figure 5. Section through the ancient paved road. Source: Personal archives/Tudora, 2018

However, most of the terraces are still unreadable within the forests that cover them (Figure 3). The site currently open to the public was also covered by forests at the time of discovery, but then massive deforestation was allowed in order to support archaeological research and to valorise the site thus unveiled (Figure 6).

The fortifications built of stone (*murus dacicus*) in the area of Orăștie Mountains were built from the 1^{st} century B.C. In the fortified areas there were usually discovered two or

three more valuable buildings, traces of barracks and other household setups. The fortification from Sarmizegetusa Regia is built in several stages that have not been clearly identified. An attempt to discern the successive stages of construction and the techniques used was performed by Oltean and Hanson (2017) based on LiDAR technology (Figure 7).



Figure 6. a. The construction on the terrace II appearance during the excavations. b. The andesite plinths on the terrace X - appearance at their discovery. Source: C. Daicoviciu apud Neamţu *et al.*, 2016



Figure 7. The present contour of the fortification mapped with LiDAR technology and the paths of the stone road (west) and the paved road (east). Source: I.A. Oltean and W.S. Hanson, 2017

The forests covering of the fortification area make impossible its overall perception or its relation with the topography and the territory (Figure 8), the perception of the general landscape being impossible on terrace I, the highest one within the site (Figure 9).



Figure 8. Crossing path and closed perspective to the top with terrace I. Source: personal archives (2018)



Figure 9. Close perspectives within the fortification and the lack of valorisation for the topography (generator of the fortress ensemble) within the perspectives. Source: Tudora, 2018



Figure 10. Number designation for the terraces from Sarmizegetusa Regia. Source: Ștefan, 2001

Clearly, the major interest within the Sarmizegetusa Regia is represented by the sacred area that unfolds on terraces VIII-XIII (Figure 10). From these terraces the arboreal vegetation was almost totally removed to allow a clear perception of the site and its structures. The presence of the two sprouts (Picea abies) generates a separation between terrace XI - the largest, which includes the circular sanctuaries - and the terraces XII and XIII, located at a small difference in level but having totally different structures (Figure 11). The terraces within the sacred ensemble are delineated by dense forests toward the edges of the area opened to the public. The whole sacred area is cut out like a clearing in the surrounding forest (Figures 12 and 13).



Figure 11. The presence of the two spruces on the terrace XI. Source: personal archive (2018)



Figure 12. General aerial view on Sarmizegetusa Regia. Source: Oltean, 2007.



Figure 13. Section with the succession of the main terraces within the sacred area, Source: Tudora, 2018

On the other hand, in this area, a number of problems caused by the presence or absence of arboreal vegetation become much more visible. Thus, some of the slopes from the terraces show stability problems, the roots of the trees located on the cornices leading to the fragmentation and the collapse of the slopes (Figure 14). The most serious such situation is represented by the pentagonal tower, partially destroyed by the push generated from the trees that collapsed over time (Figure 15).



Figure 14. Terraces IX and VIII seen from the terrace XI – the collapse of some slopes between terrace IX and VIII can be observed here, in the background it is also noticeable the mound within the fortification. Source: Culescu, 2018



Figure 15. a. The pentagonal tower: photograph from the University Babeş-Bolyai archives (1960s) b. Current image: pressure created by trees on the wall and the destabilization of the terrain edge under the trees' weight are both visible. Source: personal archives (2018)

These matters send to another part of the research regarding the state of the arboreal vegetation from this site, an issue that will be analysed in the next subchapter.

Beyond the terraces of the sacred area, the eastern and western civil neighbourhoods, otherwise clearly marked on the information panels at the entrance to the site, as well as the Roman baths, are practically inaccessible and unreadable due to the vegetation from the site (Figures 16-17).



Figure 16. The pathway within the western civil neighbourhood. Source: personal archive (2018)



Figure 17. The Roman Bath. Source: personal archives (2018)

The state of the arboreal vegetation and the relation with the archaeological site

The assessment of the vegetation in the Sarmizegetusa Regia site was done conforming to the CODIT method described and developed by Alex Shigo (1998) and VTA method (visual tree assessment) that was and Claus Mattheck (1994, 2007). For a better legibility of the images used in the article the trees' injuries, crack, open wounds, or other problems assessed *in situ* are highlighted in red, using Adobe Photoshop CS3.

Regarding the vegetation, the largest share in the forest mix is represented by the beech (Fagus sylvatica) and the hornbeam (Carpinus betulus). Within the protection zone and, respectively, the protected area, compact groups of spruce (Picea abies) and pine (Pinus sylvestris) can be found sporadically. At this vegetal level it is also important to mention the presence of two species introduced by man: the black locust (Robinia pseudoacacia) and the plum tree (Prunus sp.). Thus, at the beginning of the access road to the archaeological site (in the DJ705A parking area) a group of black locust trees (invasive species) can be observed. Inside the site, south of the large round Temple, a plum tree is inserted, which still exhibits characteristics specific to the planting material developed for production, as well as indicators regarding its planting on this site, thus excluding the hypothesis of spontaneous occurrence.



Figure 18. Cracks extended throughout the entire height of the trunk; injuries to the base of the trunk/the potential fall space, which intersects the fortress walls. Source: Culescu, 2018

These interventions are narrow, but they are extremely important due to the implications they bring in an area that has already been, for a significant period of time, under national and international protection regarding the conservation of the habitats form this space.

From the health point of view, broadly speaking, the general state of the tree vegetation within the site is currently relatively precarious. Many of the trees placed in the vicinity of the areas used by visitors or near the archaeological components exhibit a series of problems (open wounds, cracks, etc.) or deficiencies in the general architecture of the plant (broken branches, forks, stumps, etc.), some of them presenting the risk of collapsing and destroving the archaeological remains, as is the case with the ash (Fraxinus excelsior) located at the western gate of the fortress (Figure 18). This is not the only tree with the risk of collapse, such situations being found throughout the entire perimeter of the site (Figure 19).



Figure 19. The potential fall space for other trees with problems within the site that intersects other elements of the archaeological ensemble. Source: Culescu, 2018

The trees located on the cornices of the terraces generate the danger of their collapse, thus leading to the destruction of the component structures of the Dacian fortress. These destructions, from the point of view of cultural heritage, are practically irreparable and irrecoverable (Figure 20).



Figure 20. Landslides and other problems associated to them. Source: Culescu, 2018

If the trees from the site can have somewhat negative impact on the general status and safety of the archaeological remains, as well as the safety of the visitors, in turn the visit of the site, in the absence of properly marked routs, leads to the alteration of the arboreal vegetation. Of the effects of improper site setup or lack of it, we mention here only two aspects. The first is related to the visiting routes that are not properly made or maintained. This results in the exposure of the roots and can, in time, determine the destabilization of the affected specimens. Injuring or cutting the roots opens new gates for diseases and pests, thus leading in time to the debilitation of the trees. Moreover, because those problems cannot be detected visually, it is difficult to know where and how to intervene, in a timely manner, in

order to stop or to slow down the debilitation (Figure 21).



Figure 21. Tree roots of exposed due to the usage patterns. Source: Culescu, 2018

Another aspect related to the site management is the attachment of information panels or "site management tools" to the trees, which leads, in addition to the derisory image of the site, to injuring the trees and, subsequently, to generating other health problems for the affected trees (Figure 22).



Figure 22. Panels fixed on trees. Source: personal archives (2018)

Regarding the state of the arboreal vegetation, two problems are recurrent, being encountered on this site for a large number of trees. One of these is the presence of the wounds at the base of the trunk (Figure 23) - a defect that, especially in the absence of an adequate maintenance process, questions the future integrity of the affected specimens.



Figure 23. Trees with wounds at the base of the trunk. Source: Culescu, 2018, p. 47

The second problem is the presence of cracks in the trunk (Figure 24) - an aspect that, in combination with the wind, can in time lead to the disintegration of the plants. The defective crown architecture contributes already very visible with trunk pressure forces. Also, the elimination of other trees can change the microclimate specific to each individual and, by exposing them to different wind directions and forces, it can potentiate the existing defects, ultimately leading to the loss of the affected plants.

Within the site, there can be encountered several other problems, such as: the occurrence of open wounds in the trunk caused by the fall of other trees, tumours, branches with defective growth or insertion caused by the friction of the elements. Although these problems have a lower recurrence, they cannot be neglected, constituting additional factors in destabilizing the trees from this site. Last but not least, the presence of wood in a more or less advanced process of decomposition (improvised furniture, pavement, etc.) is also affecting the general condition of the trees, often speeding up their weakening and, finally, leading to their disappearance.



Figure 24. Trees with cracks along the trunk.Source: Culescu, 2018

RESULTS AND DISCUSSIONS

As the *in situ* landscape analyse and vegetation assessment that we lead in 2018 are the first of this kind made on an archaeological site in Romania comparison with similar situation are difficult to be made. We can only imagine that similar situation are to be found also in other Dacian fortresses sites of Orăștie Mountins as all of them are part of the Natural Park of Grădiștea Muncelului – Cioclovina and thus exposed to the same conflictual situation generated by the two protection systems.

As the 2018 study was more of a preliminary one, for a more clear and precise image on the situation in Sarmizegetusa Regia a more detailed analyse has to be foretaken. Such a detailed study should be led by INP together with its collaborators, with specialists of Romsilva that are in charge with the management of the forests in the area, and with specialists in charge with the management of the Natural Park.

Our partial result concerning the landscape in general and the trees in particular are only pointing to the otherwise chronical problems of the Sarmizegetusa Regia archaeological site that is, for the most part, not valorised and inaccessible. The degradation of the vegetation and its poor maintenance lead to the destruction of this archaeological site of world importance. Within its perimeter, the interventions on the trees are allowed only at the request of the specialized bodies (to read forestry bodies), in order to carry out the works of repair, current maintenance. archaeological research. restoration, consolidation and conservation of the historical monument. The real problem is that these interventions cannot be performed at the request of the site administration or the archaeologists who work on the site and are prone to react only to the danger of destroying the components of the historic ensemble. In addition, when these interventions are carried out, the protection measures are unsuitable or lack completely from the execution process, and this has already generated additional damage. The way of organizing the tree cuts, the lack of protection measures and the approach of the site only as a part of the forest generates irreparable damage (Figure 25).



Figure 25 a. Trees collapsed due to natural causes (2012). Source: http://www.anchetadehunedoara.ro/sarmizegetua-regiao-istorie-furtunilor-care-au-devastat-monumentulunesco-ii// b. Trees collapsed following cuts. Source: personal archives (2018)

What can be easily observed is the fact that we are facing a lack of correlation of the mechanisms and instruments of protection for the natural and cultural values within the PNGM-C, although it is appointed, according to Law no. 5/2000, in the category of natural parks, corresponding to the category I IUCN -"Protected landscape: protected area administered mainly for landscape conservation and recreation." Thus, in accordance with Annex 1 of OUG no. 57/2007 - The purpose and the management regime for the categories of protected natural areas - it is stipulated in letter e): Natural parks are those protected natural areas whose aims are the protection and conservation of some landscape ensembles where the interaction of human activities with the nature has created over time a distinct area, with significant landscape and / or cultural value, often with a great biological diversity. The management of the natural parks aims to maintain the harmonious interaction of man with nature by protecting the diversity of and landscape. promoting habitats the traditional preservation of land uses, encouraging and consolidating the activities. practices and traditional culture of the local population. Likewise, recreational and tourism opportunities are offered to the public and scientific and educational activities are encouraged. However. the PNGM-C Management Plan is limited to a number of measures aimed at protecting natural habitats but does not provide sustainable development resources for communities.

Even though the PNGM-C Management Plan established the reassignment of the surface of the archaeological site (only the part accessible to visitors) within the sustainable management category, within the Forest Management Plan this space is still embedded in the integral management category. As a result of the spring 2018 cuts, Grădiste Forestry Department has requested the reassignment within the Forest Management Plan for the area related to the archaeological site from the integrated protection category to the one designated for sustainable management (the classification made at the time of the development of the Forest Management Plan is not complying with the PNGM-C Management Plan) but, however, this measure does not guarantee a change of attitude for the workers on field. In this regard, beyond the necessary changes to be made to the Forest Management Plan (where the situation was not resolved during the last 6 months), it is also necessary to draw up a vegetation management plan for the site, accompanied by a plan for organizing the execution works to ensure avoiding any subsequent damages caused by the condition of the trees or by the works for their removal.

Actually, in the current legislative system the landscape remains a topic reduced only to natural and environmental aspects although the international legal framework emphasizes the cultural dimension of the landscape. The landscape is defined by IUCN as an area "where the interaction of people and nature over time has produced an area of distinct with significant ecological, character biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values". Yet, the landscape values within PNGM-C are reduced to biodiversity issues, without taking into account the cultural values of the area or the scenic features that could enhance both the natural and cultural heritage.

Further analysis on Sarmizegetusa Regia and on other Dacian fortresses in Orăștie Mountains can help to a better understanding of values and site management for these unique UNESCO recognised archaeological sites. For the moment, our preliminary conclusions are related only to this first landscape study.

CONCLUSIONS



Figure 26. Perception of arboreal vegetation as visual screens around and within the site. Source: Tudora, 2018

From the cultural landscape point of view, the spatial and visual relation of Sarmizegetusa Regia with the territory and the landscape, the relation that led to the development of the settlement on these places, is today nonexistent (Figure 26) due to vegetal screens (in orange) that block the major downward perspective towards point of interest (in black). Although the forest has long been a factor of protection of the site and, to a large extent, it represents one even today, there are a number of obvious problems generated by the need to valorise the archaeological site in the context of retaining the forest. On the other hand, dead or decaying trees are a real danger for the site. In addition, obviously, the fact that the forest has invaded the former Dacian settlement makes detailed archaeological research difficult. which also leads to misapprehending the importance and the territorial dimension of this settlement by the general public.

For now, it is very obvious the inability to mediate the two protection systems - natural and cultural - established within the space where the archaeological site is located. In addition, turning the site into a tourist attraction and opening it to visitors brings additional pressure for the ensemble. It is important to note that, although the area benefits from the presence of valuable habitats, they are not unique. On the other hand, the interaction of visitors with these habitats should be done safely, but this is not possible considering especially the degradation state of the arboreal vegetation. This degradation has so far led to the destruction of unique archaeological artefacts and, most likely, will continue to cause damage in the absence of a proper management.

Beyond solving the problems that result from the inter-institutional non-corroboration of the protection measures for cultural and natural values, the following interventions or projects for valorising the site appear as necessary starting from landscape architecture principles:

- Development (with an interdisciplinary team) of a project for valorising, restore and conserve the Sarmizegetusa Regia entire site as a whole, not only for the 18.3 ha area;
- Modernization and adequacy of the infrastructure for visiting and comprehend the site based on its valorising project;

- Development, together with the PNGM-C, of mountain routes for tourist that include the archaeological sites - on the old Dacian and Roman roads and pathways, marked as such, allowing pedestrian access to the area;
- Clear on field marking of the protection perimeters for the archaeological sites;
- The immediate recovery and protection of the materials dislocated from the walls of the fortress for future restoration;
- Valorisation, restoration and preservation of the monuments within the site and from the extended protection area, based on the aforementioned project, to ensure protection when the number of visitors increases;
- Performing interventions at landscape level to valorise the site and its protection area based on a landscape design plan.

As short-term emergencies, it stands out, beyond the safety of the ensemble components, the need to reorganize and setup the visiting routes, an intervention that is directly related to the safety. Route setup must be done with noninvasive and minimal means and should consistently aim to limit the interaction between visitors and valuable elements of the site and the continuous degradation of the land. this respect, traditional methods of In modelling the terrain or making paths, steps or pathways are recommended. The reversibility of these setups is a criterion of outmost importance. Another requirement is to maintain the naturalness of the site from the point of view of the image provided by the site, this being one of its major qualities at this moment. The *mise-en valeur* of the site can be done with soft installations and instruments specific to landscape architecture and land art.

To ensure the success of the maintenance of the arboreal vegetation it is recommended to appoint a so-called gardener of the site, respectively a professional - preferably with experience in the field of arboriculture - who will come to know in detail the condition of the trees that form the vegetal ensemble. Thus, the interventions carried out on each tree will take into account its vulnerabilities, its strengths, etc. and to ensure continuity and consistency in decision-making regarding tree interventions.

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MISCELLANEOUS

