1. Introduction

Karviná and its surroundings can serve as a textbook example of an area that has repeatedly undergone very rapid and dramatic changes in its use, overall landscape structure and landscape functions associated first with a burgeoning development of coal mining and then with the decline and closure of mining. Until the mid-19th century, there was a rural agricultural landscape, used mainly for subsistence farming. The agricultural village of Karviná was known for its cattle breeding, especially sheep, which produced high-quality wool. Already in the 18th century, rich deposits of black coal were discovered below Karviná. The turbulent development of the area and the transformation of what was then farmland into a mining landscape began in the mid-19th century. After 1850, numerous underground mines started operating, which supplied the Ostrava steelworks with coal. Crowds of people flocked to Karviná, the number of mines increased rapidly, as did the population. This was matched by the chaotic development of mining buildings and colonies, service facilities and transport networks. In the interwar period, Karviná was already a populous and developing mining and industrial town. There were schools, a brewery, a hotel, taverns, numerous shops, salt and iodine baths, and the main station on the Bohumín – Košice railway. Most of the inhabitants were of Polish ethnic origin. In the 1930s, however, the first problems began with the cracking of houses and subsidence of the area, caused by extensive undermining.

After World War Two, Karviná, Fryštát, Darkov, Ráje and Staré Město were merged into one administrative unit under the name of Karviná. During the period of communist rule, when heavy industry became a priority, it was decided that the development of the old Karviná had to give way to mining and the population would be resettled. The newly created administrative city of Karviná, built mainly on the territory of Fryštát, was generously conceived as a metropolis with a planned population of 120,000. However, this was never achieved; after 1990, with the decline of coal mining and heavy industry throughout the 20th century. After 1950, the whole of the old Karviná had to give way to mining, and its residential landscape was quickly and completely replaced by a mining and industrial landscape. After 1990, the decline in coal mining brought a further change in the landscape from a mining landscape with a rapidly growing population was brought about by the rapid, spontaneous development of coal mining. This development, with a preference of the production function of coal mining, continued almost throughout the 20th century. After 1950, the whole of the old Karviná had to give way to mining, and its residential landscape was quickly and completely replaced by a mining and industrial landscape. After 1990, the decline in coal mining brought a further change in the landscape from a mining landscape to a post-mining and post-industrial landscape, associated with a change in landscape functions – the decline in the production function and the development of the recreational, sporting and landscape-forming functions that had not existed until then. A significant part of the area has the character of a spontaneously growing, new wilderness.

The Karviná region is a truly exceptional area in terms of landscape changes. In the second half of the 19th century, the rapid transformation of what had been a rural agricultural landscape with a primary subsistence production function into a mining landscape with a rapidly growing population was brought about by the rapid, spontaneous development of coal mining. This development, with a preference of the production function of coal mining, continued almost throughout the 20th century. After 1950, the whole of the old Karviná had to give way to mining, and its residential landscape was quickly and completely replaced by a mining and industrial landscape. After 1990, the decline in coal mining brought a further change in the landscape from a mining landscape to a post-mining and post-industrial landscape, associated with a change in landscape functions – the decline in the production function and the development of the recreational, sporting and landscape-forming functions that had not existed until then. A significant part of the area has the character of a spontaneously growing, new wilderness.

For the purposes of this project, the “core area” has been delimited and most analyses are carried out in it (Figure 1). It includes the municipal area of Karviná-Doly. The wider area of interest (see Chapter 1 of Atlas for more details) is shown in Figure 2.
2. Area of interest: main features

The model area Karviná-Doly is located in the geomorphological unit Ostravská pánev (Ostrava Basin), which is part of the Vněkarpatská sníženina lowlands (Balatka, Kalvoda 2006; Demek, ed. et al. 1987). The geological subsoil of the Ostrava Basin consists of Tertiary marine sediments deposited on consolidated Carboniferous sediments containing coal seams. The overlying rock is comprised of variously strong series of strata of gravels, sands, loess and loess-loam of glacigenic, fluvial and eolian origin. The wide floodplain of the Olše River is filled with young Holocene gravel-sand alluvium. Numerous spoil tips, fills, backfills and other material of anthropogenic origin occur on the surface of the entire area.

The flat accumulation relief of the broad Ostrava Basin with height differences of up to 30 m is remodelled by anthropogenic activity. Anthropogenic landforms such as numerous flat spoil tips, anthropogenic industrial and settlement platforms, fills, ramparts, communication and littoral landforms predominate on the surface. The flat depressions created by subsidence of the subsoil are filled with numerous anthropogenic lakes. The Olše River is enclosed by massive flood defences.

According to the older Quitt classification, Ostrava is located in a climatic region of moderately warm climate. According to the climatic breakdown published in the Atlas of the Landscape of the Czech Republic (Quitt 2009), it is already in a warm area, relatively rich in precipitation. The average annual temperature is close to 9 °C and the average annual rainfall is almost 800 mm. Due to its basin position, numerous inversion situations occur, especially in the winter half of the year, with worsened dispersion conditions. In the past, the entire Ostrava region suffered from severe air pollution from heavy industry and energy production. The current situation is much more favourable, but with unfavourable dispersion conditions, and concentrations of dust in the air are occasionally above the limit.

The area of interest is drained by the Olše River and its tributary Stonávka. Both streams originate in the Beskid Mountains and deposit a lot of coarse-grained sandstone sediments in the Ostrava Basin. In the basin, which has been remodelled by anthropogenic, mainly mining activities, including massive undermining, the original water network, with the exception of these two main streams, has been completely wiped out and altered. On the surface, there are numerous water bodies created spontaneously in drainage depressions created by subsidence of the subsoil relief, as well as large areas of industrial tailings.

The original soil cover consisted predominantly of Luvisols and brown luvisols, in some places along with gleysol, formed on loess and polygenic clays. In the floodplain of the Olše and Stonávka rivers, the fluvisols are modal and mixed with gleysol, formed on alluvial deposits. In the current soil cover, a significant share of anthroposols is found in places remodelled by anthropogenic activity, such as spoil tips, backfills, dump piles, extinct tailings ponds and other anthropogenically created areas.

According to the phytogeographical division, the entire area of interest lies within the Carpathian Mesophytic phytogeographical district and the Ostrava Basin phytogeographical district (Skalický et al. 2009). The forest vegetation stage is oak-beech, natural forest area Podbeskydská pahorkatina hills. According to Neuhäuslová, Moravec (eds. et al 1997), the potential natural vegetation would consist of acidic wet oak-beech forest in most of the area, and in the floodplain of the Olše and Stonávka riparian forest vegetation of the bird cherry-ash type in complex with wetland alder forests.

The current landscape cover of the core area is dominated by green forest areas of second-growth, exclusively deciduous forests and scrub without any economic use. In part of the area, dense scrubby stands of new wilderness have spontaneously expanded into woodland and act as a no-man’s land. New wilderness of the wet wilderness type, reedbeds, waterlogged willows and alders have also spread around water bodies in waterlogged depressions. The forests contain a variety of deciduous trees, with oak, poplar, hornbeam, birch and aspen in the pioneer stages of succession, and willow and alder in wet habitats. Birch is frequent in soil tips. The invasive Robinia pseudoacacia is
also abundant, and in places there is ash-leaved maple. Of the invasive plants, the most widespread, and in places massive, are reynoutria and goldenrod.

The parasitic white mistletoe is extremely widespread in deciduous, especially floodplain forest stands. In addition to the unique new wilderness-type forest stands, which form the green heart and lungs of the post-mining and post-industrial landscape, there are occasional areas of extensively mown grassland. Agricultural use is practically absent in the core area of Karviná-Doly. Part of the area along the Olše River has the recreational and sporting use – a boathouse, cycle paths, a beach, the Karvinské moře water body. On the left bank of the Olše River on the territory of the defunct settlement of Lipiny, a large OKD golf course (Golf Resort Lipiny) was built in 2012 on reclaimed land between shafts, but the economic losses of its operation have run into millions annually. A significant part of the area is still covered by the former mine sites and other artefacts that accompany them.

Nature conservation has no special interests in the area. It has been completely altered by anthropogenic activity in the past and no original wildlife has been preserved, which would lead to a proposal for the designation of specially protected areas. However, forests and water bodies act as natural eco-stabilising segments of the landscape and should become the cornerstones of the ecological network.

Karviná is the statutory town of the Moravia-Silesia Region and the natural centre of the historical Těšín Silesia. The city is interesting in many ways. First of all, as a historic centre on the Olše River and the old road between Hungary and the Baltic. The Olše divides the Beskids arch into the Moravian-Silesian Beskides and the Polish Bieszczady across the border. It has a specific feature: the local castle was for almost three centuries (until 1572) the seat of the Silesian dukes of the Piast royal family and subsequently the seat of the Silesian and German aristocracy. The third specificity is its location on the edge of the Ostrava industrial conurbation based on coal mining and industrial development, which was the main reason for its rapid development in the 20th century. The fourth important feature of Karviná is its location on the border with Poland and now Slovakia on one of the important railway lines connecting Czechia and Slovakia. Despite its border location, Karviná can be described as a core area, due to its interconnectedness with the Ostrava agglomeration and, in a broader sense, as part of the Upper Silesian industrial agglomeration. This was one of the most important nuclei of industrial development in Europe and the former Austro-Hungarian Empire.

Karviná currently has about 53,000 inhabitants, about a fifth of whom are ethnic Poles and Slovaks. The model area of Karviná is specific in that its landscape is heavily marked by the activities of society and is even devastated in places. This fact has become the reason for several movements of the city core in the study area. The current town was created by the administrative merger of the town of Fryštát (the old historic centre of the area with a designated urban conservation area), the old Karvíná, completely destroyed by mining activities and their consequences, as well as Darkov, Ráj and Staré Město. New Karviná was built on the former upper suburbs of Fryštát, which had been growing intensively since the end of the 19th century, when Fryštát was connected to the railway network (Emperor Ferdinand’s Northern Railway). At the time of the communist rule in the then Czechoslovakia, the newly administratively created town had all the prerequisites for growth (coal mining, heavy industry, location on the border between Czechia and Slovakia, ethnic mixture of population, etc.) and was conceived on a large scale as the next big city of the state with a planned population of up to 120,000. This was not achieved on account of the diminishing importance of coal mining (at the peak in the late 1980s, it was just under 90,000).

The impulse for the development of Karviná was the discovery of coal deposits in the second half of the 18th century. Until the mid-19th century, the traditional way of life based on subsistence farming and the market economy of the estate of the Larisch-Mönnich family, which was centred on pastoral breeding of merino sheep, renowned for high quality of its shearing wool (up to 40,000 heads by 1840), was maintained.
Fig. 3 – Land use/cover in cadaster Karviná-Doly in 1836 and 2018.
Map basis: The State Administration of Land Surveying and Cadastre. Processed within the project NAKI II – DG18P020V008.
Current state (2018)

Tab. 1 – Proportion and change of land use/cover classes between 1840 and 2020

<table>
<thead>
<tr>
<th>Land use/cover class</th>
<th>proportion in 1840 (%)</th>
<th>proportion in 2020 (%)</th>
<th>change (% points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>built-up areas</td>
<td>0.32</td>
<td>0.82</td>
<td>0.50</td>
</tr>
<tr>
<td>remaining areas</td>
<td>3.47</td>
<td>10.15</td>
<td>6.68</td>
</tr>
<tr>
<td>active mines</td>
<td>0.09</td>
<td>4.66</td>
<td>4.57</td>
</tr>
<tr>
<td>former (inactive) mines</td>
<td>0.00</td>
<td>3.01</td>
<td>3.01</td>
</tr>
<tr>
<td>water areas</td>
<td>3.24</td>
<td>1.54</td>
<td>-1.70</td>
</tr>
<tr>
<td>tailings</td>
<td>0.00</td>
<td>4.35</td>
<td>4.35</td>
</tr>
<tr>
<td>forest areas</td>
<td>21.25</td>
<td>43.31</td>
<td>22.06</td>
</tr>
<tr>
<td>arable land</td>
<td>58.50</td>
<td>6.54</td>
<td>-51.96</td>
</tr>
<tr>
<td>permanent grassland</td>
<td>12.31</td>
<td>20.94</td>
<td>8.62</td>
</tr>
<tr>
<td>permanent cultures</td>
<td>0.82</td>
<td>0.23</td>
<td>-0.59</td>
</tr>
<tr>
<td>unmaintained areas</td>
<td>0.00</td>
<td>4.46</td>
<td>4.46</td>
</tr>
</tbody>
</table>
The Larisch-Mönnich family held high offices at the imperial court in Vienna, and this was to some extent the reason for the problems with the later delineation of the border between Poland and Czechoslovakia after the First and Second World Wars. The development of the area was influenced by the coal deposits and their gradually increasing production. After 1850, the mines of the Larisch-Mönnich and Těšín chambers (the František, Gabriel, Jindřich, Jan Karel and other mines) began mining. Deposits were located at the depths of 300–500 m and the extracted coal was transported to the ironworks and other factories in Ostrava. The development of mining and related industry and services led to a significant population growth in the area, with Karviná increasing fivefold in 40 years, from 7,746 by 1890 up to 21,000 by 1930. After 1870 this population growth was influenced by large-scale immigration from more distant areas of Austrian Silesia, Galicia and Moravia. This population boom and intensive transformation of the industrial landscape also influenced the variation of the town’s name, with up to seven different names being used at different times (Karwin, Karvinná, Karvín, Karvína-Doly, Karvína 2-Doly, Doly).

In terms of population development, the high population density in the model area as early as 1869 is characteristic. Most of the villages in that year had a population density of over 120 inhabitants/km², which then amounted to the average population density of Czechia. In 1950, the population density was above 225 inhabitants/km² in most of the model area (except for the southern mountainous part), which was roughly twice the Czech average. The situation was similar in 2011, when municipalities located in the Beskides valleys were at the same level of population density. The employment of the population in the primary sector is almost negligible in this area as in most of the territory agriculture has completely lost its function (under 1% of economically active population). Perhaps somewhat surprising is the finding that “only” 29–40% of the economically active population is employed in the secondary sector, and employment in the tertiary sector (from 30–50%) is much more significant in most villages. This documents a situation in which this “steel heart of the country”, like the whole Czechia, is in the post-industrial period.

In the pre-1989 era, mining in the area was consolidated and today there are three large mines called Důl ČSA, Darkov and Důl ČSM. At present, they are the last ones that still mine black coal in the Ostrava agglomeration. Karviná was the main supplier of housing cores and fibreglass materials in the former Czechoslovakia. After 2000, an industrial zone was established, where there are buildings of a number of companies mainly in the engineering industry (Sejong, Shimano, Gates, Robe Lighting, etc.). There are plans to build a large-capacity waste incinerator (Karvína-Doly), which is opposed by civic groups, as Karviná is one of the cities in Czechia most affected by air pollution. The spa function of the city is vital and it will be probably even more important in the future, as the iodine-bromine water sources used in the Lázně Darkov spa and Karviná-Hranice have been drilled.

The Karviná region, with its long history and turbulent development in the industrial period, represents a landscape in Czechia where repeated changes in function have occurred, resulting in profound and irreversible impacts on the original landscape. These include large-scale development, undermining, the location of tailings dumps and the subsequent abandonment of intensively used land, which has been transformed into a new wilderness.
Fig. 6 — Proportion of arable land by STUs (% of STU area). Source: LUCC Czechia Database.

Fig. 7 — Proportion of permanent grassland by STUs (% of STU area). Source: LUCC Czechia Database.
Fig. 8 – Proportion of forest areas by STUs (% of STU area). Source: LUCC Czechia Database.

Fig. 9 – Index of change by STUs (in %). Source: LUCC Czechia Database.
Fig. 10 – Municipality emblems.

Fig. 11 – Types of symbols used in the municipality emblems.
Data source: Content analysis of the municipality emblems (20. 8. 2020).
Fig. 12 – Cultural monuments and heritage areas.

The area is now dominated by forests and scrub vegetation, and the agricultural use of the landscape. The original Karviná gave present-day ČSA mine in the northern part and the Gabriela mining areas of the former Barbora mine in the southern part, the Karviná with its numerous residential buildings and the mineral proportion of woodland and grassed areas. The economic structure is completed by services (transport, wholesaling, logistics) and construction (often specialised in mining construction), complemented by urban services. In total, only 61 businesses with more than 10 employees are represented in Karviná. This number is just one half of that in the comparable towns Kladno (121 entities) and Most (105 entities). As a result, the transformation of the economy is lagging behind these areas, originally with a similar economic structure influenced by coal mining. The largest employer in the Karviná region is still OKD, now owned by the state, with more than eight thousand employees, despite its decline. The concentration of mining is also evidenced by the fact that only three entities from this sector are represented. Other industry is represented by 25 companies (6 engineering and automotive, 7 other and undifferentiated, 6 chemical and plastics, 2 metallurgical, 1 woodworking and only the Karviná brewery represents the food industry). A total of 13 are in the construction industry, 11 in wholesale trade and 6 in transport and logistics. Mining and the associated heavy industry have significantly influenced the landscape of Karviná and its surroundings, where extensive reclamation and consolidation activities are underway. One exception to the economic structure is the Lázně Darkov spa, one of the largest employers in the Karviná region.

3. Results

3.1. Landscape and land use/cover changes

Figure 3 and Table 1 show how the landscape looked like in the 1st half of the 19th century (1825) and compare it with the present state (2020). Karviná-Doly was a typical Czech rural landscape in 1836, dominated by arable land, with forests and permanent grassland occupying a significant proportion of the area. There were also water bodies and rural buildings and a fairly dense network of roads. In 2020, the landscape is very different. The areas resulting from mining activities (active and inactive mines, tailings, unmaintained and other areas) play a major role (although not dominant in terms of area). Paradoxically, there has been a significant increase in forest areas (by 22 percentage points) and not dominant in terms of area). The woodland area was diminishing until 1990, by 10% until 1948 and less afterwards. The development of the macro-structure up to 1990 was clear, with a predominant type characterised by a decline in the area of agricultural land and woodland and an increase in other areas. After 1948, more than 500 ha of arable land had increased by about 10% in the period before 1948, and there was a need to feed a much larger number of people living in the area. In the period of development of Karviná (1948–1990), on the other hand, arable land decreased by about a third, which was reflected, among other things, in a threefold increase in built-up and other areas. Between 1948 and 1990, the Karviná district showed the area with the highest index of change (13). This means that from the viewpoint of the district as a whole (i.e., if a summary is made), the land use category changed between these two years on 13% of its territory. In fact, when looking at the area in detail, the change was much greater (the development in many parts was contradictory). It can be estimated that if the detailed maps of 1948 and today were overlaid, one would find 50-percent changes in the use of individual categories in at least one half of the cadastres in the area of interest.

3.2. Landscape memory

The landscape memory of the area is shown in four maps (Figures 10–13) described in following sections 3.2.1–3.2.3 (for more details about methodology of mapping see Chapter 1 of Atlas).

3.2.1. Places and institutions of memory

In the area of interest Karviná, it is possible to visit a total of twenty museums. Most of them are devoted to the post-mining and post-industrial landscape of the Czech-Polish borderland. Mining is still one of the typical economic sectors of this area. In addition to the Ostrava museums, the Těšínsko Museum is of key importance there. Its headquarters are in Český Těšín, but it has several other branches throughout the region.
The museum building in Český Těšín presents the history of the region in a broader context, taking into account the landscape, material culture and traditions of the area. Other branches of the regional museum include the Archaeopark Choťbuz, which describes the prehistoric and early medieval period of Těšín Silesia. Then there is the Kotulova dřevěnka log building in Havířov, where visitors can learn about folk architecture (timbered buildings) and the everyday life of the inhabitants of Těšín at the end of the 19th and beginning of the 20th centuries. Traditional activities included especially agriculture, which is represented by examples of tools, utensils and other equipment.

Another branch of the Těšín Region Museum, the Memorial to Zivotic Tragedy, presents completely different exhibits. It is dedicated to the Nazi annihilation operation in which many of the inhabitants of Zivotic perished. Until the beginning of 2020, the Těšín Museum also had other branches – Musaion and the Technical Museum in Petrovádv – which are now managed by individual municipalities.

In addition to the mining museums, there are also two firefighting museums in Ostrava and Český Těšín, giving an account of the history of firefighting not only in this area. They present examples of historical firefighting equipment and vehicles and use models to illustrate firefighters’ interventions in individual types of accidents.

Archival documents for the Karviná region can be obtained directly from the state district archive in Karviná or from specialised mining archives.

### 3.2.2. Regional and local symbols

The Karviná region is an example of post-mining and post-industrial landscape. The industrial tradition (the symbols of traditional industry are shown in red in Figure 11) is evident in the symbolism of the villages in Karviná. However, elements referring to agricultural tradition (yellow) and water bodies and streams (blue) also appear frequently, as this is generally a symbolism that is perceived in a predominantly positive way. Given that municipal signs are intended to represent the municipality externally and as an element that binds the local community together, reference to industry in the area are contradictory. The public often associates such references with the degradation of the landscape and the structural problems of the region; on the other hand, they are a symbol of the tradition and success of local industry in the past.

Mining hammers are a traditional symbol of mining. They are depicted in the coat of arms of the municipalities of Albrechtice, Doubrava, Havířov, Orlová and Petrovádv (whose coat of arms depicts black coal mining with a black foot in addition to the hammers). The black bar in the coat of arms of Šenov refers to the local coal stores. There are also other symbols of heavy industry in the emblems of municipalities in the Karviná region.

In the coat of arms of Vratimov, a flail in the coat of arms of Dolní Domaslavice, blue tincture and a wavy fesse of the shield of the coat of arms of Zermanice, wavy bars in the coat of arms of Lučina and Soběšovice (in both cases they are also a symbol for the Lučina River). Another dam depicted in the symbolism of municipalities in the Karviná region is the Těřlicko reservoir (blue tincture in the eponymous municipality of Těřlicko and the wavy foot of the emblem of Havířov). The emblems of the municipalities of Žermanice and Těřlicko also include symbols of the sun, which represent the location of the municipalities at the reservoirs and thus their function as recreational areas. The silver foot of the coat of arms of Kaňovice depicts the Kamencov pond, the blue-silver shield in the coat of arms of Rychvald refers to local streams and ponds (Nový stav and Skučák, around which there is a nature reserve). Bulrush in the coat of arms of Šenov is a symbol for local ponds (Košt’álovský and Volenský) and also for the Lučina River and its meanders. In the coat of arms of Šenov, but also in that of the municipality of Žermanice, the bulrush also appears as an example of a typical plant, i.e., as a landscape element (in purple in Figure 11). A typical flora is the Haucetia epiactis (the “Těšín plant” – symbolic for the whole of Těšín) in the coat of arms of Albrechtice. The linden trees in the emblems of Bruzovice and Rychvald symbolise the memorial linden trees in both villages, as does the oak tree in the emblem of Doubrava (two memorial oaks in the village, at the same time a speaking sign). The pine tree in the emblem of Horní Suchá refers to the pine forests in the municipality, the deciduous tree in the emblem of Orlová to the original floodplain forest. The axes in the emblems of Dolní Domaslavice and Kaňovice also refer to forestry, and hence to lumbering. In both cases, the figures of axes could also be a symbol for the way the first settlements were established, which was the clearing of the places in question.
3.2.3. Heritage sites

The post-mining and post-industrial landscape of the Czech-Polish border, represented by the area of interest Karviná and its surroundings, contains a large number of monuments referring to the local mining industry. The greatest concentration of listed buildings is, of course, in the cadastral area of the city of Ostrava. However, throughout the region, it is possible to find monuments relating directly to the extraction of mineral resources [mines, mining towers or mining complexes] as well as technical monuments of an accompanying nature (transport structures, electricity substations, water tanks, workshops) and, last but not least, monuments relating to the lives of miners (mining colonies, dwelling houses, miners’ houses).

It is also worth mentioning the small monuments or memorials dedicated to the victims of mining disasters (e.g., the monument and grave of the victims of the 1924 mining disaster in Karviná) as well as to the victims of mining unrest (e.g., the monument to the workers’ strike of the 1920s in Orlová or the grave and monument to the miners shot during the 1894 miners’ strike in Ostrava). A large part of the elements have the status of cultural monuments, but it is also possible to find national cultural monuments, which are the Hlubina coal mine and the Michal coal mine in Ostrava. Heritage protection was granted to the local objects throughout the second half of the 20th century and some even after 2000. Several heritage sites have been withdrawn from protection for various reasons, mainly due to inappropriate structural and technical modifications or, on the contrary, due to dilapidation and subsequent demolition of the buildings.

4. Summary

The Karviná region is an extraordinary area in terms of land-scape changes. Due to the total transformation, sometimes even devastation, of the landscape of Karviná, it is necessary to protect the remaining artefacts of the natural environment from the times of traditional society as well as the cultural and technical monuments of the area, and to support such areas in their protection. However, it is questionable whether such protection and support will be sufficient. For the future of the city, the spa and tourism areas on the tripoint of three neighbouring Central European countries should be one of the stabilising elements of the economy of the city and the whole area.

References and data sources


Výzkumný ústav Silva Taroucy pro krajinu a okrasné zahradnictví, Praha.


Výzkumný ústav Silva Taroucy pro krajinu a okrasné zahradnictví, Praha.

Acknowledgement

This atlas is an output of project DG18P02OVV008 “Dědictví zaniklých krajin: identifikace, rekonstrukce a zpřístupnění” (Heritage of Extinct Landscapes: Identification, Reconstruction and Presentation) that is supported within the Program of the Ministry of Culture of the Czech Republic for the support of applied research and experimental development of national and cultural identity for the years 2016 to 2022 (“NAKI II”).