

The examination of land use and morphological characteristics of small settlements and the relationship between human presence through the example of the Órség region of Hungary

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Abstract

Urban morphological research nowadays is a constantly widening field of study that explores multiple temporal and spatial layers, however, researches focus mainly on larger cities or districts, and less on the morphological analysis of settlements of smaller size. In Hungary though, a third of the settlements are villages with less than 500 inhabitants. The Órség (Guard's Country), which is the subject of the study, is an area that consists mostly of small villages along the western border of Hungary, which character has been significantly influenced by its unique landscape, geographical features, location and turbulent history. Due to its specific nature, a so-called 'szer' form of settlement has emerged in the area, which were isolated because of the political situation after World War II, however, after the collapse of the socialist regime (1990) they became vital again.

In addition to the analysis of written sources, we carried out our research by using historical maps, valid regulatory plans and web mapping services (Google Earth, OpenTopoMap) in three related settlements of Órség selected by us (Óriszentpéter, Ispánk, Nagyrákos). The number of historical maps available is very limited, hence there is a shortage of comparison of the exact spatial and structural changes of the area. Our goal is to gain insight into the changing tendencies of land use of the settlements, which are closely related to the farming traditions and social customs typical of Órség, by digitizing and comparing the individual historical maps and to understand the processes of interdependence and cooperation of small settlements. The study presents the conclusions of the first steps of a prolonged research process, by combining an architectural and landscape architectural approach. Given that the presence of small villages is still typical in the fabric of Hungarian settlements, the experience of the research can be widely applied later.

Keyword: *village, land use change, settlement structure, 'szer' – hamlet, historical research*

Introduction

The Órség (Guard's Country) region is located along the western border of Hungary, typically made up of small villages. Historically and geographically it is closely linked to neighbouring Austria and Slovenia. Its exact territory, however, is still the subject of much debate. The present research considers those 18 settlements included in the earliest known written historical source, which is a royal donation letter from 1280, to be the territory of the Órség (Balogh, 1898, Csapó, 2008). Of these villages, after the borders had been redefined by the Treaty of Trianon after World War I. and following the amalgamation of a few small villages, currently 11 is located in Hungary and 3 in Slovenia (Figure 1). Thus, the Órség region that was previously interpreted as

a single entity, is now divided by a country border. This border situation has significantly influenced the organic processes, structural, social and economic relations in the area throughout history.

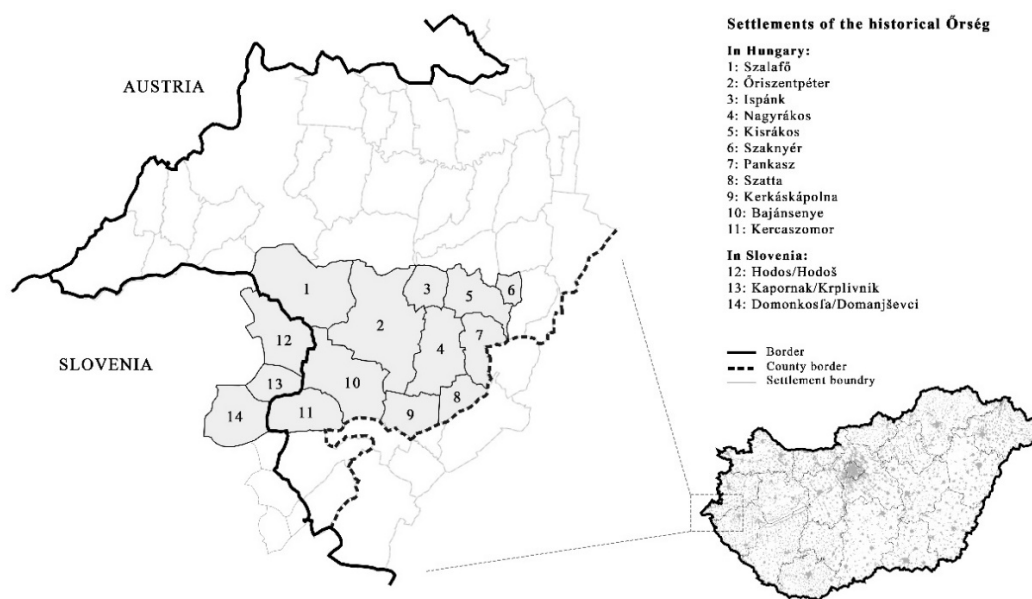


Figure 1. The delimitation of the settlements of Órség based on a XIII. century royal donation letter (author: Á. Bertók)

The paper seeks to explore the historical processes of the Hungarian section of Órség in order to better understand changes in the trends of land use over time and their structural and formal implications. In the present work, the general features of Órség are presented first, followed by the qualitative methodology of the research, which is based mainly on the digitization and comparison of historical maps. The aim is to graphically represent and interpret the territorial aspects of the changes in land use methods that have taken place to date. The conclusions of the research are demonstrated through three related study areas that are settlements of different sizes (Óriszentpéter, Ispánk, Nagyrákos), by focusing primarily on their relationship and not their intrinsic endowments.

Background

In order to get to know the unique social and settlement structure values inherent in the Órség region, it is necessary to present its endowments arising from its situation and its historical turning points with which many researchers have already dealt from the 19th century mainly from the field of geography, ethnography and only a few from an architectural approach.

Órség, a hilly area divided by rivers and streams, has been the western border region of Hungary since the 11th century, where grasslands and extensive forest areas were used as a line of defence against the invasions of neighbouring nations. By taking advantage of the natural features the first guards settled farther apart in forest clearings on hills, near to main watercourses, creating a special form of settlement, the so-called 'szer' type. This form of settlement was also adapted to the protection function of the area, as the few guards – a

noble donation letter from 1286 mentions 103 families – were able to perform their tasks in a larger area (Csizsár, 1983 and Tóth, 1971).

Settlements with 'szers' are made up of distinguished groups of houses adapting to the topography that usually consists of 5 to 10 houses. They could be located a few plots or kilometres apart, divided by fields, meadows, streams. Presumably in each 'szer' originally one family lived and the built-up areas began to expand as the family grew (Arcanum, 2021 and VMÉ, 2021). The plots of a 'szer' typically developed irregularly along major, organically formed road networks and water surfaces, so the size and the structure of a 'szer' can be very different and often there may be distinguished groups of houses within one 'szer' (Figure 2). The spatial formation of the 'szers' were not characterized by conscious actions, but in several villages the church situated in the intersections proved to be a place-forming element (Csizsár, 1983 and Tóth, 1971).

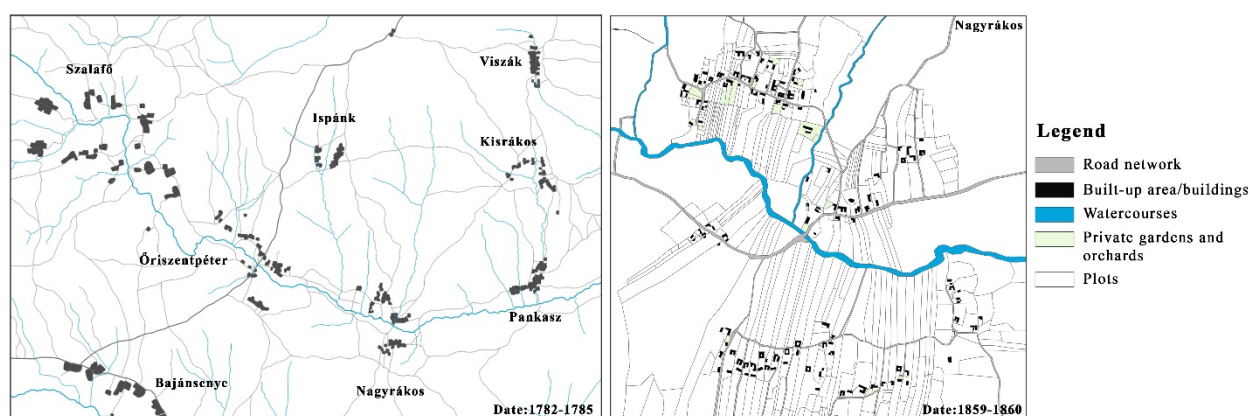


Figure 2. The morphological structure of Órség (1782-1785) and Nagyrákos (1859-1860) (author: Á. Bertýák)

Initially, the land had no ownership in the Órség and all those who took part in the guard service were able to acquire land. In the 16th century, despite the poor quality of the soil in the area, the growing demand for grain and livestock exports encouraged the local population to shift to farming. The cold, rainy landscape, good quality pastures and grasslands favoured animal husbandry, thus cattle exports to today's Austria became significant (Csizsár, 1983 and Tóth, 1971).

Typically, fields, meadows, or even forests could be found on larger plots of land formed due to poor quality of soil, and the plots were often subdivided into smaller plots of land surrounding the buildings. The gardens, orchards were spreading towards the watercourses, while the residential buildings were built mostly near the main roads, perpendicular to them. Among the buildings, the one-storey longhouse was typical, and where the size of the plot allowed, the outbuildings were connected transversely to this. Since the 16th century fenced houses have become a characteristic feature of the area, the evolution of which can be linked to cattle breeding. The building was practically organised around a central courtyard with the aim of protecting the export cattle displaced from small barns from the wildlife and weather conditions.

Unfortunately, this type of house has almost completely vanished from the area (Csiszár, 1983 and Tóth, 1971).

Due to their peripheral location most of the villages were avoided by the highroads and in several places even the basic network of institutions was unavailable, thus the area was particularly disadvantaged by the border changes by the Treaty of Trianon after World War I. (1920) and the border closure after World War II, when the Órség has lost its external markets as well. During the state socialist era (1949-1989), the area became a kind of buffer zone along the country border, which was almost completely made impossible by the progression politics of the age that was blocking the development of small villages (Beluszky, 2011 and Baranyai, 2012).

In 1990, the change of regime and the reopening of the borders brought the expected change and development to Órség, which once again became an area with favourable geographical position. Today, there is a growing national and cross-border interest to the region, as the former isolation of the area has contributed to the preservation of the natural, landscape, cultural, structural and architectural traditions and the unique image of the countryside.

Methodology

The goal of this research is to explore the historical development of Órség by examining the changes in land use, settlement structure and human presence. In our work we analysed three settlements as examples: Óriszentpéter, the only settlement with a city status (population: 1144), as well as Ispánk (population: 100) and Nagyrákos (population: 232), villages directly adjacent to the former. The main sources of our qualitative, time-series type of research were provided by historical texts and maps, which give relatively reliable data on the nature, utilization and urban patterns of the landscape dating back to the 18th century. The maps used are shown in Table 1, grouped by their nature.

Table 1. Historical maps used for the research and their data (author: Á. Bertýák)

Nature	Type of maps	Time of preparation	Scale	Efficiency
Military maps	I. military survey map	1782-1785	1:28.000	significant differences
	II. military survey map	1853-1855	1:28.000	moderate differences
	III. military survey map	1878-1879	1:25.000	appropriate
Cadastral maps	Habsburg Empire Cadastral map	1859-1860	1:2280; built-up area: 1:1440	appropriate but planned elements also depicted
Regulatory plans	Óriszentpéter (regulatory plan)	1999	1:12.000, 1:2000	appropriate but planned elements also depicted
	Ispánk (urban image manual)	2017	-	appropriate, but bad quality
	Nagyrákos (regulatory plan)	2009	1:2500	appropriate but planned elements also depicted
Web mapping services	OpenTopoMap	2017	-	appropriate
	Google Earth	2020	-	appropriate

In the course of the research, the historical maps in the examined area were digitized, which were then projected onto each other in order to observe the land use changes that could be detected throughout history. Map sections of the military surveys from the Habsburg Empire and the Austro-Hungarian Monarchy are now available online (Mapire, 2021), but during the digitization process we found significant differences, especially in the case of the first, but also in the second military survey, which may be due to the less advanced mapping technique used at the time. The current state map was produced on the basis of valid regulatory plans of the settlements under review (Ispánk, 2017 and Nagyrákos, 2009 and Óriszentpéter, 1999), which were clarified with the help of web mapping applications (GE, 2021 and OTM, 2021). Digitization was done by using MapInfo and AutoCAD programs, applying control points by pairing elements that were presumably in the same place – churches, intersections – on the current state and on historical maps.

After the digitization, the different land uses depicted on the maps were mapped and separated by polygonal delimitation during which seven land use categories – forests, grasslands, built-up areas, vineyards/orchards, wetlands, fields and others (infrastructure elements, cemeteries etc.) – were defined on each map. The percentage of these was then determined in relation to the area of the given settlement. A total of four land use survey maps were prepared for the study area, as shown in Figure 3.

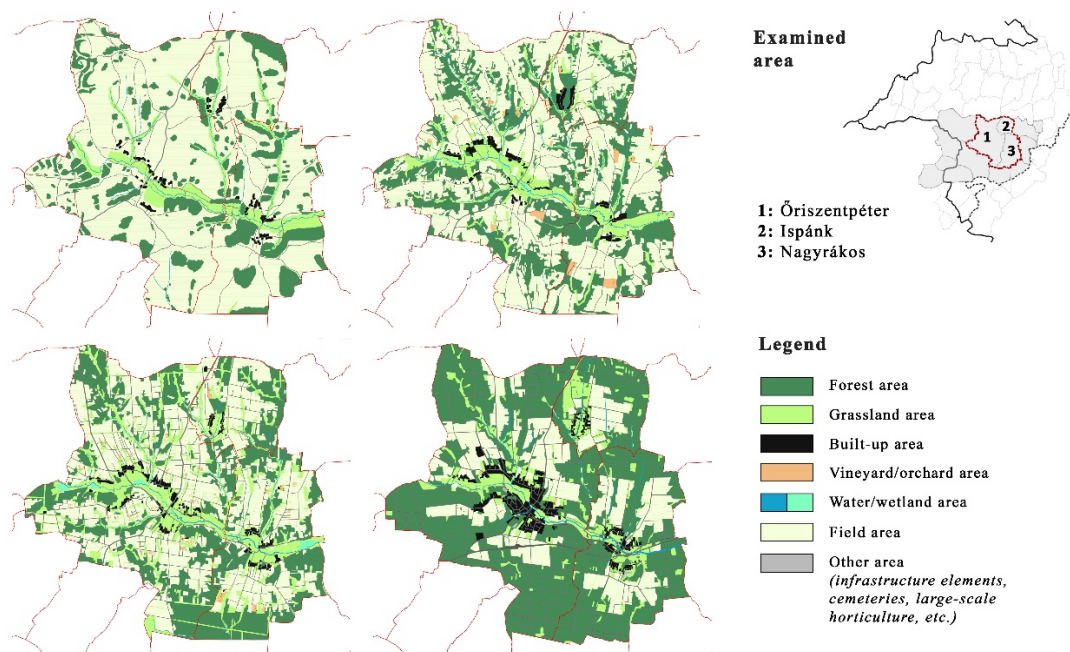


Figure 3. Land use change study in the study area. Up: I. military survey, II. military survey, Down: III. military survey, current state (author: Á. Bertyák)

The cadastral map made in the middle of the 19th century (Timár et. al., 2010) because of its scale was proved to be suitable for reviewing and refining the data generated from the examination of military surveys, as well as for studying the specific structure of settlements (Figure 2).

Results and Discussions

With the help of the data obtained from the land use survey maps produced (Table 2) the processes of change in the examined area, which were greatly influenced by the adaptation of the local society to landscape, geographical and economic conditions over time, can be explored.

Table 2. The average land use rates detected in the examined maps (author: Á. Bertyák)

Examined maps	Forest area (%)	Grassland area (%)	Built-up area (%)	Vineyard/orchard (%)	Water/wetland (%)	Field area (%)	Other (%)
I. military map 18 th century	21.1	8.3	1.3	0.1	0.3	68.2	0.7
II. military map 19 th century (middle)	30.3	10.7	1.9	1.3	0.5	53.8	1.5
III. military map 19 th century (end)	32.4	18.2	1.8	0.6	0.7	43.5	2.8
Current state 20 th – 21 st century	55.7	12.8	3.5	0.1	0.5	24.1	3.3

The maps in Figure 3 and the data in Table 2 show that in the 18th century the study area was typically an agricultural landscape, where the mosaic surface was clearly dominated by arable land (average: 68.2%). Although, only the more productive part of the arable land was cultivated at that time, close to built-up areas for the most part, while the outer parts were used as pasture after a few years and then left to be afforested (Beluszky, 2011). In this light, it can be assumed that the size of the grasslands, mostly along watercourses, exceeded the size of the areas shown on the map. Connected forest areas were not typical, forests were cleared for cultivation and the felled trees were used as building material. The 'szers' of the settlements can be easily observed in the case of Ispánk (2 szer) and Nagyrákos (4 szer), while on the northern part of Óriszentpéter (5 szer) they almost met. The primary connection system of the examined area was provided by a main road running in a northeast-southwest direction through Óriszentpéter and a road running east-west along the river Zala.

In the 19th century the size of forest areas began to increase at the expense of arable land and this trend has remained characteristic to this day. Previously cultivated areas were gradually conquered by pines, yet the landscape remained heterogeneous. The rate of the grassland, which provided the supply for the extensive cattle breeding typical in Órség, reached its peak at the end of the century (18,2%), extending to watercourses and forests farther from inside the settlements. Vineyards and orchards appeared scattered around the built-up areas on exposed hillsides, to which outbuildings were often attached. Their rate was highest in the middle of the 19th century (1,3%) until most of it was destroyed by phylloxera at the end of the century, and replanting did not take place in all previous production areas (Balázs, 2017).

The proportion of the built-up areas presumably increased with the growth and displacement of large families living on certain 'szers'. In the 19th century already 8 'szer' could be identified in Óriszentpéter, 5 in Nagyrákos and 2 in Ispánk, where the eastern one was called Noble-szer, while the western Poor-szer, which

shows the separation of the locals according to their possessions (Tóth, 1971). The data on built-up areas obtained from the second military survey (1.9%), however, proved to be incorrect due to the representation technique of the map, so its correction became necessary, which was done with the help of the cadastral map (1859-1860). The actual incorporation rate is thus estimated to be 1.4 to 1.5%.

The 20th century brought significant changes to the life of Órség that also reflected in the land use studied in the examined area. Cattle breeding and export, whose market was Austria, flourished. Infrastructural developments have started (railway line), which have brought economic recovery, so the population and thus the built-up areas have started to grow. The boom came to an end with World War I. and then with the new borders set by the Treaty of Trianon (1920). The closed borders have cut off transport links and made it impossible to export cattle, so more and more families have switched to forestry due to rising timber prices and excellent natural opportunities. After World War II. arable lands were merged, eliminating the lawn and forest strips wedged between them, which process led to a decrease in the mosaic characteristic of the landscape. In 1949, Órség was declared as a border area, and as such could only be entered with a permit, thus the isolation of local settlements increased and their development lagged behind. The area was conserved as a border buffer zone. Fewer and fewer people wanted to cultivate lands and many emigrated due to the lack of job opportunities, thus the proportion of fallow land increased, forests began to take the place of abandoned pastures and arable land further away from built-up areas (Balázs, 2017).

Another change was brought in the life of the area by the change of regime and the opening of the country border in 1990, which liberated the isolated settlements and providing them old-new opportunities (international relations, tourism etc.). Nowadays, the number of people living from agriculture and animal husbandry has decreased and a large percentage of the local population is trying to make a living from tourism. As a result, the rate of arable land decreased by about one-third compared to the 18th century (24.1%). Unused, uncultivated areas have been afforested, the landscape has become more closed and today more than half of the examined area is forest (55.7%).

In 2000, to replace the previous railway line a new track was built, which is part of the Pan-European Rail Transport Corridor Number V. The development of infrastructure has also attracted the growth of built-up areas in settlements. Currently 3.5% of the examined area is built-up, where the centre of the settlements although becoming increasingly developed, still retain the sporadic, 'szer' character. There are currently 9 'szers' in Óriszentpéter, 5 in Nagyrákos and 2 in Ispánk. During history no significant transformation of the settlement structure has taken place, to which traditional land use also contributed, however, a change in the image of the villages is now apparent. The style and material of the buildings and the method of construction have altered. At the same time the 'szers' whilst growing closer to each other, still smooth into the landscape, forming an organic unit with it and almost complementing it (Csiszár, 1983 and VMÉ, 2015).

Conclusions

Regarding the presented historical research, it can be said that although it was built on the study of land use of three selected settlements of the Őrség, it shows well the historical, social and economic processes characteristic of the whole region. Due to the slow change of way of life of the locals, the agricultural landscape is constantly closed and foresting, which has accelerated as a result of the events of the last century. The typical 'szer' form of settlements is still predominant in the area, which, as proof of how the locals collaborate with nature and the landscape, has changed significantly only in its size in the past more than 200 years. This results also from the border situation of Őrség, which was closed for decades. The area that has been liberated today, is trying to revitalise itself by taking advantage of the benefits offered by tourism such as the traditions, natural and built values preserved throughout the history, and so far, it seems to be successful.

In the future, the present research will continue with the digitization of new historical maps (from 20th century) and the extension of the study area to all 11 settlements in the entire territory of Őrség in Hungary to get a more accurate land use change state. Another research task is to study and categorize the 'szers' of the settlements and to explore their future possibilities.

References

1. Arcanum (2021) Magyar néprajzi lexikon [Online] Available at: <https://www.arcanum.com/en/online-kiadvanyok/Lexikonok-magyar-neprajzi-lexikon-71DCC/sz-73AFD/szer-73C71/#Lexikonok%5ENeprajz-Lex-szer> (Accessed: 05.06.2021)
2. Balázs, P. (2017) *Az Őrségi táj változásának és karakterének elemzése*. PhD dissertation, University of Sopron, Sopron, HUN.
3. Balogh, G. (1898) '*Őrség – Vasvármegye*' in: Borovszky, S. (ed.) *Magyarország vármegyéi és városai*, Budapest. HUN, pp. 365-398.
4. Baranyai, O. (2012) *A változó Őrség fejlesztésének természeti és társadalmi alapjai*, PhD dissertation, University of Pécs, Pécs, HUN.
5. Beluszky, P. (2011) '*Tájéssoroló - 'Szűkmarkú, szép föld - Az Őrség'*', *Földrajzi Közlemények* 135(1), 45–58.
6. Csapó, O. (2008) '*Az Őrség térbeli elhatárolási problémái*'. *Földrajzi Értesítő*, 57(3-4), 313-333.
7. Csiszár, K. dr. (1983) *Őrség* (Vas Megyei Idegenforgalmi Hivatal, Ságvár, HUN).
8. GE - Google Earth Version 9.138.0.1. (2021) [Online] Available at: <http://www.google.com/earth/index.html> (Accessed: 13.06.2021)
9. Ispánk (2017) *Ispánk Településképi arculati kézikönyve*, Gáspár mérnöki Iroda, [Online] Available at: <http://www.ispank.hu/data/file/2018/02/13/ispank-tak-vegleges.pdf> (Accessed: 05.06.2021)
10. Mapire (2021) *Európa térképek*, Arcanum Adatbázis Kft. [Online] Available at: <https://maps.arcanum.com/hu/browse/composite/> (Accessed: 13.06.2021)
11. Nagyrákos (2009) *Nagyrákos, Altus Savaria Tervező Iroda Kft.* [Online] Available at: https://www.altussavaria.hu/index.php/letoltesek/telepulesrendezesi_tervek/nagyrakos (Accessed: 13.06.2021)
12. OTM - OpenTopoMap (2021) [Online] Available at: <https://opentopomap.org/#map=13/46.84751/16.44894> (Accessed: 05.06.2021)

13. Óriszentpéter (1999) Óriszentpéter, Altus Savaria Tervező Iroda Kft. [Online] Available at: https://www.altussavaria.hu/index.php/letoltesek/telepulesrendezesi_tervek/oriszentpeter (Accessed: 13.06.2021)
14. Timár, G. and Biszak, S. (2010) '*Digitizing and georeferencing of the historical cadastral maps (1856-60) of Hungary*' in: Livieratos, E. and Gartner, G. (Eds.): Proceedings of the 5th International Workshop on Digital Approaches in Cartographic Heritage
15. Tóth, J. (1971) *Az Órségek népi építésze* (Műszaki könyvkiadó, Budapest, HUN).
16. VMÉ - Vas Megyei Értéktár (2015) '*Szeres település szerkezet – Óriszentpéter/Órségi Népi Műemlékegyüttes*' [Online] Available at: <http://www.vasiertektar.hu/hu/s/840/szalafo-pityerszer> (Accessed: 05.06.2021)