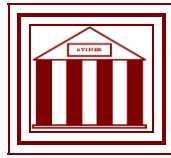


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**The Cultural Heritage of Traditional
Agricultural Landscape in Slovakia**

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The Cultural Heritage of Traditional Agricultural Landscape in Slovakia

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Abstract

Traditional agricultural landscapes (TAL) hold a special position among cultural landscapes. TAL are characterized by a small-scale plot division structure and ways of using the land which have remained generally unchanged by socialist collectivization, or by preserved forms of anthropogenic relief, or by preserved features of traditional agricultural technologies. The countrywide inventory of TAL in Slovakia was aimed at providing new knowledge of TAL distribution and conditions in Slovakia. A total of 626 TAL polygons were recorded in the field, and 3014 polygons were identified as TAL based on aerial photos.

From a land use viewpoint, 4 classes of TAL were distinguished: TAL with dispersed settlement, TAL of vineyards, TAL of arable land, grasslands and orchards, and TAL of arable land and grasslands. Additional information recorded in the field, for the purpose of providing increased knowledge of the significance and the historical, cultural and natural value of the TAL, was: management intensity, main threats to TAL, and small preserved architectural elements and forms of anthropogenic relief as important landscape elements of historic and cultural value.

Keywords: Arable land, dispersed settlement, grassland, orchard, traditional agricultural landscape, vineyard

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Introduction

The world's heritage of agricultural landscapes is a testimony to humanity's long interaction with the land, often providing unique examples of people and nature co-existing and influencing each other. They demonstrate a rich cultural and landscape diversity, sustainable land-use systems, and in some cases people's daily struggle for survival under extreme climatic and environmental conditions (<http://whc.unesco.org/en/review/69>). In rural Europe, with its long and complex history and great cultural diversity, a rich variety of traditional agricultural landscapes (TAL), which form an integral part of our cultural heritage, emerged. For the most part this landscape diversity was a result of the variety of land-uses that have overlaid, refined or replaced each other throughout history (Vos and Meekes, 1999). It consists of heterogeneous agricultural areas where small patches of agricultural fields alternate with small patches of woodlands, shrubs, wetlands or natural areas and fallow or long-term abandoned land. It was basically possible to find such agricultural landscapes all over Europe up until the 20th century. Over the last century, urbanisation processes in combination with rural development policies focusing on increasing agricultural production led to a polarisation of land uses, resulting in changing settlement structure and declining population densities, and in the intensification of agriculture on more productive and accessible areas while remoter areas underwent marginalization and abandonment (Mander et al., 2004). This has caused spontaneous afforestation, land-cover simplification and homogenization with a consequent decrease in biodiversity value, loss of cultural landscape features, and considerable social impacts (Van Eetvelde and Antrop, 2004). However, small remnants of preserved historical landscape structures, traditional agricultural technologies or ecologically friendly farming, with the presence of natural or semi-natural habitats in an agricultural landscape can still be found. These landscapes have irreplaceable ecological, cultural and historical value. They are sources of anthropogenically conditioned biodiversity, beauty, and knowledge and skills relating to nature and its resources which have been passed down through generations of local people (Bezák, Dobrovodská, 2012). They also contain historical architectural elements which are bound up directly or indirectly with agricultural activities. Each traditional landscape expresses a unique sense or spirit of place (*genius loci*) that helps define its identity (Antrop, 2000) and the identity of local communities (Vos, Meekes, 1999).

Within the last century similar trends in agriculture to those in Western Europe, with negative impacts on the agrarian landscape and people, have also appeared in Central and Eastern European countries. In Slovakia, traditional farming management has been affected principally by the following forces: collectivization and central planning during the communist era (1948 – 1989), the switch from a centrally-planned to a market economy after 1990, and the accession of Slovakia to the EU in 2004 (Bezák et al., 2010). Collectivization led to the intensification of the agricultural landscape, resulting in a massive and sudden disappearance of TAL. Collectivization was not just a technical

adjustment but a profound and traumatic event at the social level (Morell, 2012). In particular, elimination of land ownership rights resulted in disruption of the land and land-user relationship. Rural farmers were forced to change their occupation. Many farmers started to commute for employment to nearby urban centres with expanding industry and urbanisation. The leading role of economic agriculture in forming the rural landscape was diminished and farmers, who had formed the majority of the population in the past, became a minority (Palang et al., 2006). The number of people employed in agriculture in Slovakia decreased from 60% of the economically active population in 1948 to 12% in 1989 to less than 5% in 2010 (Bezák, Mitchley, 2014). In addition to this, the transition from centralized to market-oriented economies in Eastern Europe has resulted in increased rates of post-socialist farmland abandonment (leading to mosaics of maintained and abandoned land; Kuemmerle et al., 2008) and subsequent succession of vegetation. Accession to the EU has given rise to a revival of traditional farming in some areas; but in general the consequence on landscape values and society has resulted in feelings of desolation, isolation, oppression and loss of contact with neighbours.

The objective of our contributions was to analyse and describe the historic and cultural value of TAL types in Slovakia territory, their genesis, and present state in terms of management intensity, principal threats and important landscape elements such as small preserved architectural elements and forms of anthropogenic relief.

Materials and Methods

The Slovak Republic is geographically situated within the Carpathian Arch and Pannonian Basin at altitudes of 94 m to 2 655 m. 41 % of the area is constituted by lowlands and 59 % by mountains. It belongs to a mild climate zone with four distinct seasons (Landscape Atlas of the SR 2002).

Agriculture was the most dominant activity of the inhabitants of Slovakia. This is due to very favourable conditions for plant growth and animal rearing, and also to the social-political history of the area. At the present time agricultural land occupies 49.16 % of the Slovak territory. Of that, 58.7 % is arable land, 36.3 % permanent grasslands, 3.2 % gardens, 1.1 % vineyards and 0.7 % orchards (UGKK SR 2012). The production of crops dominates agricultural land use. From the point of view of geographical distribution, the most intensive agricultural production (with a prevalence of large-block arable land, but also with the lowest proportion of hedgerows and small-scale non-forest woody vegetation) is found in the south-western region of Slovakia in the productive Podunajská nížina and Východoslovenská nížina lowlands. A balance of arable land and permanent grasslands, with a higher proportion of non-forest woody vegetation and lower intensity of agricultural production can be found in the region of the Slovak basins. Permanent grasslands with very low agricultural production are prevalent in the mountain areas of the Central

and Eastern Slovakia, which is where the most TAL has been preserved (Špulerová et al., 2013).

Today the remnants of TAL in Slovakia consist of small-scale structure mosaics of arable fields, grasslands and permanent agricultural cultivations such as vineyards and high-trunk orchards (Dobrovodská, 2006). As major sources of local biodiversity, they are linked to balks and margins of cross-field tracks, original meadows and pastures, grass-covered former arable fields, small wetlands and other low-production or unfavourable areas. These are complemented by long-houses and elements of small architecture. TAL in Slovakia were created by driving forces which arose largely during mediaeval times. These were: a) efforts to settle the mountainous uncultivated forest area, often by foreigners, b) specific customs of the land parcel division in the inheritance process resulting in a huge amount of small parcels, c) unfavourable character of soils and relief in mountain areas for crop production, resulting in huge amounts of unproductive landscape features – mainly balks (terraces, mounds, walls, etc.) Due to the general heterogeneous natural conditions of Slovakia (the contact zone of the ridge of the Carpathian Mountains and the Pannonia Basin, with diverse geological, geomorphologic, soil and climatic conditions) and cultural-historical conditions (a combination of Slavic, German, Hungarian, and Romanian colonization influence), these TAL are characterised by high diversity. Most of the areas of the present TAL are situated in regions which are marginal from economic, demographic and social standpoints, and the local inhabitants are not very keen on managing the agricultural landscape because of low yields from the land (Bezák and Dobrovodská, 2012). Agricultural fields are managed mostly by older farmers – the young generation is not very interested in traditional management. The older farmers do not have the financial and technical resources to be competitive against producers with intensive farming. Therefore the inputs are higher than the outputs, which is an unsustainable situation.

The countryside inventory of TAL around Slovakia was performed from 2009 to 2011. TAL sites were identified from aerial photos using Google Earth across all of Slovakia based on an analysis of a 1 km² grid network. Out of that 626 sites of identified TAL were validated in the field, and 593 relevés were recorded in the field (Špulerová et al., 2011). To classify the identified TAL we considered the presence of specific land use elements: dispersed settlements, vineyards and orchards. In the next step of classification we determined the proportion of arable lands, grasslands, vineyards and orchards. We found out that the presence of these elements significantly influences the structure of individual sites of TAL and their character. The study of TAL genesis was based on the analysis of historical data concerning settlement, colonization and rural development. Forms of anthropogenous relief (FAR), management intensity, threats to TAL and small architectural elements were recorded as additional data in the field or from aerial photos.

Following Dobrovodská, Štefunková (1996), Ružičková, Dobrovodská, Valachovič (1999), Dobrovodská (2014) we have distinguished between FAR originating from improvement of soil-relief conditions (step bounds – ploughed

bounds without flattened relief of arable land; terraces – systems of parallel plateaus and grassy slopes created by ploughing) and from improvement of soil conditions (stony heaps – stones were removed from the soil and deposited on the balks or on the plots; stony mounds – originating from the merging of heaps on the balks; unconsolidated walls – built from stones as supporting walls for a vineyard terrace).

The *intensity of management* was expressed in three degrees, reflecting the global pattern of the site in relation to the land use and management. Firstly, regularly managed sites – sites with more than 70% of the area still managed; these are formed of a mosaic of arable fields, grassland, or permanent agricultural cultivations, or by mainly grass-covered mosaics; their utilization is similar to that in the landscape of previous historical periods, except where most of the formerly cultivated plots have changed to grassland; however, the small-scale structure of the plot division has been preserved and they are still regularly managed. Secondly, occasionally managed or partially abandoned sites – 30-70% of plots on the site occasionally managed. Thirdly, mostly abandoned sites – sites with less than 30% of the area managed.

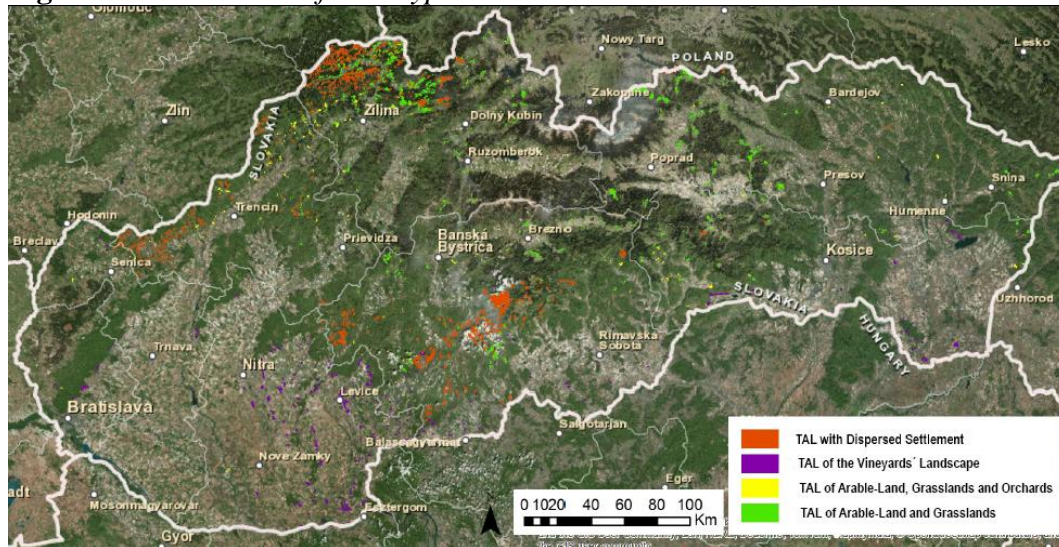
Observed past, recent or upcoming activities or processes, which have posed, are posing or will pose *threats* to the maintenance of TAL, were the following: tourism development – expansion of holiday house construction; urbanisation – mainly the extension of residential areas; abandonment/insufficient management and subsequent succession – decreased interest in the management of the agricultural landscape on behalf of the younger generation resulting in overgrowth of TAL by trees or shrubs; reforestation – tree plantation and other threats.

Small architectural elements such as crucifixions, statues, cellars, hay-barns, springs, shelters, wells, etc. have been observed in the field. They reflect traces of the cultural and architectural heritage of the regions, in relation to the hard life of farmers in the past, their devotion, and their religion.

Results and Discussion

The number of registered TAL sites is 3014. The total area of TAL in Slovakia is 44,411.5 ha. This represents 1.8% of total agricultural land and 0.9% of the total area. Consequently, we distinguished four classes of landscapes that represent the remnants of TAL (Špulerová et al., 2011): TAL with dispersed settlement – 21,226.4 ha (48%); TAL of the vineyard landscape – 7,601.5 ha (17%); TAL of arable lands, grasslands and orchards – 1,830.8 ha (4%) and TAL of arable land and grasslands – 13,752.8 ha (31%). Distribution of TAL types in Slovakia is expressed in Figure 1.

Figure 1. *Distribution of TAL Types in Slovakia*



TAL with Dispersed Settlement

The establishment of dispersed settlements in Slovakia is related to three waves of colonization which took place from the 12th to the 19th centuries: Wallachian and highlander (both shepherds) and the "Kopanitse" settlement. People obtained arable fields by cutting forests, mostly manorial forests. They initially built seasonal residences and barns, which were later transformed into permanent settlements, called "kopanitse". Inhabitants of these settlements had to pay a crop levy to the squire, but rated special privileges with regards to taxes (Huba, 1988). Some settlements were also established as settlements of charcoal producers, settlements with seasonal houses for stockbreeder and shepherds, and also settlements for fugitive criminals or refugees (Sitar 1967). In each municipality dispersed settlements consist of two basic components: the village centre, and the land outside the village centre with dispersed houses. The first mention of the number of municipalities with dispersed settlement in Slovakia was from Janšák (1929), when he identified 132 municipalities of 2,176 hamlets. The last complete census of homesteads is from 1961, when there were 166 municipalities of 2,899 hamlets, which represented 9.46% of the area of Slovakia (Nahálka et al., 1966).

Currently, dispersed settlements remain roughly in their original form and format, but do not fulfil their primary function – housing. In addition to buildings the main land-use forms of TAL of dispersed settlement are grasslands, orchards, arable lands, fallows and non-forest woody vegetation present in clumps or rows or as isolated plants (see Figure 2). Important landscape elements of the TAL with dispersed settlement are balks – mostly step bounds and terraces. More than half of the TAL with dispersed settlement is still regularly managed (60%); however, the primary agricultural function of the TAL is no longer performed at the same intensity – there is now a prevalence of grasslands plots. Abandonment and tourism are the most serious threats.

Figure 2. *Dispersed Settlement in Hriňová Town*



Houses of dispersed settlements have become more and more popular as recreational houses and as a type of “secondary re-settlement” (Petrovič, 2006). 80% of unoccupied permanent houses are used as recreational houses. This started in the early 90s of the last century, but has been spreading especially in the recent years (Špulerová et al., 2013). In addition to traditional residential houses, other common elements of small architecture are cellars and timber or stone barns built in the past for stockholding of potatoes, vegetables, hay or fruits. Crucifixes, crosses, or statues of different patrons are frequently present at the crossroads and the roadsides (see Figure 3).

Figure 3. *Wooden Cross in Detva Region*



TAL of the Vineyard Landscape

Wine production has a very long tradition in Slovakia. It has been documented in the findings in archaeological discoveries from the time of the Celtic population from the 7th-8th centuries B.C. (Demo et al., 2001). The founder of intensive viticulture in Slovakia was probably the emperor Marcus Aurelius Probus (3rd century A.D.), who ordered his legions in Gaul and Pannonia to plant vineyards and supply the army with wine. During the Great Moravian Empire the wine and vineyard areas had varying regulations and customs related to viticulture. Viticulture reached a high level in the Middle Ages and it also developed into a specialised agricultural field thanks to German colonists, who contributed to the special character of this wine-growing culture (Slavkovský in Stoličná (ed) 2007). The golden age of viticulture was the 18th century. In the second half of the 19th century, viticide caused a significant decrease in the area of vineyards, which never regained their original extension (Zaruba et al., 1985). After 1949, there came a period of collectivisation of agriculture. Many traditional small-scale vineyards, managed by individual owners or families, were merged into large fields managed by agricultural companies. Between 1970 and 1980, most of the traditional vineyard land was completely changed into new, larger, vineyard terraces. Some well-maintained, small-scale vineyards were not collectivised (because of their size or remoteness) and remained under the individual management of hobby farmers, although their contribution to wine production was negligible. These vineyards are now recognised as TAL structures.

Wine-growing regions in Slovakia represent the northern boundary of the large Southern-central European wine region. Their natural location, together with the status of wine growing within the agricultural economy, gave rise to two basic types of wine growing culture in the Slovak territory: urban and rural (Slavkovský in Stoličná (ed), 2007). The urban-type wine growing culture arose in the Little Carpathians area, where wine growing represented the main occupation. A press-shed and cellar were situated underneath the wine maker's house. Rural-type wine growing was just a supplement to grain growing. This type is typical for the territory of Southern Slovakia – cellars and press-sheds were always placed outside the wine-maker's house in special wine cottages. These wine cottages (called “hajlochy, búdy, borházi”) were built in the vineyards, often far from the village.

The main land-use forms in the TAL of vineyard landscape are vineyards, orchards, grasslands, arable lands and fallows, together with non-forest woody vegetation, either in groups or rows or as isolated plants. The wine cottages and cellars are important parts of many sites as well. The characteristic balks are stone mounds, as well as step bounds, terraces and unconsolidated walls (see Figure 4). 60% of this TAL type is still regularly managed. Compared to other TAL types there are more elements of small architecture – in addition to many cellars (see Figure 5) and wine cottages, and also crucifixes, crosses, or statues of different patrons (e.g. St. Urban), springs and balance wells are also frequently found in the traditional vineyard landscapes of Slovakia.

Figure 4. *Traditional Vineyard with Stone Mound and Unconsolidated Wall in Svätý Jur Town*



Figure 5. *Wine Cellars in Velký Krtíš District*



The TAL of vineyards are especially affected by tourism and urban development – many traditional vineyard cottages have been rebuilt as residential or weekend cottages and surrounding vineyards are being replaced by lawns (Lieskovský et al., 2013) – as well as by other threats, e.g. crop

destruction by boars and deers. But the most significant threat is abandonment with subsequent succession of vegetation.

TAL of Arable Lands, Grasslands and Orchards

Fruit growing in Slovakia also has a long tradition. The natural and climatic conditions have enabled cultivation of varied cultivars, especially plum trees which were cultivated in ancient times. Archaeological findings demonstrate that apple, pear, peach and plum trees have been grown here since 4-5 thousand years B.C. The development of fruit growing in southeast Slovakia as far as the Trenčín region was influenced by the invasion of the Roman legion from the 1st to the 4th centuries. Romans began the cultivation of fruit trees and grapevines, which were part of their daily menu (Komžík, 2007). Fruit-growing was very significant later as well – each village has its own history, with both fresh and dried fruit being an important part of the inhabitants' diet. The zenith of fruit-growing was in the 16th and 17th centuries, when large orchards and gardens with fruit trees arose on feudal estates and glebes. Modern intensive orchards began to be established from 1965, especially on the plains or slightly sloping land, mostly on sandy soils (Špulerová et al., 2013).

The species composition of orchards changed over the course of history and was specific to a given period. In addition to the dominant plums, apple trees are also rather frequent; less frequent are pear trees, walnut trees, cherry trees and sour cherries. Other trees such as serviceberry, quince, mulberry, mirabelle plum, and chestnut trees are rare. Old original cultivated varieties of fruit trees are a source of genetic species diversity, but they are slowly disappearing from traditional orchards and gardens (Špulerová et al., 2013). The traditional orchards were an important part of some agricultural systems together with arable lands and grasslands in submontane and montane areas with warmer climatic conditions. Their remnants we consider as TAL of arable lands, grasslands and orchards. There are present also fallow areas and non-forest wood vegetation arrayed in clumps, rows or as individual plants. The typical balks of this TAL type are the step bounds. Less than 60% are still regularly managed. Succession in conjunction with abandonment, afforestation and other threats as well, e.g. crop destruction by boars and deers are the main threats to this type of TAL.

Significant elements of small architecture are mostly crucifixes, crosses, or statues of different patrons placed predominantly at the crossroads and road edges; and timber or stone barns (built in the past for hay) and wooden fences.

TAL of Arable Lands and Grasslands

These occur mainly in mountainous regions less suitable for agricultural production, originally arising from German, Šoltys, and Wallachian colonization. German colonization was intended to colonize or settle sparsely populated or depopulated areas of Slovakia; colonists were mainly from German-speaking countries, and this mostly took place in the 12th-14th centuries. The Šoltys internal colonization of uncultivated and cultivated land

in Slovakia, mainly by the native population, took place in the 13th-15th centuries, also on German subscription rights. The result of these colonisations was a diverse landscape with a mosaic of grasslands and arable lands. In many regions cattle and sheep pasturing was widespread. Farmers built their own cow barns, chalets, and sheepcotes. Semi-natural grasslands, which arose as a result of colonization and deforestation, were characterized by high species diversity. Together with haylofts, they represent typical features of a mountain landscape before collectivisation (Špulerová et al., 2013).

Grasslands and arable lands are the characteristic land-use of this TAL type, but fallow lands and different types of non-forest wood vegetation are present as well. The characteristic balks are step bounds, but it is often possible to find rocky mounds or heaps and terraces as well. There is a prevalence of mostly abandoned sites (50%). The most significant threat factor is abandonment accompanied with succession of vegetation, but there are also other threats e.g. crop destruction by boars and deers.

Timber or stone barns built in the past for storing hay, as well as shelters and springs for the use of shepherds are typical elements of small architecture in the TAL of arable-lands and grasslands.

Conclusions

Support of traditional rural development, the socio-cultural functions of villages, and land use systems including fields, wooded grasslands and forests, should be milestones in rural development programs and regional plans for sustainable management (Elbakidze and Angelstam, 2007). Systematically identifying and studying these landscapes, so as to build up a countryside inventory of TAL in Slovakia, was the first necessary step towards providing it some form of protection. The identification of specific TAL worthy of prioritized protection due to its uniqueness and vulnerability could result in a more effective protection strategy. Coordination and implementation of management measures into regional development plans and spatial plans are necessary to facilitate environmentally sustainable economic development, the decrease of environmental risks and the preservation of the natural and cultural values of TAL. As preservation of TAL depends mainly on individual small-scale farming and on eventual state subsidies, the question is whether there is enough interest in stopping the abandonment of these old ways of farming and refuges of biodiversity.

The maintenance of TAL depends on human activity but the abandonment of TAL is one of the most serious environmental problems in central Europe. Traditions are vanishing and cultural landscapes are being threatened (Pungetti, Krusse eds. 2010). There is a risk of the slow loss of the originality and uniqueness of these habitats left over from the former traditional landscape (Lindborg et al., 2014). But due to complex developmental trends in society they have been marginalized and are currently no longer of any interest from a production perspective. In most countries, they are not subject to any special

protection. However, interest in maintaining the integrity of traditional landscapes has been prompted by the European Landscape Convention (ELC, 2000).

We have to seriously consider and look for new ways to preserve these landscapes for the next generation. Since they are situated in less accessible, remote and marginal mountain or sub-mountain areas with extreme natural conditions, and are subject to the unfavourable economic and demographic characteristic of such regions, financial support by the state is indispensable. One of the tools for maintaining TAL is an agro-environmental scheme containing new special measures for applying the ELC's classification of "high nature value farmland" to the TAL areas, thus granting them protection. As a response to overall trends in agriculture at the international and European levels which cause degradation of the extraordinary values of these agricultural landscapes, new solutions are being considered for optimal multifunctional land use in the agricultural landscape. The needs of society are growing not only for food production, but recreational, aesthetic and environmental services, as well as ecological stability and cultural heritage. (Špulerová and Petrovič 2011).

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