

Tree alleys – specific green corridors and their disappearance from cultural landscape of Nitra region

Katarína Kristiánová

Slovak University of Technology in Bratislava, Faculty of Architecture, Institute of Garden and Landscape Architecture

Abstract

Tree alleys, specific forms of green corridors, represent a characteristic phenomenon of historic cultural landscape in Slovakia. The research aims to examine the contemporary patterns of tree alleys appearance in cultural landscape of Nitra region and their potential to serve as green corridors, whether providing ecological functions, recreational functions or cultural heritage and aesthetic values, as defined by conceptual framework of greenways theory.

For purposes of identification of contemporary patterns of tree alleys, current aerial photographs were used. The potential of identified cases to serve for certain functions of green corridors was examined in the place. The comparison of current aerial photographs with historical photographs, maps and on-site observation shows that tree alleys disappear from cultural landscape of Nitra region. However, their remnants hold a strong potential for greenway functions provision. Especially in cases when new routing of high-speed roads allows new uses of old roads in landscape, for example for recreational purposes.

The results of the research suggest that more attention should be given to the issues of protection and restoration of tree alleys and to their use as green corridors within the framework of cultural, historical and aesthetic values preservation concepts. The legislative aspects of protection and preservation of tree alleys, within the framework of nature protection and cultural monument protection are discussed, as well as socio-cultural aspects of their preservation - enhancement of motivations and place attachment by multifunctional use of tree alleys as green corridors.

KEY WORDS

tree alleys
greenways
cultural landscape
place attachment

1. Introduction

Tree alleys, specific forms of green corridors, represent a characteristic phenomenon of historic cultural landscape in Slovakia. Importance of planting trees along roads is familiar to different cultures and different historical periods. Since the 18th and the 19th century tree alleys became a characteristic element of cultural landscape in Slovak territory, as in other parts of former Austro-Hungarian monarchy (Storm, 2008; Esterka, Hendrych, Storm, Matějka, Létal, Valečík, Skalský, 2010; Kristiánová & Štěpánková, 2012). The duty to plant trees along roads was stressed by official decrees, for example that of Maria Theresa from 1769. Tree alleys were planted from economic, aesthetic, orientation and safety purposes. Trees planted in rows, as

composed elements of cultural landscape, archetypal representatives of rhythm, symbolise the presence of man in landscape, and his sensitive approach towards landscape (Kristiánová & Štěpánková, 2012). Their meanings in Slovak rural landscape are similar to social, aesthetic and ecological aspects of hedgerows in the English landscape (Burel & Baudry, 1995; Oreszczyn & Lane, 2000). Like hedgerows, tree alleys or tree rows accompanying roads possess a potential to serve as a framework for greenways.

During the 20th century the socio-economic conditions of socialism, collectivization and changes in agricultural land cultivation resulting in large blocks of arable land, as well as increase of automobile transport, did not favour existence of tree alleys.

The new conditions of tree alleys existence in the contemporary cultural landscape are influenced by current socio-economic and cultural conditions. Reflections of transition from centrally planned towards market economy in farming, reintroduction of property rights towards agricultural land, have not resulted in significant retrieval of small-block mosaic agricultural landscape, or increase of division elements as hedgerows or tree rows (Kristiánová & Adámková, 2010). The rapid increase of transport demands, on the one hand demanding tree rows removal along existing roads, on the other hand, in many cases, resulted in new routing of high-speed roads and opened the possibilities of the new use of old roads in landscape, for example for recreational purposes.

2. Background and Literature Review

The disappearance of tree alleys from cultural landscape became widely discussed in countries, where tree-lined roads created the characteristic feature of their historical cultural landscape, as for example in Germany or Czech Republic. In Germany, since many of the tree avenues fell victim to a new road construction, several programs and projects for their preservation at governmental and non-governmental levels aim to rehabilitate the old and to plant new tree alleys, involving public campaigns explaining their values. In Czech Republic non-governmental civic organizations are active in efforts to preserve the values of tree alleys and conceptions of their preservation have been elaborated (Esterka, Hendrych, Storm, Matějka, Létal, Valečík, Skalský, 2010).

In the Slovak landscape, tree rows were traditionally planted not only along roads, but also along other line elements of landscape – along rivers, or as field dividing elements with a windbreak function, often marking the cadastral borders of fields. They often served multiple functions, providing connection, shade, protection against wind and the significant reason for their use was their aesthetic influence, so they were much favoured as borders enhancing the entrance routes to country manor houses, even in double or multiple rows. Trees preferred for these alleys were selected for their height and speed of growth, such as lime or poplar, fruit trees were planted during period of enlightenment along country roads. Some of the tree alleys have entered the history, for example the historic Rákóczi tree alley of hundred lime trees still lives in literary sources and historical photographs, though no one of its limes remained. Tree alleys, as elements of historical landscape, associated with identity, or memory of landscape, possess the strong potential for creating and enhancing the sense of belonging, the feelings of place attachment, which are motivations for land protection and stewardship (Lokocz, Ryan, Sadler, 2011).

The ecological approaches governing current landscape research and landscape planning practices in Slovakia, focusing on monitoring of territorial systems of ecological stability, appreciating non-forest woody vegetation formations of shrubs and trees of native vegetation as bio-corridors, underestimate, or do not fully recognize the values of tree alleys in cultural, man managed landscapes. Tree alleys as symbols of artificial intervention of man into the landscape, historically often planted from introduced tree species do not seem to be valuable enough within the ecological concept approaches. The values connected to visual, cultural or historical are forgotten, what reflects the less successful attempts to assess those qualities of landscapes, which are difficult to measure and quantify, the values based on subjective and individual (Jessel, 2006). To study the issues of bridging the gaps and linking the “cultural” and “natural” represents the constant challenge for research and professional practice (Naveh, 1995).

4. Goals and objectives

Tree alleys fulfilled their “greenway” functions in history. An assumption is that also today they possess the strong potential to fulfill the greenway functions - to provide ecological and recreational functions, as well as cultural heritage and aesthetic values, as defined by conceptual framework of greenways theory (Fábos, 1995; Ahern, 1995; Fábos & Ryan, 2004). In this context the research aims to examine the contemporary patterns of tree alleys appearance in cultural landscape of Nitra region in Slovakia and their potential to serve as green corridors, whether providing ecological functions, recreational functions or cultural heritage and aesthetic values. One of the objectives of the study is to observe the changes of their presence in the landscape, and answer the question whether they disappear from contemporary cultural landscape.

5. Material

For the purposes of the contemporary patterns of tree alleys examination the area of the Nitra region – Nitra District (Figure 1) was used. It represents a typical rural agricultural region in Slovakia, with different landscape types of agricultural land including arable land, meadow pastures, orchards, vineyards and forests, varying from hilly parts of the Tribeč Mountains to flat parts of Nitra river valley. In the same time it is a typical representative of historical cultural landscape, with significant aesthetic and historical values. Main urban centre of the district is the city of Nitra, with a population around 85,000. This city is the fourth largest city in Slovakia. Nitra is regarded one of the oldest cities in Slovakia, the area around was inhabited since the 4th century BC. In 1248 Nitra was given the privileges of a free royal town by Béla IV. The historical heritage and the long history of urbanization patterns and land use patterns are mirrored in surrounding rural agricultural landscape and surrounding villages. The study was conducted in cadastral areas of Cabaj, Čápor, Svätoplukovo, Mojmírovce, Poľný Kesov, Štefanovičová.

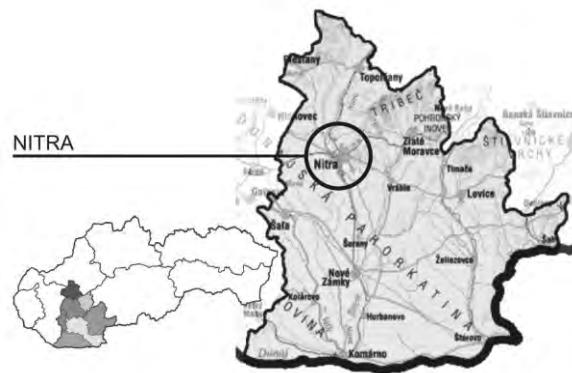


Figure 1: The study area - Nitra district in Nitra region in Slovakia.

6. Methods

The research followed three main steps: 1. identification of the contemporary patterns of tree alleys in the current landscape structure, 2. comparison of the contemporary tree alley patterns with the historical patterns and 3. identification of the various potential of the current patterns to serve multiple greenways functions. For the purposes of identification of the contemporary patterns of tree alleys, the current aerial photographs were used. The comparison of current aerial photographs with the historical maps was used to explore the changes between the past and the present framework of the tree alley patterns. The use of aerial photographs and historical map sources is a method often used for identification of patterns of non-forest woody vegetation and landscape change (Skalos & Engstova, 2010). The potential of identified cases to serve for certain functions of green corridors was examined in the place and with the help of spatial planning, transport and recreation development planning documents.

There are several variations in the spatial formations of trees planted in rows. When trees are planted in one row (or two and multiple rows), usually the term tree row is used, and when trees are planted along a road (in one, two or multiple rows), the term tree alley is usually used. The cases when the tree rows are associated with roads have been examined, but in some cases difficulties occurred with distinguishing the trees planted in rows from other forms of line non-forest woody vegetation formations in aerial photographs, and with distinguishing the road routings, so these cases have been distinguished with the help of cadastral maps and have been checked on the place.

The comparison of current aerial photographs with historical photographs, historical maps and on-site observation was used to explore the changes between the past and the present framework of the tree alley patterns. From historical map sources, the maps of the second military mapping provide a good source of the past tree alley patterns in Nitra district. Observation on sites complemented the methods used.

The potential of identified cases to serve for certain functions of green corridors was examined with the help of spatial planning, transport and recreation development planning documents and by on-site observations. To explore the potential of identified tree alleys for greenways functions provision, the current patterns of roads and their categorization have been examined, as well as

spatial and transport planning development documents at regional and local levels, and documents of development of bike and tourist trails.

6. Results

The research of current patterns of tree alleys examined from aerial photographs, with the help of Google Earth 3D imagery and on site observation show, that most of existing formations of the tree alleys along roads become disintegrated. Their linear rhythmical structure becomes decomposed by the emerging gaps between existing trees (Figure 2). The gaps are not replanted and tree alleys are not revitalized as a whole. Only few cases of new plantations have been identified.



Figure 2: Disintegration of rhythmical structure means gradual disappearance of tree alleys, example of the road n. 562/ II. between Cabaj-Pereš and Cabaj-Čápor (Source: Google Earth and Google Earth 3D imagery).

The examination of tree alley patterns in the historical maps of the second military mapping shows the existence of places with a higher concentration of tree alley patterns. The comparison with current patterns of tree alleys shows, that today the patterns follow the same places, where they were planted in the past, but often just their remnants remained (Figure 3).

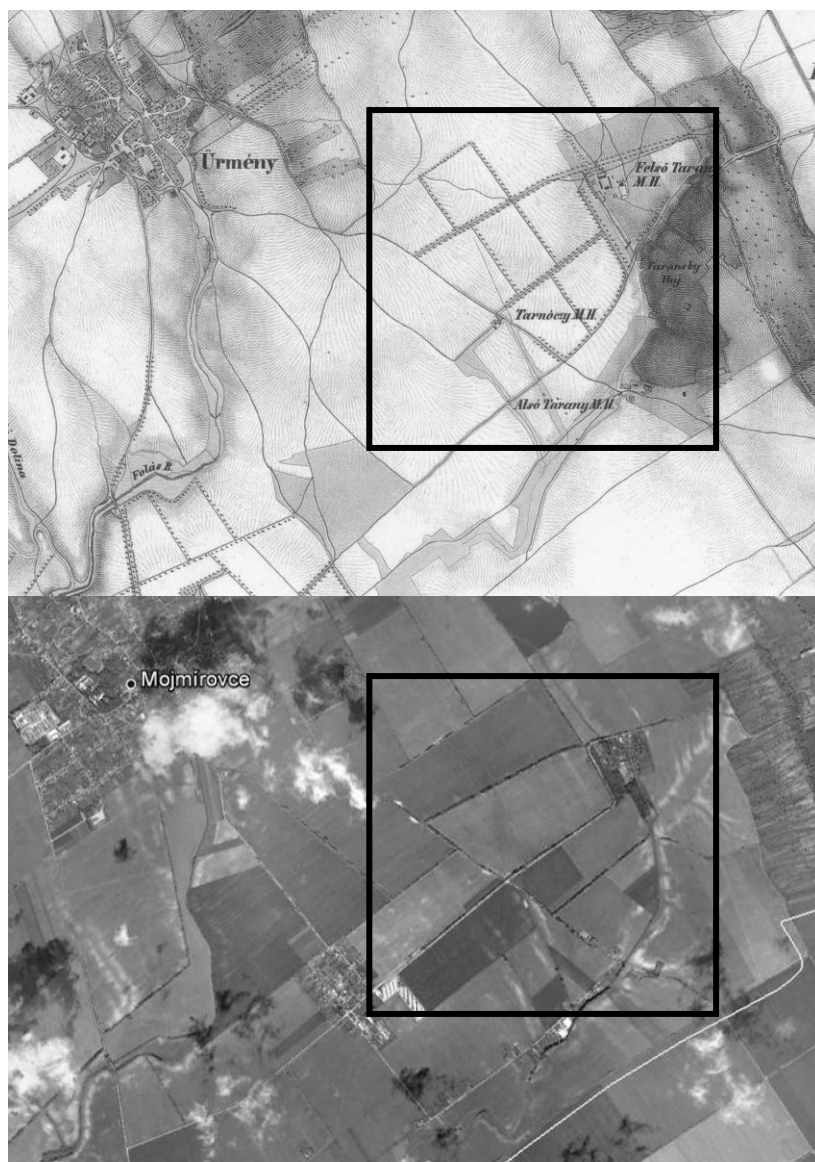


Figure 3: Comparison of historical map of the second military mapping from around 1837-1858 with aerial photograph from 2006 showing the example of places with concentration of tree alleys - their past and present patterns in the cadastral areas of Mojmirovce, Poľný Kesov, Štefanovičová.

In some cases the linear elements of former tree alleys have been replaced by other linear vegetation elements – stripes of woody vegetation of shrubs and trees, without rhythmical arrangement, as a result of succession and lack of tree alleys maintenance. The cases, when contemporary tree alley patterns occur in new locations in comparison with historical sources are found, but they usually suffer the described maintenance and disintegration problems. However, in many cases, the vegetation of the tree alleys has been removed (Figure 4).



Figure 4: Detailed view of the comparison of historical map of the second military mapping from around 1837-1858 with current aerial photograph, the cadastral area of Štefanovičová.

The results of the research show the overwhelming trend that the tree alleys disappear from the contemporary cultural landscape of Nitra region, either as a result of clear cut removal, replacement by other types of linear woody vegetation formations, or as a result of gradual degradation.

To explore the question of possibility and suitability of tree alleys to serve for greenway functions, especially recreation, the current patterns of roads and their categorization have been examined. The research shows, that in the examined area an intensive framework of field roads exists, which are suitable for recreational use, hiking or bicycle connections between villages and city of Nitra. The framework of field roads in certain cases is framed by tree alleys or vegetation stripes, enhancing their attractiveness. The examination of spatial planning, transport and recreation development planning documents shows, that several documents recognize the needs for greenway connections planning. For example the spatial plan of Cabaj-Čápor (Figure 5) incorporates a proposal for various line vegetation formations, distinguishing between the spatial and visual aspects of tree alleys, tree rows and woody vegetation stripes. However, these proposals for the plantings are not executed.

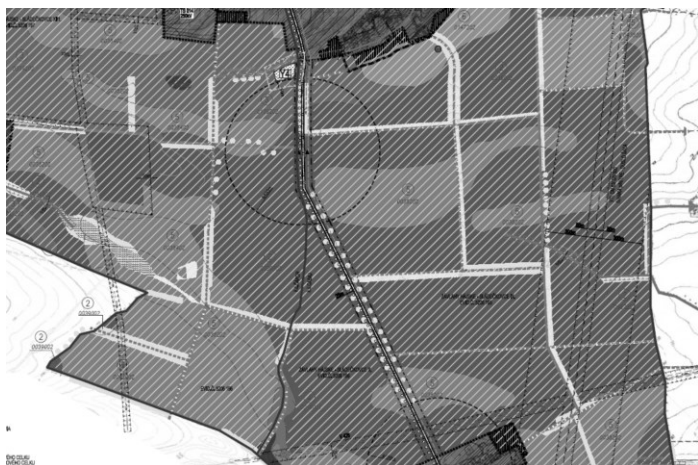


Figure 5: Agricultural landscape in the cadastral area of Cabaj and Čápor - woody vegetation stripes, tree rows and tree alleys proposed in the spatial plan (Mizia, Černá, Privalincová, 2011) The proposal for bicycle routes development, elaborated as the initiative at regional level, in some cases utilizes the potential of green connections - the field roads and the roads which lost

their functions for automobile transport, but on the other hand, in other parts it forgets to take their advantages.

In general the research shows, that the framework of the field roads with the fragments of tree alleys and other vegetation formations holds the potential to create green recreational connections with a high aesthetic quality and this potential is not used today. In addition, regarding the historical background of the examined sites, this framework includes also historical and cultural values.

7. Discussion and conclusion

The conditions of tree alleys existence in the contemporary cultural landscape are influenced by current socio-economic and cultural conditions. The disappearance of tree alleys from the rural agricultural landscape of Nitra region reflects the current socio-economic conditions of agricultural landscape use and the road network management policies.

Landscape and spatial planning instruments underestimate the value of tree alleys in comparison with other types of vegetation elements which are favoured as bio-corridors in planning documents. Even in the cases when the values of tree alleys are recognized, the proposals for plantings are often not executed, as the questions who is planting and maintaining and who is paying, for what and why, are not clear (Smith, 2008).

The existence of tree alleys in current agricultural, farming landscape reflects the willingness, respectively unwillingness to pay for their multiple benefits, from ecological, windbreak functions, to aesthetic qualities (Grala, Tyndall, Mize, 2012). In the past their existence also reflected the will of landowners to maintain them, even only for aesthetic reasons. Today the current conditions of farming in Slovakia, when relationships between owners of land and farming subjects are not readjusted and still undergo transformation processes (Kristiánová, Adámková, 2010), do not create favourable environment for existence of tree alleys.

Tree alleys accompanying automobile road network are managed by road agencies from state to regional level. The maintenance of tree alleys means higher costs, in some cases requires compromises between traffic needs and needs to preserve cultural, historical and aesthetic values.

The legislative concepts of protection and preservation of tree alleys within the framework of nature protection and cultural monument protection show shortcomings in using the institutes of protected tree, protected landscape element, or local place of interest (Kristiánová & Štěpánková, 2012). The results of the research suggest that more attention should be given to the issues of protection and restoration of tree alleys within the framework of natural, cultural, historical and aesthetic values preservation concepts.

As observed from historical maps, or from preserved remnants of historical landscape structures, traditional agricultural landscape of the past reflected the close relationship between man and landscape, enhanced by ties of ownership and farming. The research shows that the framework of field roads, together with remnants of tree alleys is suitable for greenway functions provision. Tree alleys, elements of historical landscape associated with identity, memory of landscape, and their multiple use as green corridors to access the rural agricultural landscape, possess the strong

potential for rebuilding the lost ties with farm land, enhancing the sense of belonging and place attachment, which are considered to be the motivations for engagement in land stewardship and land protection efforts (Lokocz, Ryan, Sadler, 2011).

8. References

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