

HODNOCENÍ KRAJINNÉHO RÁZU NA PŘÍKLADU NIVY ŘEKY MORAVY

LANDSCAPE CHARACTER ASSESSMENT ON THE EXAMPLE OF THE MORAVA RIVER BOTTOMLAND

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Tento článek se zabývá krajinným rázem údolní nivy řeky Moravy mezi městy Uherské Hradiště a Uherský Ostroh. Krajina byla hodnocena pomocí dvou metodik. Metodika mapování krajiny od Vondruškové, et al. v roce 1994 pro určení aktuálního stavu segmentu krajiny a metodika hodnocení krajinného rázu vytvořená Agenturou ochrany přírody a krajiny v roce 1999. Na počátku se článek obecně zabývá problematikou krajinného rázu a druhovou identifikací prostoru. Druhá část článku se zabývá popisem a využitím metodiky pro krajinné mapování a krajinný ráz.

Klíčová slova: krajinný ráz, krajina, řeka Morava, niva, Uherské Hradiště, Uherský Ostroh

This article deals with the landscape character of bottomland of the Morava River between towns Uherské Hradiště and Uherský Ostroh. The landscape was assessed using two methodologies. The methodology for landscape mapping elaborated by Vondrušková et al. in 1994 for the determination of the current condition of the landscape segment and the methodology for landscape character elaborated by the Agency for Nature and Landscape Protection in 1999. The beginning of this article is concerned with generic problems of the landscape character and generic identification of the area. The second part deals with the description and usage of the methodology for landscape mapping and landscape character.

Keywords: landscape character, landscape, river Morava, bottomland, Uherské Hradiště, Uherský Ostroh

1. INTRODUCTION

The landscape around towns Uherské Hradiště and Uherský Ostroh has been settled since the Neolithic. This is certified by a number of excavations that have been conducted in this area. The Morava River and the surrounding fertile bottomland have been influenced by human activity for ages. First, people started farming here and the landscape character started to change – the areas of forests and meadows started to decrease in favour of farming land. A substantial change in the landscape character was brought about by the regulation of the Morava River, which took place in the 1930s. Besides the significant ecological changes, which had immense consequences for the surrounding landscape, also the landscape character changed – although this was not observed as intensely as the previously mentioned change. When the river bed was straightened, the aesthetics of the meandering current was lost.

When evaluating the landscape character, time plays an important role – time only can show the correctness of our decisions that changed the landscape. It would be interesting to see the faces of our descendants in 80 years when looking at cell phone towers or shopping malls at the outskirts of cities; or to see the landscape along the Morava River in about a hundred years [3].

2. THE RESEARCH AREA AND METHODOLOGY

2.1 Administrative situation

The research area is located in south-eastern Moravia, partially in the South Moravian Region and partially in the Zlín Region. It is an administrative district of the former Uherské Hradiště district and the Hodonín district. The real estates are located in the area where the real estate cadastre is administered by the Cadastral Offices for the Zlín Region and South Moravian Region located in Uherské Hradiště and Hodonín. The research area is a part of the following cadastral areas: Uherské Hradiště, Staré Město, Kunovice, Ostrožská Nová Ves, Chylice, Kvačice, Uherský Ostroh, Polešovice, Nedakonice, Kostelany nad Moravou and Moravský Písek, which is the only one that falls in the South Moravian Region. The predominant type of land is forest land and arable land, then lands for other usage. The majority owner of the lands is Lesy ČR, s.p. Other owners are e.g. the municipalities within the area and private owners, who usually own real estates and lands, mainly arable lands. Water currents and water bodies are administered by Povodí Moravy, s.p. and some private entities.

2.2 Definitions of basic terms

The following terms are defined in Act no. 114/1992 Coll., on nature and landscape protection, as amended [6]:

Landscape is a part of the earth surface with a typical relief, consisting of a set of interconnected ecosystems and civilization elements.

Landscape character, as especially a natural, cultural and historical character of a place or area, is protected against any activity that could reduce its aesthetic and natural value.

A *nature park* is a generally protected area in compliance with Act no. 114/1992 Coll. Nature parks are established by decrees of regional authorities limiting the activities that could lead to damage or destruction of the maintained area, valuable for its landscape character and concentrated aesthetic and natural values.

A *significant landscape feature* is an ecologically, geomorphologically or aesthetically valuable part of the landscape that forms its typical appearance or contributes to its stability. Significant landscape features are e.g. forests, water currents, ponds, lakes and bottomlands.

2.3 Methodology

The assessment of the landscape character has been dealt with in a number of methodologies by significant authors but for the needs of the research area, two methodologies apt for it character are sufficient. The Methodology for Landscape Mapping by Vondrušková et al., 1994, [5] was used for mapping the current state of the landscape. The Assessment of Landscape Character by the Agency for Nature and Landscape Protection, 1999, [1] was used for the establishment of the degree of the landscape character preservation in the research area.

2.3.1 Landscape mapping

The methodology for landscape mapping [5] allows for a basic mapping of the landscape. The created system of mapping is used for the assessment of the landscape space, the differences in usage and also anthropogenic burden on its parts. The basic application of the methodology is in the definition of the ecological stability skeleton, locations of significant landscape elements, mapping of biotopes, projects and implementation of land modifications, territorial planning.

2.3.2 Assessment of landscape character

The assessment of landscape character [1] is based on the establishment of the degree to which the landscape character has been preserved in the given place. This is done by comparing a set of features typical of such an area of landscape character with a set of features preserved in the assessed place.

A *place of landscape character* is an individual visually interconnected landscape space with an area of 10–100 ha. The smallest place of landscape character is a basic landscape unit, higher is a higher landscape unit (e.g. Kunovice forest).

A *basic landscape unit* is an individual landscape space delimited by visual barriers with an area from 1 to 100 ha. Examples are an inner environment of a forest or a field surrounded by a forest. Basic landscape units can be closed, half-open or open (e.g. the territory of Ostroh lakes).

A *higher landscape unit* is a landscape space formed by wider views into distance. It usually contains more basic landscape units. Its area ranges around 1000–10 000 ha.

An *area of landscape character* is a wide part of area (>1000 ha) with the same typical features or a very similar set of typical features reflecting its sustainable condition and development. Examples can be the agricultural areas of Polešovicko and Ostrožsko, which are separated by a floodplain forest.

Typical features of landscape character are separate features of the landscape that are perceived by human beings as the signs of the landscape and that form the image of the landscape.

Typical features can be divided into dominant, main and accompanying ones.

Dominant features are determining for the given area and the area would lose its identity without them. The dominant feature of the research area is the flat relief and the Morava River, which are determining for this area and create its identity.

Main features describe the area and are perceived as the main components of the landscape character. The main features of this area are the remnants of the bottomland forest, oxbow lakes or cut-off meanders of the Morava River, and Nová Ves lakes, which are perceived as the main components of the landscape character.

Accompanying features complete the image of the landscape but are not significant for the area. Accompanying features of this area are arable lands and the character of their division.

The dominant and the main features have a determining effect on the landscape character. The accompanying

features only complete the image of the landscape character.

2.3.2 Proposal of a scale of landscape character quality in the research area

The following four-degree scale was proposed for the purpose of the final graphical processing of the quality of the landscape character. The scale includes the significance of the assessed segment from the perspective of its perception as a part of the landscape character. The scale has no general validity, it has been proposed for the research area:

1. *anthropogenic segments*, perceived as “common”, without any significant value for the quality of the landscape characters (inside towns...)
2. *harmonic segments of anthropogenic origin*, forming significant or attractive elements of the landscape character (grass and herbs, extensive orchards, lakes for gravel extraction, historical country features...)
3. *cultural segments of anthropogenic origin*, forming a traditional part of the landscape but not contributing to the quality of the landscape character (arable lands...)
4. *natural segments, affected by human activity*, in the landscape with higher values of ecological stability, forming the quality of the landscape character.

By quality of the landscape character or landscape character quality we mean positively perceived landscape characteristics.

3. RESULTS

3.1 Landscape assessment

The current status of the landscape segment, based on methodology Vondrušková et al., 1994, is presented by the highest proportion in hectares by basic arable land (1970 ha), forests (1456 ha) and areas within municipalities (721 ha).

Fig. 1 represents a map of the proposed scale of landscape character quality within the research area. This map shows the area divided into the proposed categories – anthropogenic segment, cultural segment of anthropogenic origin, harmonic segment of anthropogenic origin, natural segment affected by human activity. Further, the map shows the area proposed as the Nature Park Nedakonický luh.

3.2 Assessment of the landscape character

3.2.1 Significant aspects of the landscape character

Aspects, or characteristics of the landscape character, can be divided into natural, cultural and historical. Their sustainability and usage form the harmonic relations in the landscape.

3.2.1.1 Natural aspects of the landscape character

With regard to the landscape character, mainly the effect of the relief, geological environment, hydrological properties of the soil, climatic conditions, the current and potential vegetation and natural dominant features are assessed.

The research area, with nearly zero sloping, is a part of the Dyjsko-moravská niva (Dyje-Morava Floodplain), which is the lowest part of the Dolnomoravský úval (Lower Moravian Depression). This indicates that the relief has had an essential effect on the development of this landscape – it allowed for early farming and thus it contributed to changes in the landscape.

From the geological perspective, sedimentation was important as it gave rise to alluvial fans and elevated places that can now be found along the river.

Hydrology and hydrological properties as a natural aspect of the landscape character [2] have had a vital effect on the development of this landscape. The Morava River is involved in the formation of the landscape, it models the relief and determines the erosion basis. The water regime stabilized at the beginning of the 20th century was affected by the regulation of the river, extensive land improvement measures and uniting of agricultural lands.

From the point of view of soils, these are bottomland soils (fluvisol) and brown soil. The high quality of these soils has always been the main aspect for the development of farming in this area. The territory is located in a climatically warmer area, which is another reason for its suitability for farming.

The potential vegetation is a vegetation of bottomland forests, which are currently only a fragment in the

surrounding agricultural landscape.

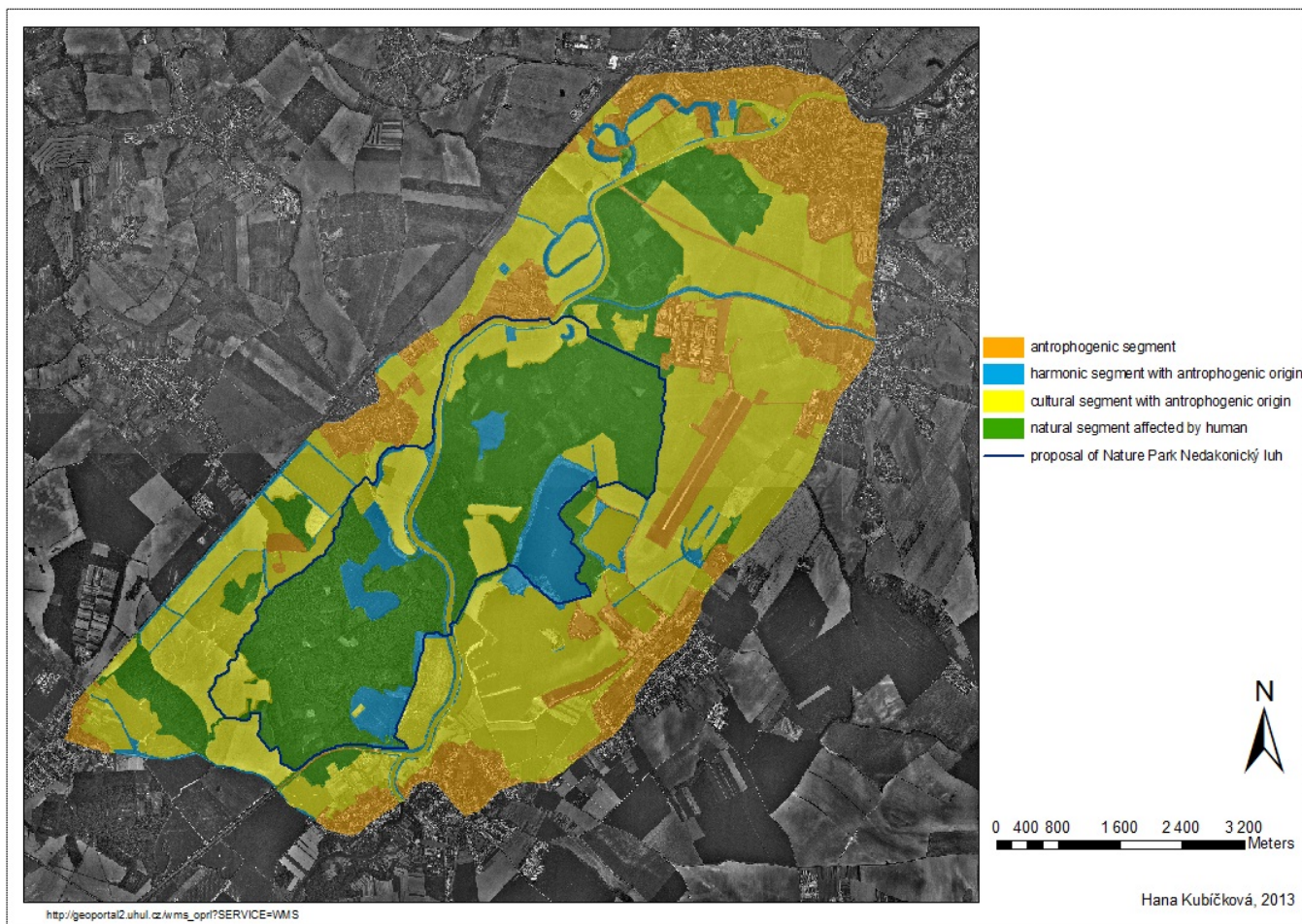


Fig. 1: The proposal of the scale of the landscape character quality; the proposed area Nature Park Nedakonický luh included

3.2.1.2 Cultural aspects of the landscape character

Cultural aspects of the landscape character [1] are the ways the landscape is used. This is an expression of people's landscape forming activities affecting its typical character. The most significant landscape forming human activities are forestry, agriculture, settlement, material extraction, water management, transport and in some cases leisure industry.

The cultural characteristics include the character of settlement and build-up areas, inclusion of cities and villages in the landscape and their state of historical appearance. The character of settlement in this area has always been dictated by the Morava River. The closeness of the water current was an important reason for establishment of municipalities. Examples in this area are Kostelany nad Moravou, Uherské Hradiště and Staré Město, which are located adjacent to the river. As the research area is found in an agricultural landscape, another dominant feature is the size and shape of fields.

Nowadays, forestry is only an element that accompanies agriculture, which has a dominant role in the area. The aim of forestry should be maintaining of the remnants of forests with their natural species composition. Using a management plan, the natural species composition with varied age structure should be achieved. Woody plants such as monocultures of Eurasian poplars and other hybrids that currently appear in the forest communities should be avoided. Further, gradual silvicultural measures should aim for a removal of the species that are not appropriate in bottomland forests - *Juglans nigra* L., *Quercus rubra*, which does not belong here (but could be retained along roads for its aesthetic function), as well as *Fraxinus excelsior*, which should be replaced by *Fraxinus angustifolia* Vahl.

Agriculture is an aspect of landscape character that has affected this area since the early Neolithic. The

change of structure and size of fields that happened during the 20th century had an essential influence on the landscape and its character. This follows from the aerial photos from 1937 (lent by Ostrožsko a.s.) compared with the photos from the present (any current map server). The photos from 1937 show a conspicuous mosaic of fields and the variety of this area. These photos do not include the Nová Ves lakes, which came to being in the 1950s. There are still fields in their place. The runway and airport in Kunovice were still not built. There is only the old airport building as it started to be built in 1936. The runway was constructed many years later. The water management measures of the past century gave rise to oxbow lakes after the regulation of the Morava River, Baťa's channel for a faster transport of material, and the lakes in Ostrožská Nová Ves for gravel extraction.

3.2.1.3 Historical aspects of the landscape character

Historical aspects of the landscape character [1] are results of the landscape development, the ways it has been used and the past generations lived. Historical aspects considerably affect the assessment of the other aspects of the landscape character. The temporal aspect is often of key significance for understanding of relationships among natural features of the landscape, its usage and appearance. Important data for a historical characterization are aerial photos, historical maps, maps of stable cadastre, old photos and old postcards (see Fig. 2).

3.2.2 Dominants of the area

Dominants of an area are a set of natural, cultural and historical features of the area that are subjectively perceived through human senses.

The natural dominants of this area include Písek Tree Alley between Uherský Ostroh and Moravský Písek, which has been known since the end of the 19th century. Natural features can be tree alleys as well as free standing aesthetically remarkable trees. Further, there are sites with the original tree, shrub and herb species composition and oxbow lakes of the Morava River – there are thirteen of them between Uherské Hradiště and Uherský Ostroh only.

At the edge between natural and cultural features, there are water bodies and currents, such as ponds, lakes, modified river beds and oxbow lakes of the Morava. These also include Nová Ves Lakes.

Cultural dominants are churches, castles, lookout towers and other towers that are conspicuous within the landscape and thus characterize it. The Buchlov Castle in the forests of the Chřiby Upland towers above the landscape and concludes it from a visual point of view. Another important visual element is views of distance in the landscape. In this area this would be a view of the Chřiby with the dominants of the Buchlov Castle and St. Barbora's Chapel.

Significant landscape features include crosses, Stations of the Cross, wayside shrines and chapels. In the research area we found 12 historical crosses, 1 wayside shrine and 1 small niche chapel. The oldest (1747) and the youngest (1932) crosses in the area are both located in the cadastre of Kunovice. The oldest cross is owned by a private owner. The youngest cross has an interesting location – it is the only one that is located in the centre of a field. The other crosses are located at the edge of a field and a road or are along roads.

Another historical feature in this area is the numerous archaeological sites (sites in Staré Město, Ostrožská Nová Ves, Uherský Ostroh etc.).

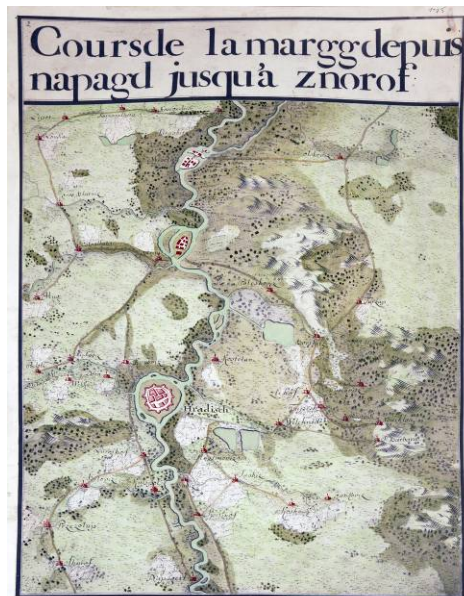


Fig. 2: Map of the Morava River in the 17th century: a meandering current of the Morava River had a completely different shape in the 17th century – it surrounded Uherské Hradiště and Uherský Ostroh, creating a strategic position for both towns, which thus gained a character of water forts. The map also shows the distribution of forests, which nowadays take up a much smaller part. The map is oriented towards the south (Slovácké muzeum, collections, H 1451)

3.2.3 Protection of the landscape character

The parts of the area suitable for protection of the landscape character are those retaining natural values – fragments of the bottomland forest in the surrounding agricultural landscape and the oxbow lakes of the Morava River, which are habitats of rare animal and plant species (amur bitterling, water chestnut, etc.). It follows that a suitable protection would be protection of the Morava River and the surrounding environment (the bottomland forest, oxbow lakes and the accompanying areas of fields and meadows) because the river is the element that has given this landscape its character.

3.2.4 The current and potential negative effects

The current and potential negative effects on the landscape character should be solved within the territorial planning, or by local decrees of municipalities (the decree should explicitly specify the object of protection).

Shopping centres on the outskirts of towns have become parts of each settled area within the last decade. These new complexes of buildings gradually change the character of their surroundings – first of all the border of the town and the surrounding agricultural landscape. Shopping centres in the research area are located between towns: Staré Město – Uherské Hradiště and Uherské Hradiště – Kunovice. These two centres also serve the smaller municipalities in the area as well as people from the Slovakian border. There is a conspicuous edge between the shopping centre and the surrounding agricultural land in Kunovice. Billboards and promotion panels accompanying shopping centres are not a problem for the area from a territorial point of view. A potential negative influence would be expansion of these centres and taking up of more land.

The airport and the runway in Kunovice are a foreign element in the area and they disrupt the horizontal structure of the area. On the other hand, from a historical point of view, this complex has a 70-year-long tradition and has gained regional awareness.

Distribution network of electrical wires is a necessary element but with regard to the landscape character, this is a non-aesthetical foreign element that divides and segments the landscape vertically. An example could be the division of the stand near Let Kunovice by a cleared strip made for the towers of electrical network.

The last large *road construction* in the research area was the construction of a bypass around Uherské Hradiště and Staré Město. There is no new construction of roads or their extension currently.

Polešovice Sandpits. A potential risk lies in the expansion of the extraction area.

3.3 Proposal for a nature park Nedakonický luh

The nature park was proposed in the harmonic cultural landscape in the middle of the surrounding agricultural landscape. The backbone of this area would be the Morava River. The area would include typical features of the landscape character. The layout of areas, edges and lines (mainly the division of areas) as well as the

structure (fields surrounded by forests) would be maintained.

The area would include these types of structures: bottomland forests of the research area surrounding the Morava River, meadows, fields, oxbow lakes and a water management reservoir. This nature park would be located in the Zlín Region. The cadastre areas would be Ostrožská Nová Ves, Chylice, Uherský Ostroh, Polešovice, Nedakonice, and Kostelany nad Moravou.

4. CONCLUSION

The aim of this work was to assess the landscape character of the Morava River bottomland between Uherské Hradiště and Uherský Ostroh. The landscape was assessed using two methodologies. The methodology for landscape mapping elaborated by Vondrušková et al. in 1994 for the determination of the current condition of the landscape segment and the methodology for landscape character elaborated by the Agency for Nature and Landscape Protection in 1999 [1].

The research area was assessed as a landscape that has been affected by farming since the Neolithic. Therefore, this is a human-affected landscape. For this reason, the following scale of landscape character quality was proposed: anthropogenic segments, cultural segments of anthropogenic origin, harmonic segments of anthropogenic origin and natural segments affected by human activity.

The division of the area into particular segments and the creation of a map of the current condition of the landscape yielded the following results. The landscape is divided into arable land (1970 ha), forests (1456 ha) and internal spaces of municipalities (721 ha). Based on the AOPK methodology, natural, cultural and historical aspects affecting the landscape character were established. Thus a map of the assessment of the landscape character was created. Further, we created a map of the landscape character quality scale within the research area.

The research area was also assessed as regards its dominants; this work concentrated on significant landscape features, especially crosses. The crosses were surveyed using GPS and captured in the map and thus a map of significant landscape features – crosses – in the area was created. Finally, Nature Park Nedakonický luh was proposed including the corresponding map.

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