Abstract: Since the European Landscape Convention was signed and ratified in 2007 in Hungary, attention has been drawn to the development of landscape character assessment methodology. Such assessments have been made for decades for local and regional plans, as parts of landscape assessments. However, a scientifically established and generally accepted methodology does not exist. In our research, we introduce the ongoing research of our Department in this topic, introducing our methodology developed and applied for two different landscape types and two landscape elements.

Key words: landscape character, landscape types, landscape elements

Introduction

In compliance with the provisions of the European Landscape Convention, we believe that a methodology of landscape character assessments should be developed for Hungary. The professional research and landscape analyses prepared for the planning projects in the past decades provide a good basis for that. In our interpretation, the main factors of landscape character are the natural elements, the historical landscape pattern developed during the centuries, the visual appearance of the landscape and the local traditions and emotions related to the landscape and landuse. The objective of our thematic landscape character assessments was to elaborate a methodology that provides a basis for landscape protection and planning.

Materials and Methods

At our Department of Landscape Protection and Reclamation, the methodological aspects of landscape character assessments are examined on the basis of landscape types classified by the dominant of landuse. Since landscapes with different landuse have different character, our research has been focused on analysing the role of different landuses and some landscape forming elements.

In the first phase, the main features of rural landscape (settlements and agricultural areas) were analysed, as the most typical Hungarian landscapes. This was then followed by the assessments of the role of two important landscape elements that is the abandoned surface mines and natural lakes in the second phase.

The thematic landscape character assessments were prepared at different study areas, suitable for the landscape type concerned. The first study area of our settlement assessments was the partial catchment on the left bank at the middle section of the small border-river, Ipoly. 21 settlements (out of the total 70 located here) were analysed in detail. The landscape character assessment of agricultural areas was prepared at the 56 km² Szentendre Island surrounded by the Danube’s two branches, comprising 4 small settlements (Dublinszki-Boda...
2010). These thematic assessments of landscape types were completed by the assessment of the role some dominant landscape elements play in the landscape character. To assess the role of surface mines, the attributes of 15 mines from all over Hungary have been analysed. Four of these are still working, and 11 are abandoned (Módosné–Csima 2010). The role that lakes play in landscape character had already been investigated on Lake Velence, having 24 km² water surface (Boromisz 2010). The locations of the study areas in Hungary are demonstrated in figure 1.

As a primary method we have made the assessments by field survey both in the case of the two landscape types (settlements and agricultural areas in rural landscapes) and the landscape elements, using topical topographical maps and aerial photos. The historical landscape development was studied by the available maps of the 18th to 20th century and the relevant literature. Surveys were recorded with several photos in every case. For comparison, we have studied the latest foreign landscape assessment methods, as well as the experiences of their results (Kabai 2010). The assessment methodology applied differs from that used in the UK (Landscape Assessment Guidance 1993, Julie Martin Associates–Swanwick 2003). The assessments are not focusing on regional, but on local scales, consequently, mainly based on field surveys with special emphasis on empirical analysis, rather than on statistical data and maps. In the case of all study areas we have investigated the landscape character forming role of the same factors: natural elements, landscape structure, visual aspects and the emotions and traditions.

Results and discussion

A) Thematic assessments by landscape types

In the landscape practice we define landscape types on the basis of their primary landuse. Our landscape character assessments have been prepared for rural settlements and agricultural landscapes.
The character of settlements in the rural landscape

Most of the settlements of the Ipoly Valley study area are situated in the eastern part of the region, in the Novohrad-Nőgrád Geopark, established in 2009. The assessments begun in 2007 by a study prepared for the establishment of the Geopark that had been planned that time (Csima–Módosné 2007, 2010). 21 out of the region’s 70 settlements were analysed, based on field surveys and literature review, in detail with regard to:

• the relation between the main natural features and the settlement area, or, as a consequence thereof, the role of settlement’s location in the landscape character;
• the pattern of the settlements in relation to that of the road network;
• historical circumstances and peculiarities of the establishment development of the settlements.

Our analyses showed that the location of the settlements in the rural landscape was basically defined by two interrelated natural factors: hydrology and topography/relief (Csima 2009). The 70 settlements of the study area are mainly attached to the surface water-network. On the basis of the relation of the settlement to the river network, the settlements of the Valley can be classified into 4 types: established on river side, on stream side, at the source of a stream, at the mouth of a stream.

As to the relief, the settlements of the area show much greater variety. The diversity of relief characteristics caused high variety in the settlements’ landscape structure. This variety was increased by the development. Mainly in the 20th century settlements spread also on terrains that had never been used to be built-up earlier. Consequently, it is typical for this settlement development that on complex relief, complex settlement’s structures have developed. While the 70 settlements can be classified into 4 types on basis of the hydrological situation, regarding relief they can be classified into 6 types, separating 17, significantly different sub-types.

In the assessments made so far, the layout of the settlements has had only a complementary role. As for the visual factor, the sight from the roads and the look-out points, the visibility of the whole settlement and the visibility of the most significant buildings (castles, churches) were considered. In most of the settlements the important, advantageous visual elements of the character are the churches built on high terrain, and the castles in two settlements.

Our analysis certified that the following factors play the most important role in the settlements’ landscape character: pattern of settlements; situation of the individual settlements in the landscape determined by the natural elements and landuse; the layout of the settlement, and the landscape elements that affect the quality of the sight: some important buildings in the landscape such as castles and churches. The unique historical man-made features related to the settlement preserve the local traditions and demonstrate the inhabitants’ affection for the landscape, thus they also contribute to the landscape character. The orographical and hydrogeological features of the settlements are extremely significant attributes of the character, therefore they may play primary role in classification. The following images show two examples of character types of rural settlements in the Ipoly Valley study area: in river valley (photo 1) and at the foot of the castle (photo 2).

The character of agricultural land in the rural landscape

As a part of our thematic landscape character assessment Szentendre Island has been chosen as first study area of the agricultural landuse, owing to the beneficial conditions that the area provides for cultivation of agricultural crops. The field surveys were complemented with the analysis of historical and landuse maps.

Out of the natural factors the relief does not play significant role in the study area, as the surface is almost flat. It is rather the hydrology that matters, as the Island is surrounded by the Danube River’s two branches. The high level of ground water as well as the yearly floods regularly had endangered the villages built on grounds elevated some meters only, before the flood-control dams were built on almost the full length of the banks of the island. A zone of willow-poplar riparian forest with scattered Populus x euramericana plantations is also a significant landscape element, surrounding the inner area of mainly agricultural use (photo 3.). The riverbanks of the island are also protected as an ecological corridor of European significance. On the areas under agricultural cultivation, the original, natural vegetation disappeared, having no role in forming the landscape character. The more diversified soil parameters enable more varied – more mosaic-like – cultivation and cultivated crops’ structure.

The main elements of landscape pattern determining the character of the landscape are the following: pattern
of cultivation, plot structure and the types of crops cultivated. The edges of built-up settlement areas and agricultural areas also play a significant role. The traditional landscape structure is most endangered by the recreation demands related to the Danube River, especially the growing area of second home developments. As for the visual factor, the duality of being open inside and closed outwards is typical for the island. The external visual connections are limited by the flood protection dam and the riparian forest. The internal agricultural landscape practically does not have trees planted, thus it appears with the edges of the four small settlements (photo 4).

The emotional factor influencing the landscape character is the preservation of traditions regarding cultivated crops and the applied agrotechnics. The local population stands on the traditions of growing strawberry and cut flowers.

B) Thematic assessments by landscape elements

The surface mines and lakes, alone, are landscape elements having character-determining value, which change the special character of landscape types.

Role of surface mines in landscape character

According to the data of earlier assessments, there are about 10 000 smaller or larger degraded surfaces caused by mining, that are mainly unrestored abandoned surface mines or quarries. The surface mines are a significant type of man-made surface forms (Szabó-Dávid 2006). Our research involves abandoned surface mines as typical elements of landscape character to be found all over the country, out of which 15 have been
analysed in detail. Their main features have been defined by summing up our field survey results along the main factors of the landscape character (Módosné–Csima 2010).

Regarding the natural factors of landscape character, it is the geological conditions - type and quantity of raw materials suitable to be exploited - which define the place to establish mines, their size and the way of mining. The surface mines change irreversibly the natural characteristics that were determinant for the original landscape character. Thus, from this point of view, mines are disadvantageous elements of the landscape character. At the same time, however, new, natural landscape elements may appear, such as the bed-rock left on surface after mining (photo 5.), or in the case of wet mine pits the water surface of the lakes developed, or the biologically restored secondary vegetation cover of mining areas.

The size of visible mine surface, the grade of restoration of the abandoned mines – the extent of physical and ecological restoration – being visible/screened and the subsequent utilisation of the earlier mining area as it appears in the landscape contribute to the visual factor. Regarding the extent of their visual envelope, the mines situated on hills and lowland, or those still working or being abandoned (restored) play significantly different role. Future use of reclaimed land plays a great influence on landscape pattern and scenery. Landscaping has an important role, so that abandoned mines should be less obtrusive elements of the landscape.

The subsequent use of abandoned mines should harmonize with the landscape structure at larger scale – of the landscape type including the mine. The more intensive re-utilisations, e.g. sport-tourism, or a commercial activity may affect the landscape structure significantly. The more extensive forms, such as educational-tourism and nature-conservation, do not have a significant effect on landscape pattern and character. Several good examples illustrate this in Hungary by utilising earlier quarries (e.g. Fertőrákos, Ság Hill) for nature-conservation purposes (photo 6).

The landscape character’s emotional factors comprise the land forms developed by mining, which have been forming the landscape character for decades or in some instances for centuries, thus „infiltrating” into local people’s image of the landscape for a long time as determining elements. The demand to preserve the natural values, explored by mining may be further emotional factor. Many former mining areas in Hungary are under nature conservation, either as for their geological value, or as a habitat. Most of these are geological, geohistorical display sites, targets for educational tourism. The social environment that is influenced by the relation between the settlement and the mine in its administrative area, or by the emotional connection of the population with the mine, belongs to the landscape character’s emotional factors, too. In the case of settlements (having been) based on mining, people perceive the role of scenery and landuse of operating, temporarily closed, or already restored mines in a quite different way than in the case of other ones.

Role of lakes in the landscape character

Lakes – along with their special riparian and aquatic vegetation – are dominant natural factors of the landscape.
character. They are in strong relation – interaction – with the relief and hydrological features of the catchment area. In the case of the Lake Velence where the shore is surrounded by highland in the north and lowland in the south, one can definitely realize the role of relief conditions in the landscape character.

The lakeshore assessments were complemented with the analysis of aerial photos and local plans. The existing landscape structure depends on the landuse potentials of the lake, on the actual utilisation of the water surface and the lakeshore. A typical utilisation of natural lakes is the extensive or intensive recreational activity (photo 7). Its consequences may involve from a small change of landscape forming elements to shores built in up to the waterline as well as to full paving of the shores and the adjacent land zone.

Even the lakes with smaller water surface contribute to the visual diversity, the colours, the light-shadow effects and the reflections provide spectacular sights. A formal element of landscape view may be the shore’s structure, as well as, taking a closer look, the steepness and the height of the slopes. The sight of natural water, natural and introduced riparian vegetation are advantageous elements of landscape view (photo 8).

Although in a different way, the emotions and traditions related to the lake are also important factors of the landscape character as perceived by the population living at the lake and having utilised it for centuries, and by those staying at the lake temporarily for recreational purposes. The demand to save the nationally significant natural values motivated the establishment of bird reserve in the he western half of the lake. This includes highly endangered parts, being closed for the public and also ones to be visited and shown for educational purpose.

Conclusions

The results showed that four main factors can be assessed for every landscape type and element: natural features, landscape pattern, visual aspect and the landscape related emotions and traditions, which may appear as unique landscape features in the landscape. The landscape pattern of the assessed landscape types is relatively constant, while the dynamic changes of the assessed landscape elements are altering the landscape pattern. The preservation of the valuable landscape elements is a key issue of landscape protection. The thematic landscape character assessments provide a scientific basis for further development of the assessment methodology for landscape planning in Hungary.

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