ANALYSIS OF RURAL LANDSCAPE DEVELOPMENT IN THE SOUTH MORAVIAN BORDERLAND IN THE 20th CENTURY

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Abstract: Development of Moravian borderland landscape in the 20th century is a very moot point. Landscape changes caused by natural factors as well as by political and socio-demographic changes are apparent until today and the borderland landscape has often problems to cope with them. The paper presents detailed information and analysis of landscape in the western part of the Znojmo region, concentrating on the cadastral areas of Onšov and Lesná. The two neighbouring villages are situated north-west of the town of Znojmo. The study analyzes the historical development of the landscape and land use, focusing on the identification of problems in the landscape, which were caused by its inappropriate management. A source for the analysis was the method comparing maps and semi-standardized interviews with local old residents who were able to describe changes occurring in the landscape during the last fifty to sixty years. Results of the analyses show that significant changes in landscape use occurred particularly in critical periods due to the construction of dam, later after World War II and in the period of collectivization.

Key Words: landscape development, Lesná, Onšov, borderland, NP Podyjí

INTRODUCTION
The areas of interest in cadastres of villages Onšov and Lesná are situated near the Podyjí National Park. The buffer zone of the National Park Podyjí reaches into the southern part of both cadastres (Petrová et al., 2001, Kirchner et al. 2003) and neighbours with the NP Podyjí itself (Šťastná et al., 2015). Regarding higher altitudes, grape vine as a typical crop in the Znojmo region (Figure 1), surrounding a greater part of the south-eastern boundary of the National Park Podyjí, cannot be grown there. In 1938–1945, the Znojmo borderland was inhabited mostly by German population and belonged in the Reichsgau Niederdonau province with the capital Krems an der Donau. The subsequent evacuation of German inhabitants and their incomplete replacement with settlers of Slavonic origin with an entirely different relation to the landscape very significantly affected the further landscape development (Vaishar et al., 2000). Because of the above specific features and partial isolation, the villages rank with problematic recreational rural areas (Perlín et Kuldová, 2008), which is why the local landscape is largely preserved.

The research aimed at finding main factors participating in land use changes happening in the concerned cadastres of NP Podyjí from the 20th century until the present.

MATERIAL AND METHODS
To obtain results, we used primarily the comparative method by which individual available maps were compared not only in the electronic form as orthophotomaps but mainly as prints from archives. Sources of information were national archives as well as municipal archives. Background materials included also reports on the construction of engineering works in the landscape. All this was supported by semi-standardized interviews with residents in the given locality, who were able to provide closer information about changes in the landscape happening in the last 50–60 years. Furthermore, we used available statistical data about the area size of individual lands and their use available mainly from the
Czech Statistical Office. All these information sources offer a comprehensive view of landscape development in the 20th century.

RESULTS AND DISCUSSION

The first and major change in the landscape was the construction of water works on the Dyje River. A small part of the Vranov water reservoir reaches into the Onšov cadastral area.

Figure 1 Overview map of the Znojmo region with the selected cadastres. Mapy.cz, 2016

The first plans for the water reservoir construction date back to 1908 when they were submitted as a student draft to prevent frequent inundations on the Dyje River. The draft was accepted in the 1920s. The construction was launched in 1930 and completed in 1933 (Vranovská přehrada, 2016).

A part of the water reservoir is situated in the territory of Onšov. The construction affected the local landscape primarily by the need for flooding some forests and a farm building. Up the river, the future water reservoir took its toll in the form of flooding a whole village (Bítov) and a need for building a new one. Together with the necessary transportation of needed building material; this is why a narrow-gauge railway from Šumná was constructed. To build the railway, a part of the forest in the northern part of Onšov had to be felled on the site known today as Swiss Creek.

At that time, there used to be a small spa Quellenbad in Lesná-spring spa with a pool that was built in 1913. The spa was famous and well attended, which brought many advantages to the village. However, the favourable trend was brought to end by the construction of the water reservoir. The spa lost importance with the development of recreation at the dam lake and was closed in 1939. Contributing to the closure of the spa was also the population change after 1938 (Padalík, 2009).

Since the two municipalities are of "borderland" character, their appearance was influenced also by both world wars. The villages used to be inhabited mainly by the German population and were both annexed to the Reich by Hitler in 1938. A greater part of the remaining population was German. After the war, the documents used in our research were settlement/allotment maps, the map of 1950, and the first aerial photographs made in 1953.

The detailed settlement map of Onšov provided a precise sum of the areas of lands and houses determined for new owners/settlers together with the list of their names. The map indicates that the confiscated property amounted to 219.70 ha while 385.07 ha remained to the original owners. Accurate data from Lesná are not known. The maps show however that the cadastre was considerably reduced to the benefit of Šumná. The maps from 1950 and the aerial photographs from 1953 clearly show that the
landscape was kempt and used for agriculture (Figure 2). The size of cultivated plots apparently corresponds to the size of land parcels of individual owners.

Information and maps on land use from the period 1951–1958 were preserved in both cadastres and clearly indicate the onset of collective farming and creation of extensive continuous fields for unified cultivation. In Onšov, 225.78 ha were used as arable land and 2.68 ha were occupied by orchards. Land determined for new construction occupied 5.70 ha, 13.52 ha were to be planted with forest and 5.62 ha were proposed to be used as meadows. The rest of the cadastre is maintained. In Lesná, 175.42 ha were used as arable land, 5.70 ha were orchards, 7.81 ha were meadows and 1.20 ha were meant to be planted with forest. There was also individual tenure in Lesná, which amounted to 34.70 ha. The maps show also a draft of "new” road from Lesná to Vranov nad Dyjí, which was built in the 1960s–1970s. Attempting at an extension of the existing communication, this road brought minimum changes into the landscape. Only a part of it is led newly. This part leads parallel to the original road serving today to hikers or only as a field road. A small part of the original road was completely cancelled and is used as arable land today.

*Figure 2 Orthophoto Lesná year 1953. Orthophotomap of South Moravian Region, Ortofotomapa JMK, 2013*

The onset of uniform agriculture decided about the use of hitherto unused land. Both in Onšov and in Lesná, drainage works were conducted in several phases until the 1980s and changed the landscape particularly around the Klaperův potok Brook on the borders of cadastres where the land started to be used as arable land for agriculture. At the same time, cowsheds, pigsties and centres of unified farmers' cooperatives are built on the outskirts of villages. Gradually improving mechanization led to the increasing size of lands with the same crop.
Following the regime change, most lands are still under management of large agricultural operators and this is why major landscape changes or reduction of the size of cultivated lands have not occurred (Figure 3). On 1 July 1991, the National Park Podyji was established by CR Government Regulation no. 164/1991 Sb. In the most valuable parts of the former Protected Landscape Area Podyji whose area is 63 km² (PLA was decreed in 1978 on the area of 103 km²) (Lipský, 2006). On the Austrian side of the state border (Dyje River), it neighbours with the National Park Thayatal (Správa Národního Parku Podyjí, 2012).

Declaring the area a national park was possible thanks to the unspoiled landscape (Brzák and Kirchner, 2001), which was paradoxically preserved intact because its access was banned under the former regime. The whole area served as a border zone and was strictly guarded. The National Perk Podyji reaches into both cadastres both by its core areas and by the buffer zone. The buffer zone coincides with the northern boundary of intravillans of both communities. By this way, the Administration of NP Podyji attempts at maintaining the landscape and ensuring a continuous transition from agricultural arable land to forests in effort to maintain and form meadows, prevent soil erosion and preserve the typical landscape character of broad surroundings and villages.

CONCLUSION

One of important historical changes in the last 250 years of development of the studied territory can be considered foundation of Lesná community 220 years ago. The greatest observed change is probably the felling of the local forest and its conversion into building and agricultural land. In the course of the following more than a hundred years from the construction of the village to the beginning of the 20th
In the 19th century, the landscape did not change much. Intravillans of communities are well preserved — village green in Onšov and modern development, more precisely parcelling street development in Lesná. In the community of Lesná, there is a double plot for the original yard in the street, which was built as the first one. If we consider the analyzed territory as a whole and not each cadastre separately, a matrix is arable land. Forest stands, solitary developments, the original quarry and water surfaces form enclaves. A natural corridor in the landscape is the spring area of Klaperův potok Brook and an artificial corridor is represented by road patterns. Transitions in the landscape are mostly sharp but even here the Podyjí NP endeavours after smoother transitions between arable land and forest.

At the beginning of the 20th century, the landscape was affected by the construction of water reservoir on the Dyje River, which resulted in a larger water surface area in the northwest of the Onšov cadastre. Considerable influence on the then landscape had also structures related to the dam construction, which were replaced by today's forest. The dam lake is clearly dominant in the contemporary landscape. Since it is very attractive for tourists, a great number of recreational and refreshment facilities emerged along the banks at the site of the original forest and changed the original character of the landscape. In the second half of the last century, the population number decreased and new settlers replaced the original German population. The collectivization of agriculture featured the consolidation of land when individual small lots became large continuous fields under management of unified agricultural cooperatives. Since the road pattern was maintained, the landscape did not suffer major changes and remained relatively well preserved. At the present, the two villages are being slightly extended due to the construction of both new dwelling houses and farm buildings.

Lands are being drained, which brings changes in the use of hitherto unused plots. Unfortunately, the former drainage systems represent a big problem today because their service life is at the end. Thanks to political changes at the end of the 20th century, landowners often do not have a slightest idea about their existence because they were unkempt and subsequently lost their functionality. Today, wetlands emerge on the originally drained sites, which cannot be tilled. Such sites are situated mainly around the spring area of the Klaperův potok Brook. The historical maps suggest that the sites were unused before the drainage or used at minimum as meadows or pastures.

The development of the analyzed territory is characterized by areas of land types since 1845 listed in Table 1. Unfortunately, since the borders of the respective cadastres were changing during the history, some data are distorted and the table is therefore only of informative character.

Table 1 Land areas in 1845, 1948 and 2012. ČSU and ÚAZK, 2016

<table>
<thead>
<tr>
<th>Land areas (ha)</th>
<th>Village of Onšov</th>
<th>Village of Lesná</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arable land</td>
<td>274.15</td>
<td>273.64</td>
</tr>
<tr>
<td>Gardens</td>
<td>7.92</td>
<td>8.08</td>
</tr>
<tr>
<td>Meadows</td>
<td>41.27</td>
<td>33.84</td>
</tr>
<tr>
<td>Pastures</td>
<td>53.67</td>
<td>23.51</td>
</tr>
<tr>
<td>permanent grass stands</td>
<td>94.94</td>
<td>57.35</td>
</tr>
<tr>
<td>Agricultural land</td>
<td>377</td>
<td>339</td>
</tr>
<tr>
<td>Forest land</td>
<td>224.04</td>
<td>237.59</td>
</tr>
<tr>
<td>Water surface</td>
<td>0.06</td>
<td>12.14</td>
</tr>
<tr>
<td>Built-up area</td>
<td>3.84</td>
<td>2.54</td>
</tr>
<tr>
<td>Barren land</td>
<td>0.33</td>
<td>0.05</td>
</tr>
<tr>
<td>Road pattern</td>
<td>11.18</td>
<td>13.39</td>
</tr>
<tr>
<td>Other surfaces</td>
<td>11.51</td>
<td>14.44</td>
</tr>
<tr>
<td>Total area</td>
<td>616.46</td>
<td>604.78</td>
</tr>
</tbody>
</table>
Boundaries of cadastral areas were shifted towards the end of the last century. In the last twenty years, some areas of arable land along forests in the landscape changed into meadows and the percentage of forest stands exhibited a negligible increase. Maps of land use change indices in Czechia (Bičík, 2008) corroborate the fact too. The maps indicate that the index of land use changes ranged from 10% to 20% in the period from 1845–2000. The studied period can include the construction of Lesná, construction of water reservoir and drainage of lands. In 1948–1990, the index ranged up to 10% in the respective municipalities, which apparently reflects a minimum change (drainage). The last map refers to the period from 1990–2000 where the index of land use changes was only up to 2%. Landscape development can be monitored also thanks to the Corine Land Cover, which shows land use and its changes from 1970 to 2006 (AOPK, 2012). The maps indicate that the landscape did not experience too many changes. In the period from 1970–1990, we can see enlargement of the built-up area. In 1970, the forest cover was greater as compared with 1990, apparently due to forest harvesting. Before the year 2000, the situation returned to the same state as it was in 1970. The last change observed in the period 2000–2006 is a mildly increased forest area in the eastern part of the Onšov cadastral.

In the last about 5 years, new ornamental greenery was planted along field roads, those serving tourism in particular. Monuments (chapels) were repaired, especially along field roads. The activity was caused particularly by a higher number of hikers visiting the National Park Podyjí, the lake and the castle in Vranov nad Dyjí. Some beauty spots impressed into the landscape their specific genius loci and a factor of comfort (Sklenička, 2003). In this respect, sites worth visiting include the Claryho kříž Cross, the Kumpova poklona Niche Chapel, the Lusthaus gazebo, windmill, church and the former spa site.

The development of the analyzed territory is characterized in Table 1 where areas of land types are listed since the year 1845. In spite of the fact that the Table of informative character only and one cannot take all data as 100% accurate, it points to trends, which represent an important indicator in this analysis. The results of our analyses show that significant changes in landscape use occurred particularly in critical periods due to the construction of water reservoir, later after World War II and in the period of collectivization.

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