

TRANSFORMED LANDSCAPES IN CZECHIA – OPPORTUNITIES FOR THEIR "NEW" RECREATIONAL USE

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Abstract

The paper is based on the ongoing project of the Ministry of Culture NAKI II: Heritage of Extinct Landscapes: Identification, Reconstruction, Accessibility, which is worked on by experts from the entire geographical section of the Faculty of Science, Charles University. As part of the project, we have already analyzed a total of 40 territories of variously transformed landscapes throughout Czechia. Many of them are currently at least partially intensively used by human society, especially for recreational purposes – the Giant Mountains, Central Povolaví, Novomlýnské reservoirs or Most. We will pay more attention to the last-mentioned territory in this article. Most area in the last 200 years has undergone fundamental changes in terms of the micro and macrostructure of the landscape. From agricultural land in the 19th century, through lands affected by intensive brown coal mining and industry in the 20th century, to the currently partially reclaimed land, which is gradually "returned" to nature and the general public, precisely through the conversion of former mining areas into areas suitable for tourism. Over the last 200 years, the landscape of Most area has undergone not only a physical change in structure, but also a change in use and function.

Key words: Development, Change, Tourism, Reclamation, Most

Introduction

The presented research comes from the results of the project of the Ministry of Culture of the Czech Republic NAKI II Heritage of Extinct Landscapes: Identification, Reconstruction, Accessibility. As part of this project, which began in 2018, 40 areas (see Fig. 1) of interest were analyzed across the entire territory of Czechia from the beginning of the 19th century to the present. This project aims to identify, document, and reconstruct the cultural heritage and values of different types of landscapes throughout Czechia. Another goal is to present the diversity of cultural landscape heritage on the example of extinct landscapes and contribute to the creation of conditions for its systematic preservation, presentation, and use by the professional and lay public and relevant institutions, for example, in the field of landscape protection or territorial development. Researchers from the Geographical Section of the Faculty of Science of Charles University from the Department of Applied Geoinformatics and Cartography, the Department of Social Geography and Regional Development, and the Department of Physical Geography and Geoecology participate in the above research. Each locality of interest is comprehensively analyzed based on physical geographical data (environmental quality, relief, climatic conditions), socio-economic data (population, agriculture), and cartographic data (aerial photography, old maps). If we focus on the researched time period, we will find that in the research we monitor the transformation of the landscape from its pre-industrial form, through the industrial and to the current one, ie post-industrial. Of course, we have also not forgotten to monitor the development of human society, which currently has a dominant influence on the shape of the landscape.

This paper focuses on the presentation of landscape development in the city of Most area. It was a landscape intensively used for agriculture, through a landscape heavily affected by surface mining of brown coal. The landscape gradually returned to nature and human society through various types of reclamation, here often directed for recreational purposes.

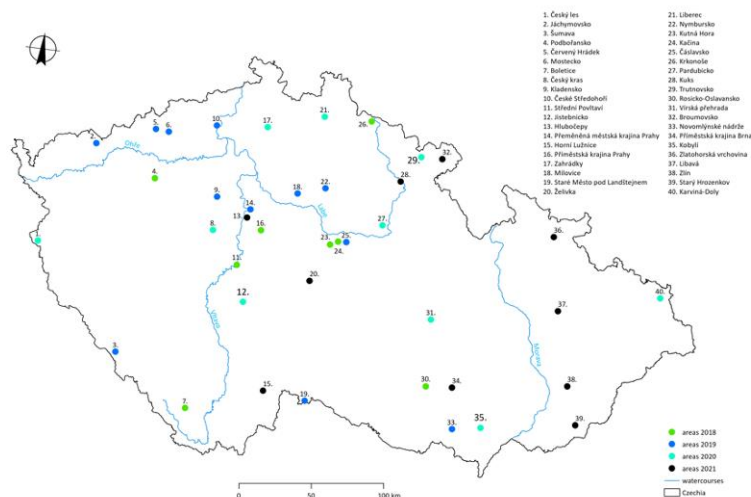


Fig. 1: Model areas of the project: Heritage of Extinct Landscapes: Identification, Reconstruction, Accessibility

Materials and methods

We chose the landscape west of the city of Most as an area of interest. Although the landscape is still primarily used industrially, many regions of the post-mining landscape have been transformed into areas close to nature – water areas, grasslands, or forests, which are also suitable for recreational use. The landscape in Most regions has been studied since the first half of the 19th century. The state of the landscape was based on the Imperial Imprints of the Stable Cadastre dating from 1842. These cadastral maps were digitized.

In addition to these maps, maps of the present landscape have also been created. The data showing the current landscape of Most come from the RÚIAN database (Register of Territorial Identification of Addresses and Real Estate), managed by the Czech Surveying and Cadastre Office (ČÚZK). The data from this database had to be validated based on aerial photography.

The state of land use was monitored in 7 categories based on the LUCC Czechia Database (more about Database see Bičík, et al. 2010). These are arable land, permanent crops (orchards, vineyards, gardens, and hop gardens), permanent grasslands (meadows and pastures), forest areas, water areas (including watercourses), built-up areas, and other areas (mines, dumps, roads, railways, landfills, etc.). Furthermore, as part of finding out the broader connections and relationships in the landscape, data on the development of the number of inhabitants and houses, the economic structure, and old and contemporary photographs of the locality of interest were worked on. In September last year, a field survey was conducted, in which aerial photos were taken using a drone (Fig. 2). All work in digitizing maps of the stable cadastre and data from the RÚIAN database and aerial imagery was performed in ESRI programs (ArcMap or ArcGIS Pro).



Fig. 2: Drone view above the model area of Most (autodrome, Lake Matylda and Lake Most).

Results

The landscape around the city of Most has undergone an intense change in the last 175 years of landscape and society development. During the first half of the 19th century, it was an intensively farmed landscape. Along with the industrial development of the area, the population also grew. In 1869, about 50.000 inhabitants lived in 6.000 houses in the research area. The landscape consisted mainly of areas of arable land and permanent grassland. As an example of the pre-industrial landscape of Most, we present an example of 3 cadastral areas in the locality of interest (Souš, Holešice and Třebušice), see Fig. 3. Therefore, the landscapes can be assigned primarily to a productive, in this case, an agricultural function, supplemented by a residential function.

The population of this area grew until 1930, when approx. 175.000 inhabitants in 16.200 houses lived here. We have other data about the population in 1950, namely 140.000. Between these two years (1930 and 1950), the population decreased, mainly due to the displacement of Czech Germans after World War II. The population grew until 1991 when it reached a maximum of 185.000 inhabitants. Since then, the number has been steadily declining due to the gradual reduction in mining and industrial production intensity in the area.

During the socialist period, the intensity of lignite mining increased steadily. New coal quarries, associated industrial enterprises, and new lignite-fired power plants were built here. The relatively close to nature agricultural landscapes in the first half of the 19th century has thus become a landscape heavily used by humans, mainly due to the extraction of brown coal. Therefore, the total share of other areas in the landscape increased, particularly mining areas, dumps, sludge ponds, and industrial and power plant areas. A sad example is a liquidation of the original city of Most and the exposure of its new form to the southeast, below Hněvín Castle. The newly created lake Most is currently located in the original locality of the city of Most, where mining has taken place since the 1970s. Like many others in the area (Lake Matilda), this lake was created by the subsequent reclamation of former mining areas and is currently used for a wide range of recreational purposes. Overall, the former areas of individual mines in the Most region are being transformed by reclamation, especially into forest, grass, water, and, to a lesser extent, agricultural areas. These newly created islands of nature currently serve mainly for recreational purposes – the already mentioned lakes or the Autodrome Most. The landscape has now primarily a recreational and residential function.

The change of the landscape and its use is evidenced by the following picture Fig. 3 and table Tab. 1, which contains data on the use of the landscape in the example of 3 cadastral areas in the detailed locality of interest.

Tab. 1: Land use changes between 1842 and 2019 in the detailed area

Land use category	% in 1842	% in 2019
arable land	72.47	3.32
permanent cultures	0.41	0
permanent grasslands	17.82	13.01
forest areas	2.92	34.88
water areas	2.57	4.18
built-up areas	0.39	0.38
other areas	3.41	44.23

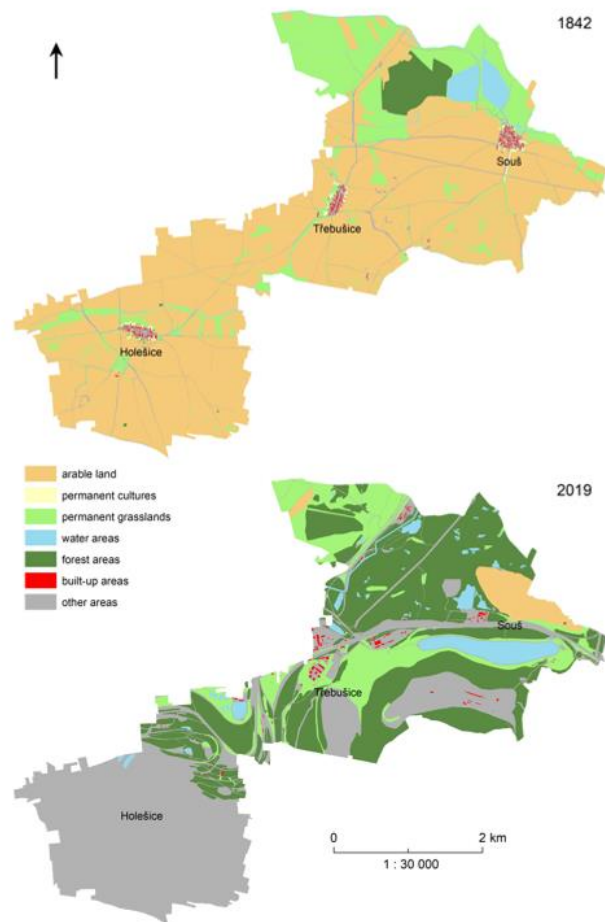


Fig. 3: Map of the detailed area in Mostecko – Land use in the pre and post-industrial era

Discussion

Our research identified the main changes in the landscape and their causes. In the case of Most, it is mainly a change of arable land to other areas. If we compare this trend with other regions studied in Czechia, a similar development occurred mainly in localities that humans heavily use (Prague and its surroundings, or to a lesser extent Karviná). If we focus, for example, on the border areas of Czechia, then we also encounter a decrease in arable land. However, borderland areas are gradually grassed, and in the increasing time scale, afforested. Here, for different reasons than in Most area, especially due to the displacement of Czech Germans, mostly in the 40's and 50's in the last century. And in the 90's due to subsidies for grassing and changing farming style in less favorable conditions for agriculture and centralization of agricultural production, especially in fertile areas in the Elbe region, South Moravia and the Moravian valleys. Overall, the landscape in the Most region can be described as one of the most changed in the whole of Czechia due to the intensive human pressure on nature in the past.

Conclusion

This paper aims to present a part of our research interested in the changes in various landscapes in Czechia from the first half of the 19th century to the present. Most area were chosen as the territory, which has gone through the last approximately 175 years of intensive landscapes and society development. We focused on transforming micro and macrostructure of the landscape and finding the causes of these changes. We tried to identify the area's functions in its pre (agricultural, residential) and post-industrial (mining, recreational, residential) periods. In the future, hand in hand with declining lignite mining and subsequent reclamation of mining areas, it is possible to anticipate an increase in nature-friendly areas (forest, grassland, water areas) and their use primarily for recreational purposes. All other outputs from the project Heritage of Extinct Landscapes: identification, reconstruction, access can be found on the project website <http://zaniklekrajiny.cz/>.

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Souhrn

V průběhu řešení projektu NAKI II Ministerstva kultury České republiky – Dědictví zaniklých krajín: identifikace, rekonstrukce, zpřístupnění mezi lety 2018 až 2022 bylo analyzováno celkem 40 různých krajín po celém území Česka. Krajiny byly rozděleny do celkem 9 typů, dle jejich přeměny (např. postmontánní krajiny, příměstské krajiny atd.). Krajiny jsou zkoumány různými vědeckými přístupy a metodami. Krajina je tak zkoumána na základě fyzickogeografických dat (klimatické podmínky, ochrana přírody atd.), socioekonomických dat (údaje o vývoji počtu obyvatelstva, domů, ekonomické struktury, vývoji půdního fondu) a kartografických dat (staré mapy, letecké snímky). Zkoumáme, jak se krajina v průběhu času měnila a z jakých důvodů docházelo k její transformaci. V uvedeném příspěvku demonstrujeme náš výzkum na příkladu vývoje krajiny a společnosti na Mostecku, kde se hlavní funkce krajiny změnila z produkční (zemědělství) na postprodukční (rekreace).

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