

DESIGN OF CULTURAL TRAILS - AS A RESULT OF BELGRADE'S GREEN INFRASTRUCTURE CONCEPT

DOI: 10.18485/arh_pt.2020.7.ch65

_ Suzana Gavrilović

PhD student and Research assistant, University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, suzana.gavrilovic@sfb.bg.ac.rs

_ Nevena Vasiljević

Associate professor, University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, nevena.vasiljevic@sfb.bg.ac.rs

_ Boris Radić

Associate professor, University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, boris.radic@sfb.bg.ac.rs

_ Dejan Skočajić

Assistant professor, University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, dejan.skocajic@sfb.bg.ac.rs

_ Nevenka Galečić

Assistant professor, University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, nevenka.galecic@sfb.bg.ac.rs

ABSTRACT

In the system of spatial planning of the Republic of Serbia there are gaps in understanding of modern trends of greenway planning and other linear corridors. One of the problems is the lack of perception of multifunctionality of greenways and of the possibilities of their integration in development projects of tourism, agriculture, nature protection, biodiversity management, water resources, recreation, and cultural/historic resource protection. The Strategy of reforestation of Belgrade represents a significant step, defining the bases for establishment of a network of protected natural areas connecting them with ecological and green corridors, namely, defining the concept of green infrastructure of Belgrade. Since the goal of the Strategy was to prepare the plan of reforestation, it focused on ecological functions of corridors; however, spreading of cultural influences often coincides with boundaries of regional natural characteristics, woven into the character of landscape being the exponent of cultural identity. Namely, in the process of landscape characterization and creation of the basis for reforestation plan of a City municipality Mladenovac in Belgrade, it was noticed that the courses of green corridors coincided with cultural influences and material elements of the landscape character referring to the history of Serbia during the rule of the Despot Stefan Lazarević. This fact gave reason to consider the possibilities of integration of newly planned corridors into a broader spatial context. By application of landscape character assessment method and landscape metrics in software ArcGIS 10, an analysis of the researched area was made and stability of landscape as a resource was established for each separate type of landscape character. The identification of the landscape character and of the elements being the exponents of landscape identity defined the direction in which the path should be developed and provided the guidelines for its rerouting, materialization, form, length and width, position of new and supporting facilities and stylistic characteristics.

KEYWORDS _ *green infrastructure, cultural trails, landscape character, greenway planning*

INTRODUCTION

The green infrastructure is relatively new in spatial planning in Serbia and still has a weak legal basis; the only exception is the Plan for General Regulation of Green Areas of Belgrade, which was adopted with numerous amendments that almost gave an advisory level instead of an executive. However, concept of the Spatial Plan of the Republic of Serbia 2020 (SPRS 2020) is based on preservation and improvement of landscape characters, as well as on the principle of structural and functional connectivity on different spatial levels (local, regional, national ecological and cultural networks) (Law on the Spatial Plan of the Republic of Serbia, „Official Gazette of the Republic of Serbia”, No. 88/10). A significant step is the study entitled “Belgrade Afforestation Strategy” elaborated according to the guidelines and principles of SPRS 2020. The Strategy creates the framework for establishment of a network of natural areas connecting them with ecological and green corridors, namely defining structural and functional support to the concept of green infrastructure of Belgrade („Official Gazette of the Republic of Serbia”, No. 20/2011).

In the process of landscape character assessment and creation of the basis for afforestation plan of the City municipality of Mladenovac in Belgrade, it was noticed that the courses of green corridors coincided with cultural influences and material elements referring to the history of Serbia during the rule of the Despot Stefan Lazarević. Since the goal of the Strategy was to prepare the plan of afforestation, it focused on ecological functions of green infrastructure system and establishment of new forest patches and corridors of all categories without considering potential cultural purposes. This fact gave us reason to consider the possibilities of integration of newly planned corridors into a broader spatial context.

The objectives of this paper are to develop thematic cultural trail and link cultural resources and its related green infrastructure of City municipality of Mladenovac, and to illustrate how landscape character assessment method can be incorporated into a greenway design and planning process. This paper presents the planning and design of the thematic cultural trail “Paths of the Despot Stefan Lazarević” on the territory of the City municipality of Mladenovac, as a cultural greenway concept, by integrating the newly planned links being elements of the green infrastructure system of Municipality (and of Belgrade at the regional level), and the cultural and historical resources (hubs). Mladenovac is characterized by the typical landscape of Šumadija, being the expression of diversity of cultural and natural heritage where it is possible to recognize the traditional way of land cultivation, the artefacts testifying about the history and tradition of this area and about the authentic vernacular architecture.

METHODOLOGY

The first section of the paper discusses creation and designing of a thematic cultural trail as the way of connection of natural and cultural values in a landscape, namely, as cultural greenway concept. The second section of the paper presents the project of the final design of the thematic cultural trail “Paths of the Despot Stefan Lazarević” on the territory of the City municipality of Mladenovac, as a cultural greenway concept, by integrating the newly planned corridor (links) being a part of the green infrastructure of Belgrade, and the cultural and historical resources (hubs).

In the conclusion, a case study is presented as a model of how to design and plan greenways in the context of Serbia and recommendations and guidelines are given to frame their further development. Survival and development of the cultural landscape of Mladenovac depends on the spatial development that should enable establishment of a characteristic relation and connection between agricultural, forest and other land uses, including cultural resources which are key to multiple use and public support.

BACKGROUND

Green infrastructure has a form of coherent ecological network and different types of landscape links can go into creating a system of green infrastructure (Fig. 1). Trail Corridors – different types of landscape links can go into creating a system of green infrastructure and one of them are designated routes, such as rail-trails and greenways, provide access to and appreciation of the values of natural areas and other green spaces and enhance the understanding of historical sites and cultural diversity (McMahon, 2000). Greenways with historical heritage and cultural values attract tourists and provide recreational, educational, scenic and economic benefits (Fabos, 1995). Flink and Searns (1993) emphasize the importance of the greenway theme and of the vision of its future functioning.

APPLICATION TO PRACTICE: Illustration for micro green network



_ Figure 1: Project "Particulate matter mitigation through urban green infrastructure: Research on optimization of block-scale green space" (Author: Bo Yang, 2020)

Greenways are defined as "networks of land containing linear elements that are planned, designed and managed for multiple purposes including ecological, recreational, cultural, aesthetic or other purposes compatible with the concept of sustainable land use" (Ahern, 1995). They can be local, urban and interurban, connected with other corridors, historical routes, rivers and railway lines (Central and Eastern Greenways /CEEG/).

Greenways create green infrastructure to link people and places (Fabos, 1995). Spreading of cultural influences often coincides with boundaries of regional natural characteristics (Kurtović-Folić, 2009; SPRS, 2010) woven into the character of landscape being the exponent of cultural identity (Vasiljević, 2012). Greenways with historical heritage and cultural values attract tourists and offer the framework for local initiatives and projects which aim to protect and promote the nature, cultural heritage and sustainable forms of tourism (Central and Eastern Greenways /CEEG/).

Landscape character represents an holistic interpretation of physical, ecological and cultural landscape patterns and integrates natural and cultural elements, scientific with practical knowledge, and at the same time it is the level at which problems are noticed and solved (Vasiljević, 2012). Landscape character assessment method is used in early phases of planning and design. The obtained results and data provide valuable and determining information for bringing decisions regarding the scope and nature of future development (define planning and building regulations, make assessment for different land uses, create programs and special development plans), also provides forming of guidelines and policies in the field of green infrastructure planning, environmental protection, tourism, agriculture, forestry, protection of natural and cultural heritage (Vasiljević, 2012).

MATERIALS AND METHODS

City municipality Mladenovac (area of 33 904 ha) is situated in south, suburban part of the administrative area of the city of Belgrade. The area within the municipality boundaries is located in the valley on the mildly undulated terrain consisting of flat parts between wider and narrower alluvial plains of watercourses. Parts of this diverse area are everyday landscapes, but parts are rather particular, such as Kosmaj, landscapes with traditional way of land cultivation, villages with the authentic vernacular architecture. Kosmaj, the area of exceptional characteristics on the north of the Municipality, is a part of the ecological network of Serbia and represents an Emerald and a Prime Butterfly Area. Numerous cultural facilities and the history of this area are connected with the Serbian despotate. Despot Stefan Lazarević (1377–1427) was a medieval ruler of Serbia and one of the finest knights and military leaders in Europe. During this period, Belgrade became, for the first time, the capital of Serbia. He was also known as one of the best Serbian writers in the Middle Ages and during the time of reign of Despot, Serbia was experiencing cultural progress and renewal of statehood. Unfortunately, these cultural resources are discontinuous and not recognized on the tourist map of Mladenovac and at the wider level, on the tourist map of Belgrade.

The methodological procedure that was applied on the study area is landscape character assessment method based on the Guidelines for the assessment of landscape character of England and Scotland (Swanwick, 2002).

Applying landscape character assessment method and landscape metrics in software ArcGIS, an analysis of the Municipality was made and stability of landscape as a resource was established for each separate type of landscape character on the basis of:

- 1) The state of general landscape character and of the individual elements being the character exponents;
- 2) landscape structure: composition and configuration;
- 3) functioning of corridors and connectivity of landscape elements;
- 4) landscape heterogeneity and edge structure. This process also identified the key forces for change within each landscape character type.

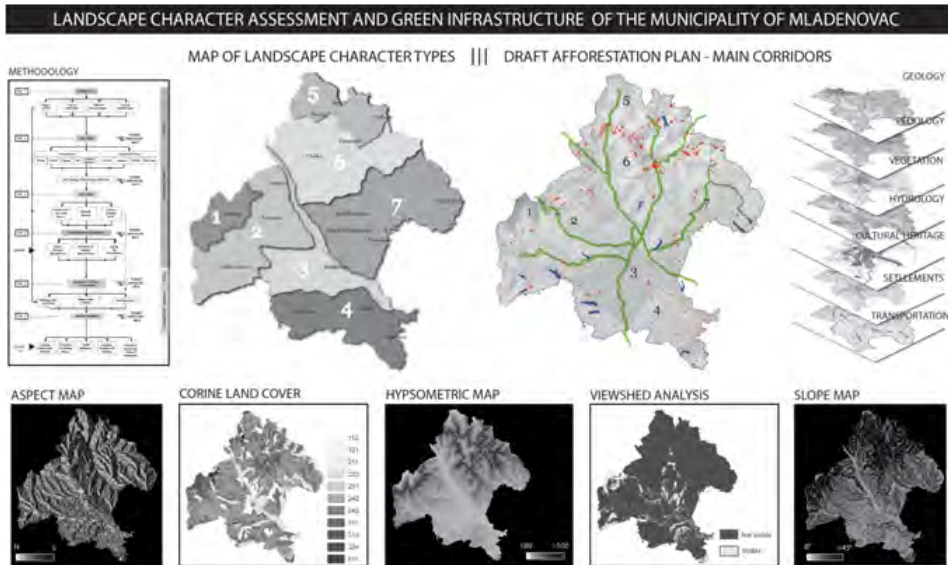
The next step defined the direction in which the path should be designed according to landscape character types and the elements being the exponents of landscape identity. The guidelines for path design are provided for rerouting, materialization, form, length and width, position of new and supporting facilities and stylistic characteristics.

RESULTS

Based on the results of landscape character assessment of the municipality of Mladenovac, the guidelines for the development and design of the trail "Paths of the Despot Stefan Lazarević" were formed and relations between natural and cultural elements of the landscape structures established in the manner which promotes and increases the level of recognition of landscape character types. Composition and configuration of the landscape structure indicate a relatively stable and recognizable landscape pattern of Mladenovac formed by transformation of the wooded landscape. The Plan of Afforestation makes connection between the "lost" landscape elements but not between their cultural function.

In this paper, the concept of planning and design of cultural trail is based on the connection between newly planned corridors formed as a result of afforestation plan of Municipality (Fig. 2), with values and elements which are connected with the period of reign of the Despot Sefan Lazarević. Cultural properties related to the period of Despotate are: Monastery Pavlovac (cultural property of great importance), monastery Tresije, Kastaljan and the monument at the place of death of the Despot in Crkvine (cultural property of exceptional importance). The cultural heritage that does not have the protected property status, such as mountain Kosmaj (Despot's hunting ground), villages with traditional way of cultivation (Koraćica, Velika Ivanča, Amerić), facilities of the vernacular architecture

and other elements of biophysical landscape structure as well represent identity of the medieval Mladenovac.



_ Figure 2: Landscape character assessment and draft afforestation plan of the municipality of Mladenovac

Realization of the concept of cultural trails in the territory of Municipality requires formation of clearly defined connections (walk path and bike routes) which include field paths, beaten tracks, deserted drive roads and railway tracks and other linear elements of the landscape structure. Possibility of integrating trail with cultural routes at the regional and national levels (routes of Morava heritage and routes of medieval Serbia), enables forming of a coherent cultural network respecting the principles of SPRS 2020.

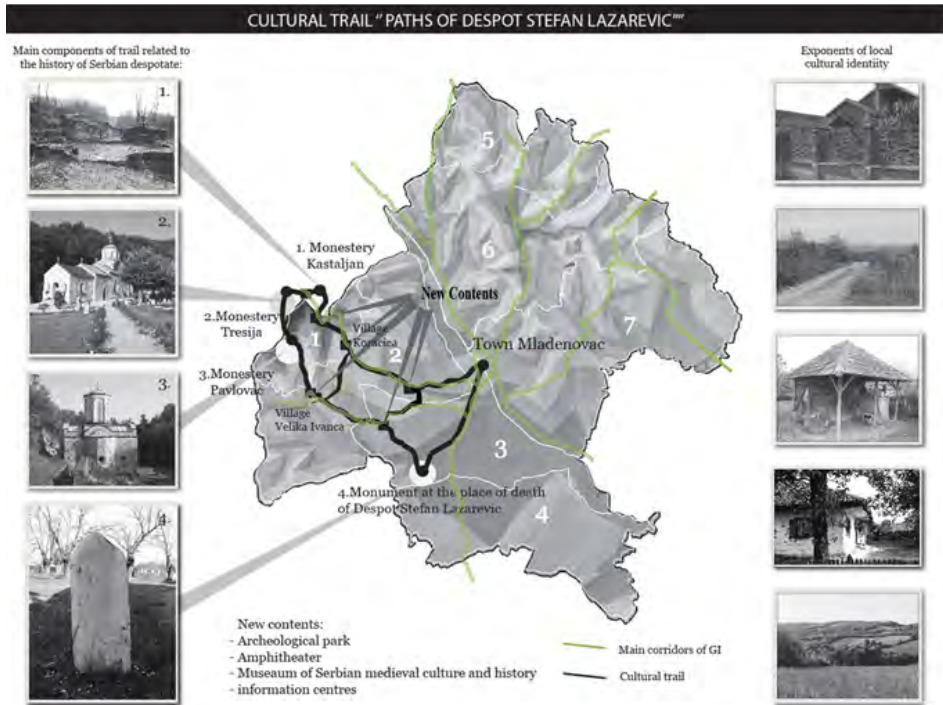
Cultural trail designed in the form of a circular route which links major components of the trail (Fig. 3) is broken down into several sub-thematic and shorter itineraries. The trail starts in the city of Mladenovac which is, at the same time, the centre of the municipality, forming support for traffic and railway communications with Belgrade. The important traffic directions are state highway (Belgrade – Niš), international railway (Belgrade – Niš), state roads (No. 23, No. 107, No. 200) achieving transport links with Belgrade as well as with neighbouring municipalities Smederevo, Smederevska Palanka, Topola.

The main information points and hospitality establishments are located in the centre of the traditional villages Crkvina, Velika Ivanča and Koračića with widespread facilities of vernacular architecture (old houses, barns, stables, fences) and with typical patterns of the traditionally cultivated fields (Fig. 3).

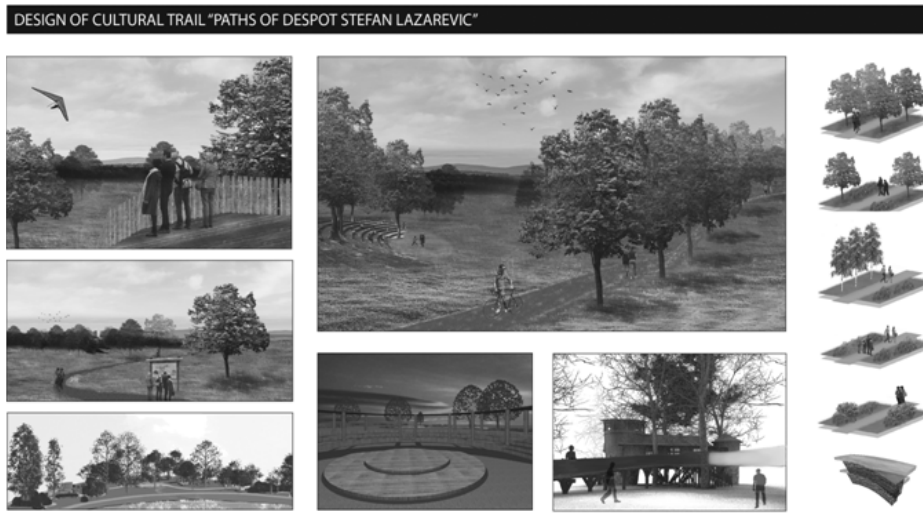
Trail routes are designed on the basis of newly planned corridors, analysis of the existing infrastructure, and terrain morphology in the process of landscape characterization. There are three distinct path types: Trails in flat terrain which enable direct and shortest connections, trails in slightly sloping terrains and trails in terrains with greater slopes, which directed their design (length, width, materials) and types of the accompanying contents (observation deck, viewpoint, bench, sign, bike paths) (Fig. 4).

Locations and extent of the accompanying contents and facilities are defined in such a way as not to distort characteristic outline of the fields, unique view and not to make conflict between various ways of land use. New contents include medieval park, amphitheatre and summer theatre, museum

of Serbian medieval culture, camp, resting places. Proposed cultural trails maximize the connectivity, elevate the quality of life and revive cultural and historical identity of Mladenovac.



_ Figure 3: The concept of cultural trail "Paths of the Despot Stefan Lazarević"- linking cultural resources and GI corridors (photo credits: 1./2./3.4./8. Zavod za zaštitu spomenika, 5./6.9. Autors)



_ Figure 4: Design of cultural trail and of supporting facilities and elements

CONCLUSIONS

Existence and development of the landscape character types of Mladenovac can be improved by creating the cultural trail "Paths of the Despot Stefan Lazarević" which links cultural resources and its related green infrastructure. The green infrastructure concept is multifunctional and provides a variety of ecosystem services and considers to combine ecological, social and abiotic, biotic and cultural functions (Hansen and Palueit, 2014).

Identification of landscape character types and analyses of its natural and cultural values defined planning and design concept of cultural trail as functional and structural element of green infrastructure of Mladenovac. Greenway development at the area of municipality of Mladenovac also supports development of sustainable forms of tourism, recreation, engagement of local communities, and heritage preservation according to landscape character types.

The greenways promote and increase the recognisability of landscape character where they are formed. Since forming of greenway planning refers to the character of the landscape where they are created, active participation is required in further landscape management. Conservation and protection of the unique landscape character are set as an imperative of future development and new initiatives.

In the context of Serbia, greenways development strategy should be based on the landscape character, their preservation and enhancement, and involving active participation of local communities, as well as principles of SPRS 2020. The essential elements of greenway project include a high level of community and user involvement, development of strategy and action plan.

REFERENCES

- _ Ahern, Jack. 1995. "Greenways as a Planning Strategy". *Landscape and Urban Planning* 33: 131–155.
- _ Fabos, Julius Gy. 1995. "The Greenway Movement, Uses and Potentialities of Greenways". In *Greenways: The beginning of an international movement*, edited by Julius Gy. Fabos and Jack Ahern. Elsevier.
- _ Hansen, Rieke and Pauleit, Stephan. 2014. "From Multifunctionality to Multiple Ecosystem Services? A Conceptual Framework for Multifunctionality in Green Infrastructure Planning for Urban Areas". *AMBIO*, Vol. 43: 516–529.
- _ Kurtović Folić, Nadja. 2009. "Cultural Heritage Protection, Management and Exploitation and Regional Identity". The international scientific conference *Regional development, spatial planning and strategic governance*, Thematic Conference Proceedings Vol. 1: 215–238. IAUS: Belgrade.
- _ McMahan, Edward. T. 2000. "Green Infrastructure, planning commissioners journal". Number 37. Winter.
- _ SPRS 2010. *Prostorni plan Republike Srbije*, Službeni glasnik RS 88/10.
- _ Swanwick, Carys. 2002. "Landscape Character Assessment Guidelines for England and Scotland". The Countryside Agency: Scottish Natural Heritage.
- _ Van Eetvelde, Veerle and Antrop, Marc. 2007. "Landscape Character beyond Landscape Typologies. Methodological issues in Trans-Regional Integration in Belgium". In *Proceedings of the 18th International Annual ECLAS Conference: Landscape Assessment – from Theory to Practice: Application in Planning and Design*, Belgrade, Serbia, 10-14 June 2007: 61–71. Belgrade: Faculty of Forestry.
- _ Vasiljevic, Nevena. 2012. "Landscape planning as an instrument of spatial development of Serbia". Doctoral dissertation. Faculty of Forestry, Belgrade.