LANDSCAPE-ARCHITECTURAL SOLUTIONS AROUND THE RIVER VÁH IN SELECTED LOCALITIES IN THE SEREĎ CADASTRAL TERRITORY

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Abstract
In the past, the areas along the banks of the Váh River and their adjacent surroundings were important spaces for the recreation of the general public. The treated areas represent an important biotic component in the cultural type of landscape, in the warmest and driest region of Slovakia, with an emphasis on agricultural tradition. The article elaborates diverse ideas, attitudes and design solutions, with an emphasis on people's recreation, created by students of the Institute of Landscape Architecture from the Slovak University of Agriculture in Nitra, which were commissioned for revitalization by the Slovak association Príroda. In terms of the research by design approach, the aim of the contribution is to define the key design principles that students apply in their design solutions.

Key words: recreation, landscape architecture, environmental education, landscaping

Introduction

The landscape represents the basic living space not only for humans but also for all other living organisms (Miklós et al., 2019). The landscape and its ecosystems Schneider, Kalasová, Fialová, (2020) provide us with a range of benefits, whether direct or indirect, to satisfy life needs (Čibik et al., 2022a). They provide food, water and materials for the development of society, contribute to the regulation of many phenomena and processes that take place in the country, and also provide several cultural and recreational opportunities (Čibik et al., 2022b, Šinka et al. 2019). In the revitalization of the landscape, research is focused on the needs of restoration of burdened and endangered areas with an emphasis on the ecological stability of the landscape and adaptation to climate change (Rózová et. al., 2020), creation of adaptation strategies (Čibik et al. 2020b, Tóth, 2022), creation of territorial systems of ecological stability, landscape ecological plans and studies (Kuczman et al., 2022, Bechera et al., 2022, Čibik et al., 2020a, Back Prochnow et al., 2022) to ensure sustainable development of the country (Bihuňova et al. 2021, Mariš, 2022). The method of support is in the European Green Deal 2019 with the aim of helping European citizens to benefit from the benefits of sustainable ecological development. They cover a wide range of topics, with an emphasis on the protection of the green environment in Europe (Marišová et al., 2023). The article deals with diverse ideas, attitudes and design solutions along the banks of the Váh River and their adjacent surrounding areas of the dead arm with an emphasis on people's recreation. Design studies were created by students of the Institute of Landscape Architecture from SPU in Nitra, whose revitalization was commissioned by the Slovak association Príroda. The works were presented to the public in the city museum in Sered, as well as on the grounds of the Slovak University of Agriculture in Nitra.

Materials and methods

The assignment within the Landscape Design Studio course was to develop a design concept for an important open landscape space with an emphasis on recreational use. The request for revitalization was commissioned by the Slovak association Príroda. The landscape area is located in southwestern Slovakia, the Danube Plain on the right bank of the Váh River, in the Trnava Region, see fig 1. The addressed area is located on the eastern edge of the city of Sereď. The area of interest occupies 58 ha.

In addition to the river, the territory includes three bodies of water - dead branches of the Váh River, which are located in parts over the entire area. The territory belongs to the locality of willow-poplar forests (soft floodplain forest), which makes up approximately 90% of the area, and Carpathian oak-hornbeam forests, which make up approximately 10% of the area. They are found in the lowest places of valley floodplains of larger rivers, on floodplain soils rich in nutrients. The main ecological factor is regular surface water flooding. All green areas are not completely connected, they are usually multi-storey. The shrub layer is species-poor, it is dominated by young trees and invasive species. Hygrophilic and nitrophilic species are used in the herb layer. A typical feature is the high coverage and predominance of some fast-spreading autochthonous species, which are identified with potential

natural vegetation Miklós, (2002) such as *Fraxinus angustifolia* Vahl, *Populus alba* L., *Populus nigra* L., *Salix alba* L., *Salix x fragilis* L., *Salix x rubens*, *Salix triandra* L.. Currently, the area is used for recreational fishing, the existing greenery is neglected. From the point of view of the research by design approach, the goal of the paper is to define the key principles of design that students apply in their design solutions (Kuczman, 2018). The method consisted of two main parts - 1) analysis (broader relationships, historical, functional, spatial, visual and landscape analysis, as well as mapping of non-forest woody vegetation, which was an inevitable part of mapping for specific measures from the point of view of completing the woody composition. This mapping was carried out according to the methodology of Supuk et al (2013). 2) design (students worked in a design group that developed two different design concepts that resulted in solutions close to nature - "Recreation center" and "Support of biodiversity and water use in the landscape" (Kuczman et al., 2022).

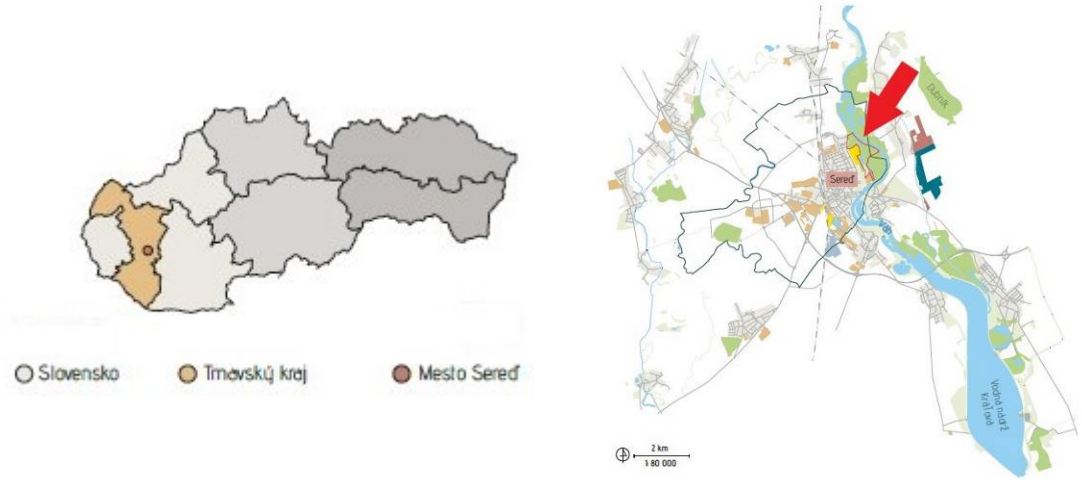

Fig 1: Localization of the addressed area within the Slovak Republic and the addressed area in relation to the city of Sereď.

Results

The result of the design process is two different design concepts full of many creative ideas and solutions. Students presented new activities and elements of environmental education and recreation for different age groups to future visitors. The solutions are presented in redistributed functional areas, see fig 2.

The students tried to connect the site with the surrounding landscape through natural elements and support the identity of the natural environment of floodplain forests. Both design concepts "Recreation Center" and "Connection with water and support of environmental biodiversity" used the huge potential for a number of functions and activities in the space that can attract city residents as well as tourists. These activities are rest, improvement of the surroundings of water bodies, recreation, revitalization of roads for comfortable and safe walking and cycling, creating views of the landscape, sitting by the fire, camping, sports, building playgrounds for children, athletes, seniors, bike park, improvement of cycle paths, space for fishing, culture, space for holding public or private events. The vast majority of roads, especially in the central part, are permanently wet due to their unevenness, which creates mud and hinders movement and endangers the safety of visitors. The solution was to restore them and build a new routing of the sidewalk network segments "A - D" see fig. 2, with a link to the newly built activities in the space. Raised wooden walkways were designed in waterlogged areas, which dominate sector "D". Through meadow communities, a new route of a natural trail was proposed in the form of mowed areas with visual connections with the surrounding natural or cultural landmarks, which represents segment "A" see fig. 2. In the segment "A and C" the spatial connection with the surrounding cultural and natural landmarks was used and supported, see fig. 3, within sector "C" was placed the observation tower fig. 4., which opens up views of the surrounding settlements and the countryside.

The southern part of this sector was supported by *Alnus glutinosa* L. species, which completed the stylization of the former Váh stream and stretches across the neighboring sector "D". In this sector, a dense stand of trees was used and supported for a ropeway for children. Segment "C" is dominated by the lake, which was sculpted for sport fishing, in the form of newly designed wooden jetties and in the adjacent parts, areas for outdoor picnics. In this space, furniture was designed in the form of couches,

shelters and various elements for sitting and grilling in nature. The main dominant feature of the Váh River area is made accessible by a network of footpaths from all segments in the treated area and banks built for sunbathing, swimming and year-round recreation for residents. There are a total of 15 types of canopy and 22 types of trees on the treated area. Felling of trees mainly concerns invasive and invasive species of trees, trees damaged by pests and beavers, broken and dry trees. This clearing was also supported to make available all areas in the treated area and for the needs of building natural paths. The species composition of the trees was supported by autochthonous tree species, in order to support the biodiversity and local identity of floodplain forests. In addition, they functionally strengthen the banks of the dead arms and the lake. The trees in the space significantly complete the biotope in the landscape, help the water cycle, its natural infiltration in the landscape, and improve the overall ecology and aesthetics of the adjacent urban part of the city of Sereď.

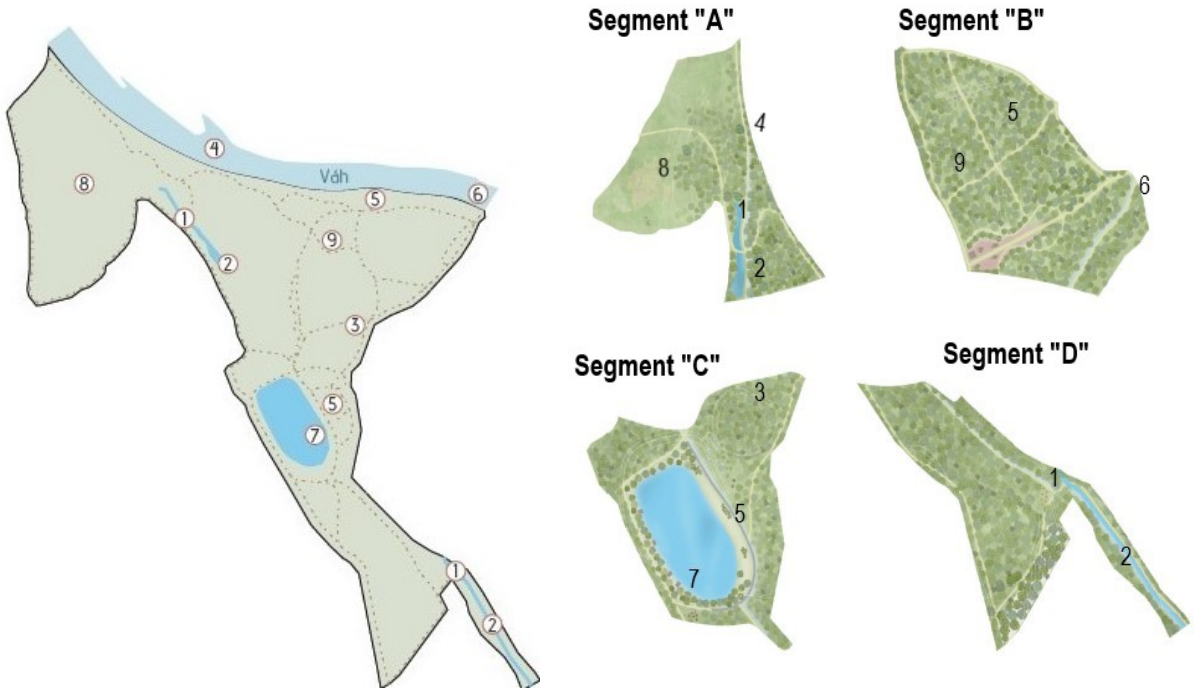

Fig 2: Situation plan of landscape architecture developed by students, redistribution of territory into segments „A – D“ according to use (Authors: Natália Molnárová, Simona Poluchová, teacher / head of the design studio: Gabriel Kuczman, Denis Bechera (1-2) reinforcement of slopes, footbridges made of natural material around the dead arms of Váh, 3) lookout tower, 4) modification of vegetation along Váh - support of biodiversity, 5) shelters for children's activities, 6) design of pier for boats and water sports, 7) piers for fishermen - fishing spots, 8) support of biodiversity in the form of meadows, 9) bicycle paths

Fig. 3 and Fig. 4 Visual connection of the space with surrounding cultural landmarks and Visualization of area 3 with an observation tower (Authors: Natália Molnárová, Simona Poluchová, teacher / head of the design studio: Gabriel Kuczman, Denis Bechera)

Conclusion

The presented landscape-architectural solutions point to the possibilities of restoration of neglected natural landscape biotopes in the contact zones of the settlement. They offer many opportunities for recreation and higher attendance of people with an urban lifestyle. The case studies were consulted through direct communications with local residents, whose requirements were incorporated into the final phase of the project and which were presented at a public event in the presence of the concerned authorities and those interested in improving this important biotope in the country.

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Souhrn
Příspěvek představuje koncepty řešení významného krajinného prostoru s důrazem zachování bioty a dotvoření prostoru pro rekreační využití. Požadavkem na revitalizaci pověřilo Slovenskou univerzitu v Nitře (ÚKA) Slovenské sdružení Příroda. Krajinný prostor se nachází na jihozápadním Slovensku, Podunajské nížině břehu řeky Váh. Z nevyužitého a zanedbaného prostoru případové studie představují různé formy krajinně-architektonická řešení k jejich zatraktivnění a obnově zanedbaných přírodních stanovišť příměstských sídel, která přinášejí řadu příležitostí k rekreačnímu využití. Představená řešení reflektují na požadavky široké veřejnosti, které byly veřejně odprezentovány na půdě městského muzea v Seredi a na SPU, ÚKA v Nitře.

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