

# Archaeological site – environmental element

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**Abstract.** Paper analyzed character of landscape on and around archaeological sites, which were created by natural and human made elements, relating to the historical period and archaeological type of archaeological sites in Latvia, Lithuania, Estonia. Visual landscape room types around archaeological sites were discussed relating to their openness: e.g. open, closed, enveloped, half closed. Spatial planning impact on the archaeological sites were analysed together with visibility and visual amenity of archaeological sites and impacts from surrounding landscape.

**Keywords:** archaeological site, historical landscape, visual borders.

## Introduction

In this research attention was directed to the description and analyses of the visual landscape around archaeological sites. Archaeological sites were connected with other elements in their surroundings. During their use, for example, settlements were connected to water resources, with woods or fertile soil from which to gather food, and with elements in the landscape, which created defense and comfortable conditions.

Role of landscape is the most important aspect – survival of sites and how to protect archaeological site as environmental object analysed in relation with visual border character and visitors management on sites and around them.

## Materials and Methods

### *Irreplaceable elements*

Archaeological sites are sometimes visible as earthworks, as ruins with ditches, ramparts, terraces, grave mounds, or only darker soil composing the cultural layers resulting from settlements buildings, and fair places. Some sites are covered by layer of humus soil so that no features visible at the surface, for example grave fields, settlements, and ancient field systems [1].

The environment of human group forms one of the conditions of its life; this environment consists both of things made or acquired by the people, and of the natural surroundings [2]. As environmental elements, archaeological sites are irreplaceable. They exist today in 3 ways: covered sites, open excavated sites, and reconstructed of sites with conserved objects. Additional visual characteristics are given by vegetation cover, especially bushes and trees. The later may or may not be modified by human activities, but are in any case used and given cultural meanings, so that they function along with human manufactures as part of the culturally defined environment [2]. Archaeological site beginnings come from different periods, but their

preservation overlaps with features of later periods, and this overlap is continuing also today. Important aspects of landscape change are also the frequency and the magnitude of the change [3].

One of the central aims for preservation is to explain the visual values and surrounding landscape of ancient sites, relating them to the different measures for preservation available for archaeological sites. These issues reflect a relationship with other professions, and increase the understanding of the professional requirements of the different people involved.

Visual borders of sites show our attention and understanding of value of archaeological remains and archaeological landscape. Visual borders were characterized by 2 factors: distance to the border (close or far) and elements which define the border (vegetation or anthropogenic elements). In current research considered 4 types of visual borders:

Open with vegetation: more than 2 km views in which dominate vegetation and natural elements such as water, valley slopes, forests, etc.

Closed with vegetation: means visual border located close to the site and consist from vegetation.

Open with man made elements: means far views with antropogenic elements in this landscape.

Closed with man made elements: means visual border located close to the site and consists from anthropogenic elements mainly.

Hillfort landscapes are mainly open with vegetation or man made elements or closed with vegetation. Settlements are mainly open with vegetation or man made element borders. Burial site borders are closed in half of sites. And greater amount of cult sites are closed with vegetation borders.

Study shows that sites in an urban landscape have closed borders with man made elements and only several sites closed with vegetation borders. In rural landscapes dominated borders are open with vegetation and closed with vegetation. And studied

sites in forest landscapes are with closed vegetation borders because of mainly flat topography and intensive bush vegetation.

In a predominately open landscape, the vegetation elements that aid the movement and grazing of animals are the same elements that give the landscape spatial definition and aid people's perception of depth. Ulrich [4] speaks of gross depth properties and focally as factors eliciting the very quick initial affective reaction to an environment. Areas to focus on when explaining the high preference for cultural landscapes would be people's conceptions of natural and man made. It has been suggested that preference reflects a desire for balance between two [5].

Monuments are part of our everyday experiences. Their beginnings come from different periods, but their preservation overlaps with features of later periods, and this overlap is continuing today. As environmental elements, archaeological sites are irreplaceable.

### **Damage**

In river valleys construction works on reservoirs for hydroelectric power stations caused changes to the local water levels. Erosion along banks cut into slopes of hillforts and other archaeological sites. Erosion is caused as well by damage from visitors footpaths and big trees [6]. Most of damages on sites are caused by erosion and there are possible to localize them, but nonetheless serious threats come from natural erosion as soil movement and peat decay. The management of archaeological resources on the ground, practically if in situ conservation has been selected, requires that aspects of environment be considered, and that a measure of common be applied [7].

Reducing from erosion damage will be done in two ways: direct conservation treatment on slopes, and by planning measures: in some cases we need both [8].

Lambric suggests [9]: "As elsewhere, the archaeologists may be delighted to preserve undisturbed field monuments in rich wildlife habitats, but he is also interested in that vast majority of known sites which are on improved pastures or arable lands, damaged though they may be. To quite a large extent archaeological and wildlife interests do not automatically overlap without assessing the actual degree of overlap interests and it require concerted action to protect the natural and cultural heritage." The potential joint interest in some quite large territories of landscape has only begun to be recognized, let alone studied or publicized [10].

In river valley protected landscape reserve also included complex of archaeological sites – hillfort, settlement, church, and castle ruins, grave field.

Nature protection in this area without maintenance very much change this cultural landscape decreasing amount and character of historic features visible in the landscape.

## **Results and Discussion**

### *Analytical approach to design and management*

Sustainable land-use planning requires an in-depth analysis of the existing resources (localization, features, sensitivity to development) and an understanding of development characteristics (resources needs and collateral effects) in order to identify an use for the natural resources that will not prejudice future development [11]. Activities must be developed where the necessary natural resources exist and only when the environment is capable of absorbing the impact of the development [12]. Tourists, farm animals, motorcross-riders, and horse-riders are individual or collectively responsible for considerable erosion on archaeological sites, in areas close to conurbations or in popular areas. For example in England the problems encountered along Hadrian's Wall are especially well known [13]. In Latvia especially great impact has been noted on sites beside urban areas such as Koknese, Aizkraukle (*Kalnaziedi* hillfort) in the Daugava river valley.

On the transition zone between land and water, banks, may be attacked by currents and waves leading to loss of land. The objective is to promote an analytical approach to the design and management of banks to do justice to their multifunctional character. Extra attention is paid to the ecological functions, in particular the habitat and corridor functions. It must be stated that by using a combination of civil and nature engineering techniques it is very well possible to create bank protections that are reliable in a civil engineering sense and valuable from the landscape ecological point of view.

Archaeological sites in current landscapes offer different impacts from their surrounding. More remarkable impacts are in open-field landscapes. There the intents of the impact can be increased if the density of inhabitants in the area rises. In wooded and wetland landscapes archaeological sites are less damaged by impact of human activities directly, but the planting of trees, and the roots of trees and bushes, disturbs cultural layers on sites and change landscape character greatly after some years.

### **Historic landscape**

There is need to focus on the historic dimension and character of the present-day landscape while taking account of other (non-historic) attributes of the landscape rather trying to find or reconstruct past landscapes. Later land-uses are transparent, but still



Fig. 1. Hillfort in forest landscape Kartavkalns Latvia  
[Source: photo from author private archive, 2011].

present. In contrast, areas with 18<sup>th</sup> century land ownership patterns palaces, park, agrarian field and settlement systems may retain prehistoric and other earlier horizons, but the more recent levels are relatively opaque. It is illustrated at Lielvarde palace and park complex with medieval castle ruins on the ancient Latvian tribes'hillfort, settlement and cemeteries where in historical parkland. We are increasingly aware that site-based conservation is more unlikely to be successful without a wider context. It is recognized that such individual features do not in any case represent the full material remains of the our past [14].

We must take into account the semi-natural, but still strongly humanly-modified, features of our environment. Just as successful country side management, as in the Gauja National Park, Abava Valley, must be based on the concept of multiuse countryside, so too must historic landscape conservation itself be multi-value. The landscape has a complicated set of inter-relations-through time (in the secession of features of different period), through space (in macro-geographical variation or in micro-distribution or patterns of features and landscape components), or through function and process (in terms of interconnecting or multi-functional use).

Because humans generally modify the landscapes in which they live, and because they attach myths, and affective value to features of territory they inhabit, the landscapes of past cultures may also qualify as cultural and environment resources.

Archaeological sites of the Stone Age are generally situated beside lakes or rivers, or on small islands surrounded by water or wet areas. Sites related to the Bronze Age are more typed in areas good for crop production and cattle farming, but close to rich hunting and fishing places.

The Iron Age sites are situated in different landscapes all around the territory of the Baltic States. Mainly, however, they are concentrated in areas of rich soil and along the main trade routes. So the river valleys have the greatest density of archaeological sites from all periods.

Some sites have a great overlap of remains from many periods. Moreover, modern roads are mainly located in the same places where the main Iron Age trade routes ran. So the great deal of archaeological sites is under threat from modern road construction, and also from visitor erosion because of easy access to the site.

Hillfort's landscape have mainly half closed visual rooms but settlements have either enveloped either half closed visual rooms. Burial sites located in enveloped and closed visual rooms. Cult places mainly are in closed visual rooms. Forests have increased both on sites and around them over the last few decades. Urban land, and areas for recreation, are at the same level on sites, but have increased in surrounding areas. Surrounding landscape type and vegetation type very much determinate visibility of archaeological sites. In the investigated districts: far views and site as focal point in area dominated in rural landscapes. Great part of sites was located in closed visual rooms around sites in rural and forest, and in urban landscapes. But very little were in open visual rooms in all landscape types.

Hillfort landscapes are mainly open with vegetation or man made elements or closed with vegetation. Settlements are mainly open with vegetation or man-made element borders. To assess archaeological sites as environmental element preservation quality needs broad interdisciplinary information, but the amount of information available for individual regions depends largely on the extent of the detailed fieldwork that has been undertaken. Suggested that properly designed projects can enhance the environment of archaeological site and it's surrounding for a variety of fauna and flora if attention is paid to the ecological functions, in particular the habitat and corridor functions.

Visual amenity of sites in different types of landscapes of investigated districts were high or medium in urban areas, because they receive more attention in planning aspects, conservation and maintenance care. In rural areas located sites were medium and in forest landscapes were low level of visual amenity. The reason was rapid vegetation and different types of erosions on site and economical activities around sites. Of course large-scale forest cutting in some places radically change visual landscape.

### Landscape development

There is need to encourage awareness of all the many ways in which the landscape has been changed over a very long time scale. Historical landscape assessment, by identifying and explaining what is characteristic, fundamental or important in each area, can help to guide decisions on future change so that we build on, rather than destroy, existing historic diversity in the environment.

One of the main assets of Latvia, Lithuania and Estonia is its nature [15]. To elaborate this question there is a need for a constant working dialogue between spatial planning and environment protection, in which the needs and desires of local and sub-national populations are taken into account. The evaluation can highlight such things as economic and cultural values in the landscapes. There are practically no primeval, untouched natural landscapes. The characteristic small-size mosaic pattern of landscape was historically formed. Traditional land-uses and methods of agriculture, forestry and fishing have slowly elaborated and enriched landscape elements over the centuries. During soviet times, when huge collective farms were formed in rural areas, and towns (especially the Riga agglomeration) grew rapidly, traditional landscape structures were destroyed. Industrialized society, with its characteristic standardization rapidly degraded the determining qualities of landscape. The most significant changes were in rural areas, where farmers were detached from their traditional, extended family, small farm style of living and concentrated into new villages built in new areas or directly in historical places.

Towns, like the rural areas around them, have evolved over centuries to reach their present form. They are all therefore historic to some degree, and thought many of the most important historic areas and buildings will usually designated as conservation areas or listed monuments, much of remainder also make important contribution to the character of urban historic landscape (most of them are preserved by law) and their rural landscape. Since 1977, five areas within Latvia have been declared protected landscapes because of their aesthetic and traditional rural cultural values.

Explores the land-use both on site and around them, looking at changes between the present situation and that 50 - 70 years ago. Arable land and areas for grazing were more widespread landuse types on sites 50 - 70 years ago than now. Forests have increased both on site and around them over last few decades. Urban land, and areas for recreation, are at the same level on sites, but have increased in surrounding areas.

Landscape architects, or those concerned with the designed landscape, will naturally have a different viewpoint to those approaching landscape from an ecological viewpoint. The second is predominate in Latvia, and while integrated



Fig. 2. Archaeological site in Rebala Estonia  
[Source: photo from author private archive, 2011].

multi-disciplinary working is now increasingly common these differences are still crucial.

The landscape, its presence everywhere, and its ability to mean all things to all beholders, probably makes landscapes one of the most credible ways that local, non-expert judgment can influence planning. This view of the historic landscape is now being increasingly embedded in official statements, for example in the council of Europe Recommendation on Cultural Landscape [16].

In the landscapes around archaeological sites we must take into account the semi-natural, but still strongly humanly-modified, features of our environment. Successful country side management must be based on the concept of multiuse countryside. The growing changes mean that most of the landscape that can be seen today is recognized as the product of human interference or non interference.

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### Spatial planning impact to the archaeological sites

Landscape around sites change every day, and changes are also evident at sites themselves. Preservation of such dynamic objects is related to the great difficulties for conservation, and also to optimizing land-use in surrounding areas today. When finding the right solution and better balance for development of an area, archaeological sites must be included in spatial planning systems right at the beginning when the strategic proposals are first worked out. The issues to be addressed must include:

- the design of effective site management plans;
- the design of landscape protection areas;
- the reporting of condition for long-term monitoring of sites.

Of course every study of landscape further transforms its meaning, depositing yet another layer of cultural representations [17]. A landscape is a cultural

image, a pictorial way of representing, structuring or symbolizing surroundings. This is not to say that landscapes are immaterial. Indeed the meanings of verbal, visual and built landscapes have a complex interwoven history. Spatial planning

determines land-use, location of roads, settlements. Economy policies and planning made impacts on the archaeological sites through three main activities: intensification of agriculture, construction of water reservoirs, urbanization.

### Conclusion

Using landscape planning as a tool for environmental management during new development has allowed for the inclusion of archaeological site as part of the environmental base for sustainable development. An historical survey must be carried out to compile landscape planning documentation preparatory to the development of an area. As pointed out by Damell and others, a survey of this kind includes an inventory of prehistoric remains, especially burial sites and settlements, aerial photography of the area, a review of earlier

maps, the intention being to arrive at a picture of cultural developments in the area [18].

Pictorial compositions, views and panoramas, closed and open perspectives never come value-free. as mentioned by Green it always carries implicit bundle of aesthetic assumptions and implications [19]. This inhabits possibilities for more effectively historical understanding of landscape.

Surrounding landscape type and vegetation very much determine visibility and aesthetics of archaeological sites.

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**Kopsavilkums.** Rakstā uzmanība pievērsta arheoloģisko pieminekļu aptverošās ainavas aprakstam un analīzei, jo arheoloģiskie pieminekļi ir cieši saistīti ar ainavas elementiem tā apkārtnē.

Ainava ir viens no svarīgākajiem aspektiem – pieminekļu saglabāšana un kā tos saglabāt kā vides elementus analizēts saistībā ar vizuālo robežu raksturu un apmeklētāju menedžmentu gan pieminekļi gan ap to.

Zemes lietojuma plānošanā ir iespējams iekļaut arheoloģisko pieminekļu teritorijas tieši kā līdzekli ilgtspējīgai attīstībai. Vēsturiskā izpēte ir šāda plāna pamatā un tā papildina plānošanas dokumentus. Gleznainas kompozīcijas, skati un panorāmas, atvērti un ietverti skati vienmēr ir vērtība, ko sniedz arheoloģijas pieminekļi, bet aptverošās ainavastipis un veģetācija ievērojami nosaka redzamību un pieminekļu estētisko uztveri.